Appendix J Comments and Responses to Comments on the Draft EIR

Due to the size of Appendix J, the responses to comments on the Draft EIR have been bound into two separate volumes. Volume I contains all public comments received during the public review period, and Volume II contains all responses to comments.

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Final Environmental Impact Report

Appendix J

Volume I: Comments on the Draft Environmental Impact Report

State Route 74

Lower Ortega Highway Widening

ORANGE COUNTY, CALIFORNIA
DISTRICT 12 – ORA – 74, PM 1.0/1.9
EA 086920
SCH# 2007071038

Prepared by the

State of California Department of Transportation

November 2009

Copies of all 89 comments received on the DEIR during the public review period are contained within Volume I of Appendix J. The comments have been organized into the following five categories: (1) State Agencies, (2) Regional/Local Agencies, (3) Organizations/Businesses, (4) Public Comments, and (5) Public Meeting Transcript.

Each commenter has been assigned a numbered code. This numbered code is combined with sequential numbering for each comment. For example, S is for the comments from State agencies and Comment S-1-1 refers to the first comment in the letter from the Native American Heritage Commission (NAHC). Responses to the comments contained within this volume, can be found in Volume 2 of Appendix J.

1. Federal Agency(s) Comments

No Federal Agency(s) Comments were received

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2. State Agency(s) Comments

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STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
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SACRAMENTO, CA 95814
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e-mail: ds_nahc@pacbell.net

December 29, 2008

Clear 1-14-09 late

RECEIVED JAN 21 2009 STATE CLEARING HOUSE

Ms. Cindy Qon, District Director
California Department of Transportation – District 12
3347 Michelson Drive
Irvine, CA 92612

Re: SCH#2007071038; CEQA Notice of Completion; draft Environmental Impact Report (DEIR) for the State Route 74 = Lower Ortega Highway Widening Project; near the City of San Juan Capistrano; Orange County, California

Dear Ms. Qon:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 designated to protect California's Native American Cultural Resources. The NAHC is also a 'Participating Agency' with regard to Caltrans Projects. The California Environmental Quality Act (CEQA) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the California Code of Regulations §15064.5(b)(c)(f) CEQA guidelines). Section 15382 of the 2007 CEQA Guidelines defines a significant impact on the environment as "a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE)', and if so, to mitigate that effect. To adequately assess the project-related impacts on historical resources, the Commission recommends the following action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS) for possible 'recorded sites' in locations where the development will or might occur.. Contact information for the Information Center nearest you is available from the State Office of Historic Preservation (916/653-7278)/ http://www.ohp.parks.ca.gov. The record search will determine: 1

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure. 2
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ The Native American Heritage Commission (NAHC) performed:

* A Sacred Lands File (SLF) search of the project 'area of potential effect (APE)': The results: No known Native American Cultural Resources were identified.; However the NAHC SLF is not exhaustive and local tribal contacts should be consulted from the attached list.

- The NAHC advises the use of Native American Monitors, also, when professionAL archaeologists or the equivalent are employed by project proponents, in order to ensure proper identification and care given cultural resources that may be discovered. The NAHC, FURTHER, recommends that contact be made with Native American Contacts on the attached list to get their input on potential IMPACT of the project (APE) on cultural resources.. In some cases, the existence of a Native American cultural resources may be known only to a local tribe(s) or Native American individuals or elders. 3

√ Lack of surface evidence of archeological resources does not preclude their subsurface existence.

- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities. 4
- Again, a culturally-affiliated Native American tribe may be the only source of information about a Sacred Site/Native American cultural resource.

- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans. 4

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

* CEQA Guidelines, Section 15064.5(d) requires the lead agency to work with the Native Americans identified by this Commission if the initial Study identifies the presence or likely presence of Native American human remains within the APE. CEQA Guidelines provide for agreements with Native American, identified by the NAHC, to assure the appropriate and dignified treatment of Native American human remains and any associated grave liens. 5

√ Health and Safety Code §7050.5, Public Resources Code §5097.98 and Sec. §15064.5 (d) of the California Code of Regulations (CEQA Guidelines) mandate procedures to be followed, including that construction or excavation be stopped in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery until the county coroner or medical examiner can determine whether the remains are those of a Native American. . Note that §7052 of the Health & Safety Code states that disturbance of Native American cemeteries is a felony. 6

√ Lead agencies should consider avoidance, as defined in §15370 of the California Code of Regulations (CEQA Guidelines), when significant cultural resources are discovered during the course of project planning and implementation 7

Please feel free to contact me at (916) 653-6251 if you have any questions.

Sincerely,

Dave Singleton
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

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L-2

February 12, 2009

Via Email (lower74_D12@dot.ca.gov)
Original to follow

Mr. Scott Shelley
Environmental Planning Branch
California Department of Transportation
3337 Michelson Drive, #380
Irvine, California 92612

Re: Comments on Draft Environmental Impact Report for State Route 74 Lower Ortega Highway Widening

Dear Mr. Shelley:

On behalf of the City of San Juan Capistrano (City), we provide the following comments on the draft environmental impact report (DEIR) prepared for the State Route 74 Lower Ortega Highway Widening Project (Project), detailing why we believe the DEIR fails as an informational and full disclosure document. The DEIR does not provide a sufficient project description or adequately analyze the aesthetic, noise, traffic, land use, biological, air quality, growth inducing and cumulative impacts of the Project. It also improperly defers much of the mitigation proposed as part of the Project and fails to consider a reasonable range of alternatives. These inadequacies must be rectified, and a new DEIR should be circulated, so that the public is able to comment on a complete and accurate document. 1

One of the major impacts this Project would have is the degradation of the aesthetics along this City-designated scenic highway. Therefore, Caltrans should have carefully considered the City's preferences in the design of the Project. Holding stakeholder meetings early in the process would have allowed participants to discuss mitigation measures for aesthetic and other impacts, especially those where cooperation between the City and Caltrans is needed or City contributions could improve the Project. Through such collaboration, a legally adequate DEIR may have been prepared. The City again requests that prior to preparation of a new DEIR that rectifies the inadequacies of the existing document, Caltrans involve all stakeholders in the planning process. 2

I. The DEIR Contains an Inadequate Project Description.

A consistent project description is an important requirement of an EIR. Courts have often stated that: "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192 93; accord *San Joaquin Raptor/Wildlife Reserve Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730.) The concern over a stable project description goes to the heart of the EIR's value as a document of disclosure, since without a complete and stable project description, it is impossible to definitively determine what impacts the project being evaluated would have. (*McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (1988) 202 Cal.App.3d 1136, 1143 ["An accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity."].)

The DEIR fails to provide a complete Project description that sets forth with any certainty many aspects of the Project. The following questions must be answered clearly in a revised environmental review document:

- Will construction activities take place at night?
- Will sound walls be included in the Project? [The DEIR states only that two sound walls are *recommended*. (DEIR p. 22.)] 3
- If so, what type of material will they be made from?
- Will sound walls be constructed before or after widening of the Ortega Highway?
- What type of retaining walls would be used for the Project and how tall will each of them be? [The DEIR provides a broad range of possible heights for each retaining wall. (DEIR p. 21.)]
- What will the endpoints of the sound walls and retaining walls look like? Will they end abruptly, or taper down gradually?
- Is it feasible to underground the existing above-ground utilities?
- What type of landscaping would be used?
- Where would removed trees be relocated?
- Where would the staging area required for construction be located?
- How much grading would be required?
- How steep would the driveways and roads to the north of the Project site be after project implementation? Would they comply with the Orange County Fire Authority standard, which prohibits steepness exceeding 15%?

Without clear answers to the above questions, the true impacts of the Project cannot be

fully evaluated and disclosed to the public as required by CEQA. 3

II. The Widening Project Would Have Numerous Significant Impacts That Have Not Been Adequately Addressed.

To be legally adequate, an EIR must comprehensively identify and address all of the "significant environmental effects" of a proposed project. (Public Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2.) "All phases of a project," including "planning, acquisition, development, and operation," must be addressed. (CEQA Guidelines § 15126.) And both "[d]irect and indirect significant environmental effects" must be analyzed, "giving due consideration to both the short-term and long-term effects." (CEQA Guidelines § 15126.2(a).) The DEIR for the Project fails to properly address all of the Project's impacts. 4

A. Aesthetics Impacts.

The proposed Project site is currently a two lane highway in a rural setting, idyllically lined on both sides by large trees and swaths of green vegetation. There are meandering sidewalks on both sides of the street and an equestrian trail on the north. The rural nature of this highway is enhanced by features such as a small fruit stand on the north side where motorists can stop and shop for fresh fruits. The land on the north side of the Ortega Highway in the area of the proposed Project is gently to steeply sloping. The area surrounding the Project site is all residential, very low density to the north, and medium low to low density on the south side. (Attachment 1, photographs of the Project site.) The Ortega Highway in this portion of the City has been designated a scenic corridor because of its scenic qualities that "provide the public with a visual image of the quality of life envisioned by the community." (San Juan Capistrano General Plan, Community Design Element, p. 11.) 5

The proposed Project would substantially degrade the existing visual character and the bucolic quality of the area by ripping out over 100 mature trees and other vegetation, cutting into the hillside to install up to 24 foot tall retaining walls on the north side of the road, and potentially installing 14 to 16 foot tall sound walls on the south side of the Project site. Residents would no longer be able to enjoy the sight of numerous large trees lining the highway. They would also have their views of the surrounding hills and the San Juan Creek Valley reduced by the large retaining and sound walls. Additionally, the walls would be visually unappealing to travelers on the road, significantly reducing the current rural feel of the area. Instead of a gradual rise to the vegetated slopes to the north, the retaining walls would provide a sharp division that will be felt by those viewing the road. The DEIR does not provide adequate analysis of the severe aesthetic impacts the Project would have.

1. Additional Renderings Should be Provided.

The visual renderings of the Project included in the DEIR do not provide view simulations from an adequate number of locations to allow a proper analysis of the aesthetic impact this Project would have. (Attachment 2, expert analysis of the Project's aesthetic impacts by Sandra Genis ("Genis Report"), p. 1.) The DEIR limits its assessment of aesthetic impacts to five Key Views, all of which appear to be based on views from vehicles in the traffic lanes, views from the Project site. (*Id.*) There are no views toward the Project that were analyzed, even though the Project is visible from greater distances. (DEIR p. 95, 101-109.) Additional view simulations that should be required include: 6

- viewpoints from pedestrian, bicycle, and equestrian facilities;
- viewpoints from adjacent streets where the Ortega Highway is visible, including streets that intersect the highway;
- eastbound from Key View 1;
- a view of the proposed sound wall from the south side residents' perspective;
- a closer view of the proposed changes to the entrance to the fruit stand;
- view simulations from the Hunt Club;
- and view simulations from residences on the north side of the Ortega Highway.

2. The Project Would Have Significant Impacts on Key Views 2 and 3.

The DEIR finds the aesthetic impacts at Key View 2 to be less than significant due to reduction in visible change in character/quality after mitigation, but the change in this area is even more pronounced than in Key View 1, where the Project was found to have a significant visual impact. Numerous trees, including at least one very large tree, would be removed from the north side at this view and would not be replaced on site. (DEIR Figures 2.1.6-3 and 2.1.6-8) A new retaining wall would also be visible at this location. These are pronounced changes to the visual character and quality at this Key View, and thus result in a significant aesthetic impact. (Genis Report p. 4.) 7

The use of Sound Fighter sound walls would also result in a significant aesthetic impact from Key View 3. The Sound Fighter walls would create "a major, overbearing new feature, blocking views and dwarfing nearby vegetation." (Genis Report p. 4.)

6. Groundborne Vibration Impacts Would Be Significant.

The DEIR finds that the levels of groundborne vibrations from construction that would be experienced by nearby residents could be between .098 and .268 peak particle velocity (calculated in inches per second). (DEIR p. 211.) These levels of groundborne vibrations are found to be less than significant because they would not result in damage to the homes. (*Ibid.*) However, according to the Department of Transportation's Construction-Induced Vibration Guidance Manual (cited in the DEIR on page 210), groundborne vibrations of .1 peak particle velocity are strongly perceptible by humans and vibrations of .4 have a severe impact on humans. Thus, the groundborne vibrations of .098 to .268 would significantly impact those residents living near the construction site. 17

C. Traffic Noise Impacts.

1. Traffic Noise Impacts Would be Significant.

The DEIR and its Noise Impact Technical Report Addendum ("Noise Report") evaluated 14 locations for sound walls as mitigation for the traffic noise impacts the Project would have on residences directly to the north and south of the Project site. Even though future noise levels from the Project would be above 67 dBA (the Federal Highway Administration's Noise Abatement Criteria) at 12 of the 14 locations (impacting 28 residences), the DEIR's Noise Report only recommends that two sound walls be included. (Noise Report p. 12.) Specifically, the DEIR proposes, but does not require, that sound walls be included at locations identified as sound wall 2 and sound wall 3 on the southern side of the Ortega Highway between Via Cordova and Via Cristal and between Via Cristal to Via Errecarte. (Noise Report p. 12, DEIR p. 22.)

The Noise Report improperly rejects the installation of additional sound walls that would reduce a significant noise impact, on the basis of cost. According to the Noise Report, Caltrans limits the number of sound walls on the basis of what is both feasible and reasonable, as defined by Caltrans. Under Caltrans' noise analysis, a 5 dBA or more reduction in sound is required for a mitigation measure to be considered feasible, whereas reasonableness is assessed based on a formula that allows only a certain cost for mitigation for each residence that would be protected. (Noise Report at pp. 1, 9.) While 11 of the analyzed sound walls were determined to be feasible (meaning they would greatly reduce the significant noise impacts of the Project), the Noise Report found only two sound walls to be reasonable, based on cost effectiveness. (*Id.* at p. 12.) 18

Without support, the DEIR concludes that traffic noise impacts of the Project would not be significant. At all but two of the potential sound wall locations evaluated in

the Noise Report, future noise levels will approach or exceed the 67 dBA. (Noise Report, pp. 4-5.) Therefore, because only two of these 12 locations would have a sound wall, noise impacts at the other ten locations would remain significant and unmitigated. Moreover, the two sound walls are only recommended and not required as mitigation measures, thus the DEIR cannot rely on the noise reduction benefits of these walls in evaluating significant impacts. Additionally, while the DEIR claims that noise level increases of 1 to 2 dBA are less than a significant impact, the Project would result in noise level increases of more than 2 dBA for 15 residences. (DEIR pp. 212-213.) Even if economic factors would limit the mitigation that could be included in the Project, the fact that these impacts remain significant without mitigation must be addressed in a statement of overriding considerations. 18

2. The DEIR Fails to Evaluate the Project's Compliance with the City's General Plan and Noise Ordinance.

The DEIR fails to evaluate the traffic noise impacts of the Project within the context of the environment where those impacts would occur: the City of San Juan Capistrano. Because the Project site is located in the City, the noise evaluation must evaluate the Project's compliance with the City's Noise Ordinance. (Hendrix Report, p. 2.) The City's General Plan Noise Element sets out a 65 dBA exterior noise standard and 45 dBA interior noise standard for residential areas. The City's Noise Ordinance also establishes a 65 dBA day time noise standard and 55 dBA to 45 dBA nighttime noise standard. (San Juan Capistrano Municipal Code § 9-3.531.) The Project's compliance with the City's General Plan and Noise Ordinance were not evaluated or discussed at all in the DEIR. (*see* Hendrix Report p. 2.) As discussed above, the Project would result in noise levels above 67 dBA at 12 locations, thus it would violate both the City's General Plan and Noise Ordinance and result in a significant permanent noise impact due to traffic noise. 19

3. Caltrans Cannot Require the City to Pay for Project Mitigation.

The DEIR also states that in an August 24, 2004 letter the "City assured the Department that the City would fund the construction and maintenance of the noise barriers where the cost exceeded Department standard cost allocations." (DEIR p. 22.) This is a gross misrepresentation of the statements found in the City's letter. First, the August 24, 2004 letter was from the City to Assembly member Todd Spitzer, not a direct communication to Caltrans. The letter does not guarantee Caltrans that the City would help fund this project, instead it states: 20

> Caltrans has informed the City staff that if we wish to do anything that exceeds the standard design all additional costs would be borne by the City,

including obligations for long-term liability and maintenance.

(DEIR Appendix C, August 24, 2004 letter from Mayor Soto to Assembly member Todd Spitzer.) That Caltrans has attempted to force the City to pay for mitigation for the Project does not exempt Caltrans from CEQA's requirements. Under CEQA it is the lead agency's obligation to ensure project impacts are mitigated to a less than significant level. (*City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341.) 20

4. The DEIR Must Analyze the Reflective Noise Impacts.

The DEIR fails to discuss the potential for noise reflections. The Noise Report states that the inclusion of retaining walls on one side of the Ortega Highway and sound walls on the other side could result in increases in noise levels due to noise reflections from the walls. (Noise Report p. 13-14.) The Noise Report finds that the use of Sound Fighter sound walls would reduce the occurrence of noise reflections; however, the DEIR does not require Sound Fighter walls to be used. Thus, the potential for increase noise levels due to noise reflection must be analyzed in the EIR. A proper analysis of this impact would allow the decision maker and the public the opportunity to weigh all of the pros and cons of the two alternative types of sound walls that are proposed. 21

D. Traffic Impacts.

The traffic impacts of the proposed Project were evaluated in the following reports: 2009 analysis of traffic impacts by Minagar & Associates, Inc. (Attachment 6 "Minagar DEIR Report"); 2007 analysis of traffic impacts by Minagar & Associates, Inc. (Attachment 7 "Minagar MND Report"); and the Hendrix Report. The Project's impacts and the inadequacies of the DEIR's analysis of these impacts set out in these reports are summarized below. 22

1. The DEIR Fails to Analyze the Project's Compliance with Local, Regional and Statewide Traffic Policies.

The DEIR fails to evaluate the Project's compliance with the San Juan Capistrano Strategic Transportation Plan. (Minagar DEIR Report pp. 1, 7; see also Attachment 8 City's Strategic Transportation Plan.) The Strategic Transportation Plan requires that prior to the widening of the Ortega Highway, measures should be identified to ensure traffic volume increases would not exacerbate traffic congestion; however, no such measures were analzyed for the Project. (Strategic Transportation Plan, p. 10; Minagar DEIR Report p. 7.) For instance, the Strategic Transportation Plan requires that the I-5/Ortega Highway interchange project be implemented prior to the highway widening 23

Project, to prevent an exacerbation of existing congestion at the interchange. (*Ibid.*; see also Minagar DEIR Report p. 1.) The Project is not conditioned upon the prior implementation of the interchange project, and therefore may result in significant traffic impacts at that site.

The DEIR should also recognize and discuss the impact of the Project's incompatibility with local, regional and statewide policies to support alternative transportation. (Hendrix Report p. 6.) These policies require that projects include methods to encourage the use of alternative transportation, such as bus stops or turn outs. The Project fails to do so. 23

2. The Project Would Have Significant Traffic Hazard Impacts Requiring Installation of Crosswalks and Traffic Signals.

The Project would widen the Ortega Highway and provide for high speed traffic, making conditions more dangerous for pedestrians and equestrians attempting to cross the highway. The Project site includes eight intersections, but the Project includes no crosswalks. This is true even though the road is being doubled in width, which will make it more difficult for pedestrians to cross. In addition to the residents in the neighborhood, students from nearby schools will likely cross the Ortega Highway. (Hendrix Report, p. 5.) The DEIR should evaluate the Project's compliance with the Federal Highway Administration's "Safe Route to School Program," which calls for sidewalks, crosswalks, and traffic signals to improve pedestrian and thereby student safety. (*Ibid.*) 24

The lack of traffic signals would result in a hazard for motorists as well as pedestrians and equestrians. Instead of including a traffic signal as requested by the City, the DEIR states that U-turns will be allowed for those unable to make left hand turns onto the Ortega Highway due to traffic volume. (DEIR p. 90.) Failing to provide a traffic signal and encouraging those that need to make a left hand turn onto the Ortega Highway to instead enter the Ortega Highway with a right turn and then make a U-turn in the middle of the Highway (an "indirect left-turn"), encourages unsafe driving. (Minagar DEIR Report pp. 7-8.) Additionally, the Project appears to include only 29 feet of pavement to make the U-turn, whereas 32 feet is standard, which could result in larger vehicles being forced to make Y-turns instead of U-turns.

An independent computer analysis prepared by Minagar and Associates shows excessive delays on side streets at unsignalized intersections. (Minagar MND Report p. 8, Minagar DEIR Report p. 5-6.) Based on Minagar's independent analysis, signals also are needed at Via Cordova and Avendia Siega. (*Ibid.*) A lack of signals would create unsafe conditions for those engaged in U-turns, and for pedestrians, bicyclists and equestrians.

3. The DEIR Does Not Include Adequate Analysis of the Indirect Left-Turn Feature.

The DEIR also fails to include adequate analysis of the indirect left-turn feature of Project. Based on their review of the indirect left-turn aspect of the Project, Minagar and Associates posits the following questions:

- Would residential outbound traffic north of Ortega Highway be given provision to complete the analogous indirect left-turn?

- Would any sections of Ortega Highway require a "bulb-out" to accommodate larger vehicles with larger turning radii?

- If not, should certain vehicles be prohibited from completing U-turns from the median?

25

- Would the Project include restrictions on standard left-turns onto the Ortega Highway from side streets?

- If not, what type of indicators would the public have to become aware of and/or be encouraged to utilize the indirect left-turn and downstream U-turns?

- With the potential for increased speeds on Ortega Highway, to what extent are weaving conflicts an issue for vehicles turning right from minor streets on Ortega wishing to reach the "next available" U-turn to complete the indirect left-turn?

- Similarly, to what extent are merging conflicts an issue for vehicles attempting to rejoin the traffic stream after completing the u-turn?

- With the long spacing between traffic signals, what are the available gaps to successfully complete a U-turn, particularly in westbound traffic during the AM peak period, considering the following traffic conditions at Ortega Highway & Antonio Parkway/ La Pata Avenue: existence of extremely heavy westbound through traffic (currently 3-5 mile back-up); very heavy southbound right-turning traffic; and increasing northbound traffic from a high school that is currently growing in students?

(Minagar DEIR Report pp. 7-8.)

4. The Traffic Analysis for the Project Contains Numerous Flaws.

The Minagar DEIR Report has found numerous errors in the DEIR's traffic analysis for the Project due to incorrect underlying assumptions, discrepancies in projected regional growth, and inconsistencies in the methodologies used in analyzing the Project. (Minagar DEIR Report p. 9.) These errors include:

- Failure to utilize the local traffic mode available in the City's Strategic Traffic Plan to evaluate future traffic scenarios;

- Overestimation of future regional growth, which may lead to a finding of poor levels of service for the No-Build Alternative;

- Failure to consider future planned roadway extensions located near the proposed Project; 26

- Failure to set forth the assumptions used in assembling the base traffic network, such as the origin of the existing traffic volume data, intersection geometries and percentage of truck traffic.

(Minagar DEIR Report pp. 4-5.)

The DEIR also fails to analyze the traffic impacts for the private driveways to the north of the Ortega Highway that rely on gated access. (Minagar DEIR Report p. 7.) The County of Orange Standard Plans require a minimum distance of 100 feet between the gate arm on a private driveway and the edge of the pavement or curb line of a major street. (*Ibid.*) This distance is currently 110 feet at the Hunt Club Drive gate and 100 feet at the Calle Entradero gate. (*Ibid.*) Implementation of the Project would therefore likely result in a distance between these gates and the Ortega Highway that violates the County of Orange Standard Plans. The potential for vehicle stacking due to this reduced queuing area for the gated driveways should be analyzed in a revised EIR. (*Ibid.*)

E. Land Use Impacts.

1. The Project is Incompatible with the City's General Plan. 27

The DEIR fails to provide any true analysis of the Project's compatibility with the City's General Plan. Without analyzing the Project's compatibility with individual goals and policies contained in the General Plan, the DEIR simply states that because the General Plan assumes the Ortega Highway would be widened to four lanes, this specific

Project for widening the Ortega Highway is compatible with the General Plan in its entirety. (DEIR pp. 48-49.) Although the widening of the Ortega Highway to four lanes is listed as a long-range roadway improvement in the General Plan's Circulation Element, this specific plan for widening would conflict with several other General Plan policies and goals. Land Use Goal 7 requires that projects enhance and maintain the character of neighborhoods, while Goal 2 directs growth in a manner to preserve community character. Land Use Policy 2.2 requires assurances that new developments are consistent and compatible with surrounding neighborhoods. The Land Use Element also finds that controlled and directed growth will allow new development to occur without negatively affecting the City's unique character. (General Plan Land Use Element pp. 33, 40.) Conservation and Open Space Goal 4 prohibits developments that are incompatible with the preservation of scenic or historic resources, or public safety. The Project as proposed would violate these policies and goals because it would degrade the quaint rural nature of the community by removing over 100 mature trees, erecting retaining walls that are up to 24 feet tall, as well as potentially installing 16 foot tall sound walls. The Project further conflicts with the City's General Plan by failing to minimize land use conflict between automobiles, commercial vehicles, pedestrians, horses, and bicycles. As discussed above in sections II.B.3 and II.C.2, the Project may also be incompatible with the Noise Element of the General Plan. 27

2. The DEIR Fails to Analyze Impacts to Equestrian Uses.

The DEIR fails to analyze the Project's likely incompatibility with equestrian uses, and the significant hazards the widening may cause. There is currently a much used equestrian trail adjacent to Project site. The DEIR's only analysis of impacts related to equestrian uses is an unsupported statement that there would be no significant impact to the existing trail itself. (DEIR p. 74.) There is no consideration of the fact that after completion of the Project, traffic would be closer to the trail and more voluminous. Also, there is no means for the equestrian users to safely cross the highway, as the Project includes no crosswalks. These conditions create hazards that must be evaluated. The Project conflicts with the surrounding semi-rural community and the adjacent equestrian uses would also result in land use impacts due to the compatibility of the equestrian use with the widening Project. These impacts have not been evaluated in the DEIR, but should have been. 28

3. The General Plan Does Not Require the Inclusion of Bike Lanes in the Project.

The Project would include Class II bicycle facilities as part of the five foot wide shoulder on each side of Ortega Highway. (DEIR p. 16.) While the General Plan generally encourages the provision of bike paths, the bike path proposed as part of the 29

Project is not included in the City's Recreation Trail Map, which depicts the proposed and existing horse, hiking and bike trails within the City. (Attachment 9 City of San Juan Capistrano Recreational Trail Map.) There is an existing east-west safer bike path located approximately two blocks away on San Juan Creek Road, and thus the inclusion of a bike path as part of the proposed Project is not necessary. 29

F. The Project Would be Inconsistent with the City's Tree Removal Ordinance.

The Project fails to assess the Project's consistency with the City's ordinance governing the removal of trees. The DEIR acknowledges that the Project would require the removal of 111 trees, many of which are large and mature. (DEIR p. 244.) The City requires a tree removal permit for non-invasive trees that have a diameter at breast height (dbh) of six inches or more. (San Juan Capistrano Municipal Code section 9-2.349.) The City's Municipal Code does not define invasive tree species, but it does list eucalyptus trees and Peruvian pepper trees[2] as "not recommended" trees on its Guide to Understanding the Tree Removal Permit Process.

The DEIR does not state whether all 111 of the trees to be removed are more the six inches dbh, but since photos clearly show the majority of the trees in the area to be large, it is assumed that all 111 trees slated for removal are greater than this size. The findings required for the granting of a tree removal permit are: 30

> 1) tree to be removed is unsuitable to the planting area; 2) the tree is not native or not in keeping with the community character; 3) removing the tree would not negatively impact adjacent properties; or 4) replacement trees have been proposed to maintain the urban forest canopy.

(Municipal Code section 9-2.349(e).) The DEIR fails to analyze whether any of these findings could be made. If not, the tree removal permits could not be granted for the 67 non-invasive trees (111 trees minus the 30 Peruvian pepper trees and 14 Eucalyptus trees) proposed for removal.

The City's ordinance regarding tree removal places additional restrictions upon the removal of "heritage trees," even if those trees are invasive species. Heritage trees are those trees greater than 36 dbh and of one of the following species: California pepper; oak; cedar; blue gum eucalyptus; walnut; olive; sycamore; or cottonwood. (City's Municipal Code section 9-2.349(f).) Heritage trees cannot be removed unless the tree is either unsuitable for the planting area or the tree has been determined to be dead or

2 The Guide lists the genus and species name for the Peruvian pepper plant (Schinus molle), but then incorrectly identifies this as being the Brazilian pepper plant.

diseased. Several heritage tree species are proposed for removal as part of the project including two oak trees, one European olive tree, six Western sycamores, and 30 Peruvian pepper trees (which are also known as American pepper trees). The DEIR does not specify what type of eucalyptus trees would be removed, but it is likely they are blue gum eucalyptus as this is one of the most common types of eucalyptus tree. The DEIR does not disclose the size of the trees proposed for removal, so it cannot be determined if these trees would classify as heritage trees. (Genis Report p. 3.) If these trees are greater than 36 inches dbh, then there are very stringent restrictions on their removal that must be analyzed as part of the environmental review process. 30

G. The DEIR Fails To Adequately Analyze and Mitigate Construction Air Quality Impacts.

The construction related air quality impacts from the use of an asphalt batch plant are not adequately analyzed in the DEIR. Asphalt batch plants may emit particulate matter, carbon dioxide, nitrous oxides, sulfur oxides, carbon monoxide, volatile organic compounds, methane and hazardous air pollutants. (Attachment 10 Excerpts of AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, section 11.1.) These impacts must be properly studied in the DEIR and then adequate mitigation must be included. The DEIR states that the standard mitigation measures for asphalt batch plants would be followed. (DEIR p. 189.) However, because the DEIR does not disclose the location of the batch plant or its impacts, it cannot be ascertained whether this impact has been properly mitigated. The batch plant would likely be placed in a predominately residential area and therefore could have impacts that would require mitigation beyond the standard conditions. 31

H. The DEIR's Analysis of Growth Inducing Impacts is Inadequate.

The Ortega Highway is currently approaching capacity and the Project would double its capacity. The DEIR claims that the road widening would not have any growth inducing impacts because it would not have capacity beyond what is required for existing and approved uses. (DEIR p. 57.) This claim is not supportable because the DEIR shows an excess of capacity (more than 2000 peak hour volume) would result with the Project in the year 2035. (DEIR p. 86.) Additionally, the claim that the Project is simply a congestion reduction project is inconsistent with data presented elsewhere in the DEIR. For example, on p. 190 the DEIR notes that the Project would increase regional vehicle emissions, albeit by a small amount. If the Project were not inducing any growth those regional emissions should fall, thus there is at least some growth inducement implicit in the air quality analysis. 32

There is also no support for the DEIR's claims that the increased capacity of the Ortega Highway would not influence growth patterns in Riverside County. (DEIR p. 54.)

The DEIR analyzes the developable land in only one area of Riverside County (the Elsinore Area Plan), but even in that one area there is a large amount of undeveloped land. (DEIR p. 54.) By increasing the capacity and thereby shortening the commute time, the road widening Project would increase the desirability of living in less expensive Riverside County communities and working in the more job rich Orange County communities. The DEIR claims that the amount of jobs in Riverside County will substantially increase by 2035; however, the population for that County is predicted to grow at approximately the same rate. Thus, Riverside County's residents demand for jobs outside of Riverside County would remain constant, and since the Project could result in shorter commute times, it would likely influence residents to seek jobs in Orange County. 32

Further, the DEIR incorrectly states that the Ranch Plan project would not be influenced by this Project. Without the road widening, it would be difficult to access the approved development at Rancho Mission Viejo. Further, the Ranch Plan project proponent may not seek and the County may not grant further entitlements to the Ranch Plan area if additional roadway capacity is not provided by the widening project. Thus, the road widening facilitates the growth in the Ranch Plan area.

I. Cumulative Water Quality and Construction Noise Impacts May be Significant.

When the possible effects of a project are "individually limited but cumulatively considerable," a finding that the project may have a significant effect on the environment must be made. (Pub. Res. Code § 21083.) The Project may have cumulative water quality impacts due to run off into the San Juan Creek, but those impacts that have not been properly analyzed. The San Juan Creek already has poor surface water quality due to runoff from urban and residential developments. (DEIR p. 278.) It is currently designated as impaired under the Clean Water Act. (*Ibid.*, DEIR Water Quality Report, p. 7.) This Project would increase the amount of runoff by increasing the amount of impervious surface, and the additional pollutants from more cars, thereby further reducing the water quality in the Creek. The DEIR downplays the water quality impacts the Project would have, claiming the runoff coefficient would only increase from .87 up to .88. (DEIR p. 152.) Because the Creek is already impaired, even a small amount of additional pollution may have a cumulatively considerable impact, in the same way that additional traffic noise "should be considered significant in light of the serious nature" of already existing traffic noise problems around a project site. (*Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1025 -1026.) The DEIR acknowledges that even after mitigation, the Project would "minimally contribute to the cumulative (negative) effect on the water quality and hydraulic function of the San Juan Creek Watershed." (DEIR p. 279.) The purpose of cumulative impact analysis is to find impacts that would otherwise be considered minimal, but, along with other projects, 33

would add to a problem. If each area project increases the runoff into the already impacted San Juan Creek, even minimally, this could add up to a significant water quality impact. The threshold for measuring this cumulative impact is especially low when there is an existing problem, such as the existing poor water quality here.

The DEIR also claims, without support or analysis, that "[t]he proposed project's contribution to cumulative construction noise effects, in consideration of other projects within [the project area] (primarily the RMV Ranch Plan, Middle Ortega Safety project, and SR-74 and the Antonio/La Pata project), is considered less than significant." (DEIR p. 281.) Neither the DEIR, nor its associated reports, contains any assessment of the cumulative construction noise levels. As discussed above, the Project itself would have significant construction noise levels. If the construction of other projects in the area is taking place at the same time as the Ortega Highway widening project, the cumulative construction noise impacts could be significant. 33

III. Mitigation for the Project is Improperly Deferred.

CEQA requires all mitigation measures for a project to be formulated during the environmental review process so their efficacy can be analyzed in the EIR. (*San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 669-670.) Courts have prohibited the deferral of mitigation measures because "[t]here cannot be meaningful scrutiny [of an environmental review document] when the mitigation measures are not set forth at the time of project approval." (*Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 884.) Additionally, any mitigation measure must be "fully enforceable through permit conditions, agreements, or other legally-binding instruments." (CEQA Guidelines § 15126.4(a)(2).) 34

The mitigation measures for numerous potentially significant effects of this Project are mitigated only by statements that future plans would provide mitigation, without specifying the mitigation measures or requiring that the plans be submitted prior to Project approval. As set forth in comments on individual impacts below, this deferral of adequate mitigation is repeated numerous times throughout the DEIR. Plans and mitigation measures need to be completed and submitted as part of the CEQA review process, and prior to the approval of any environmental review document so that the efficacy of those measures can be evaluated by the agency and the public.

A. Design of the Retaining and Sound Walls is Improperly Deferred Until After Project Approval. 35

The DEIR acknowledges that the Project would have significant permanent visual impacts from several Key Views. (DEIR p. 133.) As discussed above, the installation of

large retaining and sound walls would have a significant aesthetic impact by blocking views, requiring the removal of vast amounts of vegetation and reducing the rural feel of the Project area. The DEIR claims that these negative impacts would be reduced by proposed mitigation at all Key Views and reduced to a less than significant level at Key Views 2 and 3. However, the DEIR fails to include any definitive mitigation measures for this significant adverse impact, saying only that decisions regarding the size and type of walls will be handled in the design phase, which Caltrans reviews to as the "Plans, Specifications, and Estimate (PS&E) phase." (DEIR p. 132.) Caltrans "cannot rely upon post-approval mitigation measures adopted during the subsequent design review process." (*Quail Botanical Gardens Foundation, Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1606. fn 4.) The DEIR also improperly defers preparation of a landscape plan as a means for reducing the Project's significant aesthetic impacts. Such a plan should be included in the environmental review document to allow evaluation by decision makers and the general public. (Genis Report p. 2.) In preparing a revised environmental review document for the Project, Catrans should consider community outreach to engage the citizens and make a determination on retaining and sound wall types so that the final document will clearly state what will be built and the exact type of treatment the walls may receive. 35

B. Mitigation for the Removal of Over 100 Trees is Uncertain.

Removal of over 100 large, mature trees is also a significant visual, as well as biological, impact. While the DEIR does require replacement of removed trees, it does not provide any certainty as to planting location of the replacement trees. The DEIR states that some replacement trees would be planted on the Project site where feasible, but others may be planted off site. (DEIR p. 132.) The DEIR must analyze how many trees would be able to be replaced within the Project area. If on-site replacement is not possible, and off site replacement is required, the location of those replacements must be identified prior to release of a new environmental document for public review. Without doing so, Caltrans would violate CEQA because it would not be making environmental decisions "in an accountable arena." (*Oro Fino, supra*, 225 Cal.App.3d 872, 885.) 36

It is also unclear whether mitigation measure V-1 requires all trees removed to be replaced at a 1:1 ratio, or only those trees requiring a tree removal permit from the City. All existing trees, regardless of their size or whether they are native trees, add the scenic nature of this stretch of the Ortega Highway, thus to adequately mitigate this aesthetic impact, all trees that are removed must be replaced. Further, "[w]here smaller trees, i.e. less than 4 inches in diameter at maturity, are used to replace larger trees…trees should be replaced at a minimum 2:1 ratio. (Genis Report p. 5.)

C. The DEIR Fails to Analyze Whether Undergrounding Utilities Would be Feasible.

The DEIR lists the undergrounding of all utilities that would be moved as part of the project as a mitigation measure for the Project's significant aesthetic impact. (DEIR p. xxii.) The DEIR conditions this mitigation measure on whether it would be feasible to place the utilities underground, but fails to analyze the feasibility or define what it considers to be feasible. (DEIR p. 132.) The DEIR must analyze whether the undergrounding of utilities is feasible as part of the environmental review process in order to provide meaningful scrutiny of the Project's impacts. 37

D. Consideration of Temporary Visual Impacts is Improperly Deferred.

The DEIR claims that temporary aesthetic impacts that would occur during the construction of the Project would be reduced because Caltrans would implement Department Standard Specifications for Construction. (DEIR p. 109.) The DEIR fails to provide any information on what these measures would be or how they would reduce impacts. 38

E. Preparation of a Traffic Management Plan is Improperly Deferred.

The DEIR states that a traffic management plan will be completed in a cost efficient and timely manner after Project approval. (DEIR p. 69.) This is another example of improperly deferred mitigation. The traffic management plan should be included in the environmental review document for the Project to allow the public to review and comment upon it. (Minagar MND Report p. 6.) 39

F. Feasibility and Adequacy of Mitigation Measures for Water Quality Impacts Must be Analyzed Before Project Approval.

Mitigation for the potentially significant long term water quality impacts of the Project is improperly deferred. The Project has the potential to increase runoff into an already degraded watershed. To mitigate this impact, the DEIR requires the post-approval preparation of a Storm Water Pollution Prevention Plan. (DEIR p. 154.) Thus, specific mitigation measures would not be analyzed until *after* Project approval, in violation of CEQA. 40

G. Postapproval Study of Dewatering Impacts is Inadequate Mitigation. 41

The water quality report for the DEIR states it will not be known whether

dewatering is necessary as part of the Project until soil boring samples are taken. (DEIR's Water Quality Technical Study, p. 13.) These soil boring samples will not be done until after Project approval, and if at that time dewatering is found to be required, Caltrans would then be required to obtain a permit. This is an inadequate study of a potentially significant impact and again deferred mitigation. Caltrans should have taken soil boring samples as part of the environmental review for the Project, and analyzed whether dewatering was necessary, and if so how it would be accomplished. There is evidence that this may be necessary, based on the Preliminary Geotechnical Reports statement that ground water was found 15 meters below ground surface. (DEIR, Appendix B, Preliminary Geotechnical Report p. 4.) 41

H. The DEIR Improperly Defers Mitigation of Geotechnical Impacts.

Mitigation for the Project's potentially significant geotechnical impacts is improperly deferred with a requirement that a future geotechnical report be prepared. The DEIR states that portions of the Project site are in an area that has an increased risk of liquefaction. (DEIR p. 160.) The only mitigation measures proposed for this potentially significant geotechnical impact is the post-approval preparation of a final geotechnical report to refine the existing preliminary geotechnical report[3]. (Preliminary Geotechnical Report p. 6.) The existing preliminary geotechnical report is only 12 pages long and contains no analysis specific to the Project site. The sole discussion of liquefaction contained in the preliminary geotechnical report is as follows: 42

> Portions of the site are within zones that have been identified as being at an increased risk for liquefaction. The project-specific risk of liquefaction should be addressed in the Geotechnical Design Report.

(Preliminary Geotechnical Report p. 6.)

The post-approval Geotechnical Design Report would include a detailed site investigation and sampling program to verify site conditions and develop soil and rock parameters to be used for wall design. (*Id.* at p. 1.) This is similar to the type of deferred study and mitigation that was found to be in violation of CEQA by the Court of Appeal in *Endangered Habitats League Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 793.

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3 The DEIR geology and soils section states that the Project would be constructed according to seismic design parameters set forth in the California Seismic Hazard Map, the Department's Standard Seismic Design Criteria, and the Department's Guidelines for Foundation Investigations and Reports, but does not include this as a mitigation measure.

IV. The EIR Must Comprehensively Analyze Mitigation Measures and Alternatives to the Project.

A. The DEIR Fails to Analyze a Reasonable Range of Alternatives.

The alternatives section has been described as the "core" of the EIR (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564), and an adequate EIR must describe a reasonable range of alternatives. (*Laurel Heights Improvement Association v. Regents of the University of California* (1993) 47 Cal.3d 376.) While "An EIR need not consider every conceivable alternative to a project, 'it must consider 'a reasonable range of *potentially* feasible alternatives...'" (Guidelines § 15126.6(a), emphasis added.) "The range of feasible alternatives [for an EIR] shall be selected and discussed in a manner to foster meaningful public participation and informed decision making." (Guidelines § 15126.6 (f).) "[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (Guidelines § 15126.6(b).) The City has a duty under CEQA to evaluate a reasonable range of alternatives to the environmentally damaging proposed Project. (*Laurel Heights I, supra*, 47 Cal.3d at 400.) As the California Supreme Court has stated: 43

> Under CEQA, the public agency bears the burden of *affirmatively demonstrating* that . . . the agency's *approval* of the proposed project *followed meaningful consideration of alternatives* and mitigation measures.

(*Mountain Lion Foundation v. Fish and Game Commission* (1997) 16 Cal.4th 105, 134, emphasis added; accord *Village Laguna of Laguna Beach v. Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1035.)

Unfortunately, the DEIR fails miserably in this regard by restricting itself to just two build alternatives: replacing the sidewalk that would be removed from the north side of the Ortega Highway during construction to widen the roadway to four lanes (Build Alternative 2) and not replacing the sidewalk (Build Alternative 1). This does not provide meaningful consideration of a range of potentially feasible alternatives. To remedy this error, a revised environmental review document should fully analyze the alternatives set forth below.

B. Additional Alternatives Should be Analyzed.

To allow for meaningful public participation and informed decision making, the DEIR needs to greatly expand the range of alternatives that it analyzes. Several 44

alternatives that were previously suggested by the City were completely ignored in the DEIR and others were affirmatively rejected without substantial evidence to support that rejection. The following alternatives should be fully analyzed in a revised environmental review document. 44

1. Alternative Locations.

Many of the significant impacts of this Project arise from its location on a scenic highway lined by residential uses. The EIR should thoroughly analyze "whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location." (CEQA Guidelines § 15126.6(f)(2)(A).) The widening of other east-west connectors should be analyzed as an alternative to this Project. If other widening projects are rejected, the EIR should disclose its reasons for doing so. (CEQA Guidelines § 15126.6(f)(2)(B).)

The DEIR appears to be referencing several different alternatives when it rejects what it calls "Multi-modal Alternative." Without including details of any other routes and through the use of circular logic, the DEIR rejects all alternatives that would accommodate traffic between Orange County and Riverside County and traffic generated by the Ranch Plan because these alternatives would not enhance the capacity of the Ortega Highway. (DEIR p. 29.) The creation or expansion of an alternative east-west corridor would meet the majority of the Project objectives, which is all that is required to make an alternative feasible. (CEQA Guidelines § 15126.6(b).) Such an alternative could relieve existing and future traffic congestion on the Ortega Highway by siphoning off traffic from the Ortega Highway onto the newly created or expanded alternative route. An alternative route could also accommodate planned growth and development. These are the main goals of the Project and the reason identified for the necessity of the Project. (DEIR p. 9.) Specifically, a revised EIR should analyze extending Highway 73 to the intersection of Ortega Highway and Antonio Parkway as an alternative to the proposed Project. The primary strategies set out in the City's Strategic Transportation Plan should also be analyzed. (Strategic Transportation Plan p. 3.) 45

2. Reduced Width Alternative.

Caltrans should also analyze an alternative that includes 11-foot wide lanes, eliminates the bikeway, and reduces the size of the shoulders. Because this reduced size alternative would reduce the width of the Project, it would reduce impacts. Under a reduced width alternative, fewer right-of-way acquisitions would be required, a smaller amount of trees and vegetation would need to be removed, noise impacts would be lessened by increasing the distance between residences and the highway, and less wetlands would need to be converted. The elimination of a bikepath from this alternative 46

would not violate the City's General Plan because the Recreational Trail Map for the City does not show a path at this location. (Attachment 9.) Additionally, a bikepath on the Ortega Highway is a low priority under the Orange County Transportation Authorities' Commuters Bikeways Strategic Plan, where other nearby east-west bikepaths, such as the path along San Juan Creek Road, are a higher priority and provide easy substitute bicycle access. (Orange County Transportation Authorities' Commuters Bikeways Strategic Plan p. 66, located at http://www.octa.net/uploadedfiles/Files/pdf/bike_print.pdf, incorporated by reference.) 46

The DEIR claims that the Department Project Development Coordinator did not approve two foot wide non-standard shoulders, but provides no reasoning for that lack of approval and whether the Department Project Development Coordinator is required to approve non-standard roadway widths. Because a reduced width project would reduce many of the Project's significant impacts, the EIR should have fully analyzed such an alternative.

C. Additional Mitigation Measures Should be Included in the Project.

The Project would have several significant impacts that require adequate mitigation. The City requests that additional mitigation measures be analyzed in a revised EIR, and included in the Project if they would reduce its impacts. 47

1. Mitigation for Aesthetic Impacts.

The Project would result in significant aesthetic impacts by removing the numerous large trees and vegetation currently found on both sides of the highway and thus reducing the existing rural feel of this portion of the highway. To minimize these impacts, the EIR should analyze the use of landscaped median strips, extensive setbacks, a variety of materials for the replacement sidewalks, and a physical separation of vehicular and non-vehicular traffic, as required by the City's General Plan Community Design Element for scenic corridors within the City. (City of San Juan Capistrano Community Design Element p. 10.) The City is particularly interested in an analysis of landscaping for the proposed 12 foot wide median for the Project, which may help the area retain some of its current visual appeal. 48

The Project should also include a larger ratio of replacement trees. When smaller trees, those less than four inches in diameter at maturity (which is the size limit for trees within 30 feet of the Ortega Highway's travel lanes), are used to replace larger trees, trees should be replaced at a minimum 2:1 ratio. (Genis Report p. 5.)

Rolled curbs should also be included in the Project, these curbs are rounded and do

not have the sharp right angles one sees in typical urban situations. (Genis Report p. 5.) They provide a gentler, more rural look, possibly because communities with substantial equestrian uses often have that type of curb to avoid creating a hazard for horses, where curbs are required at all. The City has rolled curbs in several areas and has requested that Orange County Traffic Authority provide them on their local projects. Many other South Orange County neighborhoods with equestrian uses have rolled curbs, as do parts of the Palos Verdes Peninsula.

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The installation of retaining and sound walls for the Project would have also result in significant aesthetic impacts. Visual impacts of the retaining walls could potentially be reduced through design features, such as adding stone or simulated stone to walls so that they look more natural. Shrubs and vines could soften the view of the walls and discourage graffiti. Terraced retaining walls, which would result in several shorter walls instead of one large one, could help to reduce the visual impacts of these large walls. Impacts from the retaining and sound walls could also be reduced by gradually tapering the ends of these walls downward, instead of ending the walls abruptly. (Genis Report p. 5.)

The establishment of a City Design Committee should also be included as a method for assuring adequate mitigation for the Project's aesthetic impacts.

2. Mitigation for Construction Noise Impacts.

The City has previously submitted a report by noise expert Michael Hendrix that sets out potential mitigation measures for the significant construction noise impacts that should be included in the Project. Measures proposed by Michael Hendrix include: temporary noise attenuation between sensitive receptors and construction noise; moving the construction staging areas, lines of haul trucks, and other sources of noise generation as far as practical from residential properties; restricting equipment idling; providing temporary electric construction power to eliminate noise from portable electric generators.

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Michael Hendrix also found that impacts from the groundbourne vibrations associated with construction could be reduced by the use of augers and setting retaining wall supports in concrete instead of pile driving and including buffer zones between residential property and the use of vibratory equipment for compaction.

The Project should also include mitigation measures that were required for construction of the nearby Ranch Plan, which also widens a section of the Ortega Highway. These measures include: limiting the hours of construction, with no construction on Sundays or holidays; a requirement that evidence be produced prior to

commencement of construction that all construction vehicles or equipment have properly operating and maintained mufflers; all operations should comply with the San Juan Capistrano noise ordinance; and vehicle staging areas should be located as far as practicable from residences. 49

3. Traffic Noise Mitigation.

The use of Rubberized Asphalt Concrete, which can significantly reduce traffic noise and has been used on many other Caltrans projects throughout the state, should be included in the Project to reduce significant traffic noise impacts. 50

4. Additional Mitigation.

The City also requests that the Project include a restriction to ensure that the Project site is not expanded beyond four lanes in the future. The rest of Ortega Highway east of the City up to the 241 Highway connection has right of way for six lanes, although it is only four lanes currently. A restriction should be put in place to ensure that the Project site is not expanded beyond four lanes in the future. City residents are concerned that this segment of the Ortega Highway could be expanded again in the future, further encroaching on to residents' property and worsening the many impacts discussed above. 51

D. The Project Cannot be Approved if There Are Feasible Alternatives and Mitigation Measures that Would Reduce Adverse Impacts.

CEQA prohibits approval of projects with adverse environmental impacts if there are feasible alternatives. (Pub. Resources Code § 21002; Guidelines § 15021(a)(2).) The CEQA Guidelines require an agency to "Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved." In order to implement this policy, the Guidelines specify that: 52

> A public agency may approve a project even though the project would cause a significant effect on the environment *if* the agency makes a fully informed and *publicly disclosed decision* that:
>
> (a) There is no feasible way to lessen or avoid the significant effect..."

(Guidelines § 15043, emphasis added.) As set forth above, there are feasible alternatives to the Project and mitigation measures that could reduce the Project's significant impacts. Therefore, the Project cannot be approved as proposed.

CONCLUSION

Due to the lack of more specific project details and corresponding mitigation measures, a strong argument can be made that numerous inadequacies of the DEIR prepared for Ortega Highway widening Project exist, and that this document should be revised and re-circulated to allow proper public review. Additionally, because the Project would have numerous significant and unavoidable impacts, additional mitigation measures and feasible alternatives should be adopted instead of the proposed project so as to lessen the severity of these impacts. If adequate additional mitigation measures are proposed however, a revision and recirculation may not be necessary.

Sincerely,

Amy Minteer

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cc: City of San Juan Capistrano

Attachments:

(1) Photos of Project Site and Declaration in Support Thereof;
(2) Analysis of DEIR's Aesthetic Impacts by Sandra Genis, Planning Resources;
(3) Excerpts of County of Orange's General Plan regarding Scenic Highway Plan;
(4) Analysis of Land Use and Aesthetic Impacts by Sandra Genis, Planning Resources with Attached Topographical Map and Information Regarding "Sound Fighter" Walls and Resume for Sandra Genis;
(5) Review and Comments on the Initial Study for the State Route 74 Lower Ortega Highway Widening Project by Michael Hendrix and Resume for Michael Hendrix;
(6) Review of DEIR's Traffic/Circulation Element for Widening of Lower Ortega Highway by Minagar & Associates, Inc.;
(7) Review of Traffic/Circulation Element of Initial Study (with Proposed MND) Widening of Lower Ortega Highway by Minagar & Associates, Inc. and qualifications of Minagar & Associates, Inc.;
(8) San Juan Capistrano Strategic Transportation Plan;
(9) City of San Juan Capistrano Recreational Trail Map;
(10) Excerpts of AP 42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources.

SANDRA GENIS, PLANNING RESOURCES
1586 MYRTLEWOOD COSTA MESA, CA. 92626 PHONE/FAX (714) 754-0814

L-2

TO: Amy Minteer, Chatten Brown & Carstens
From: Sandy Genis

Date: February 5, 2009

Subject: DEIR for Ortega Highway widening

I have reviewed portions of the Draft Environmental Impact Report for the widening of the Ortega Highway (State Route 74) in San Juan Capistrano, Orange County, focusing on aesthetics issues. The proposed project consists of the widening of the highway to provide four traffic lanes with curb and gutter from Calle Entradero east to the San Juan Capistrano city limit. The project will include retaining walls ranging in height from 2 to 24 feet and noise barriers ranging up to 16 feet in height. Alternate options for the noise barriers include Plexiglas (Architectural Treatment A) or opaque Sound Fighter material (Architectural Treatment B). New sidewalks and ornamental landscaping will also be installed. Landscaping to be removed includes 111 (one hundred eleven) mature trees. 54

Perception of visual impacts tends to be largely subjective. However, the Federal Highway Administration (FHWA) has developed a methodology and guidelines for assessment of aesthetic impacts which includes evaluation of the existing landscape, identification of potential viewers, selection of representative viewpoints, identification of changes in the views, and evaluation of viewer sensitivity. The DEIR roughly follows the methodology, though lacking in a number of areas, as discussed below. Even if followed scrupulously, though, the methodology can result in a subjective assessment.

Selection of Viewpoints

A major factor in the efficacy of the above methodology is the selection of viewpoints. Views toward the project and views from the project should be analyzed.

Viewpoints should reflect the experience of potential viewers. The DEIR identified four primary viewer groups: commuters, pedestrians, recreational users, and residents (DEIR p. 100). Recreational users include bicyclists and equestrians. 55

The DEIR evaluated five viewpoints and provided rendered photographs. All of the viewpoints appear to be based on views from vehicles in the traffic lane, i.e. views *from* the project. No views *toward* the project were analyzed.

With all viewpoints apparently from the roadway itself, only viewpoints for commuters were evaluated. Pedestrians, equestrians and bicyclists would typically be more sensitive than motorists to visual changes due to their lower speed and, in many locations, closer proximity to

sound barriers and retaining walls. Viewpoints from pedestrian, bicycle, and equestrian facilities must be provided.

While viewpoints from the roadway may somewhat approximate views from a pedestrian or equestrian path, the DEIR includes no analysis of views obtained by adjacent residents, an identified viewer group. Viewpoints from adjacent streets where Ortega Highway is visible must be included. These should include streets which intersect the highway.

Public views are normally considered to be more critical than private views. However, structures up to 16 feet in height at or near residential property lines would clearly affect the homeowners' quiet enjoyment of their properties. The DEIR must address normally required setbacks from residential property lines for structures at the heights proposed.

Unfortunately, one cannot tell if the selected viewpoints are truly representative of the proposed project inasmuch as the DEIR does not provide information as to the varying magnitude of cut slopes and walls at the different locations. From the material provided in the DEIR, one does not know if the cut slopes and retaining walls illustrated are the more extreme, worst case situation or are comparatively moderate, best case situation. One does not know if renderings which appear to illustrate a radical change reflect conditions that would occur over a hundred feet of roadway or a thousand. 55

Material provided in the DEIR and appendices is not adequate to identify the location of the worst case conditions for visual impact. While Appendix G provides preliminary design layout, the plans show only the location of sound barriers and retaining walls, with no indication of structural height. No elevations are provided for the proposed structures.

The DEIR does not address the endpoints of wall and sound barriers, which may present an abrupt change in scale and surfaces when compared to the surrounding area. Viewpoints showing these areas must be provided.

Landform

No grading plan for is provided to show areas subject to landform modification. Thus one cannot evaluate whether visually significant landform modification will occur. The few cross sections provided in Appendix G focus on the roadway itself. No sections showing are provided showing maximum cut slopes. This is of concern, because landform is one of the view elements commonly discussed and included in the guidelines for visual impact assessments, along with vegetation, built elements, and water elements. 56

Vegetation

No specifics are provided regarding future landscaping. The DEIR must include a landscape plan for evaluation by decisions makers and the general public. The lack of landscape plans is problematic because reliance is made on future landscaping as a means of reducing impacts (p.131). The DEIR does not include adequate information to reach any conclusions regarding the value of project landscaping in reducing impacts. 57

The DEIR references the City of San Juan Capistrano Tree Ordinance (p.132). However, no analysis is provided pursuant to that policy and it appears that the ordinance included in the DEIR (Appendix J) may be out of date. San Juan Capistrano Municipal Code Section 9-2.349(f) addresses heritage trees, defined as follows:

> a tree shall be deemed a heritage tree and shall be protected from removal when such tree has a trunk diameter at breast height (dbh) of thirty-six (36) inches or greater, and is a specimen of the following species: Schinus molle (California pepper); Quercus spp. (oak); Cedar spp. (cedar); Eucalyptus globulus (blue gum eucalyptus); Juglans spp. (walnut); Olea europaea (olive); Platanus spp. (sycamore); Populus spp. (cottonwood) ...

DEIR Table Table 2.3.3-1 (p. 245) indicates the following trees would be removed, among others: 57

2 *Quercus agrifolia*
14 *Eucalyptus* spp.
1 *Olea europaea*
30 *Schinus molle*
6 *Platanus racemosa*
10 *Platanus x acerfolia*

The DEIR does not indicate whether or not any of the listed trees are large enough to constitute heritage trees. The DEIR must map all trees to be removed and identify all heritage trees.

The DEIR must also clarify statements regarding tree replacement. For example the DEIR states

> the Department would replace in kind all landscaped trees that would be removed within this section; however, not all removed landscape (including removed trees) could be replanted in this section

If trees are not to be replaced in the same area, the DEIR must identify in what area the replacement trees will be planted.

Staging Areas

Construction would occur over a two year period (DEIR p. 25), with potential use of a particular staging site for the entire period. The DEIR indicates that visual effects at staging sites are anticipated during construction (p. 109), and then concludes that the temporary impacts will be less than significant. The DEIR also indicates that no staging area will be provided within the project limits (p. 25), but fails to identify exactly where staging areas will be located. Thus, the DEIR does not include adequate information to determine whether or not project staging will occur on a visually sensitive site or whether use for storage and deployment of construction materials and equipment would result in significant visual changes on the site. 58

Significance Analysis

The DEIR concludes that visual impacts for viewpoints 1, 4, and 5 would be significant but that impacts on viewpoints 2 and 3 would be less than significant after mitigation. Viewpoint 2 (Figure 2.1.6-8) includes a high retaining wall which is visually intrusive. It is not clear whether the distance between the wall and the roadway would leave adequate room for landscape screening to reduce the impact. The prohibition on trees with a trunk exceeding four inches in diameter at maturity within thirty feet of the travel lane (p. 131) would make it difficult to fully screen the high wall. 58

Viewpoint 3 includes a high sound barrier (Figure 2.1.5-9). Architectural Treatment A shows a masonry wall topped by Plexiglas, which is noticeable but not visually arresting. By contrast Architectural Treatment B shows a solid, opaque sound Fighter System which creates a major, overbearing new feature, blocking views and dwarfing nearby vegetation. It is difficult to conceive how this structure would not create a significant impact.

Other issues

The DEIR does not address the attractive nuisance for graffiti which may be created due to the provision of hard vertical surfaces adjacent to the highway. Materials and planting to discourage graffiti must be addressed. 59

The DEIR does not address the potential for shade and shadow to be created by the proposed sound barriers. This would potentially be a problem with Architectural Treatment B, affecting residents' enjoyment of their yards as well as any vegetation growing therein.

Mitigation

As currently worded the proposed mitigation measures fail to guarantee that impacts will be mitigated. The general discussion indicates that utilities would be undergrounded, "where feasible"(p. 132), but the mitigation measures do not address utilities. The general discussion addresses landscaping at length, but the only trees are addressed under a specific mitigation measure (V-1).

The remaining mitigation measure (V-2 through V-4) address architectural treatment and aesthetic enhancements to be developed in the future in consultation with San Juan Capistrano city officials. Thus, there is no guarantee that the treatments and enhancements to be provided will actually mitigate anything. In addition, there is no guarantee in any of the mitigation measures that City officials will have any authority at all over ultimate mitigation, only that they will be consulted. 60

At a minimum, the following mitigation measures must be included:

- All utilities shall be place underground

- All trees shall be replaced on a 1:1 basis, as a minimum. Where smaller trees, i.e. less than 4 inches in diameter at maturity, are used to replace larger trees, i.e. 4 inches or larger at maturity, trees shall be replaced at a minimum 2:1 ratio.
- Vegetation shall be provided on both sides of all walls and barriers, screening walls and barriers to the greatest extent practicable.
- Large flat expanses of wall/barrier shall be avoided. Retaining walls over eight feet in height shall be stepped back with terraces where walls cannot be fully screened. Walls/barriers which cannot be fully screened shall have visual relief, with undulations or articulations.
- Abrupt changes in height of walls and barriers shall be avoided. Wall and barrier ends shall taper downward gradually, not end abruptly. 60
- Where views would be blocked, sound barriers shall be of Plexiglas or other transparent, high quality, weather resistant material only (Architectural Treatment A).
- Where retaining walls or sound barriers would be visible, materials providing a natural appearance, such as stone or simulated stone, shall be used.
- Graffiti resistant materials shall be utilized for all walls and barriers.
- Only rolled curbs shall be utilized.
- All street lighting shall be of the lowest intensity consistent with public safety and shall be equipped with cutoff devices to reduce light spillage into residential areas.

Conclusion

While the DEIR recognizes the significant impacts would occur at certain locations, the DEIR des not provide adequate information to determine that impacts would be reduced or fully mitigated at *any* location. 61

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Attach 1

DECLARATION OF AMY MINTEER

I, Amy Minteer, declare as follows:

(1) I am an attorney with the law firm of Chatten-Brown & Carstens, located at 2601 Ocean Park Blvd., Ste 205, Santa Monica, California, 90405. I have personal knowledge of the facts stated herein and if called as a witness can competently testify thereto.

(2) Attached to this declaration are photographs I took of the Ortega Highway (SR 74) and its surroundings located between Avenida Siega and Via Cordova in the City of San Juan Capistrano. I took these photographs on August 16, 2007 between 2 and 3 p.m.

(3) These photographs show the area that will be impacted by Caltrans proposed Ortega Highway widening project. They were taken from the sidewalk on the south side of the project site.

(4) These photographs show the large number of mature trees and other vegetation that will be removed as part of the Ortega Highway widening project, as well as the rural setting of the site.

(5) Photograph number 1 was taken from the south side of Ortega Highway, at Avenida Siega, facing northwest.

(6) Photograph number 2 was taken from the south side of Ortega Highway, at Avenida Siega, facing northeast.

(7) Photograph number 3 was taken from the south side of Ortega Highway, at Avenida Siega, facing north to Shadetree Lane.

(8) Photograph number 4 was taken from the south side of Ortega Highway, facing east, at a point just west of Avenida Siega.

(9) Photographs number 5 and 6 were taken from the south side of Ortega Highway facing north to Toyon Drive.

(10) Photograph number 7 was taken from the south side of Ortega Highway facing north to the fruit stand location.

(11) Photograph number 8 was taken from the south side of Ortega Highway facing east at the southwest corner of Via Cristal.

(12) Photograph number 9 was taken from the south side of Ortega Highway at Via Cristal facing west, showing the existing sound wall and marking for new sound wall's location.

(13) Photographs number 10 and 11 were taken from the south side of Ortega Highway facing north to Palm Hill Drive.

(14) Photograph 12 shows the start of equestrian trail at Palm Hill Drive.

(15) Photograph number 13 shows the Hunt Club entrance.

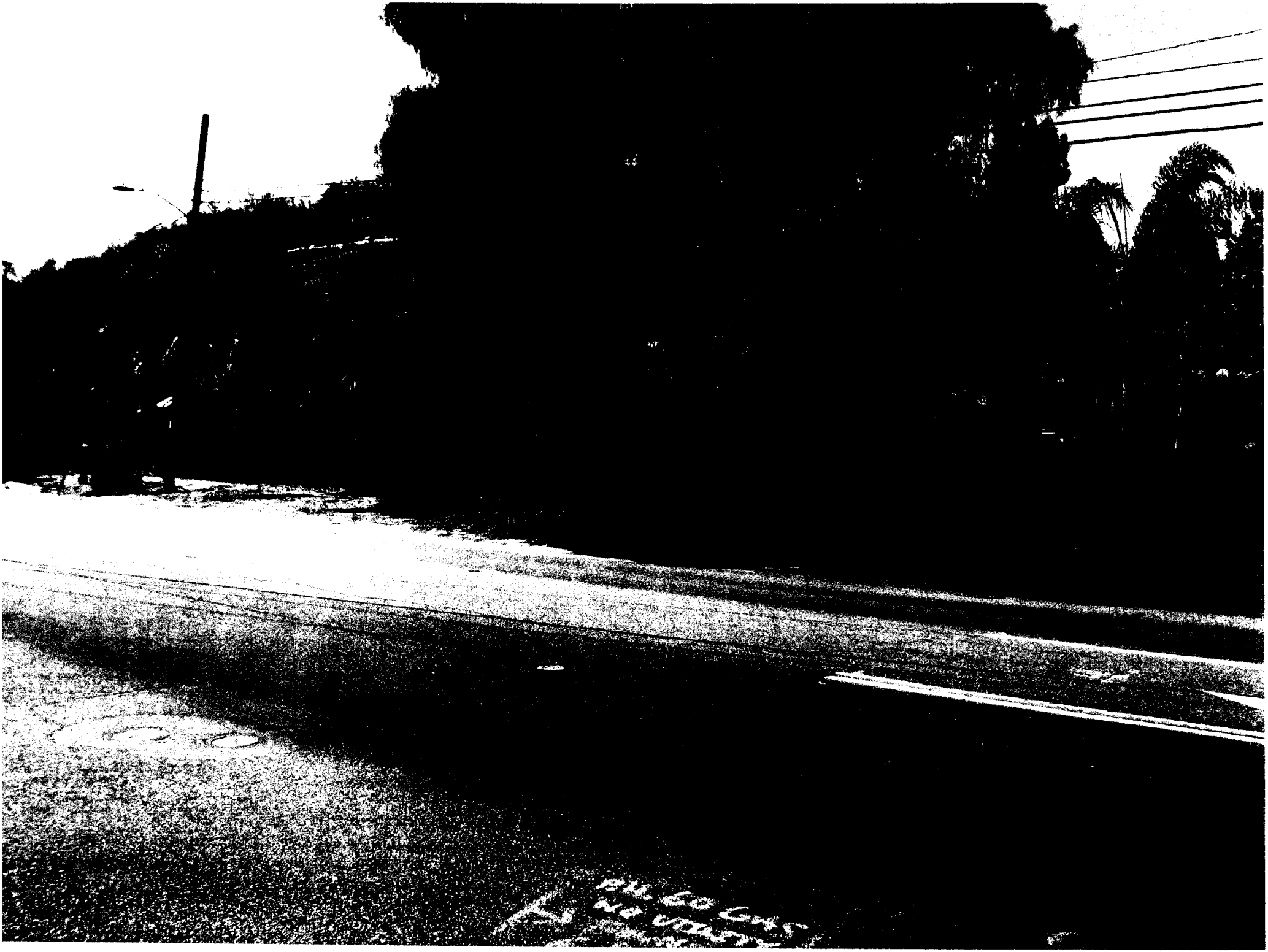
(16) Photograph number 14 was taken from the south side of Ortega Highway, facing east toward Palm Hill Drive.

(17) Photograph number 15 was taken from the south side of Ortega Highway, facing east at via Cordova.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 5th day of September 2007, at Santa Monica, California.

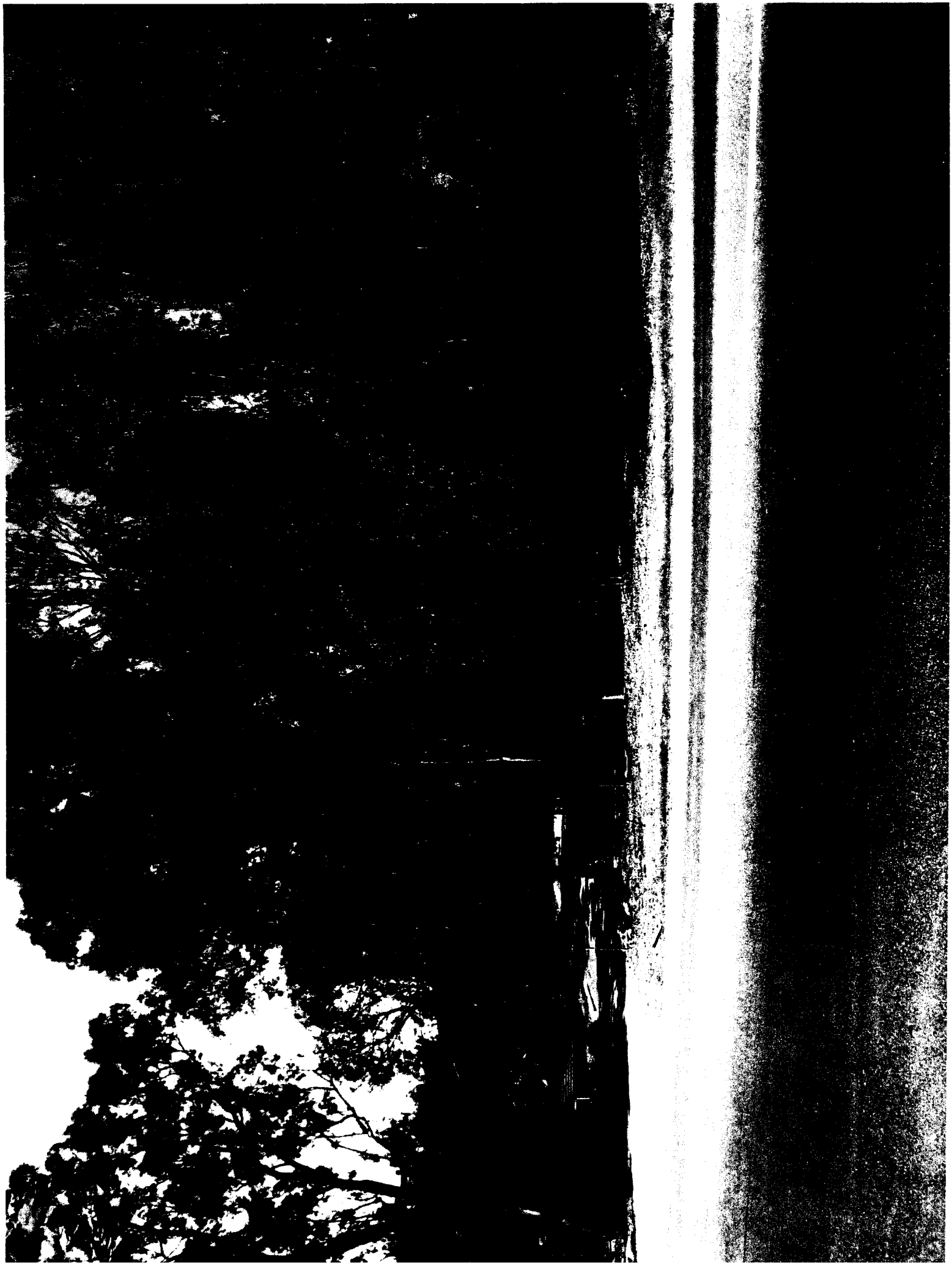
AMY MINTEER

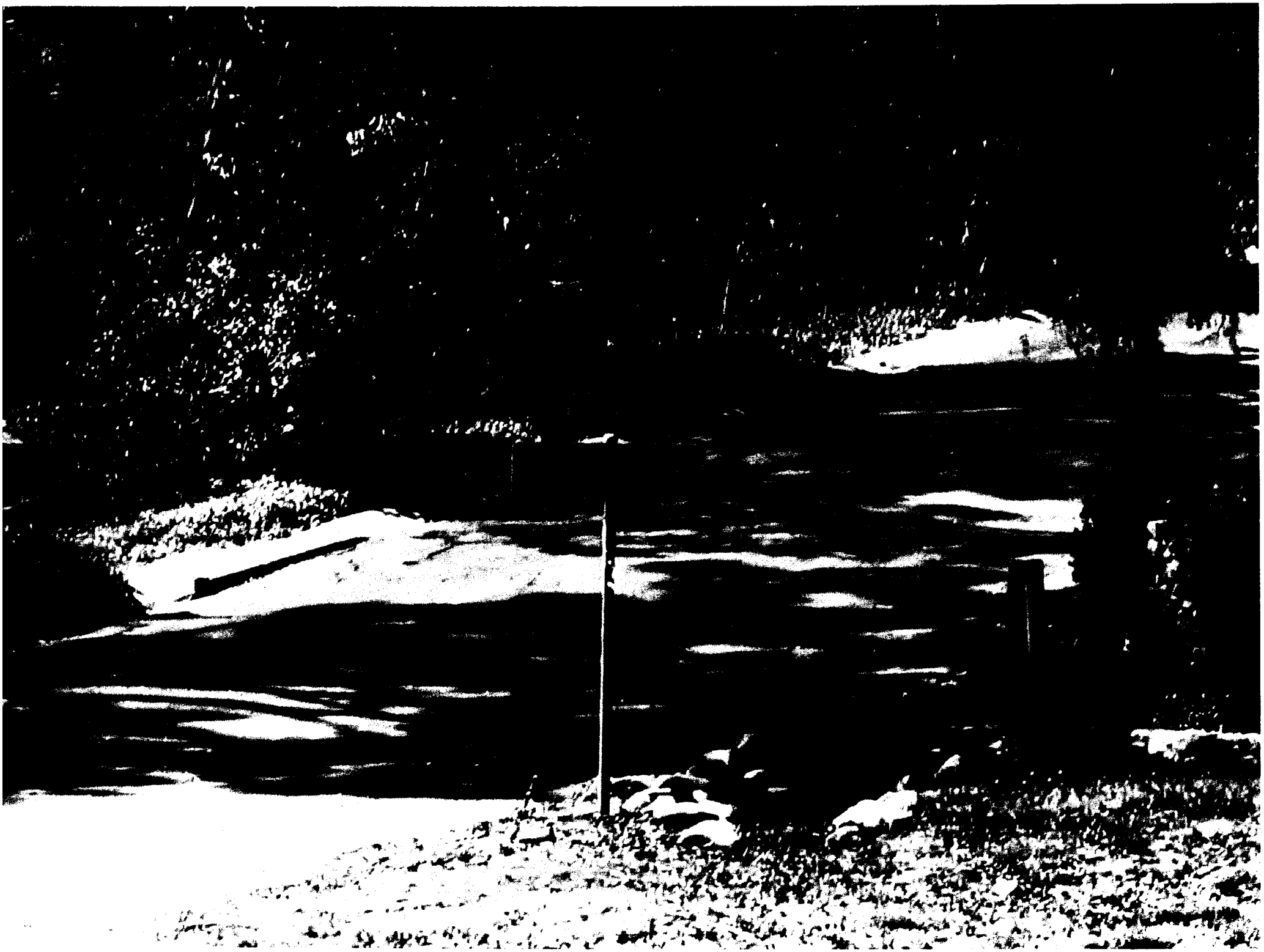
PHOTOGRAPH 1



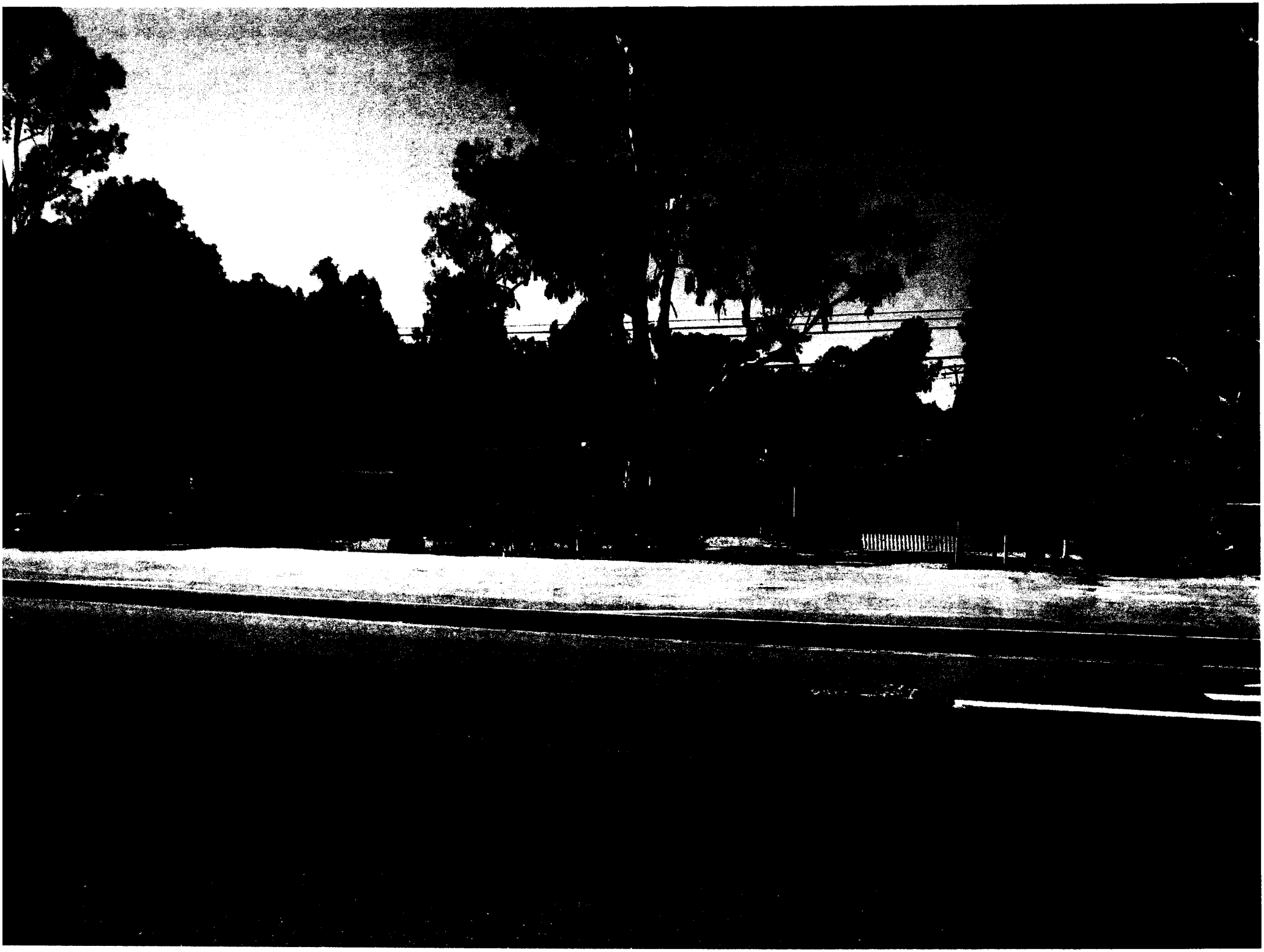
PHOTOGRAPH 2

PHOTOGRAPH 5



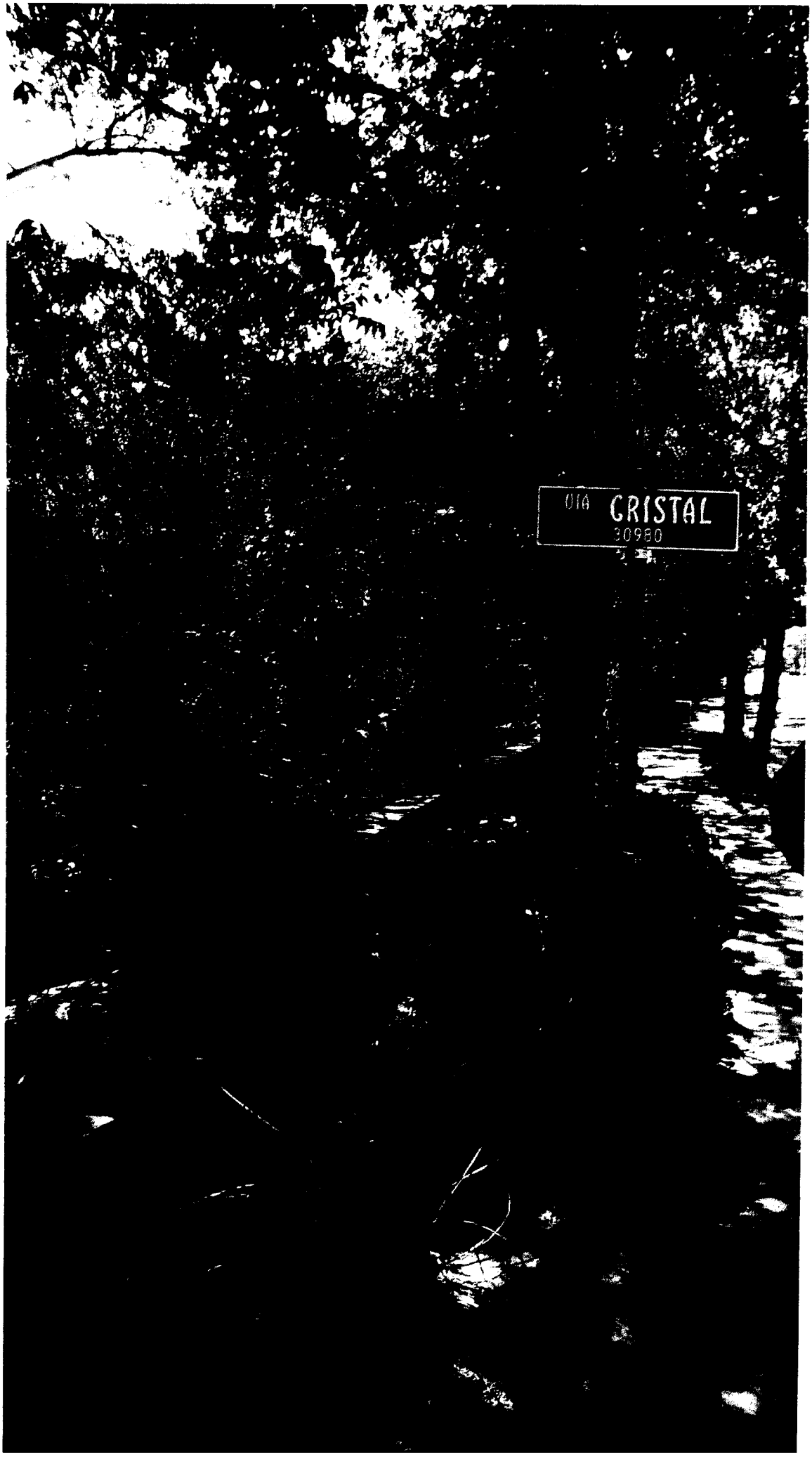


PHOTOGRAPH 7



PHOTOGRAPH 8

PHOTOGRAPH 9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PHOTOGRAPH 10

PHOTOGRAPH 11

PHOTOGRAPH 12

PHOTOGRAPH 13

PHOTOGRAPH 15

SANDRA GENIS, PLANNING RESOURCES
1586 MYRTLEWOOD COSTA MESA, CA. 92626 PHONE/FAX (714) 754-0814

Attachment 2

TO: Amy Minteer, Chatten Brown Associates

From: Sandy Genis

Date: August 6, 2007

Subject: MND for Ortega Highway widening

I have reviewed the Mitigated Negative Declaration (MND) for the widening of the Ortega Highway (State Route 74) in San Juan Capistrano, Orange County, focusing on land use and aesthetics issues. The proposed project consists of the widening of the highway to provide four traffic lanes from Calle Entradero east to the San Juan Capistrano city limit. Based on my review of the materials, I conclude that adoption of the MND would be inappropriate due to both the inadequacy of the documentation prepared and the failure of the proposed mitigation measures to fully mitigate even those impacts identified in the MND, as discussed below. Further, environmental documentation for the project has been improperly segmented, both as to geographic segmentation of analysis as we discussed before, and due to improper deferral of additional environmental analysis and mitigation to the future, particularly related to the location and design of retaining walls and sound walls.

Project Description

As stated in *McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (202 Cal.App.3d 1136, 1143; 249 Cal.Rptr. 439), "An accurate project description is necessary for an intelligent evaluation of potential environmental effects of a proposed activity". A vague or ambiguous project description will render all further analyses and determinations ineffectual. It is critical that the project description be as clear and complete as possible so that the issuing agency and other responsible agencies may make informed decisions regarding a proposed project.

While the MND provides a general description of the project, key elements are either missing or yet to be decided. For example, there is no indication as to how much grading will occur. This is a key factor in addressing other impacts including, but not limited to, traffic on haul routes, air pollutant emissions, and visual impacts. A cut and fill map and estimate of anticipated volumes of grading are essential to an assessment of project impacts. Cross sections at various points along the road, including retaining walls are also needed.

The MND indicates that no staging area will be provided within the city limits, but fails to identify exactly where the staging area will be located. Implementation of the proposed project would clearly create impacts on that area, and the location and distance to the staging area would affect impacts related to traffic and air emissions.

The MND indicates that "affected street lights" would be relocated and replaced. However, no information is provided as to the location of any "affected street lights", nor how any potential relocation might affect adjacent residents.

The MND indicates that four types of retaining walls and two types of sound walls are under consideration. Project impacts would vary with the type of walls selected, with significant adverse impacts occurring if the more visually obtrusive options were chosen. In fact, it is not certain whether sound walls would be provided at all, with Page 2-111 stating that only Sound Wall 2 would be "reasonable". i.e. not too expensive, though Sound Wall 3 is included for further consideration with the Designer of Record to make the final decision during final design. In fact, there is no guarantee that any sound barrier would be provided at all, with the noise analysis indicating that the barrier might not be provided if costs are determined to be above budget. Thus, one could not state with certainty at this point that no impacts would occur.

Land Use

Land Use Conflicts

The area adjacent to the highway consists of low density/equestrian estate residential and agricultural uses. Widening of the highway would result in increased noise and visual impacts degrading the semi-rural atmosphere of the area.

A horse trail easement exists on the northerly side of the highway in the area of the Hunt Club. The MND fails to address impacts on this facility, including whether or not highway widening will involve any takings from this community facility. The MND also fails to address to what extent widening the road would reduce or eliminate the distance between the pavement and the horse trail. Decreased distance between vehicle traffic and equestrian activities would reduce the recreational value of the facility in addition to creating potential safety issues.

Division of the Community

The proposed project has the potential to divide an established community by increasing both road cross section and accommodating additional high-speed traffic. The City of San Juan Capistrano has requested that signals be provided at several locations in order to allow residents on opposite sides of the community to obtain egress from residential areas and to travel back and forth across the highway in vehicles, on foot, or on horseback. Absent the installation of signalized intersections, bridges, or other means of crossing, residents on opposite sides of the highway would be essentially cut off from each other.

Conflicts with Adopted Planning Programs

Areas to the north of the highway have been designated Very Low Density Residential under the Land Use Element of the General Plan. This designation is applied to areas which have unique or significant hillside features such as ridgelines, creeks, slopes, sensitive habitat areas of mapped landslides. Thus, the city has made a determination that this area is sensitive. Areas to the south of the highway are designated for Medium Low Residential use.

The Land Use Element states that development shall be designed to fit into the general topography so as to appear to be part of a natural setting. Land Use Goal 7 is to enhance and

maintain the character of neighborhoods. Land Use Goal 2 provides that growth be directed in a manner that preserves community character. Policy 2.2 is to ensure that new development is consistent and compatible with the existing character of the City which, in the area of the project, is semi-rural. Similarly, Goal 4 of the Conservation and Open Space Element is to prevent incompatible development in areas which should be preserved for scenic, historic, conservation, or public safety purposes. Clearly the construction of a four lane road with retaining walls of up to twenty five feet in height and sound walls up to fourteen feet in height has the potential to degrade the character of the neighborhoods and the City in general unless carefully designed with full mitigation of all impacts.

Land Use Goal 4 is to preserve major areas of open space and natural features. This is similar to Community Design Policy 1.1 and Community Design Goal 3, which aspires to preserve and enhance natural features. Community Design Policy 3.3 calls for preservation and enhancement of scenic transportation corridors, while Policy 3.4 calls for preservation of important viewsheds. Grading to create twenty-five-foot-tall retaining walls would hardly preserve natural features or enhance a scenic corridor. Thus, unless conducted in an extremely sensitive manner, utilizing natural looking materials and minimizing grading, the project would conflict with adopted general plan policy.

Goal 4 of the Circulation Element of the General Plan is to minimize the conflict between the automobile, commercial vehicles, pedestrians, horses, and bicycles. By bringing vehicular traffic closer to equestrian uses, conflicts would be exacerbated. The narrower paved area proposed by the City of San Juan Capistrano in the area of the existing equestrian easement would help reduce this potential conflict.

The Noise Element of the General Plan addresses noise levels and compatible uses in terms of Community Noise Equivalent Levels (CNELs), which give added weight to noise generated in evenings and at night. However, the noise analysis in the MND does not address CNELs.

Noise Element Goal 2 is to minimize transportation impacts. Policy 2.1 is to reduce transportation-related noise impacts to sensitive land uses through the use of noise control measures. Residential uses are considered a sensitive use.

Table 2.2.6-3 in the MND identifies twenty nine locations where future noise levels would approach or exceed Noise Abatement Criteria (NAC) levels. The MND then identifies thirteen potential sound walls to mitigate the noise, although even with a fourteen-foot-tall sound wall fourteen locations would still experience noise levels at or approaching NAC levels. Because potential sound walls 7 and 8 would reduce noise by less than 1 dB, they were eliminated from further consideration, even though noise at those locations could exceed 70 dBA, resulting in a significant unmitigated adverse impact.

The eleven remaining sound walls were considered "feasible" means of mitigating noise, as listed in Table 15 of the Noise Analysis Report. However, based on an analysis of cost, all but Sound Wall 2 were determined not to be "reasonable", even though it had already been determined that future noise levels warranted implementation of mitigation measures; and even though it had already been determined that the proposed sound walls would provide significant

mitigation of excessive noise. The MND's project description also includes Sound Wall 3 as a "worst case" condition (P 2-111), though it would obviously not be a "worst case" regarding the local noise environment, but a potentially better case. In fact, it is entirely possible that no noise walls at all would be provided. As stated in the project Noise Analysis Report (p.43):

> During the design phase of the project, if conditions have substantially changed or the barrier cost is determined to be above the reasonable allowances, the barrier might not be provided. The final decision of the noise barriers will be made upon completion of the project design and public involvement process.

This would clearly conflict with Noise Policy 2.1 above, which does not qualify the provision of measures to reduce noise impacts on the cost considerations of state agencies.[1]

Growth Inducement/Land Use Patterns

The proposed project has the potential to induce growth and alter growth patterns. In accordance with Guidelines Section 15126.2 d, growth inducement may include projects which would remove obstacles to population growth or which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

As noted in the MND (p. 2-20), Ortega Highway is utilized for commuting between Riverside County and southern Orange County and is near capacity during commute times. Widening the highway to four lanes would essentially double capacity of the road. The MND concludes without analysis that the proposed SR-74 improvements would not influence development in western Riverside County.

While development in western Riverside County is likely to continue due to the lack of cheap land nearer the coast, provision of additional commuter capacity is likely to shape growth in Riverside and Orange Counties alike. Provision of additional capacity along commuter routes encourages the existing land use pattern of ever burgeoning bedroom communities in western Riverside County feeding employment centers in Orange County. It reduces the incentive to create more balanced growth, with a better balance between jobs and housing in either Orange or Riverside County. Consequently, wasteful land use patterns are re-inforced, resulting in increased use of fossil fuels by commuters and increased air emissions.

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[1] It should be noted that this is also contrary to the requirements of the California Environmental Quality Act (CEQA). In accordance with CEQA Sec. 21081 and Sec. 15091 of the Guidelines for the Implementation of CEQA, if an EIR identifies significant unavoidable adverse impacts, a project may still be approved if specific economic, legal, social, technological, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR. In accordance with Guidelines Sec. 15093, when a project will result in significant impacts which are not mitigated, the approving agency shall state in writing the specific reasons to support its action. The statement of overriding considerations shall be supported by substantial evidence in the record. However, no such process exists for projects approved under a mitigated negative declaration. In accordance with CEQA Sec. 21080 and Guidelines Sec. 15070, a mitigated negative declaration may only be adopted if revisions in the project plans before a proposed MND and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur. Evidence on the record for this MND indicates that the defined noise impact threshold would be met or exceeded, and mitigation would be foregone due to economic considerations. Therefore, an EIR is required.

Widening the highway will also remove an obstacle to growth locally. Absent the additional capacity, it would be difficult to access approved development at Rancho Mission Viejo. Thus, although development entitlements exist under the approved Ranch Plan, those entitlements could not be exercised without additional roadway capacity in the vicinity.

Aesthetics/View Impacts

Aesthetic impacts will potentially result from loss of trees, grading, installation of retaining walls, and installation of sound walls. Perception of visual impacts tends to be largely subjective. However, the Federal Highway Administration (FHWA) has developed procedures for assessment of aesthetic impacts which are utilized in a Visual Impact Assessment in the MND. Visual character is evaluated for form, line, color and texture. Components of the landscape which are evaluated include landform, cover, vegetation, water, and the man-made environment. However, these evaluations, too, can be subjective, as noted below.

The MND evaluated five viewpoints on a before and after basis according to these procedures. Oddly, while certain aspects of existing conditions were rated as high value, land form was not. At the various viewpoints, landform was consistently rated in the category most consistent with a relatively flat landscape. By contrast, the land form in the project area exhibits quite a bit of relief as illustrated in project plans and the attached portion of a United States Geological Survey topographic map. The low value placed on landform in the analysis would tend to minimize the assessed impact of landform modifications and retaining walls.

Existing views are also considered to be of reduced value in the MND because of reduced visibility due to haze from coastal moisture in the air (p. 13), although the roadway in question is some distance from the coast. No source or actual data is provided in defense of this position, and photos in the MND do not appear hazy.

Rendered photographs were provided of the five viewpoints evaluated. Unfortunately, one cannot tell if the photographs are truly representative inasmuch as the MND does not provide information as to the varying magnitude of cut slopes and walls at the different locations. From the material provided in the MND, one does not know if the cut slopes and retaining walls illustrated are the more extreme situation or are comparatively moderate. One does not know if renderings which appear to illustrate a radical change reflect conditions that would occur over a thousand yards of roadway or one hundred.

In any case, the visual changes are striking, although retaining walls designed to simulate natural rock are a big improvement over plain masonry. Any retaining wall must not be provided as continuous flat surfaces. Relief must be provided and vegetation in the form of shrubs and vines must be utilized to screen these structures to the extent possible. According to the MND design of the retaining walls will be determined later. Thus, impacts could range from quite hideous to merely unpleasant.

Viewpoints also include noise walls in both the foreground and background. As indicated in the MND, sound barriers will be provided by either the Sound Fighter system or "glass" walls, although the illustration on Page 15 of the Section 1 actually shows Paraglas, a thermoplastic

material containing polyamide fibers which is relatively resistant to weathering and fading. Other transparent or translucent sound barriers are made from polycarbamate, which may yellow, and acrylic materials. If the transparent barrier option is chosen, Paraglas or a material of similar quality should be specified in any conditions of approval due to its weathering, durability, and maintenance characteristics.

The sound walls pictured are the "glass" variety, which is less visually intrusive than the Sound Fighter barriers. One drawback to use of clear or translucent materials is that birds may collide with the wall, which will be fourteen feet tall. For this reason, it is suggested that any such walls be constructed with a finish that is not highly reflective and which has lines or small black threads incorporated into the material.

The MND does not include renderings of Sound Fighter walls. Sound Fighter is a high density polyethylene material which includes perforations and relief to avoid problems with noise reflection. Although it can be obtained in a variety of colors, it has a somewhat industrial look (attached), not consistent with the character of the area surrounding Ortega Highway.

Masonry sound walls were not considered in the actual MND for the proposed project, though the sound wall economic assessments in the MND Appendix were based on that type of wall. The MND indicates that reasons for eliminating them from consideration are included in Section 1.6, but that was not found. Masonry walls are more intrusive than translucent walls, but could be less visually jarring than the Sound Fighter, especially if textured, stone-like blocks were used.

The visual intrusion of the sound walls and retaining walls is exacerbated by the removal of vegetation. Over one hundred mature trees will be removed and trees close to the travel way will not be replaced. Even if similarly sized replacement trees could be provided elsewhere in the community, this is a significant adverse long term impact on the immediate area. To the extent feasible, replacement vegetation must be provided along the highway, with vines utilized to screen walls installed as part of the proposed project.

The MND does not address the attractive nuisance for graffiti which may be created due to the provision of hard vertical surfaces adjacent to the highway. While both the Sound Fighter and Paraglas materials are relatively resistant to graffiti, these would be used only for soundwalls, retaining walls would be hard surfacematerials. Vegetative screening will assist in discouraging graffiti.

The MND does not address the potential for shade and shadow to be created by the proposed sound walls. Depending on the surrounding topography, a fourteen-foot-tall structure would be expected to cast a shadow in excess of forty feet in a southwesterly direction as early as 3:00 p.m. during the winter solstice. This would affect residents enjoyment of their yards as well as any vegetation growing therein.

The MND indicates that affected street lights will be relocated, but the impacts of any such relocation are not addressed, nor are the impacts of any new lighting or signage. Light spillage

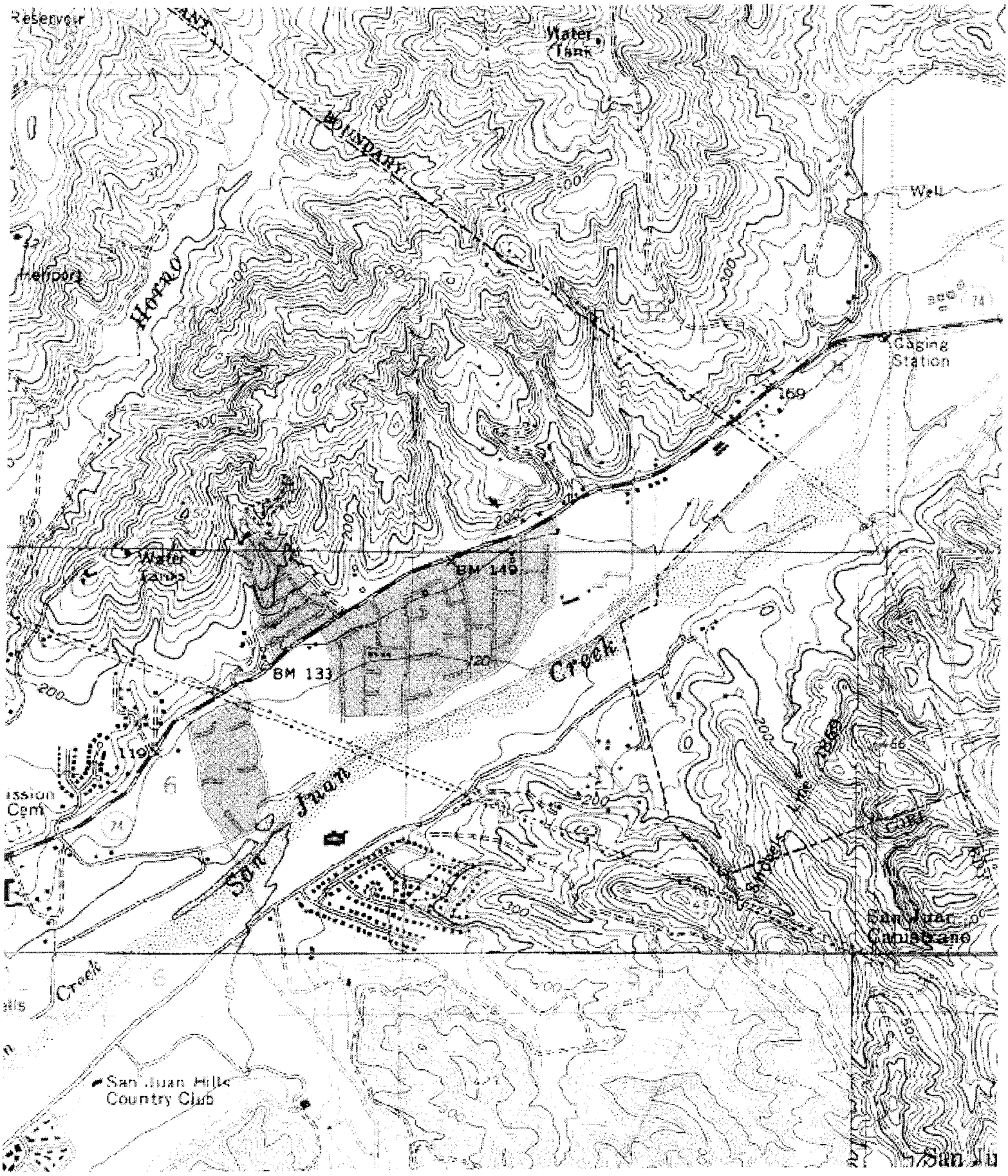
onto adjoining private property could be a problem. Any lights must be equipped with cutoffs to direct light only onto the roadway and not into the surrounding area.

The project description does not mention any guard rails. None are shown in the rendered photos. The absence of guard rails as a part of this project must be confirmed.

These additional issues must be addressed in order to determine if additional impacts might potentially occur. Further, because of the uncertainty regarding the design of retaining walls and sound barriers, it cannot be stated with any degree of certainty that no impacts to visual factors will occur.

Additional

The project description indicates that retaining walls may require pile underground at twice the height of the walls, or up to fifty feet underground. Pile driving creates noise and vibration that can be heard and felt over a mile from a construction site. The noise discussion in the MND did not call this out beyond a generalized discussion of short term construction noise impacts.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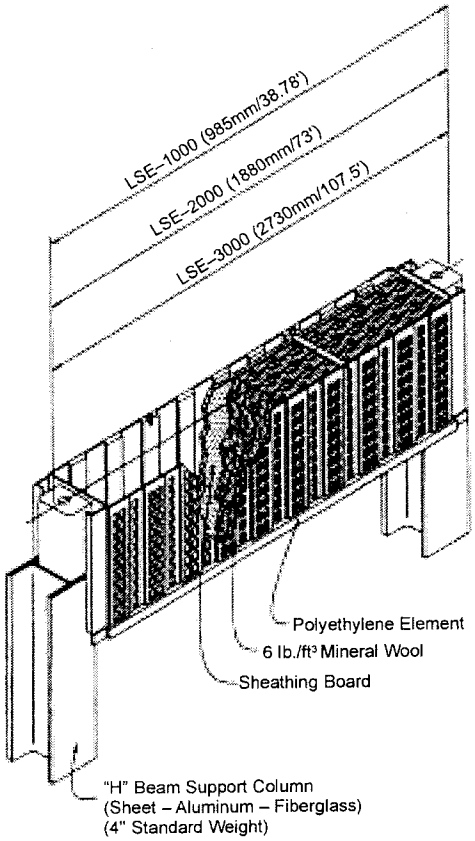
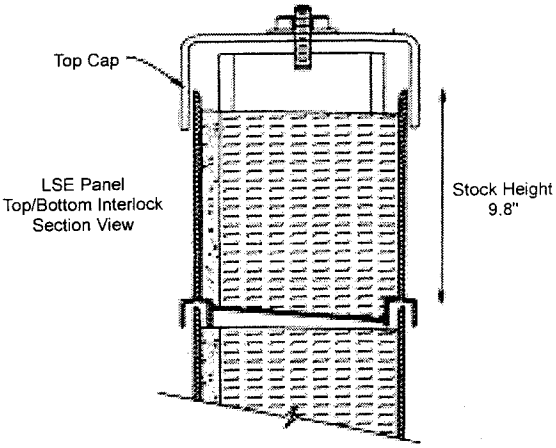
PHYSICAL DIMENSIONS

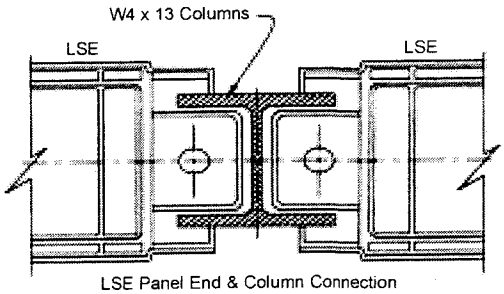
	LSE 1000	LSE 2000	LSE 3000
Length	38.75"	73.00"	107.50"
Width	6.00"	6.00"	6.00"
Height	10.50"	10.50"	10.50"
Stack Height	9.87"	9.87"	9.87"
Area	2.5*sf*	5.0*sf*	7.5*sf*
Weight/*SF*	5.0lb	5.0lb	5.0lb

APPLICATIONS

•Highways • Interstates • Loading Docks • Parking Lots • Compressors • Airports • Transformer Substations • Chillers • Cooling Towers • Airports • Gas Transmission Stations • Pumping Stations • Water Treatment Plants • Railroad Yards • Bridges







LSE Panel End & Column Connection
Section View

Certified Laboratory Test and Results

Sound Absorption Test - NRC = 1.05

Sound Transmission - STC = 33

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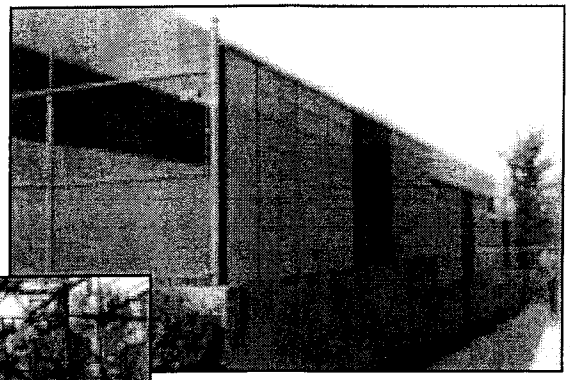
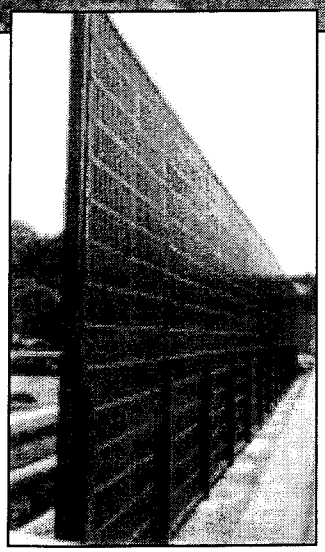
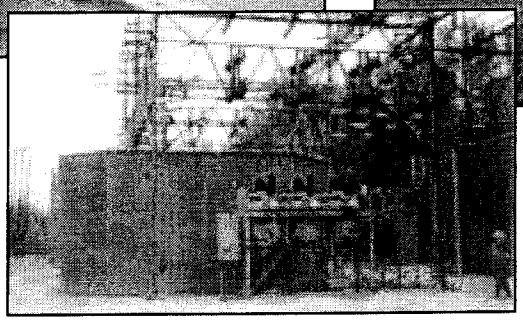
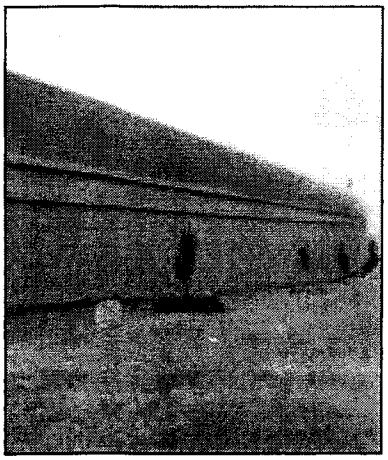
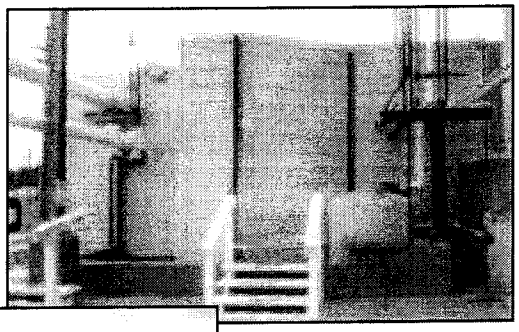
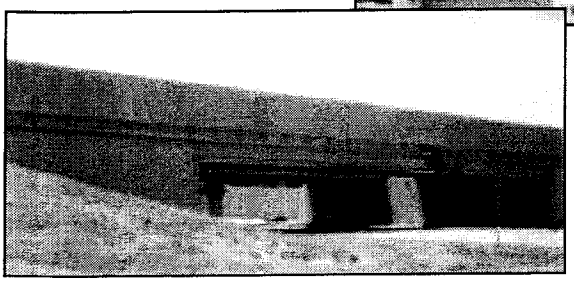
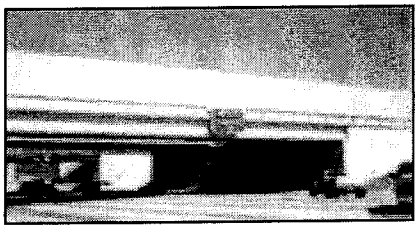

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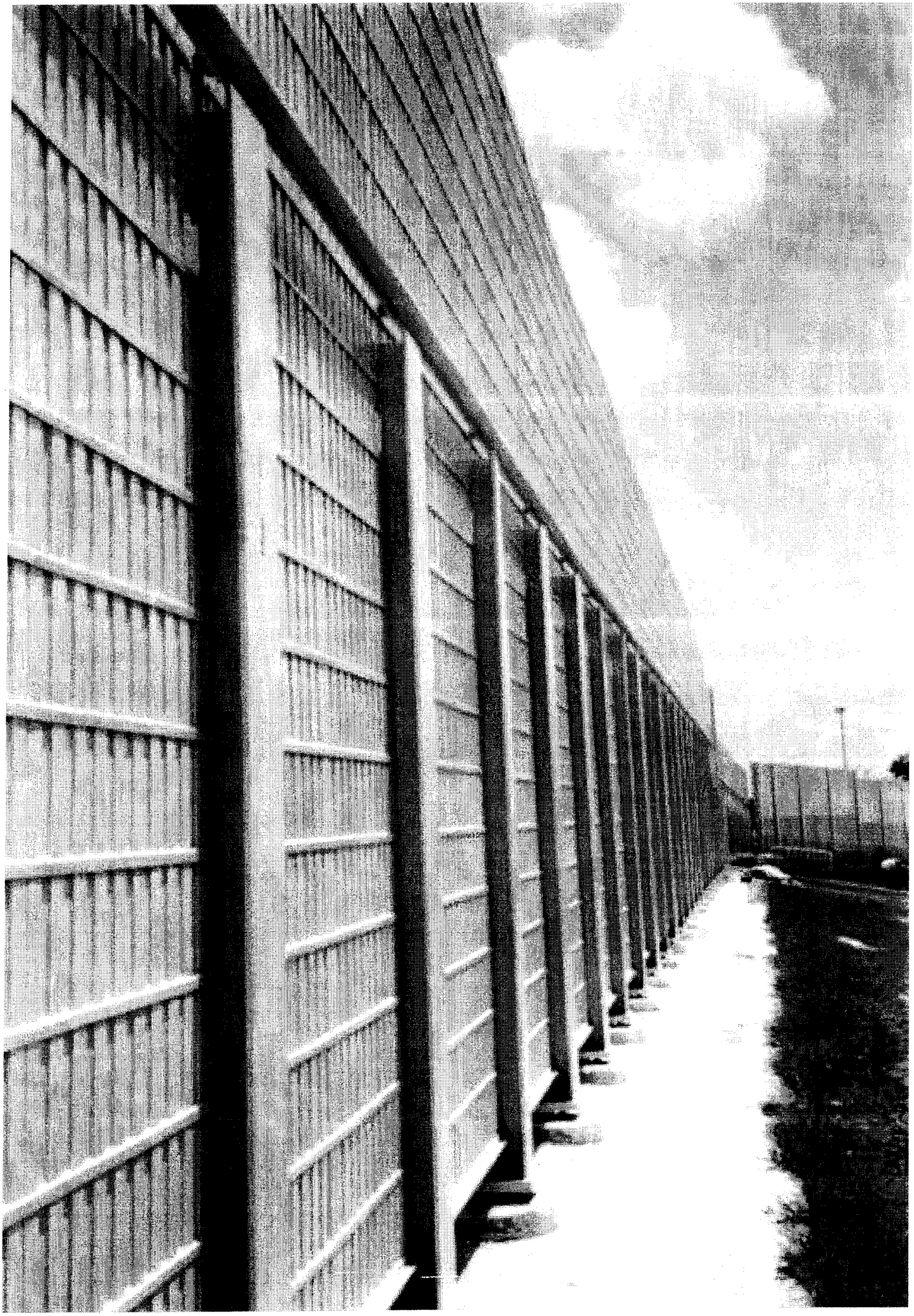

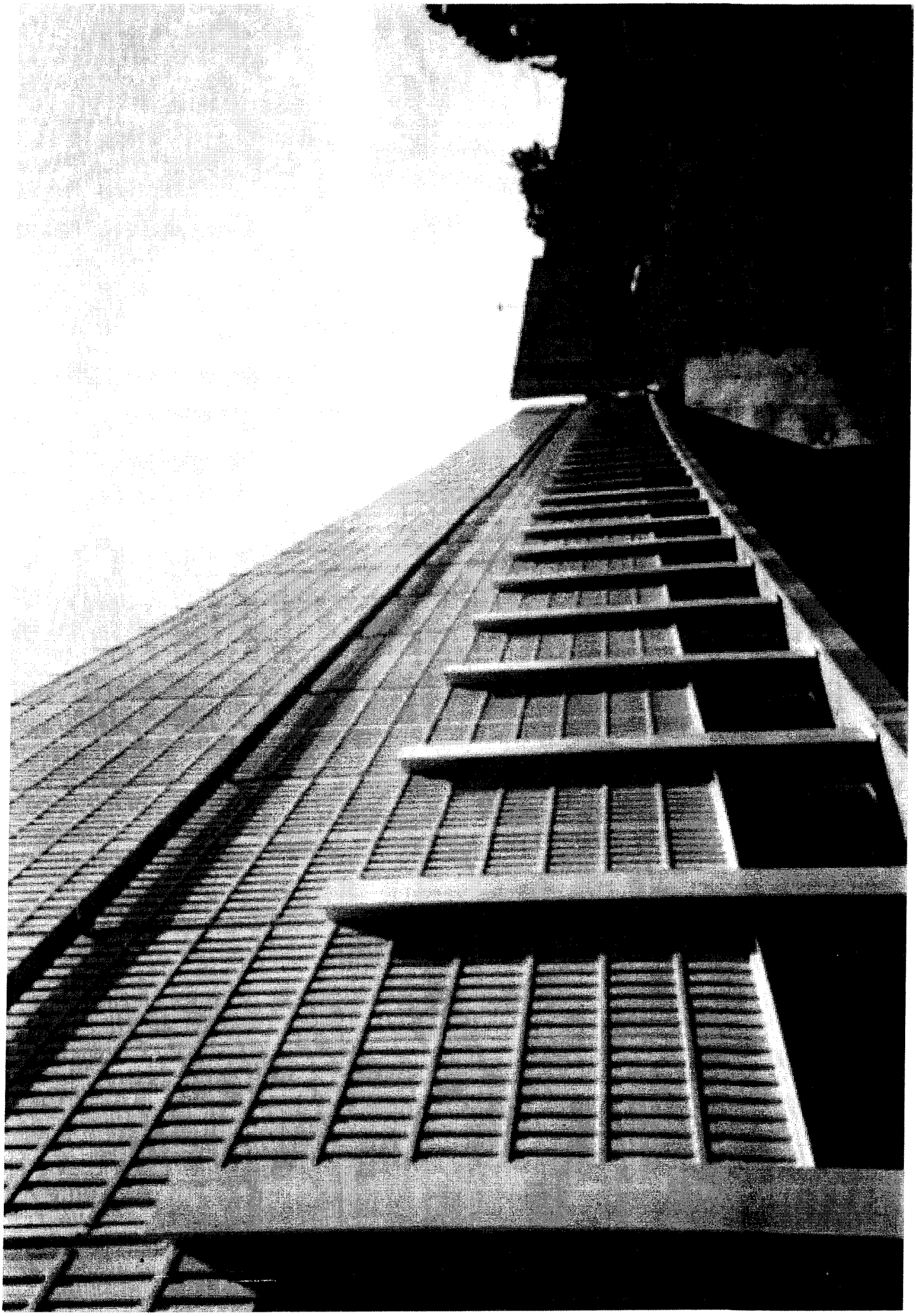

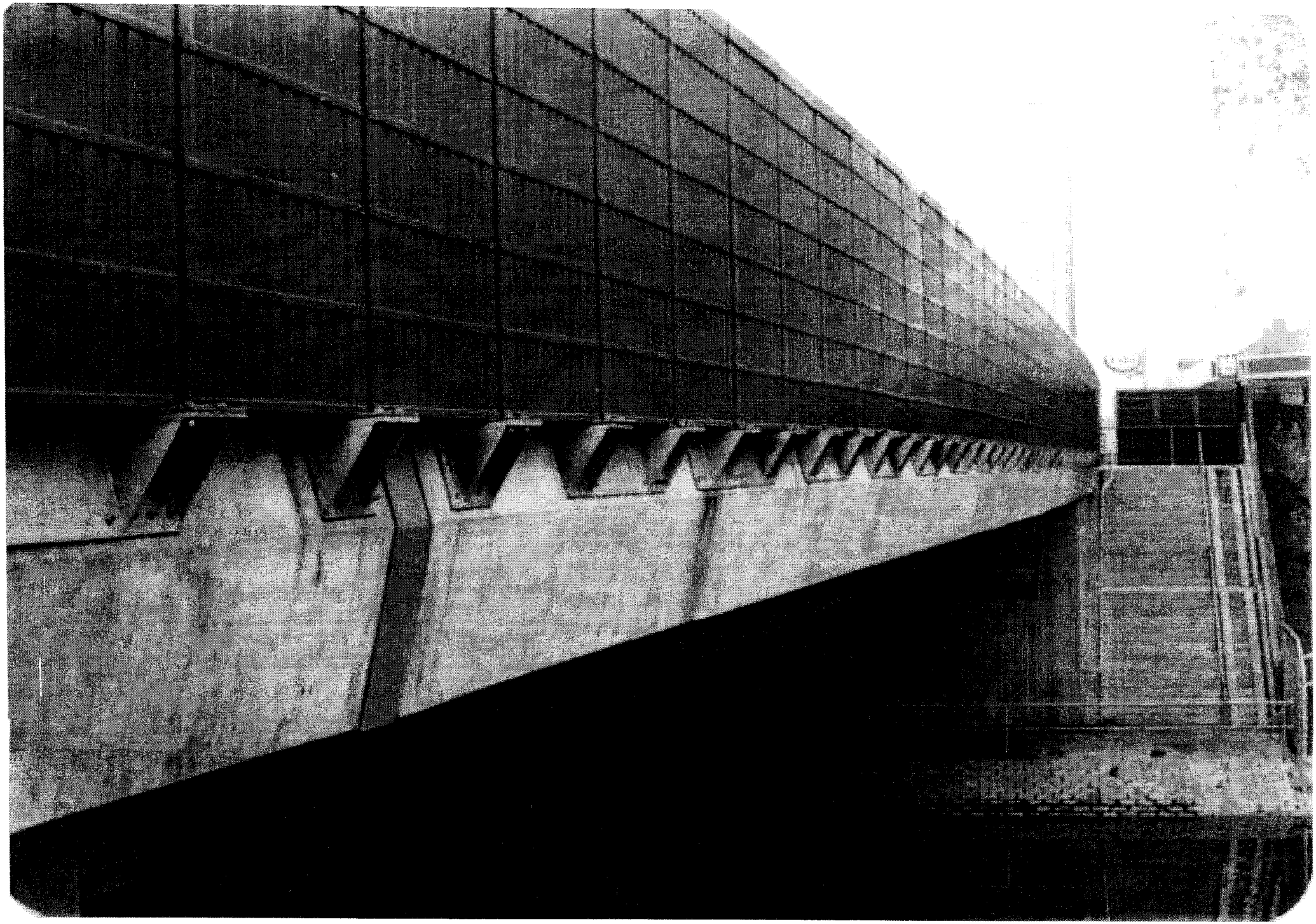

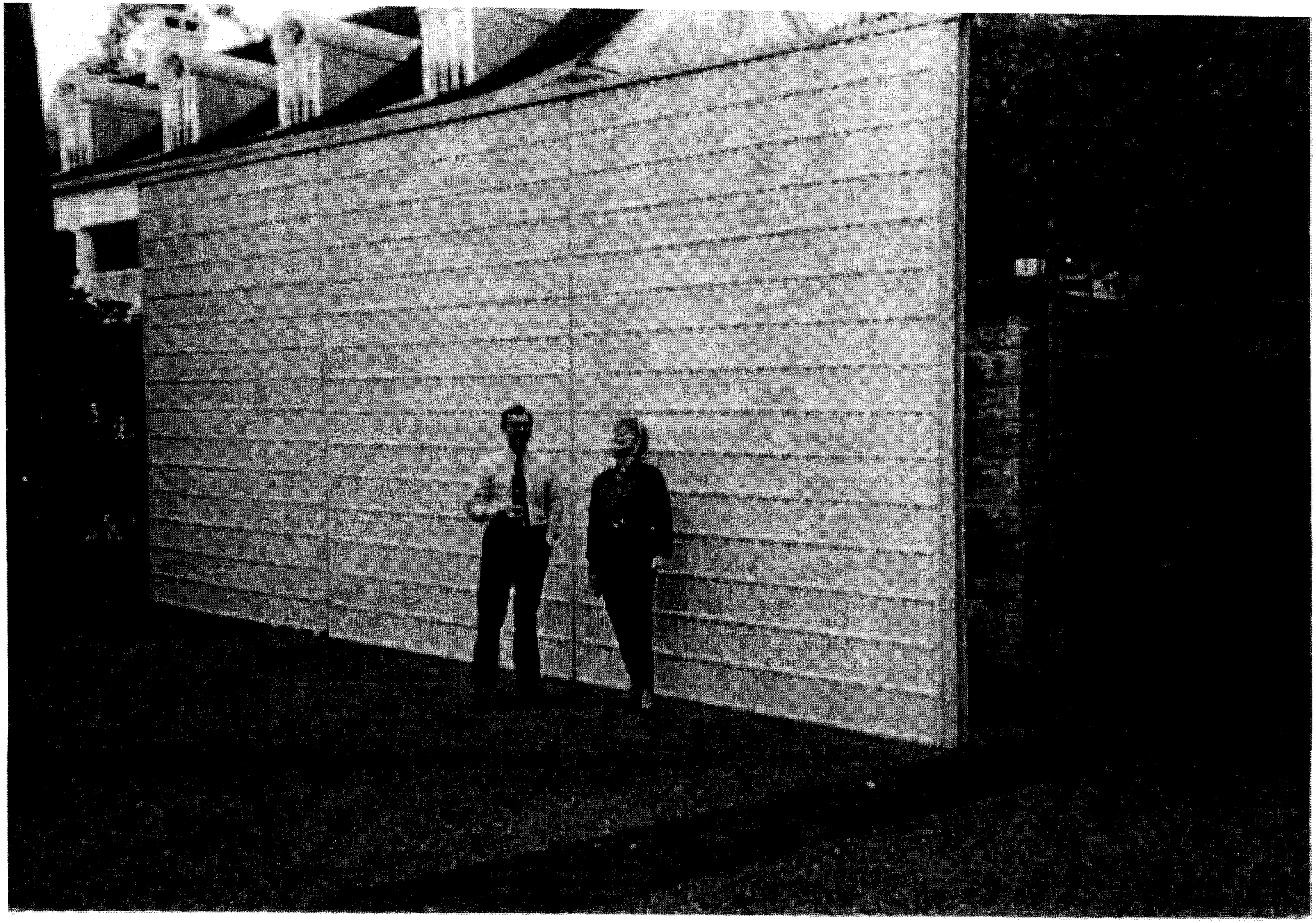

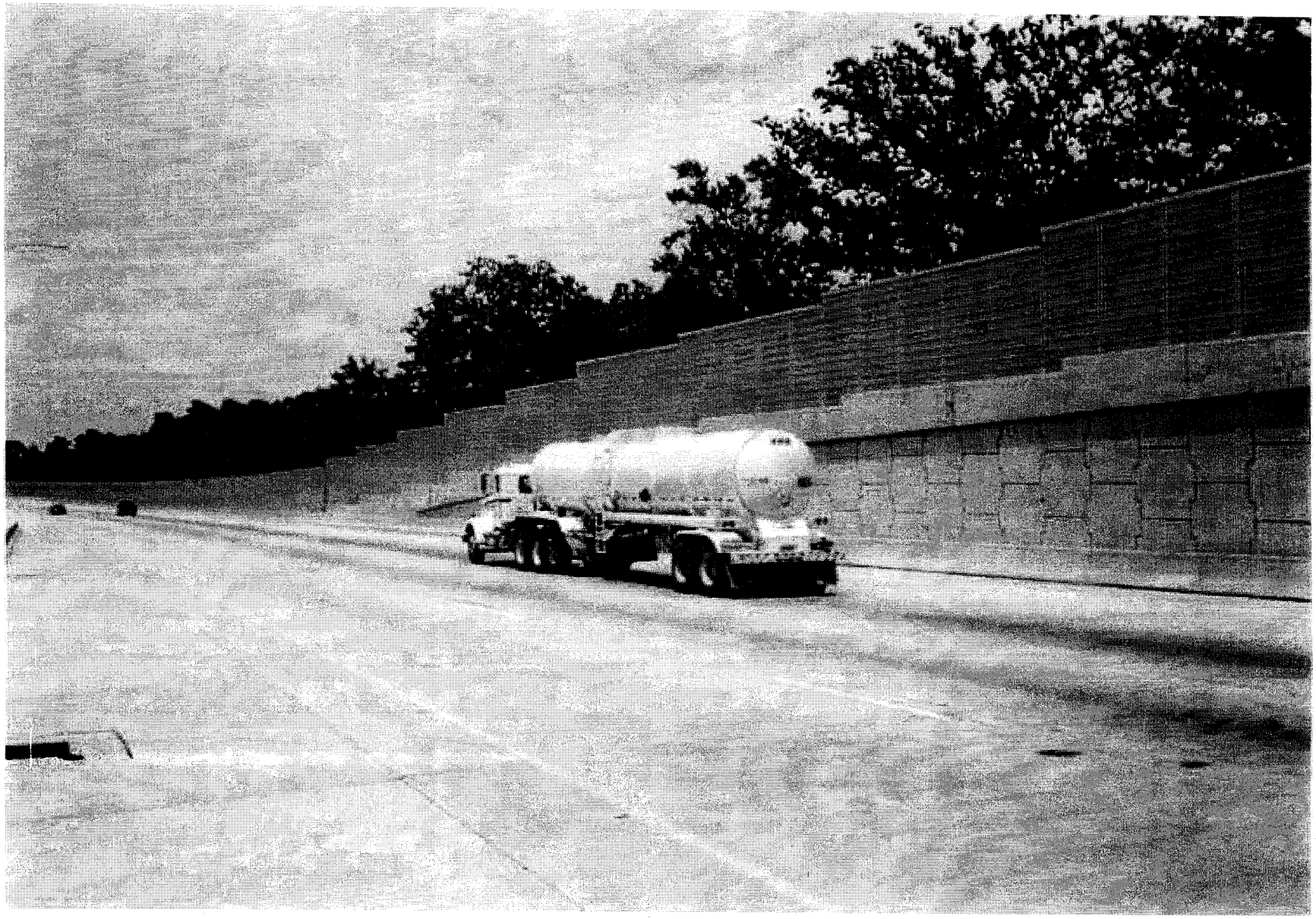

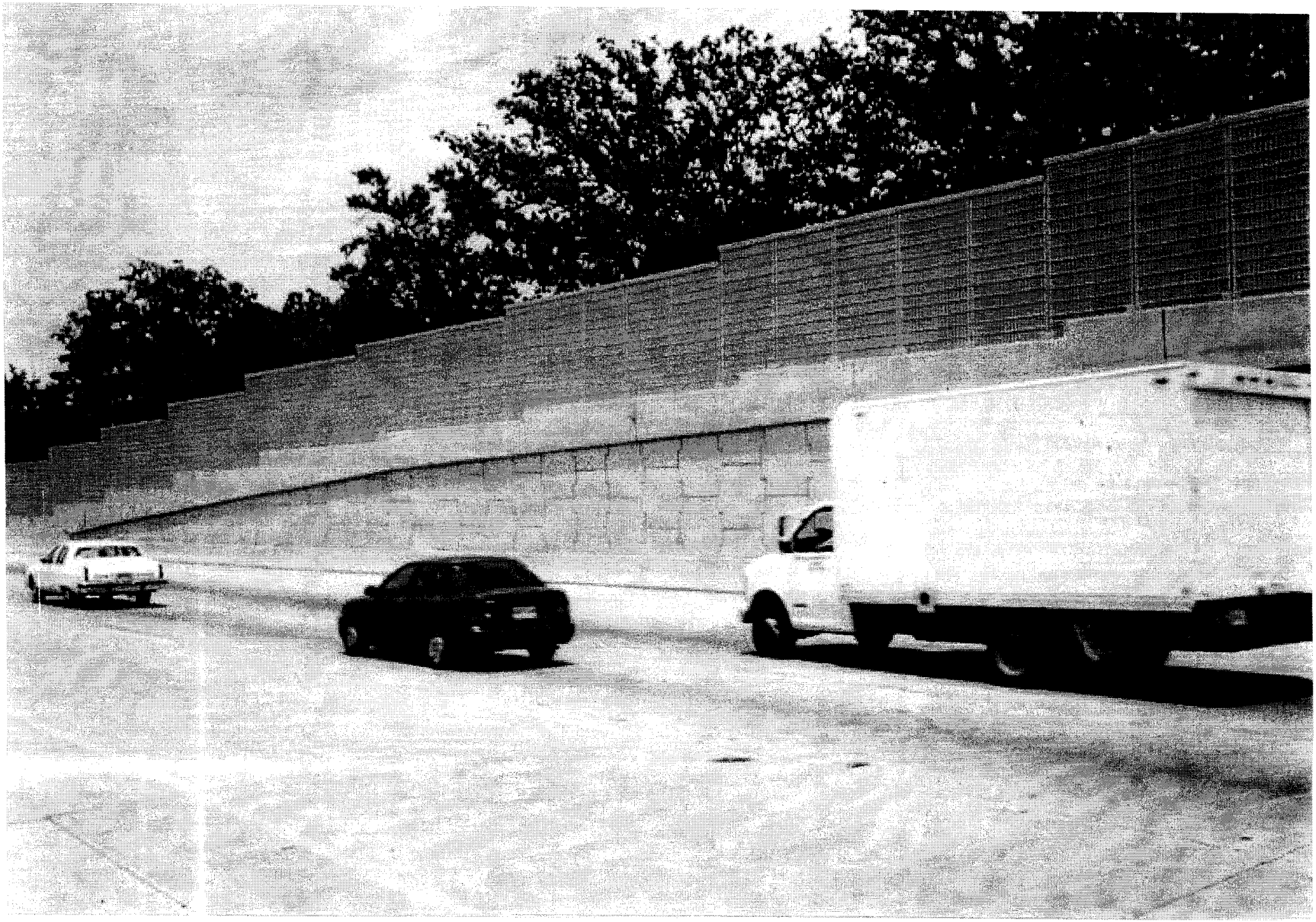

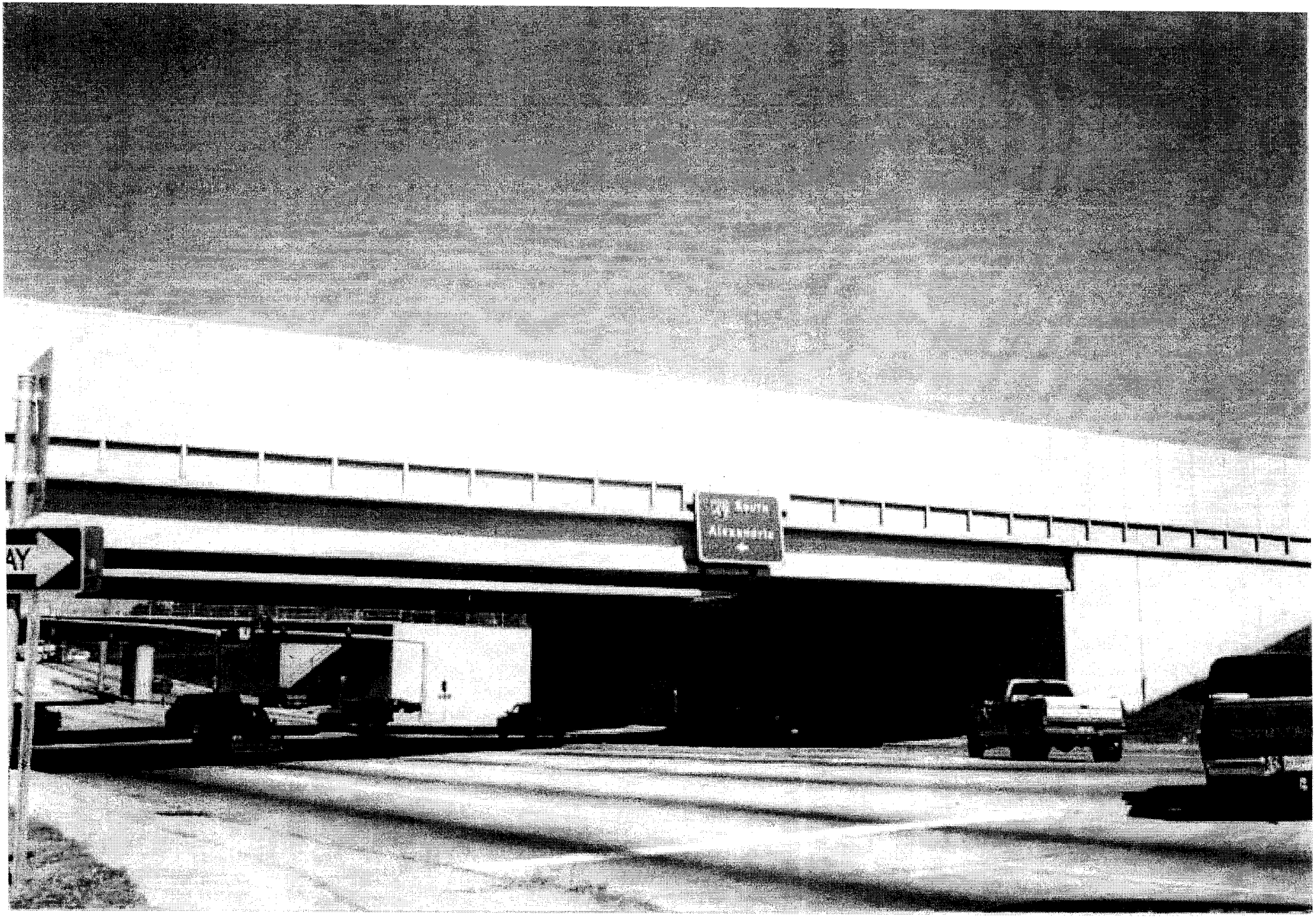
AY
Alexandria

SANDRA L. GENIS

EXPERIENCE

SANDRA GENIS, PLANNING RESOURCES

Independent Consultant, 1992 to present
Provides planning consulting services to public and private clients in the southern California region and Arizona. Includes housing studies and other general plan and land use studies; coastal resource planning pursuant to the California Coastal Act; implementation ordinances; environmental mediation/consensus building; preparation, management and critical review of environmental documents prepared pursuant to the California environmental Quality Act (CEQA) and the National Environmental Protection Act (NEPA). Additional activities include intergovernmental coordination, internal review of governmental processes, development of strategic response to development proposals, and review of new and pending legislation in order to develop proactive response and/or implementation programs.

EIP ASSOCIATES

Senior Associate, Director of Planning, Southern California Region, 1991 to 1992
Responsible for preparation of planning and environmental studies at a senior level. Duties included client liaison, marketing, budget management, staff supervision, review of work products, and strategic planning.

CITY OF NEWPORT BEACH

Principal Planner, 1990 to 1991
Responsible for City environmental review process, including consultant management, coordination of interdepartmental review, planning for major projects, preparation of staff reports and public presentations. Reviewed environmental documents prepared by other agencies for actions resulting in potentially significant impacts to the City. Represented City before other public agencies such as Orange County and Coastal Commission. Dealt with elected and appointed officials, press, citizen groups and general public on an individual and group basis.

Senior Planner, Advance Planning, 1989 to 1990
Responsible for major revisions to Zoning Code, emphasizing performance based zoning. Administered coastal issues, including comprehensive revision of Local Coastal Program Land Use Plan. Worked with City Attorney and planning staff to prepare plans and ordinances, preparation of Planning Commission and City Council staff reports, public notices, attendance at public hearings and training of line personnel in application of new ordinances. Dealt with public, press, other public agencies, and City Council and Planning Commission members. Directed and advised Associate and Assistant Planners as appropriate.

Senior Planner, Current Planning, 1987 to 1988
Associate Planner, Current Planning, 1985 to 1987
Reviewed applications for discretionary approvals and developed recommendations for Planning Commission and City Council. Prepared staff reports, public notices, and agendas; interacted with personnel in other departments and with general public; and attended public hearings.

Prepared ordinances and implementation guidelines in response to new legislation and changing City conditions. Worked with City Attorney and Code Enforcement Officers to develop remedies for problem situations. Provided departmental expertise in the areas of biological resources, historical resources, and water quality. Guided and directed activities of Associate and Assistant Planners as appropriate.

Associate Planner, Advance Planning, 1980 to 1985
Prepared planning studies and staff reports on various issues. Projects managed include regional stormwater sedimentation control plan, cost/revenue study, fee study, and recreation and open space element. Included securing technical consultants, contract management, preparation of legal notices, investigation of funding sources, preparation of grant proposals, staff liaison for citizens' advisory groups, and participation in public review process before City Council and Planning Commission. Assigned duties to Assistant Planners and Aides as appropriate.

Maintained City data base. Provided information to general public. Represented City on inter-agency task forces dealing with issues of regional significance. Examined new and pending legislation and developed implementation guidelines. Assisted City Attorney in research on litigation related to such issues as housing and airport expansion. Testified in Orange County Superior Court in litigation to which City was a party.

WESTEC SERVICES, INC.
Senior Environmental Analyst, 1979 to 1980
Environmental Analyst, 1977 to 1979
Was project manger and prepared individual sections for planning studies and impact assessments throughout southern California. As project manager was responsible for completions of projects on time and within budget. Duties included preparation of proposals, client liaison, preparation and management of subconsultant contracts, representation at public hearings, and assignment of tasks and schedules to in-house technical specialists. Was responsible for report production, involving management of clerical and graphics staff.

Projects managed include EIRs for general plan amendments, planned communities, commercial centers, and institutional developments. Specialized studies include biological, noise, and water resource analyses. Performed biological field surveys in numerous areas.

AFFILIATIONS AND ACTIVITIES

American Planning Association (Program Committee, 1990 State APA Conference)
American Institute of Certified Planners, No. 6727 (1989-1995)
Southern California Special Commission on Air Quality and the Economy, 1992
Southern California Association of Governments Regional Council, 1992 to 1996
Orange County Housing Commission, 1991 to 1994
Orange County Single Room Occupancy Housing Task Force, 1991
Orange County Affordable Housing Task Force, 1992
Orange County Regional Advisory and Planning Council, 1995 to 1996
Orange County Charter Commission, 1995
Costa Mesa City Council, 1988 to 1996; Mayor, 1992 to 1994
Bolsa Chica Land Trust, Board Member, 1997 to present
Orange County Friends of Harbors Beaches and Parks, Board Member, 1997 to 2002
Civic Center Barrio Housing Corporation, Board Member, 1998 to present

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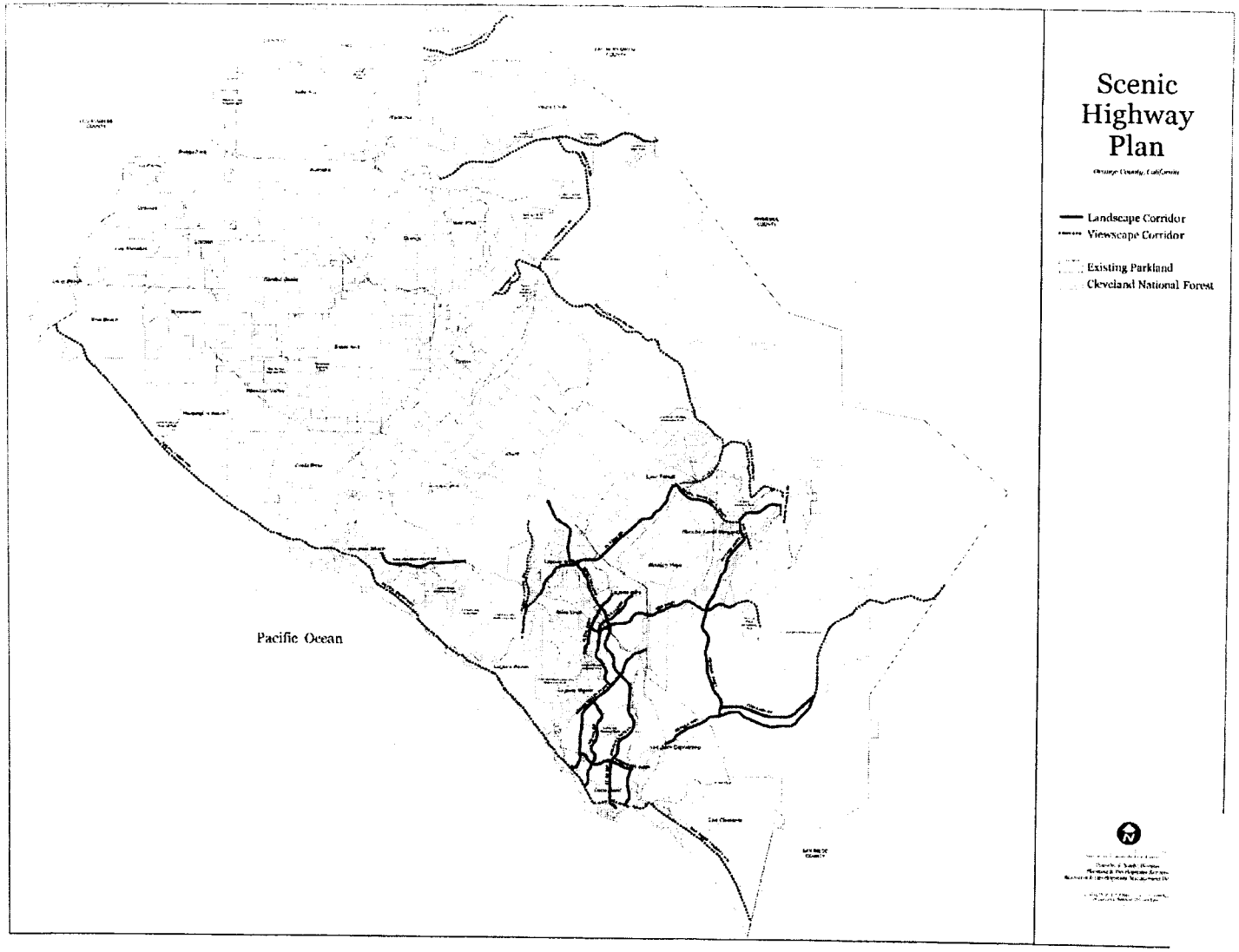
Scenic
Highway
Plan
Landscape Corridor
Viewscape Corridor
Existing Parkland
Cleveland National Forest
Pacific Ocean

Attach 3

Attach 4

Development of the right-of-way should, to the extent possible, follow the adopted Viewscape Typical Section (Figure IV-14). If utilization of the typical section would destroy the scenic amenities of the corridor, a modification of the standard can be considered. The appropriate width and development of the right-of-way shall be discussed/considered in the scenic corridor implementation plans.

Landscape Corridor (Type 2)

A landscape corridor traverses developed or developing areas and has been designated for special treatment to provide a pleasant driving environment as well as community enhancement. Development within the corridor should serve to complement the scenic highway.

Development of a landscape corridor should, to the extent possible, follow the adopted Landscape Typical Section (Figure IV-15). Any variation to the typical section should be addressed in the scenic corridor implementation plans.

GOALS, OBJECTIVES AND POLICIES: *Scenic Highway Plan*

This section provides guidance for goals, objectives and policies regarding scenic highways.

Goal 1

Preserve and enhance unique or special aesthetic and visual resources through

sensitive highway design and the regulation of development within the scenic corridor.

- ***Objectives***

  1.1 Protect and enhance the County's beauty, amenities and quality of life within the unincorporated areas.

  1.2 Add to the pleasure of its residents and visitors by enhancing scenic routes.

  1.3 Coordinate the development of new scenic corridors with CalTrans, OCTA, the cities, and the development community, in order to preserve the aesthetic qualities of the environment.

  1.4 Preserve established Scenic Highways in order to protect the existing scenic qualities of these corridors.

  1.5 Develop the roadway portion of the scenic corridors in a manner that recognizes the natural scenic resources of the corridor and is sensitive to them to the maximum extent feasible.

  1.6 Require sufficient setback from the scenic corridor, where feasible, for the purpose of preserving the corridor's scenic qualities.

- ***Policies***

  1.1 ***Project Consistency:***
  Require preparation and approval of highway plans demonstrating project consistency with the intent of the Scenic Highway Component, prior to tract map recordation. This can be accomplished through the subdivision, discretionary permit, Feature or Area Plan review process.

  1.2 ***Offer of Dedication:***
  Where necessary to preserve unique or special visual features, impose conditions on development within a scenic highway corridor to require dedication of scenic easements consistent with the adopted corridor plan.

  1.3 ***Addition to the Scenic Highway Plan:***
  Preserve scenic routes which have exceptional or unique visual features, but are not necessarily designated as arterial highways on the County Circulation Plan, by placing them on the Scenic Highways Plan. Development of scenic highways shall be in conformance with a Specific Plan prepared in accordance with the Scenic Highway Implementation Planning Guidelines (Appendix IV-5).

  1.4 ***Cooperative Planning:***

Connect County-designated scenic highways with city-designated scenic highways; adjacent-County-designated scenic highways, and/or those in the State Scenic Highway system so as to form a linked system.

1.5 ***View Design:***
Where feasible, through the design process and alignment studies, develop the scenic highway in a manner which takes into account the cone of vision of the motorist. Consider both the short and long-range views available along the way while enhancing them with foreground framing.

1.6 ***Highway Design:***
Design the roadway to have a visual quality and riding comfort resulting from its horizontal and vertical design. Introduce curves where feasible to take advantage of natural or man-made scenic features.

1.7 ***Inclusion of Trails:***
Incorporate pedestrian, equestrian, and bicycle trails into the right-of-way of scenic highways as designated by the County's Bikeways Plan and the Master Plan of Regional Riding and Hiking Trails.

1.8 ***Road Slope Improvement:***
Where feasible, utilize contour grading and slope rounding to gradually transition graded road slopes into the natural configuration consistent with the topography of the area.

IMPLEMENTATION PROGRAMS: *Scenic Highway Plan*

1. SUBDIVISION PROCESS

During the review of subdivisions and discretionary permits, assure that the number of access points (e.g., driveways, local roads, etc.) on scenic highways are minimized.

Attach 5

August 7, 2007

Jan Chatten-Brown
Chatten-Brown and Associates
3250 Ocean Park Blvd., Suite 300
Santa Monica, CA 90405

Subject: **Review and Comments on the Initial Study (with Proposed Mitigated Negative Declaration) for the State Route 74 Lower Ortega Highway Widening Project in the City of San Juan Capistrano, California**

Dear Ms. Chatten-Brown,

Thank you for the opportunity to assist you in a third party review of the technical documents and Initial Study for the State Route 74 (SR-74) Lower Ortega Highway Widening Project in the City of San Juan Capistrano. It is my understanding that the proposed project would widen SR-74 from two lanes to four through lanes between Calle Entradero to the City limits. The project would include retaining walls and sound walls along portions of the alignment.

My area of expertise is in analysis of air quality, noise, and traffic as they pertain to the California Environmental Quality Act (CEQA) and my Statement of Qualifications can be found as an attachment to this letter. My evaluation and comments focus on noise and trafic. I have organized each of the discussions and comments under these two topics as follows:

Noise

The evaluation of noise impacts described in the Initial Study for the proposed project did not evaluate all reasonably anticipated noise impacts. CEQA Section 21080(c)(2), requires that Lead Agencies in light of the whole record that there is no substantial evidence that the project as revised (by mitigation) may have a substantial impact on the environment. This determination requires full review of potential impacts in order to either conclude that impacts will not occur or impacts are less than significant. CEQA Guidelines Section CEQA Guidelines Appendix G: Environmental Checklist Form (hereafter referred to as the Checklist) is provided within the CEQA Guidelines to assist Lead Agencies in evaluating potential impacts. The Checklist is a comprehensive list of environmental criteria and questions on potential impacts of a project that provides a framework that Lead Agencies can use in the Initial Study evaluation that would avoid missing potential impacts. While the use of the Checklist is not mandated by CEQA, it is extremely useful tool. The fact that the Initial Study for the project missed analyzing potential noise impacts is likely due to the fact that, while the Checklist was provided in Appendix A of the Initial Study, it was not used in the evaluation. Rather, the Checklist provided in Appendix A of the Initial Study only parrots back each environmental question in the Checklist as a negative answer, but provides no substantiation for the answer other than to reference the Section in the Initial Study where the supposed

analysis is located. I use the word "supposed analysis" due to the fact that in many cases the referenced section of the Initial Study analysis did not address the Checklist question or potential impact at all. For this reason, I frame the comments on the noise analysis in the Initial Study for the project under the headings of each of the environmental questions on noise found in the Checklist:

Checklist Question: Would the Project Result in Exposure of Persons to, or Generation of Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies?

The noise analysis within the Initial Study for the project failed to evaluate the project in relationship to the noise standards set by the City of San Juan Capistrano in the General Plan Noise Element and the City's Noise Ordinances. Rather, than using noise standards, the noise analysis within the Initial Study evaluated noise impacts using the Federal Highway Administration's Noise Abatement Criteria (NAC) for construction impacts found in Table 1 of 23 CFR Part 772.19: titled "Construction Noise." Noise sensitive land uses surrounding the project are primarily residential uses. The NAC exterior noise level of 67 dBA $Leq_{(hr)}$ for residential land uses used in the Initial Study noise analysis and found in Table 1 of 23 CFR Part 772.19 may violate the City of San Juan Capistrano's exterior noise standard of 65 dBA CNEL for residential land uses (Table N2 on pg 5 of the City of San Juan Capistrano General Plan Noise Element; 1999). Also note that the City of San Juan Capistrano has an interior noise standard of 45 dBA CNEL for residential land uses (Table N2 on pg 5 of the City of San Juan Capistrano General Plan Noise Element; 1999) that was not evaluated or discussed at all in the Initial Study for the project.

The noise sensitive land uses that will be impacted by the project are within the jurisdiction of the City of San Juan Capistrano and features of the residential properties (such as perimeter walls and the residential structures) have been engineered and built to comply with the City of San Juan Capistrano's interior and exterior noise standards. While the Lead Agency for the project may be the California Department of Transportation (Caltrans), this does not relieve the Lead Agency from evaluating impacts within the context of the environment that those impacts will occur. In this particular case, the impacts will occur within the City of San Juan Capistrano and Caltrans needs to correlate an evaluation that not only uses their own NAC criteria but also uses the City's noise standards in the evaluation.

Checklist Question: Would the Project Result in Exposure of Persons to, or Generation of Excessive Groundborne Noise or Vibration?

The project description in the Initial Study for the project includes retaining walls and other features that may use pile driving, vibratory rollers, and other equipment and/or construction techniques that will cause groundborne vibration. However, the Initial Study did not analyze or discuss impacts related to groundborne noise or vibration. There is a reasonable anticipation that environmental impacts related to

groundborne vibration will occur to the land uses immediately adjacent to the project during construction and mitigation may be needed to reduce those impacts to less than significant. Mitigation measures that could be used include: 1) using augers and setting retaining wall supporting members in concrete rather than pile driving supporting members, 2) providing buffer zones between residential property and the use of vibratory rollers and other vibratory equipment and using alternative ways of compaction within these buffer zones that does not create excessive vibration.

Caltrans should evaluate the potential for excessive vibration as part of the Initial Study for this project. Caltrans can use guidance in the document titled "Transportation- and Construction-Induced Vibration Guidance Manual (2004)," published by Caltrans in evaluating this potentially significant impact.

Checklist Question: Would the Project Result in Substantial Permanent Increase in Ambient Noise Levels?

Noise sensitive receptors in the project area are residential properties adjacent to the proposed project. The text of the Initial Study states that "42 receiver sites were studied along the eastbound side of SR-74 . . .." However, only 41 receiver sites on the eastbound side of SR-74 are actually shown in the evaluation summarized on Table 2.2.6-3 of the Initial Study (Initial Study pgs 2-106 and 2-109).

Caltrans mitigated potential impacts to residential properties within the City of San Juan Capistrano using the NAC criteria found in Table 1 of 23 CFR Part 772.19: titled "Construction Noise." However, that criteria may not meet the San Juan Capistrano noise standards for residential properties. An analysis should be done that correlates the noise attenuation resulting from project mitigation to the City of San Juan Capistrano noise standards to insure that impacts are less than significant.

Checklist Question: Would the Project Result in Substantial Temporary Increase in Ambient Noise Levels?

The Initial Study states that "Noise levels from typical construction activity expected in the project area could range from 70 dB to 90 dB at a distances of 50 feet (Initial Study, pg 2-115). Note that the range of 70 dB to 90 dB at distances of 50 feet are for one piece of construction equipment. The closest noise sensitive receivers to the proposed construction activities are residential properties immediately adjacent to the project and within 50 feet or less of construction equipment that will be generating noise. Therefore, noise levels at the noise sensitive receivers would be at least 70 to 90 dBA $Leq_{(1hr)}$ which is in violation of the exterior 67 dBA $Leq_{(1hr)}$ NAC criteria for residential properties used earlier in the analysis. Note that the NAC criteria comes from 23 CFR Part 772.19: titled "Construction Noise."

The initial study dismisses construction noise impacts because of Caltrans standard specifications and that impacts are ". . .short-term, intermittent and in most cases dominated by traffic noise . . .." However, noise levels of 70 dB to 90 dB are significantly higher than the predicted traffic noise shown in Table 2.2.6-2

(Initial Study pg. 2-106) as ranging between 53.7 dB to 71 dB. Also, the Initial Study does not identify specific Caltrans specifications that will reduce construction noise or demonstrate how Caltrans standard specifications will reduce construction noise to less than significant. Given the predicted noise levels shown in the Initial Study (70 dB to 90 dB; Initial Study, pg 2-115), the fact that these noise levels are in excess of the NAC, and no project features such as Caltrans standard specifications are called out that will reduce these impacts, mitigation is required to reduce these impacts to less than significant. Mitigation can include: 1) requiring temporary noise attenuation between sensitive receptors and construction noise; 2) moving construction staging areas, cue lines of haul trucks, and other noise generation as far as practical from residential properties, 3) restricting equipment idling, 4) providing temporary electric construction power to eliminate noise from portable electric generators.

Traffic

The discussions of project impacts to Transportation/Circulation are based upon a project specific traffic study titled "SR-74 (Ortega Highway) Widening Project Traffic Study," dated November 2, 2006, prepared by Austin-Foust Associates, Inc., which provided analysis on 3 intersections. A traffic study titled "SR-74 (Ortega Highway) Widening Project Supplemental Traffic Study also prepared by Austin-Foust Associates, Inc , was conducted to provide analysis on 3 additional intersections. Both traffic studies provided analysis on 6 intersections along the alignment of the project. While these traffic analyses did an adequate job of analyzing the study intersections for the level of service (LOS) afforded vehicle traffic by the project, it did not evaluate local pedestrian traffic impacts. Also, because the Initial Study did not use the Environmental Checklist Form provided in Appendix G of the CEQA Guidelines (Checklist), the evaluation did not address all of the potentially significant impacts. The following comments on the traffic analysis in the Initial Study for the project are under the headings of each of the pertinent environmental questions on traffic found in the Checklist:

Checklist Question: Would the Project Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

The Traffic analysis and Initial Study for the project focused entirely upon a level of service standards using volume to capacity ratios for roadway segments and the Highway Capacity Manual (HCM) time delay method for intersection analysis. While these adequately address level of service for vehicles from a traffic engineering perspective, the analysis of traffic impacts failed to address impacts to pedestrian traffic, potential incompatibilities between roadway improvements and existing equestrian uses adjacent to the project, and potential hazards as described below.

Checklist Question: Would the Project Substantially increase Hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The traffic analysis did not evaluate or discuss potential hazards associated with design features or incompatible uses. The traffic analysis assumed a design criteria that traffic flow on this roadway should be at 55 miles per hour because it is a state highway. A safety analysis should be conducted that evaluates whether or not traffic can safely travel at that speed on this section of the highway.

The traffic analysis did not look at pedestrian and bicycle traffic on the project alignment. Sidewalks currently exist along portions of the project alignment. The Initial Study also states that the project would provide a new Class II bicycle route (Initial Study, pg 2-38). The project will increase from 2 to 4 through lanes along the project alignment. This will result in a much wider roadway that is harder for pedestrians to cross. However, despite the fact that the project alignment contains eight intersections, crosswalks are not included at any of the intersections. Traffic signals are not proposed at any of the intersections.

The project alignment and adjacent residential uses are within the attendance area of 4 schools. Two of the schools are within walking distance of residential areas adjacent to the project alignment and will use the project alignment to walk to school. The schools within walking distance include the Saint Margaret's Episcopal School (K-12) approximately 3,900 feet southwest of the project, and the Harold Ambuehl Elementary School approximately 1.5 miles south of the project. Safety issues are a big concern for parents, who consistently cite traffic danger as a reason why their children are unable to bicycle or walk to school ("Barriers to Children Walking and Biking to School," CDC, 2005). The Federal Highway Administration (FHWA) has developed the "Safe Route to School Program" to address safety issues associated with roadway traffic and develop roadway infrastructure such as adequate sidewalks, crosswalks and traffic signals to improve pedestrian safety (FHWA website: http://safety.fhwa.dot.gov/saferoutes/index.htm#s3).

The traffic analysis in the Initial Study also failed to evaluate potential incompatible uses. One such use is equestrian uses adjacent to the proposed project. Equestrian trails and stables are within the project area. However, by increasing the width of SR-74 without any designated ways of crossing the highway by equestrian riders, the project is creating additional hazards and incompatible uses.

The additional sound walls and retaining walls further reduce the sidewalk alignment for pedestrians and restrict the ability of equestrian riders to cross the highway.

Given the increase in width of the roadway that pedestrians will need to cross as a result of the project, the lack of any designated crosswalks, and lake of traffic signals to stop traffic at intersections, significant hazards will be encountered by pedestrians including school children as a result of this project. Mitigation is needed to address pedestrian safety. Mitigation may also be needed to address how the project can be made safe and compatible with equestrian uses adjacent to the project alignment.

Checklist Question: Would the Project Conflict with Adopted Policies, Plans or Programs Supporting Alternative Transportation (e.g., bus turnouts, bicycle racks)?

The analysis did not evaluate how the project might conflict with adopted policies, plans or programs supporting alternative transportation other than to state that because the project would provide a new Class II bicycle facility in the shoulder area, multi-modalism and student access would be enhanced. However, the project presents significant hazards to bicyclists and pedestrians including school-age children as discussed in the comment above. These hazards will further reduce the participation in alternative modes of transportation. Additionally, the project design features including additional through lanes, sound walls, and retaining walls reduce the ability to have bus stops along the project alignment. This project as designed is incompatible with many of the local, regional, and statewide policies, plans and programs designed to encourage alternative transportation including the Safe Route to School Program adopted by the State, enhancement of multi-modalism infrastructure by the Southern California Association of Governments (SCAG), and alternative transportation enhancements in the California Climate Action Team's Greenhouse Gas Reduction Measures. Mitigation is needed to reduce pedestrian and bicyclist hazards created by the project that are acting as impediments to adopted policies, plans and programs supporting alternative transportation.

This concludes my preliminary review and comments on the Initial Study for the State Route 74 (SR-74) Lower Ortega Highway Widening Project. I hope the evaluation and comments on technical reports and the Draft EIR have been helpful to you. If you have any questions or need additional information, you can contact me at hendrixmichael@verison.net, or call me at 760-244-1568.

Sincerely,

Michael Hendrix

Environmental Consultant

MICHAEL K. HENDRIX

AIR QUALITY, TRAFFIC, AND NOISE

EDUCATION

B.S., Environmental Science—University of California, Riverside

Certification—Land Use and Environmental Planning—University of California, Riverside

Certification—Air Quality Management—University of California, Riverside

Certification—Air Dispersion Modeling and Risk Assessment—Lakes Environmental

PROFESSIONAL AFFILIATIONS

Association of Environmental Professionals (AEP)

Water Environmental Federation

California Water Environment Association

PROFESSIONAL HISTORY

Michael Brandman Associates—Project Manager
2002-Present

Association of Environmental Professionals—Board of Directors, Vice President of Programs
2003-Present

Albert A. Webb Associates—Environmental Specialist
1998-2002

Mr. Hendrix has over 6 years of experience providing services associated with environmental assessments, traffic, air quality and noise analysis. He has extensive research analyzing specific technical studies as they relate to CEQA analysis. Mr. Hendrix has a comprehensive knowledge of CEQA and the CEQA Guidelines. He has successfully coordinated all aspects of a CEQA project from inception through to the adoption of Findings.

PROFESSIONAL EXPERIENCE

- **Air Quality Analysis Report for the Highlands Specific Plan.** The proposed project is a specific plan of approximately 780 acres located approximately ½ mile north of the City of Murrieta. Proposed land uses include 1,440 single-family dwelling units, a 12-acre elementary school, and a 175-acre 18-hole golf course. The air study includes both an inventory of short-term and long-term emissions using the URBEMIS model, and a CO Hotspot analysis using the EMFAC and Caline 4 models.

- **Traffic Impact Study Report for the Newcastle Distribution Facility (six warehouses totaling 2,065,000 sq. ft of gross floor area).** The proposed project is for a 105-acre, 2.1-million-square-foot business/industrial park within the Jurupa Community Plan area of Riverside County. Several legal challenges are ongoing for similar projects in the area and center among other topics on air quality issues.

- **Air Quality Analysis Report for the Murrieta Commerce Center Project** (Shopping mall encompassing a total of 738,640 sq. ft. of gross floor area.). The proposed 740,000-square-foot shopping center and office complex is located in the City of Murrieta. The air study includes an inventory of short-term and long-term emissions using the URBEMIS model. A CO Hotspot analysis using the SCAQMD CEQA Handbook screening procedure was also completed.

- **Environmental Impact Report for Prologis Distribution Facility (1,238,000 sq.ft. warehouse) in the City of Rialto (SCH No. 2001071100).** The project is a proposal to construct a 1.3-million-square-foot distribution warehouse in the City of Rialto. Issue areas of focus include hydrology, air quality, noise and traffic. My participation in this project included preparing an air quality study and writing the air quality and traffic sections in the EIR.

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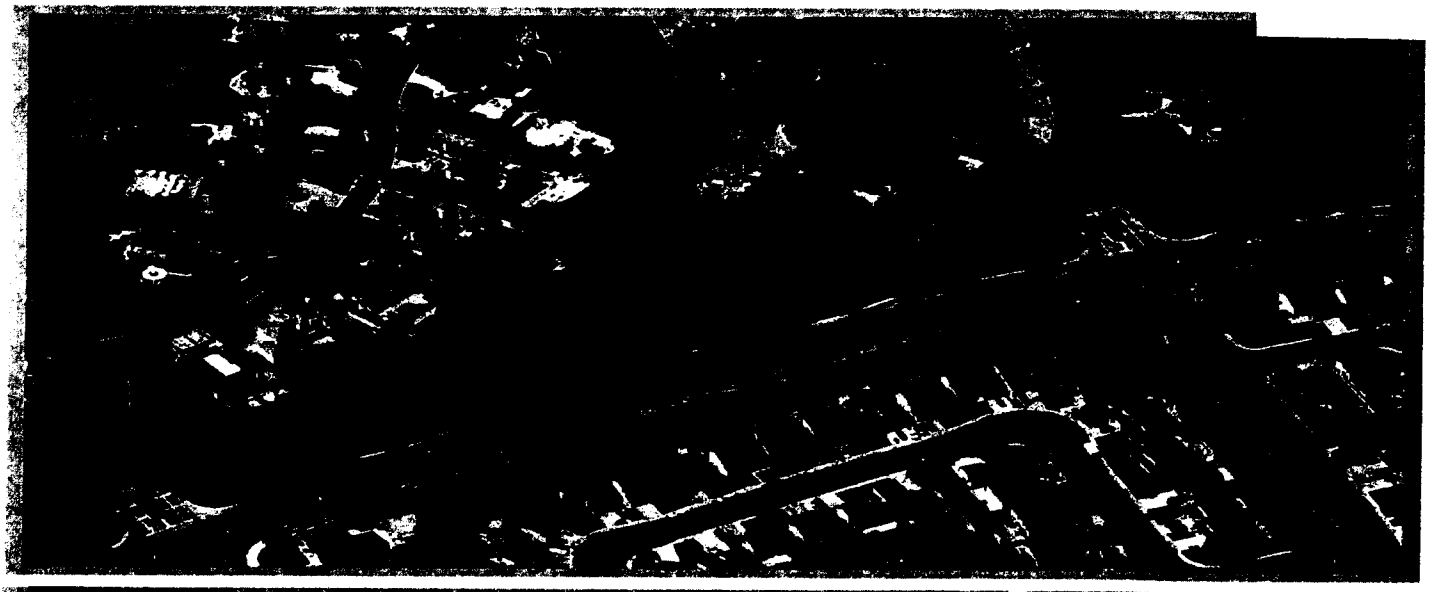
Evaluation of State Route 74
Lower Ortega Highway Widening
Draft Traffic Study & Traffic/Circulation Element of DEIR
San Juan Capistrano, CA

Attach 6



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January 30, 2008

Evaluation of State Route 74 Lower Ortega Highway Widening Draft Traffic Study and Traffic & Circulation Element of DEIR

Prepared for:

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January 30, 2009

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1 INTRODUCTION

1.1 Background

Proposed Project

The California Department of Transportation (Caltrans) District 12 has proposed to widen a portion of State Route 74 (SR-74) Ortega Highway in the City of San Juan Capistrano, between Calle Entradero, approximately 1 mile east of I-5, and city's easterly limits at the unincorporated Orange County boundary line, located just east of Avenida Siega/Shade Tree Lane. In July 2008 a Draft Traffic Study (DTS) was completed for the proposed *State Route 74 Lower Ortega Highway Widening Project,* specifically as a revision to the June 2007 Supplemental Traffic Study and as an appendix reference for the Transportation & Circulation (T&C) Element of the later-submitted November 2008 Draft Environmental Impact Report (DEIR).

The DTS was used as the basis for the DEIR's Transportation & Circulation (T&C) Element (i.e., Chapter 2: Traffic & Transportation/Pedestrian and Bicycle Facilities), and addresses the project's traffic-related impacts upon the City of San Juan Capistrano's local transportation network. Discussions are primarily centered upon the results of capacity analyses for the Ortega Highway roadway segment as a whole, as well as conclusions on the serviceability and projected operations of six (6) unsignalized intersections inside project limits on Ortega Highway. The proposed widening is planned to ultimately provide the applicable section of Ortega Highway with a 4-lane roadway capacity (two through-lanes per direction); in addition, the project includes various other traffic-related improvements associated with the widening, indicated and summarized in the section below.

City of San Juan Capistrano Strategic Transportation Plan

In 2002, the City of San Juan Capistrano began a widespread evaluation of a number of planned local and regional transportation and land development projects due to the increasing potential for these projects to significantly impact traffic on City streets and State highways. The main objectives proposed the City's STP are provided in the form of Primary and Secondary Strategies. Primary Strategies would serve to divert through-traffic from the community, and include extending major arterials, such as La Pata, SR-142, Crown Valley Pkwy., and Avery Pkwy. In conjunction with the Primary Strategies, Secondary Strategies would further allow traffic congestion to reduce within the community once the diversion strategies have been achieved, and would include internal improvements such as EB free right-turns at Del Obispo & Camino Capistrano, traffic signal coordination on Ortega Highway, major reconstruction of Ortega at the I-5, and finally, widening Ortega Highway to four lanes toward eastern city limits. A key emphasis of the STP was that Secondary Strategies have a high potential of attracting additional traffic, rather than alleviating it, if the diversion strategies are not implemented beforehand. In other words, Primary Strategies should be implemented ahead of the Secondary Strategies, provided there are no circumstances that warrant the project's implementation sooner than later.

1.2 Proposed Project Improvements

1.2.1 Highway Widening

The proposed Caltrans Build Alternatives include the implementation of the following mainline improvements within the project limits on SR-74:

- An additional 12-ft.wide lane in each direction, as appropriate in dedicating a total of four (4) lanes for through-traffic along Ortega Highway;

- A new 12-ft. wide painted median;
- A 5-ft. wide paved shoulder along each side of Ortega Highway through most of the proposed project length to accommodate bi-directional Class II bicycle facilities (i.e., striped on-road bike lanes); and
- A transition from a 5-ft. wide shoulder/bike lane to an 8-ft.-wide shoulder between Avenida Siega and city/county limits to merge with the now approved County portion of the project east of the subject roadway segment.

1.2.2 Intersection and Driveway Improvements

Within the project limits there are six (6) roadways intersecting Ortega Highway, listed below from west to east. Each intersection would be modified and/or widened to accommodate the aforementioned additional travel lanes, striped median and shoulders. All intersections are currently unsignalized (two-way stop controlled in the north- and southbound directions), and none are proposed for signalization. In addition, no new intersections are proposed. Existing eastbound right-turn pockets at Via Cordova & Ortega Highway and at Via Cristal & Ortega Highway would be maintained.

- Calle Entradero intersects Ortega Hwy. from the north and south at the project's westerly boundary, then continues into a gated community at its northerly approach
- Via Cordova intersects Ortega Hwy. from the north and south becomes Hunt Club Drive and continues into a gated community at its northerly approach
- Palm Hill Drive, intersects Ortega Hwy. from the north and provides access to private property
- Via Cristal, intersects Ortega Hwy. from the south
- Strawberry Lane, intersects Ortega Hwy. from the north and provides access to private property
- Toyon Drive, intersects Ortega Hwy. from the north and provides access to private property
- Via Errecarte, intersects Ortega Hwy. from the south
- Avenida Siega, intersects Ortega Hwy. from the north and south at the project's easterly boundary and becomes Shadetree Lane at its northerly approach

1.2.3 Pedestrian and Bicycle Facilities

Class II bicycle facilities are planned and would be provided on each side of the roadway as part of the 5-ft.-wide paved shoulders through the Project Limits. These facilities, as stated in the IS and DTS, would be in conformance with the Orange County Transportation Authority (OCTA) Commuters Bikeways Strategic Plan (CBSP) and comply with the City Circulation Element of the General Plan. Currently, sidewalks exist on the north and south sides of SR-74 beginning outside the Project Limits to the west, and continue partially through the project area. The north sidewalk currently terminates at Palm Hill Drive and the south sidewalk currently terminates just east of Avenida Siega.

1.2.4 Additional Traffic and Circulation Improvements

According to the DTS and T&C Element, due to lack of sufficient gaps in SR-74 through traffic under 2035 Build conditions and in lieu of turning left against both directions of traffic, the project plans to provide "eastbound left-turn lanes at the unsignalized intersections to allow vehicles exiting minor streets to turn right to eastbound SR-74 and complete a U-turn at the next available intersection." The study also mentions that "under the Build Alternatives the road will be wide enough to allow this maneuver."

2 INVESTIGATION

2.2 Procedure for Evaluation

Minagar & Associates, Inc. has been retained by the law firm Chatten-Brown & Carstens to conduct an independent and objective assessment of the Draft Traffic Study (DTS) and Traffic & Circulation (T&C) Element of the DEIR. The basis for this assessment is a combination of a review of existing project documents and city ordinances, as well as utilization of field data internally collected by Minagar & Associates, Inc. to establish a comparative understanding throughout the evaluation. Reference components for this review are given below:

- Field data (collected by Minagar & Associates, Inc.)
  - Time frame for data collection: Typical non-holiday Thursday, August 2, 2007
  - Type of data collected: Morning (7AM – 9AM), mid-day (11AM – 1PM), and afternoon (4PM – 6PM) traffic counts at Ortega Highway & La Pata Avenue/Antonio Parkway, digital photos, lane geometrics and measurements, and visual observations
  - Range of field reconnaissance: All stop-controlled intersections on SR-74 Ortega Highway between Via Cordova/Hunt Club Drive and Antonio Parkway/La Pata Avenue, including intersections with Via Cristal and Avenida Siega/Shadetree Lane.
- Traffic Analysis (evaluations by Minagar & Associates, Inc.): The gathered field data were entered in and processed by PETRAPro software to analyze the traffic counts from the TDC-12 hand-held data collectors. The resulting peak information, along with pertinent details of the project site network, were then inserted into Synchro 7 and SIMTRAFFIC software, programs for analyzing, modeling and simulating traffic flow, and investigated comparatively against analogous results of the DTS.
- The following sources and technical studies related to the subject project were also reviewed and utilized:
  - *State Route 74 Lower Ortega Highway Widening Draft Environmental Impact Report*, State of California Department of Transportation, November 2008.
  - *Initial Study (with proposed Mitigated Negative Declaration)*, State of California Department of Transportation, July 2007.
  - *SR-74 (Ortega Highway) Widening Project Traffic Study*, Austin-Foust Associates, Inc., November 2006.
  - *SR-74 (Ortega Highway) Widening Project Supplemental Traffic Study*, Austin-Foust Associates, Inc., June 2007.
  - *State Route 74 Lower Ortega Highway Widening Draft Traffic Study*, Austin-Foust Associates, Inc., July 2008.
  - *City of San Juan Capistrano Strategic Transportation Plan*, LSA, September 2002.
  - Caltrans, SCAG, OCTA, TCA, County of Riverside & City of San Juan Capistrano websites.

3 DISCUSSIONS

Minagar & Associates, Inc. has completed its review of the Caltrans November 8 Draft Environmental Impact Report "Chapter 2.1.5 Traffic & Transportation/Pedestrian and Bicycle Facilities" and the July 2008 Draft Traffic Study by Caltrans' consultant, Austin-Foust Associates, Inc. The review as outlined below has revealed the following discrepancies, inadequacies, inconsistencies and errors:

METHODOLOGY CONCERNS

Traffic Model

1. Modeling preference should be rationalized in the DTS particularly when a local traffic model (accessible per the City of Capistrano's 2002 Strategic Transportation Plan; page 4) is available. The consultant does not provide any reasoning why the City's model was not utilized in evaluating future traffic scenarios, nor does the report provide any supporting computer printouts or copies of the results of the South County Sub-Area Model (SCSAM) analyses (e.g., model runs or plots identifying both the Build and No-Build project scenarios); therefore, no comparative conclusions could be made regarding the validity of use of the consultant's traffic model.

2. The DTS states (p. 1-2) that the traffic model data are derived from 2004 Orange County (demographic) Projections, or OCP-2004; however, the DTS also later states (p. 2-6) that estimated traffic growth data was taken from OCP-2006 projections for population and employment. The discrepancy here should be corrected and the most recent available projection data utilized for all growth forecasts and traffic modeling.

3. Based on the most recent Southern California Association of Governments (SCAG) demographic estimates for locally and subregionally adjacent traffic analysis zones (TAZs), an independent investigation was conducted to estimate future regional growth based on SCAG's Adopted 2008 Regional Transportation Plan (RTP) Growth Forecast data. The results indicate that growth near the project area and surrounding subregion are expected to rise between 2005 and 2035 by about 14% (population) and 29% (employment), for an average increase of about 21%. The growth figures utilized in the DTS, however, utilize OCP-2004 data and project an estimated cumulative change in traffic growth to be about 46%. This discrepancy in future regional growth is more than double than what may be considered reasonably expected from the region. This possible overestimation may yield misleadingly poor Levels of Service for the No-Build scenario of Ortega Highway, and should be addressed in the DTS. [See Figure 1]

4. Although the consultant justifies excluding certain future planned roadways from the traffic model, such as the San Juan Creek and Camino Las Ramblas extensions to La Pata Avenue, the study does not provide justification for omitting other future planned extensions located near the proposed project, as provided in the 2008 Orange County Master Plan of Arterial Highways (MPAH), listed below. Unless provided proper justification, these roadways should be considered in the DTS as part of the future 2035 highway system and subsequently reflected in the consultant's traffic model. Neglecting several significant nearby arterials may cumulatively affect the final accuracy of the results of the traffic model: [See Figure 2]

    - Extension of Alipaz to Oso Parkway;
    - Extension of Marina Hills to Trabuco Canyon;

- Extension of Crown Valley Parkway east to Foothill Transportation Corridor South and to Oso Parkway, forming a loop; and

- Extension of C St. from Ortega Highway to Pico and Talega (not included in the MPAH, but proposed in the approved Ranch Plan)

Base Traffic Network Assumptions

The DTS fails to properly indicate in full the assumptions taken in assembling the base traffic network, resulting in an unreliable foundation for any further assessments, including:

5. Morning (AM) and afternoon (PM) peak-hour volumes - The consultant does not indicate the origin of the "existing" traffic volume data, which should either be field-counted for the Year 2008 or collected in the Year 2007 and appropriately projected the current year. In addition, the DTS should verify that the turning movement counts were originally collected under proper field conditions (e.g., typical, non-holiday weekdays);

6. Intersection Geometrics - The consultant does not indicate the lane configurations utilized in the study, particularly in revision to comments made regarding lane geometry assumptions in the June 2007 Supplemental Traffic Study/MND.

7. Truck Traffic % - No supplemental documentation is provided to verify that the appropriate percentage of heavy vehicle traffic and/or passenger car equivalents (PCEs), as mentioned on page 2-11 of the DTS, were properly factored into the traffic flow demand for the intersection analyses.

Unsignalized Level of Service Determination

8. The consultant incorrectly determines the Level of Service (LOS) based on stop delay for turning vehicles measured from SimTraffic traffic modeling/simulation software. Caltrans Traffic Impact Analysis (TIA) Guidelines require that unsignalized intersections be analyzed using the latest Highway Capacity Manual (HCM2000) methodologies. Although SimTraffic may be preferred in analyzing complex situations that are not easily modeled macroscopically (such as aggressive drivers, closely-spaced intersections, bottlenecks, or even the 2-way stop intersections observed along Ortega Highway), the measures of effectiveness (MOEs) that are produced by SimTraffic traffic simulation models are derived from extraneous factors which are not based on HCM equations. The consultant correctly separates delay for the critical turning movements at each two-way stop; however, the supplementary Synchro reports which are based fully on HCM methods for unsignalized intersections should be used rather than simulation data.

TRAFFIC ANALYSIS CONCERNS

Level of Service (LOS) per Draft Traffic Study

9. Based on tabulated results in the DTS (page 3-5), the implementation of the Build Alternative would increase vehicular stopping delay of the No-Build Alternative for various turning movements at four of the six intersections. The consultant fails to explain how the project proposes to mitigate or justify maintaining the abovementioned decreases in LOS at each turning movement for the future 2035 Build scenario. The turning movements with increased delay as a result of the widening project include:

   - Intersection #6 - Calle Entradero & SR-74
     - EBL (+10 seconds);
     - WBL (+9 seconds);
     - NBL (+8 seconds); and

- NBR (+3 seconds), all in the AM peak hour
- Intersection #7 - Via Cordova & SR-74
  - EBL (+6 seconds); and
  - SBR (+7 seconds), both in the AM peak hour
- Intersection #8 - Via Cristal & SR-74
  - WBL (+1 second) in the AM peak hour
- Intersection #10 - Avenida Siega & SR-74
  - EBL (+1 second) in the PM peak hour; and
  - WBL (+2 seconds) in the AM peak hour

Independent LOS Assessment

10. Minagar & Associates, Inc. conducted an independent set of Level of Service analyses for the subject two-way stop-controlled intersections. The results indicate an average difference in delay per vehicle of about 40 seconds total per intersection. Based on these discrepancies, it is recommended that the consultant re-analyze each of the unsignalized intersections using HCM control delay values for the side streets and east-west turning traffic. [See Figure 3 and Appendix for LOS printout sheets]

REPORT/TEXT CORRECTIONS

11. *Page 1-3*: The DTS should provide mention that HCM methodology uses also calculates LOS as a function of average travel speed (HCM 20-3, for a Class I two-lane highway)

12. *Page 2-4*: The AM peak hour V/C ratio for SR-74 west of Via Cordova/Hunt Club Drive should be 0.91, not 0.94. The lane design capacity for SR-74 west of Via Cristal should be 2,100 vphpl. The critical peak-hour volume for SR-74 west of Avenida Siega should be 1,559 and 1,296 vph for the AM and PM peak hours, respectively, to account for the section of Ortega Highway between Strawberry Lane and Via Errecarte. In addition, the table should indicate the base year which is assumed for the "existing" condition.

13. *Page 2-5*: The PM peak hour delay for the southbound right-turn movement of Avenida Siega & Ortega Highway should be 9 seconds per vehicle, not zero seconds. LOS ranges listed at the bottom of the table should indicate the proper ranges for level of service: 0 to 10 sec/veh = "A"; >10 to15 sec/veh = "B"; >15 to 25 sec/veh = "C"; >25 to 35 sec/veh = "D"; >35 to 50 sec/veh = "E"; 50 sec/veh or worse = "F".

14. *Page 3-4*: The 2035 No-Build PM peak hour V/C ratio for SR-74 west of Via Cordova/Hunt Club Drive should be 1.09, not 1.07. The critical peak-hour volume for SR-74 west of Avenida Siega should be 2,130 and 1,943 vph for the AM and PM peak hours, respectively, to account for the section of Ortega Highway between Strawberry Lane and Via Errecarte.

15. *Page 3-5* and *3-6*: The 2035 No-Build AM peak hour delay values for Calle Entradero & Ortega Highway should be 9 seconds for EBL, 3 seconds for WBL and 9 seconds for SBR. The 2035 No-Build AM peak hour delay values for Via Cordova/Hunt Club Drive & Ortega Highway should be 19 seconds for EBL and 12 seconds for SBR. The 2035 Build AM peak hour delay for Strawberry Lane & Ortega Highway should be 63 seconds for SBR. The Existing Year 2008 AM peak hour delay for Avenida Siega & Ortega Highway should be 92 seconds for EBL.

ADDITIONAL CONCERNS

16. From a local/community perspective, considering 1) the impending traffic growth along Ortega Highway, 2) the increased crossing distance for non-motorists and motorists alike due to widening the roadway, 3) the increased through-traffic speeds from the upgrading the roadway, and 4) the fact that there are no

signalized intersections within the 1 mile project boundaries (rural qualities), crossing of any pedestrian, bicyclist, and/or equestrian as well as vehicles U-turning would cause unavoidable safety impedances and potential future litigations.

17. The DTS fails to include a vehicle stacking impact assessment for the private driveways over which the proposed Build Alternatives (in which the widening will occur primarily on the north side of Ortega) would encroach. According to the *County of Orange Standard Plans* (2006 ed.), the minimum distance allowed from the gate arm of a private driveway to the edge of pavement (major street) or curb line is 100 feet. Currently, this distance is approximately 110' at the Hunt Club Drive gate and 100' at the Calle Entradero gate. The DTS should address this issue and/or demonstrate the project's conformance to the County's design guidelines for privately-owned driveways.

Compliance with the Strategic Transportation Plan (STP)

18. Based on the above synopsis, and the understanding that the *Primary Strategies* outlined in the Plan have not yet been implemented, it is evident that the proposed Ortega Widening project is in direct conflict with the goals and intentions of the City's Strategic Transportation Plan (STP). Furthermore, none of the Ortega studies identify any prudent traffic diversion strategies for the proposed project as needed according to the STP, which has specifically targeted the nature of the subject widening project by stating the following:

    "...the improvement would reduce congestion along this section of highway; however, without prudent traffic diversion strategies, traffic volumes could increase, resulting in the same, or worse, congestion levels, only now with four lanes instead of two...."

    The STP also concludes on the suggestion to "pursue and achieve commitments or resolution to the first five recommended strategies prior to further discussions or commitments to the widening of Ortega Highway," and recommends that the City "table the project development activities for widening Ortega Highway until commitments or resolution is achieved on strategies 1 through 5 and 10." The DTS should ultimately provide a section which properly addresses these concerns.

Indirect Left-turn Feature:

Regarding minimization and mitigation measures, the T&C Element, page 87 states that, "*...to avoid longer traffic delays, the project is providing eastbound left-turn lanes at the unsignalized intersections to allow vehicles exiting minor streets to turn right to eastbound SR-74 and complete a U-turn at the next available intersection,*" and that, according to the DTS, page 3-1, "*...under the Build Alternatives the road will be wide enough to allow this maneuver.*" Although the explanation of this particular design feature in the DTS is vague at best, the intention of introducing this item would presumably be to emulate, on a smaller scale, what is commonly known as a "Michigan Left," or "Indirect Left Turn." The purpose of indirect left-turns is to simplify turning conflicts between vehicles on minor streets attempting to turn left through multiple lanes of heavy through traffic.

19. By observing the DTS' intersection LOS results, it is evident that the heaviest delays will occur in the north- and southbound minor street movements (i.e., under the Build Alternatives, left-turning vehicles will find it increasingly difficult to cross an additional 1 to 2 lanes to complete their maneuvers); considering this, the consultant's variation of the indirect left-turn feature becomes an ever more important aspect of minor street traffic during peak hours. Thus, DTS should focus on dedicating a comprehensive, separate section of the report to the commitment and rationalization for this design feature. Critical issues include: [See Figure 4]

    - The report mentions the use of "eastbound U-turns," but does not suggest any inclusion to allow westbound U-turns. Would residential outbound traffic north of Ortega Highway be given provision to complete the analogous indirect left-turn?

- Would any sections of Ortega Highway require a "bulb-out" to accommodate larger vehicles with larger turning radii?

- If not, should certain vehicles be prohibited from completing U-turns from the median?

- Characteristic of indirect left-turns, minor street traffic is typically restricted from completing standard left-turns across the intersection. Does the amount of cross traffic and/or limited gap acceptance require this additional feature be implemented? During peak hours of the day?

- If not, what type of indicators would the public have to become aware of and/or be encouraged to utilize the indirect left-turn and downstream U-turns?

- With the increased speeds of the Ortega Highway arterial, to what extent are weaving conflicts an issue for vehicles turning right from minor streets on Ortega wishing to reach the "next available" U-turn to complete the indirect left-turn?

- Similarly, to what extent are merging conflicts an issue for vehicles attempting to rejoin the traffic stream after the completed U-turn? Knowing that Ortega Highway is and would be completely unsignalized over the length of the project area (and beyond) for the Year 2035, it follows that U-turning traffic would also not be given any dedicated turning phase to complete turns protected from oncoming traffic. Does this condition warrant the need for acceleration lanes along any portion of the project roadway?

3 CONCLUSIONS

As set forth in detail above with all the supporting independent computer analyses and documentation, the consultant's traffic operations assessments at critical locations along the project area are subject to a large number of both marginal and significant errors due to several underlying assumptions, including discrepancies illustrated in the projected growth of regional traffic, as well as inconsistencies found in the methodology utilized to analyze the stop-controlled intersections operations. The divergence in reliable population and employment data should be investigated to compare estimates provided by the Southern California Association of Governments (SCAG) and those provided by Orange County Projections (OCP-2006).

In addition, unsignalized intersection operations should be re-evaluated to incorporate the use of Highway Capacity Manual (HCM) equations in determining the amount of delay to be expected at each location, rather than the use of traffic simulation/animation software methods which introduce a larger possibility for variation in results, depending on the reliability of the model. In addition, all geometric and traffic volume-related assumptions should fully documented to ensure that the most accurate reflection of existing and projected field conditions are represented.

Because of the aforementioned questionable areas, all conclusions provided by the Draft Traffic Study and the T&C Element of the DEIR that the impacts of the widening have been adequately addressed should again be revisited. At a minimum, the following final revision items should be provided: appropriate documentation to rationalize the use of the County's traffic model and associated demographic projections, justification for the omission of various future planned improvements in the traffic model, verification that the correct base information for the *Synchro* traffic network and HCM methodologies were used, discussions on compliance with the City's Strategic Transportation Plan, and general corrections to internal report/textual errors.

FIGURE 1A
DTS Estimated Traffic Growth

EXISTING YEAR 2008 PEAK-HOUR INTERSECTION VOLUMES

Int. No.	Eastbound L		Eastbound T		Eastbound R		Westbound L		Westbound T		Westbound R		Northbound L		Northbound T		Northbound R		Southbound L		Southbound T		Southbound R		Σ AM	Σ PM
6.	3	13	895	1353	4	45	4	7	1611	789	2	2	19	13	0	0	12	6	6	1	0	0	18	22	2574	2251
7.	40	42	868	1298	5	20	5	6	1554	758	18	8	10	5	1	0	15	3	6	2	6	1	53	35	2581	2178
8.			883	1285	6	18	4	8	1555	759			22	13			8	11							2478	2094
9.	3	5	888	1291					1559	765	0	2							0	0			0	2	2450	2065
10.			877	1265	11	26	0	5	1553	765			6	2			5	2							2452	2065
11.	3	4	875	1252	4	11	5	6	1547	764	0	0	2	3	0	0	4	10	0	1	0	0	4	3	2444	2054
																								Σ	14979	12707

FORECASTED YEAR 2035 PEAK-HOUR INTERSECTION VOLUMES

Int. No.	Eastbound L		Eastbound T		Eastbound R		Westbound L		Westbound T		Westbound R		Northbound L		Northbound T		Northbound R		Southbound L		Southbound T		Southbound R		Σ AM	Σ PM
6.	3	13	1240	2000	4	45	4	7	2182	1303	2	2	19	13	0	0	12	6	6	1	0	0	18	22	3490	3412
7.	40	42	1213	1945	5	20	5	6	2125	1272	18	8	10	5	1	0	15	3	6	2	6	1	53	35	3497	3339
8.			1228	1932	6	18	4	8	2126	1273			22	13			8	11							3394	3255
9.	3	5	1233	1938					2130	1279	0	2							0	0			0	2	3366	3226
10.			1222	1912	11	26	0	5	2124	1279			6	2			5	2							3368	3226
11.	3	4	1220	1899	4	11	5	6	2118	1278	0	0	2	3	0	0	4	10	0	1	0	0	4	3	3360	3215
																								Σ	20475	19673

Intersections with Ortega Highway (SR-74):

6. Calle Entradero
7. Via Cordova
8. Via Cristal
9. Strawberry Lane
10. Via Errecarte
11. Avenida Siega

	AM	PM
AVERAGE ANNUAL % CHANGE	36.69%	54.82%

Minagar & Associates, Inc.

1/31/2009

FIGURE 1b - SCAG Growth Estimates Near Project and Surrounding Cities*

TAZ	POPULATION 2005	2010	2015	2020	2025	2030	2035	HOUSING 2005	2010	2015	2020	2025	2030	2035	EMPLOYMENT 2005	2010	2015	2020	2025	2030	2035
300000006	1,638	1,815	2,063	2,096	2,105	2,124	2,135	642	816	915	915	916	922	927	3,506	4,509	5,091	5,139	5,172	5,294	5,305
300000007	5,454	5,729	5,830	6,656	6,711	6,760	6,773	2,094	2,093	2,095	2,404	2,406	2,413	2,421	5,429	5,693	6,195	6,289	6,337	6,452	6,483
300000008	3,607	3,796	3,874	3,935	3,965	4,008	4,036	1,402	1,419	1,432	1,441	1,448	1,459	1,470	1,074	1,156	1,230	1,268	1,275	1,288	1,292
300000009	7,389	7,791	7,956	8,074	8,128	8,172	8,179	2,949	2,963	2,971	2,979	2,986	2,989	2,991	4,311	4,639	4,702	5,005	5,058	5,115	5,141
300000010	6,589	7,345	7,436	7,491	7,510	7,561	7,587	2,092	2,233	2,234	2,237	2,239	2,250	2,263	584	1,665	1,691	1,700	1,705	1,731	1,742
300000011	8,265	8,699	8,969	9,081	9,129	9,213	9,258	2,576	2,575	2,626	2,627	2,628	2,644	2,660	474	558	602	619	623	632	632
300000012	3,554	3,744	3,818	3,862	3,878	3,926	3,962	1,414	1,415	1,418	1,418	1,420	1,436	1,449	785	835	835	835	835	843	844
300000013	7,365	7,729	7,894	8,022	8,090	8,187	8,246	2,257	2,276	2,301	2,313	2,324	2,345	2,363	2,344	2,505	2,599	2,661	2,672	2,701	2,701
300000014	4,918	5,175	5,275	5,340	5,365	5,405	5,418	1,924	1,926	1,928	1,931	1,934	1,939	1,946	1,090	1,118	1,127	1,141	1,144	1,151	1,151
300000015	6,205	6,532	6,667	6,773	6,819	6,883	6,931	2,514	2,532	2,545	2,557	2,565	2,581	2,601	5,251	5,874	6,072	6,237	6,281	6,335	6,348
300000016	4,981	5,248	5,369	5,469	5,522	5,587	5,616	2,375	2,433	2,464	2,488	2,503	2,520	2,535	2,281	2,518	2,582	2,619	2,638	2,671	2,685
300000017	9,331	9,652	9,840	9,955	10,008	10,095	10,131	3,188	3,133	3,136	3,138	3,146	3,162	3,181	2,630	2,764	2,839	2,913	2,944	2,966	2,967
300000018	5,796	5,993	6,050	6,098	6,097	6,188	6,248	1,751	1,751	1,753	1,753	1,755	1,778	1,799	478	1,361	3,095	4,274	4,421	4,450	4,467
300000019	7,709	9,302	9,796	9,926	9,974	10,024	10,025	2,943	3,550	3,754	3,756	3,760	3,762	3,767	1,149	1,253	1,301	1,339	1,348	1,362	1,366
300000020	1,212	1,299	1,316	1,332	1,340	1,348	1,349	449	476	476	476	477	477	478	2,541	2,798	2,916	3,008	3,028	3,057	3,065
300000021	5,767	6,048	6,179	6,252	6,281	6,314	6,314	2,142	2,142	2,146	2,150	2,150	2,152	2,154	933	1,030	1,030	1,030	1,031	1,045	1,047
300000022	3,922	4,100	4,178	4,235	4,255	4,286	4,308	1,704	1,706	1,709	1,710	1,713	1,719	1,729	2,629	2,689	2,712	2,738	2,752	2,765	2,776
300000023	4,424	4,636	4,727	4,845	4,871	4,906	4,918	2,145	2,145	2,147	2,178	2,179	2,186	2,191	656	678	691	706	709	716	717
300000024	3,948	4,123	4,255	4,311	4,332	4,353	4,353	1,352	1,350	1,370	1,370	1,371	1,373	1,373	605	619	619	619	619	625	630
300000025	2,625	2,737	2,778	2,810	2,804	2,818	2,818	752	753	754	755	756	756	758	976	1,071	1,598	1,942	3,568	3,576	3,576
300000026	6,256	6,667	6,802	6,903	6,950	7,012	7,040	2,173	2,207	2,228	2,236	2,242	2,254	2,266	1,886	1,970	2,024	2,085	2,116	2,140	2,154
300000027	34	58	160	272	561	786	800	23	38	84	126	263	358	362	771	838	1,508	1,943	4,093	4,097	4,097
300000028	5,572	5,867	5,978	6,048	6,073	6,103	6,110	2,042	2,041	2,043	2,044	2,046	2,048	2,049	689	689	689	689	689	694	694
300000029	3,731	3,935	4,017	4,067	4,086	4,108	4,110	1,322	1,322	1,322	1,324	1,324	1,326	1,326	1,173	1,183	1,190	1,192	1,193	1,196	1,197
300000030	7,545	8,080	8,146	8,232	8,265	8,304	8,309	1,592	1,687	1,687	1,690	1,692	1,694	1,694	4,138	4,556	4,749	4,898	4,930	4,977	4,989
300000032	6,522	6,865	6,995	7,076	7,106	7,142	7,149	2,157	2,156	2,158	2,160	2,161	2,163	2,165	686	686	686	686	686	690	690
300000033	3,231	3,389	3,502	3,565	3,548	3,576	3,589	1,096	1,115	1,147	1,154	1,160	1,165	1,172	1,524	1,711	1,797	1,863	1,878	1,900	1,901
300000034	4,656	4,894	4,991	5,048	5,070	5,095	5,096	1,557	1,557	1,559	1,561	1,562	1,564	1,565	852	852	852	852	852	856	857
300000036	4,656	4,901	4,995	5,054	5,075	5,101	5,108	1,759	1,759	1,760	1,762	1,763	1,765	1,766	743	755	761	763	765	767	767
300000038	3,729	3,908	4,000	4,051	4,069	4,088	4,087	1,510	1,510	1,518	1,520	1,522	1,522	1,524	660	660	1,435	1,435	1,438	1,445	1,453
300000040	4,669	4,919	5,011	5,070	5,093	5,119	5,119	1,541	1,540	1,541	1,542	1,544	1,545	1,545	925	931	935	939	940	944	945
300000041	3,568	3,705	3,799	3,838	3,852	3,868	3,869	1,123	1,123	1,135	1,137	1,137	1,138	1,139	2,327	2,344	2,344	2,344	2,345	2,352	2,354
300000042	6,068	6,313	6,464	6,649	6,681	6,714	6,715	2,136	2,135	2,147	2,182	2,183	2,185	2,186	3,502	3,614	3,699	3,771	3,808	3,859	3,879
300000044	6,578	6,730	6,807	6,869	6,881	6,912	6,911	2,206	2,208	2,209	2,211	2,212	2,214	2,215	8,090	8,718	9,497	9,505	9,507	9,510	9,545
300000048	4,959	6,138	6,236	6,306	6,334	6,363	6,364	2,064	2,396	2,397	2,400	2,401	2,403	2,405	305	315	320	326	327	329	331
300000049	5,353	5,631	5,737	5,805	5,829	5,858	5,865	2,180	2,180	2,181	2,183	2,184	2,186	2,187	1,718	1,732	1,741	1,751	1,752	1,757	1,760
300000050	6,394	6,417	6,417	6,509	6,546	6,588	6,595	2,440	2,439	2,441	2,443	2,445	2,447	2,449	570	681	774	774	774	813	814
300000051	3,564	3,576	3,576	3,617	3,633	3,652	3,652	1,648	1,647	1,649	1,650	1,652	1,653	1,654	1,438	1,466	1,466	1,466	1,466	1,479	1,482
300000052	4,561	4,789	4,888	4,953	4,973	5,015	5,034	1,313	1,313	1,321	1,322	1,323	1,330	1,336	4,697	4,709	5,059	5,326	5,593	5,863	5,920
300000053	5,822	6,023	6,067	6,120	6,154	6,178	6,180	1,824	1,824	1,824	1,824	1,824	1,824	1,824	5,790	5,790	5,790	5,790	5,790	5,790	5,790
300000054	17,780	24,840	25,730	25,935	26,035	26,163	26,180	5,815	7,506	7,901	7,933	7,951	7,957	7,964	1,762	2,562	3,482	3,506	3,507	3,507	3,507
300000059	7,169	7,466	7,574	7,661	7,719	7,757	7,763	2,219	2,217	2,219	2,220	2,222	2,224	2,226	779	779	779	779	779	779	779
300000061	5,624	5,740	5,788	5,855	5,881	5,924	5,945	2,531	2,531	2,532	2,534	2,535	2,546	2,559	6,019	6,095	6,183	6,245	6,265	6,308	6,355
300000063	5,108	5,113	5,113	5,168	5,190	5,215	5,223	1,709	1,709	1,710	1,711	1,713	1,714	1,716	552	569	569	569	569	575	575
300000070	5,579	5,662	5,672	5,730	5,752	5,783	5,791	1,756	1,756	1,757	1,759	1,760	1,762	1,763	521	521	521	521	521	521	521
300000118	4,407	4,523	4,555	4,603	4,629	4,653	4,660	1,238	1,237	1,238	1,239	1,240	1,241	1,242	275	305	313	322	324	327	331
∑	247,834	267,642	273,290	277,567	279,169	281,235	281,869	87,637	90,840	91,882	92,463	92,737	93,091	93,353	92,118	100,364	108,690	112,422	117,067	118,250	118,622
Growth																					
5-yr.		7.99%	2.11%	1.57%	0.58%	0.74%	0.23%		3.65%	1.15%	0.63%	0.30%	0.38%	0.28%		8.95%	8.30%	3.43%	4.13%	1.01%	0.31%
Cumulative		7.99%	10.27%	12.00%	12.64%	13.48%	**13.73%**		3.65%	4.84%	5.51%	5.82%	6.22%	**6.52%**		8.95%	17.99%	22.04%	27.08%	28.37%	**28.77%**

AVERAGE GROWTH FROM 2005 TO 2035: **21.25%** (Does not include growth of housing element)

* Per SCAG database (*Adopted 2008 RTP Growth Forecast by TAZ*)

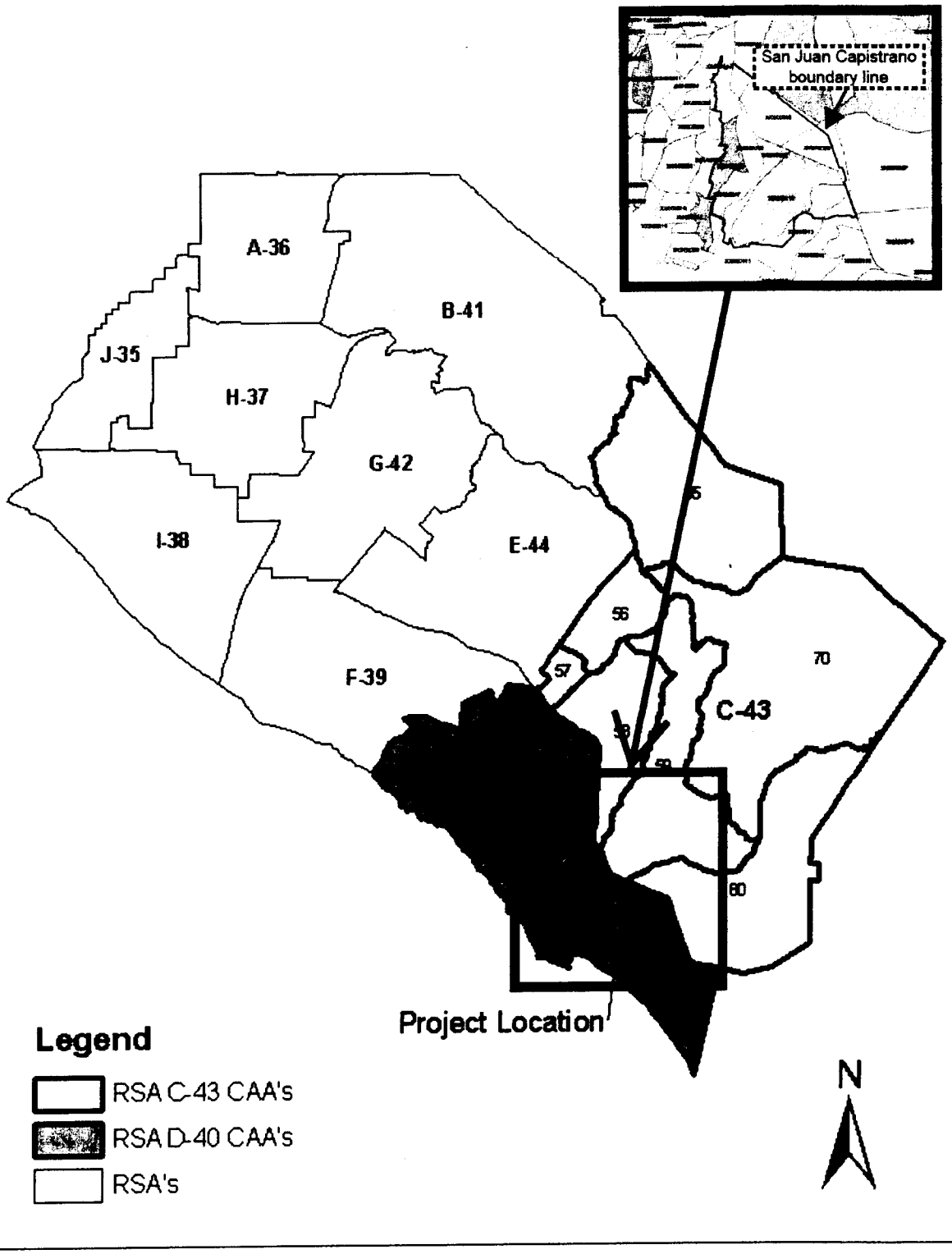


FIGURE 1C
Independent Selected TAZ Subregion for Utilization
of SCAG Demographic Projections

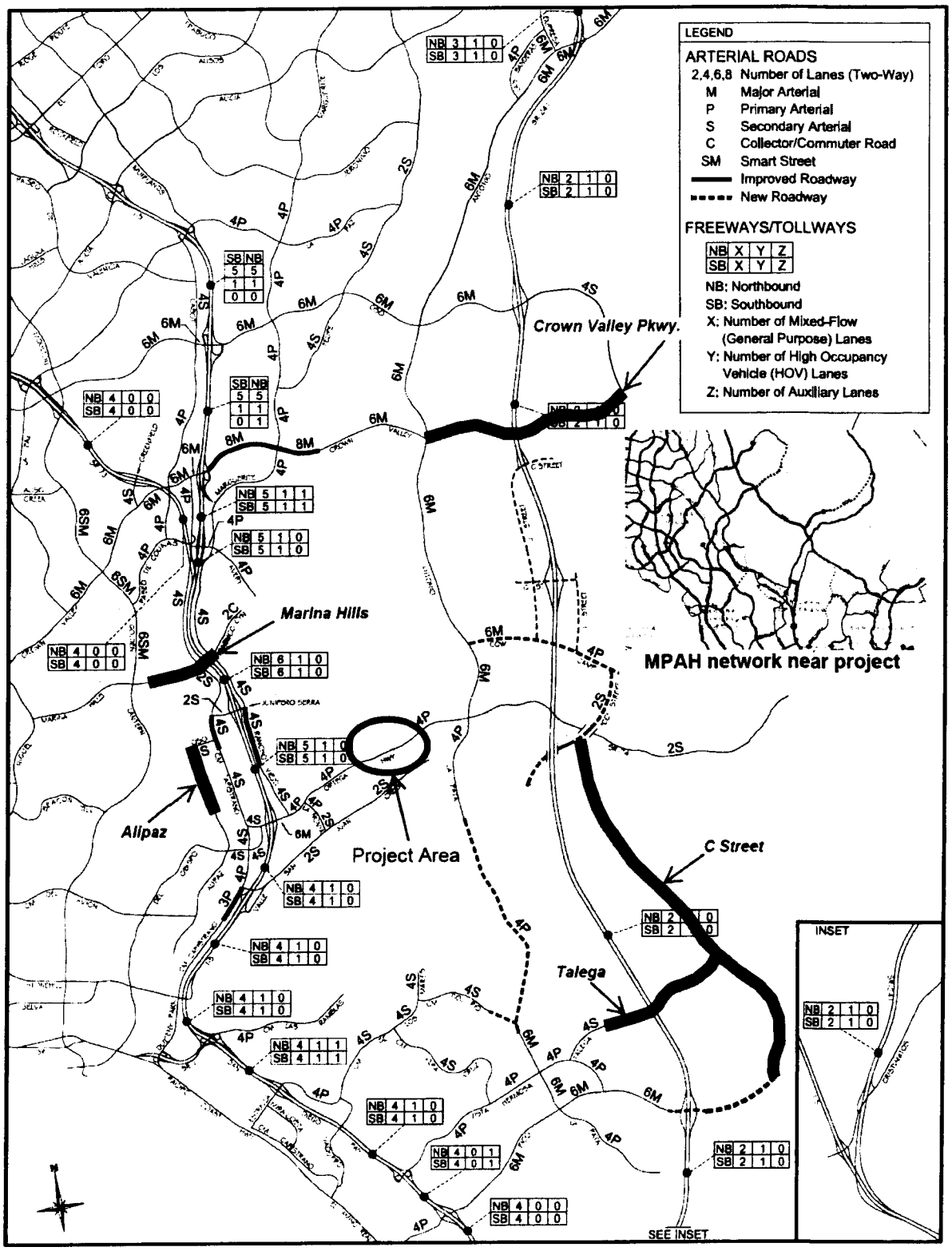


Figure 2

MPAH and Ranch Plan Extensions Missing From Consultant's 2035 Highway System & Traffic Model

FIGURE 3A
Independent LOS Analyses & Comparison **

Intersection	Delay, seconds per vehicle (AM/PM)											
	EBL		WBL		NBL		NBR		SBL		SBR	
6. Calle Entradero & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	21	2	9	17	58	90	4	13	118	68	10	4
2035 No-Build	9	19	3	102	59	*	3	25	149	*	9	12
2025 Build	19	7	12	3	67	79	6	15	144	56	15	9
Minagar & Associates, Inc. independent review												
2008 Existing	15	10	10	13	118	133	~~146~~	~~183~~	*	63	18	12
2035 No-Build	23	13	12	21	*	*	~~*~~	~~*~~	*	*	27	15
2025 Build	23	13	12	21	*	*	~~*~~	~~*~~	*	*	27	15
7. Via Cordova/Hunt Club Drive & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	26	4	12	22	147	32	10	34	146	97	14	5
2035 No-Build	19	12	22	*	*	*	36	*	*	*	12	10
2025 Build	25	7	1	8	*	74	9	7	*	80	19	7
Minagar & Associates, Inc. independent review												
2008 Existing	16	10	10	13	*	171	~~*~~	~~171~~	*	173	164	19
2035 No-Build	26	13	12	20	*	*	~~*~~	~~*~~	*	*	*	77
2025 Build	27	13	12	20	*	*	~~*~~	~~*~~	*	*	*	52
8. Via Cristal & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	-	-	17	32	*	141	13	16	-	-	-	-
2035 No-Build	-	-	13	*	*	*	21	103	-	-	-	-
2025 Build	-	-	14	26	157	65	8	16	-	-	-	-
Minagar & Associates, Inc. independent review												
2008 Existing	-	-	10	13	*	199	~~*~~	~~199~~	-	-	-	-
2035 No-Build	-	-	12	20	*	*	~~*~~	~~*~~	-	-	-	-
2025 Build	-	-	12	20	*	*	~~*~~	~~*~~	-	-	-	-
9. Strawberry Lane & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	59	2	-	-	-	-	-	-	*	40	*	5
2035 No-Build	91	39	-	-	-	-	-	-	*	*	*	*
2025 Build	39	3	-	-	-	-	-	-	155	82	63	9
Minagar & Associates, Inc. independent review												
2008 Existing	15	10	-	-	-	-	-	-	0	15	~~0~~	~~15~~
2035 No-Build	22	12	-	-	-	-	-	-	0	26	~~0~~	~~26~~
2025 Build	22	13	-	-	-	-	-	-	0	14	~~0~~	~~14~~
10. Via Errecarte & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	-	-	6	8	153	57	38	25	-	-	-	-
2035 No-Build	-	-	23	39	*	*	*	16	-	-	-	-
2025 Build	-	-	2	15	87	41	15	13	-	-	-	-
Minagar & Associates, Inc. independent review												
2008 Existing	-	-	0	13	116	57	~~116~~	~~57~~	-	-	-	-
2035 No-Build	-	-	0	19	*	*	~~*~~	~~*~~	-	-	-	-
2025 Build	-	-	0	19	122	162	~~122~~	~~162~~	-	-	-	-
11. Avenida Siega & SR-74 Ortega Highway												
Draft Traffic Study												
2008 Existing	92	2	9	23	*	53	10	20	*	44	*	9
2035 No-Build	*	9	8	43	*	83	20	59	*	*	*	87
2025 Build	*	10	10	18	*	30	6	15	*	43	*	3
Minagar & Associates, Inc. independent review												
2008 Existing	15	10	10	12	*	139	17	26	37	46	~~37~~	~~46~~
2035 No-Build	22	12	12	19	*	*	24	68	86	*	~~86~~	~~*~~
2025 Build	22	12	12	19	*	*	14	22	24	80	~~24~~	~~80~~

~~X~~ Refer to left-turn delay for critical approach delay

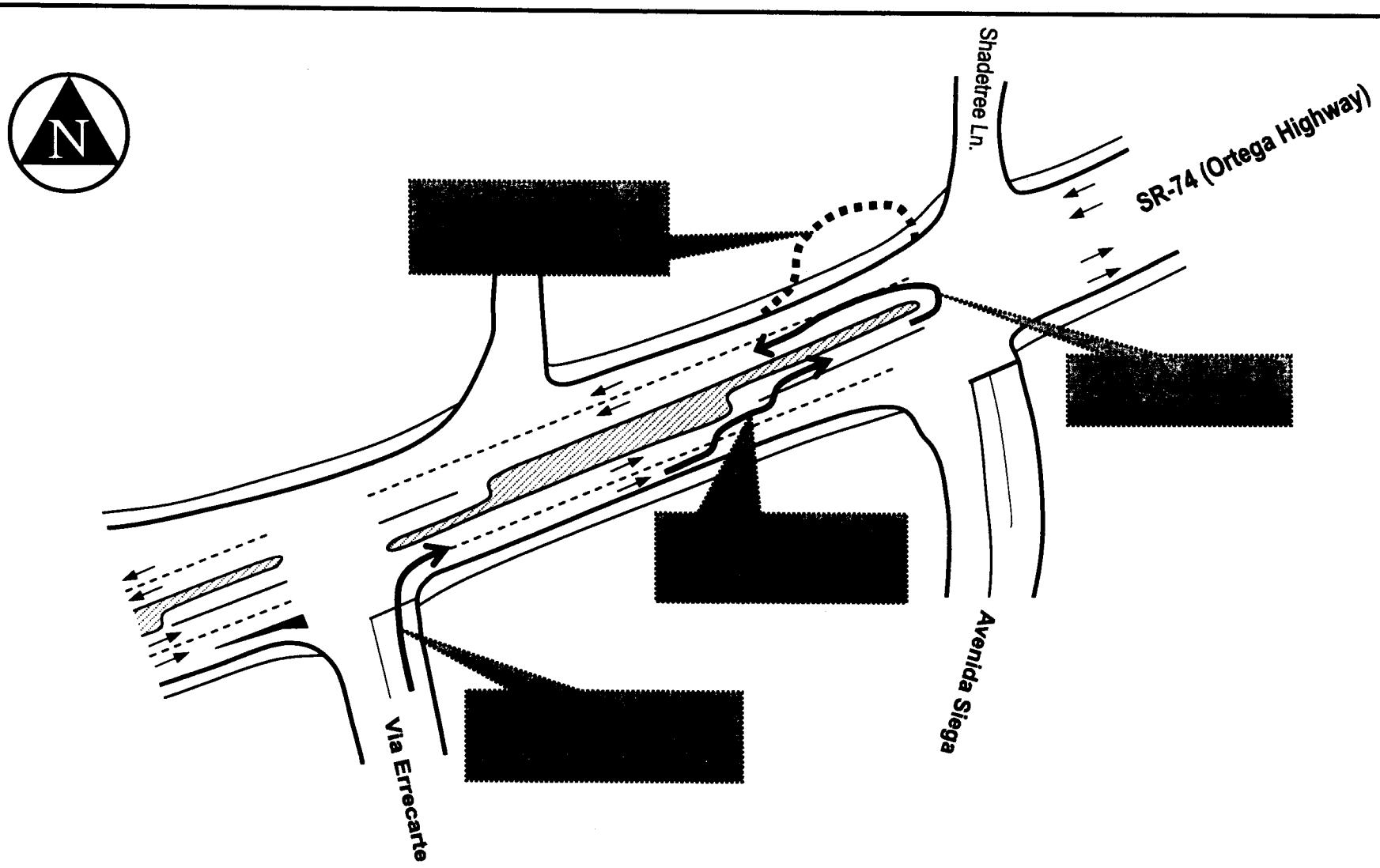
* Denotes greater than 200 seconds of delay

FIGURE 3B
Independent LOS Analyses & Comparison

Intersection	Delay, seconds per vehicle (AM/PM)												Total Δ		AM/PM	
	EBL		WBL		NBL		NBR		SBL		SBR		AM	PM	Avg.	
6. Calle Entradero & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-6	8	1	-4	60	43	114	120	*	-5	8	8	177	170	174	Avg. Delay Difference at Intersection: 58 seconds
2035 No-Build	14	-6	9	-81	*	*	*	*	*	*	18	3	41	-84	-22	
2025 Build	4	6	0	18	*	*	*	*	*	*	12	6	16	30	23	
7. Via Cordova/Hunt Club Drive & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-10	6	-2	-9	*	139	*	137	*	76	150	14	138	363	251	Avg. Delay Difference at Intersection: 107 seconds
2035 No-Build	7	1	-10	*	*	*	*	*	*	*	*	67	-3	68	33	
2025 Build	2	6	11	12	*	*	*	*	*	*	*	45	13	63	38	
8. Via Cristal & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-	-	-7	-19	*	58	*	183	-	-	-	-	-7	222	108	Avg. Delay Difference at Intersection: 34 seconds
2035 No-Build	-	-	-1	*	*	*	*	*	-	-	-	-	-1	0	-1	
2025 Build	-	-	-2	-6	*	*	*	*	-	-	-	-	-2	-6	-4	
9. Strawberry Lane & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-44	8	-	-	-	-	-	-	*	-25	*	10	-44	-7	-26	Avg. Delay Difference at Intersection: -73 seconds
2035 No-Build	-69	-27	-	-	-	-	-	-	*	*	*	*	-69	-27	-48	
2025 Build	-17	10	-	-	-	-	-	-	-155	-68	-63	5	-235	-53	-144	
10. Via Errecarte & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-	-	-6	5	-37	0	78	32	-	-	-	-	35	37	36	Avg. Delay Difference at Intersection: 74 seconds
2035 No-Build	-	-	-23	-20	*	*	*	*	-	-	-	-	-23	-20	-22	
2025 Build	-	-	-2	4	35	121	107	149	-	-	-	-	140	274	207	
11. Avenida Siega & SR-74 Ortega Highway																
Independent Study Difference																
2008 Existing	-77	8	1	-11	*	86	7	6	*	2	*	37	-69	128	30	Avg. Delay Difference at Intersection: 32 seconds
2035 No-Build	*	3	4	-24	*	*	4	9	*	*	*	*	8	-12	-2	
2025 Build	*	2	2	1	*	*	8	7	*	37	*	77	10	124	67	

Avg. Delay Difference Per Intersection: 39 seconds

* Denotes greater than 200 seconds of delay



MINAGAR & ASSOCIATES, INC.

Figure 4
Potential Issues for Indirect U-Turn Feature

Evaluation of DTS and T&C Element of DEIR for SR-74 Lower Ortega Highway Widening Project

APPENDIX

Synchro LOS Prinout Sheets

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
6: SR-74 Ortega Hwy & Calle Entrastero
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
7: SR-74 Ortega Hwy & Via Cordova
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
10: SR-74 Ortega Hwy & Via Entrada
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
11: SR-74 Ortega Hwy & Avenida Stega
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
8: SR-74 Ortega Hwy & Strawberry Ln
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis
6: SR-74 Ortega Hwy & Via Cristal
2006 Existing AM Peak Hour

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

6: SR-74 Ortega Hwy & Calle Entradero

2008 (Existing) - PM Peak Hour

Lane Configurations												
Volume (vph)												
Sign Control												
Grade												
Peak Hour Factor												
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol												
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %												
cM capacity (veh/h)												

Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									

Average Delay	1.4		
Intersection Capacity Utilization	88.3%	ICU Level of Service	A
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

7: SR-74 Ortega Hwy & Via Cordova

2008 (Existing) - PM Peak Hour

Lane Configurations												
Volume (vph)												
Sign Control												
Grade												
Peak Hour Factor												
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol												
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %												
cM capacity (veh/h)												

Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									

Average Delay	1.3		
Intersection Capacity Utilization	70.0%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

8: SR-74 Ortega Hwy & Via Cristal

2008 (Existing) - PM Peak Hour

Lane Configurations												
Volume (vph)												
Sign Control												
Grade												
Peak Hour Factor												
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol												
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %												
cM capacity (veh/h)												

Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									

Average Delay	1.4		
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

9: SR-74 Ortega Hwy & Strawberry Ln.

2008 (Existing) - PM Peak Hour

Lane Configurations						
Volume (vph)						
Sign Control						
Grade						
Peak Hour Factor						
Hourly flow rate (vph)						
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume						
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol						
tC, single (s)						
tC, 2 stage (s)						
tF (s)						
p0 queue free %						
cM capacity (veh/h)						

Volume Total						
Volume Left						
Volume Right						
cSH						
Volume to Capacity						
Queue Length 95th (ft)						
Control Delay (s)						
Lane LOS						
Approach Delay (s)						
Approach LOS						

Average Delay	0.8		
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

10: SR-74 Ortega Hwy & Via Errecarte

2008 (Existing) - PM Peak Hour

Lane Configurations												
Volume (vph)												
Sign Control												
Grade												
Peak Hour Factor												
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol												
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %												
cM capacity (veh/h)												

Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									

Average Delay	0.1		
Intersection Capacity Utilization	70.0%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

11: SR-74 Ortega Hwy & Avenida Siega

2008 (Existing) - PM Peak Hour

Lane Configurations												
Volume (vph)												
Sign Control												
Grade												
Peak Hour Factor												
Hourly flow rate (vph)												
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume												
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol												
tC, single (s)												
tC, 2 stage (s)												
tF (s)												
p0 queue free %												
cM capacity (veh/h)												

Volume Total									
Volume Left									
Volume Right									
cSH									
Volume to Capacity									
Queue Length 95th (ft)									
Control Delay (s)									
Lane LOS									
Approach Delay (s)									
Approach LOS									

Average Delay	0.5		
Intersection Capacity Utilization	70.0%	ICU Level of Service	D
Analysis Period (min)	15		

6: SR-74 Ortega Hwy & Calle Entradero
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	3	1240	4	4	[illegible]	2	19	0	12	6	0	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1348	4	4	[illegible]	2	21	0	13	7	0	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2374			1352			2571	3730	676	3075	3740	1187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2374			1352			2571	3730	676	3075	3740	1187
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			0	100	97	0	100	80
cM capacity (veh/h)	201			505			11	4	388	5	4	181

Volume Total	3	[illegible]	454	4	[illegible]	700	34	7	20
Volume Left	3	0	0	4	0	0	21	7	0
Volume Right	0	0	4	0	0	2	13	0	20
cSH	201	1700	1700	505	1700	1700	18	5	181
Volume to Capacity	0.02	0.53	0.27	0.01	0.82	0.41	1.87	1.38	0.11
Queue Length 95th (ft)	1	0	0	1	0	0	117	42	9
Control Delay (s)	22.2	0.0	0.0	12.2	0.0	0.0	[illegible]	1402.3	27.3
Lane LOS	C			B			F	F	D
Approach Delay (s)	0.1			0.0			[illegible]	[illegible]	
Approach LOS							F	F	

Average Delay	14.3		
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

7: SR-74 Ortega Hwy & Via Cordova
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	40	1213	5	5	2135	18	10	1	15	6	6	[illegible]
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	1318	5	5	2310	20	11	1	16	7	7	[illegible]
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	[illegible]			1324			3787	3746	1318	3743	3732	2310
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2329			1324			3787	3746	1318	3743	3732	2310
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	80			99			0	[illegible]	92	0	0	0
cM capacity (veh/h)	213			522			0	5	102	1	3	40

Volume Total	43	1318	5	5	2310	20	28	7	[illegible]
Volume Left	43	0	0	5	0	0	11	7	0
Volume Right	0	0	5	0	0	20	16	0	[illegible]
cSH	213	1700	1700	522	1700	1700	0	1	21
Volume to Capacity	0.20	0.78	0.00	0.01	1.36	0.01	Err	4.78	3.07
Queue Length 95th (ft)	19	0	0	1	0	0	Err	Err	Err
Control Delay (s)	26.2	0.0	0.0	12.0	0.0	0.0	Err	Err	Err
Lane LOS	D			B			F	F	F
Approach Delay (s)	0.6			0.0			Err	Err	
Approach LOS							F	F	

Average Delay	Err		
Intersection Capacity Utilization	135.7%	ICU Level of Service	H
Analysis Period (min)	15		

8: SR-74 Ortega Hwy & Via Cristal
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	0	1235	6	4	2135	0	22	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1342	7	4	2311	0	24	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2311			1341			3664	3664	1336	3663	3661	2311
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2311			1341			3664	3664	1336	3663	3661	2311
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			0	100	95	100	100	100
cM capacity (veh/h)	216			514			3	5	100	3	5	40

Volume Total	0	1342	7	4	2311	24	0
Volume Left	0	0	0	4	0	24	0
Volume Right	0	0	7	0	0	0	0
cSH	1700	1700	1700	514	1700	4	1700
Volume to Capacity	0.00	0.79	0.00	0.01	1.36	6.00	0.00
Queue Length 95th (ft)	0	0	0	1	0	Err	0
Control Delay (s)	0.0	0.0	0.0	12.1	0.0	Err	0.0
Lane LOS				B		F	A
Approach Delay (s)	0.0			0.0		Err	0.0
Approach LOS						F	A

Average Delay	88.4		
Intersection Capacity Utilization	121.8%	ICU Level of Service	H
Analysis Period (min)	15		

9: SR-74 Ortega Hwy & Strawberry Ln.
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	3	1240	2130	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1348	2316	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2316				3662	2316
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2316				3662	2316
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	100
cM capacity (veh/h)	216				5	48

Volume Total	3	1348	2316	0
Volume Left	3	0	0	0
Volume Right	0	0	0	0
cSH	216	1700	1700	1700
Volume to Capacity	0.02	0.79	1.36	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	22.0	0.0	0.0	0.0
Lane LOS	C			A
Approach Delay (s)	0.1		0.0	0.0
Approach LOS				A

Average Delay	0.0		
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

10: SR-74 Ortega Hwy & Via Errecarte
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	[illegible]	11	0	2134	0	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	[illegible]	12	0	[illegible]	7	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1349		3646	1334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1349		3643	1334
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	97
cM capacity (veh/h)			514		6	185

Volume Total	1349	0	[illegible]	12
Volume Left	0	0	0	7
Volume Right	12	0	0	5
cSH	1700	1700	1700	10
Volume to Capacity	0.79	0.00	1.36	1.18
Queue Length 95th (ft)	0	0	0	56
Control Delay (s)	0.0	0.0	0.0	[illegible]
Lane LOS				F
Approach Delay (s)	0.0	0.0		[illegible]
Approach LOS				F

Average Delay	2.7		
Intersection Capacity Utilization	121.8%	ICU Level of Service	H
Analysis Period (min)	15		

11: SR-74 Ortega Hwy & Avenida Siega
2035 (Future) No-Build - AM Peak Hour

Volume (veh/h)	3	1235	4	5	2116	0	2	0	4	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1342	4	5	2300	0	2	0	4	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2302			1339			3652	3649	1339	3650	3650	2302
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2302			1339			3652	3646	1339	3650	3650	2302
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			11	100	98	100	100	91
cM capacity (veh/h)	216			516			2	5	186	2	5	40

Volume Total	3	1346	5	2300	2	4	4
Volume Left	3	0	5	0	2	0	0
Volume Right	0	4	0	0	0	4	4
cSH	216	1700	516	1700	2	190	40
Volume to Capacity	0.01	0.79	0.01	1.35	0.88	0.02	0.09
Queue Length 95th (ft)	1	0	1	0	22	2	7
Control Delay (s)	21.8	0.0	12.0	0.0	2016.5	24.4	65.5
Lane LOS	C		B		F	C	F
Approach Delay (s)	0.1		0.0		704.3		65.5
Approach LOS					F		F

Average Delay	1.5		
Intersection Capacity Utilization	121.8%	ICU Level of Service	H
Analysis Period (min)	15		

6: SR-74 Ortega Hwy & Calle Entradero
2035 (Future) No-Build - PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱			✢		↰	↱	
Volume (veh/h)	13	[illegible]	45	7	[illegible]	2	13	0	6	1	0	[illegible]
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	2174	49	8	1416	2	14	0	7	1	0	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1418			[illegible]			[illegible]	[illegible]	1111	[illegible]	[illegible]	709
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1418			2223			2974	[illegible]	1111	2564	[illegible]	709
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			0	100	97	91	100	94
cM capacity (veh/h)	475			231			6	5	[illegible]	12	4	[illegible]

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	14	1449	774	8	944	474	21	1	36
Volume Left	14	0	0	8	0	0	14	1	0
Volume Right	0	0	49	0	0	2	7	0	36
cSH	475	1700	1700	231	1700	1700	[illegible]	12	376
Volume to Capacity	0.03	0.85	0.46	0.03	0.56	0.28	2.80	0.08	0.10
Queue Length 95th (ft)	2	0	0	3	0	0	92	6	8
Control Delay (s)	12.8	0.0	0.0	21.1	0.0	0.0	1616.1	327.4	15.2
Lane LOS	B			C			F	F	C
Approach Delay (s)	0.1			0.1			1616.1	30.8	
Approach LOS							F	D	

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

7: SR-74 Ortega Hwy & Via Cordova
2035 (Future) No-Build - PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱		✢		↰	↱	
Volume (veh/h)	42	1945	[illegible]	6	1272	0	0	0	3	2	1	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	2114	[illegible]	7	[illegible]	0	0	0	3	2	1	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1391			2128			[illegible]	3510	2114	3504	[illegible]	[illegible]
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1391			2128			[illegible]	3510	2114	3504	3523	1383
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			0	100	96	16	76	79
cM capacity (veh/h)	492			255			2	5	84	3	5	176

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	46	2114	[illegible]	7	[illegible]	0	3	2	39
Volume Left	46	0	0	7	0	0	0	2	0
Volume Right	0	0	[illegible]	0	0	0	3	0	38
cSH	492	1700	1700	253	1700	1700	[illegible]	3	87
Volume to Capacity	0.09	1.24	0.01	0.03	0.81	0.01	[illegible]	0.64	0.45
Queue Length 95th (ft)	8	0	0	2	0	0	Err	22	47
Control Delay (s)	13.1	0.0	0.0	19.6	0.0	0.0	Err	[illegible]	77.1
Lane LOS	B			C			F	F	F
Approach Delay (s)	0.3			0.1			Err	168.5	
Approach LOS							F	F	

Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	118.0%	ICU Level of Service	H
Analysis Period (min)	15		

8: SR-74 Ortega Hwy & Via Cristal
2035 (Future) No-Build - PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱			✢			✢	
Volume (veh/h)	0	[illegible]	18	8	1270	0	13	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2100	20	9	1384	0	14	0	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1384			2120			3501	3501	2100	3513	3521	1384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1384			2120			3501	3501	2100	3513	3521	1384
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			0	100	82	100	100	100
cM capacity (veh/h)	495			257			3	5	65	3	5	176

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	0	2100	20	9	1384	26	0
Volume Left	0	0	0	9	0	14	0
Volume Right	0	0	20	0	0	12	0
cSH	1700	1700	1700	257	1700	6	1700
Volume to Capacity	0.00	1.24	0.01	0.03	0.81	4.28	0.00
Queue Length 95th (ft)	0	0	0	3	0	Err	0
Control Delay (s)	0.0	0.0	0.0	19.6	0.0	Err	0.0
Lane LOS				C		F	A
Approach Delay (s)	0.0			0.1		Err	0.0
Approach LOS						F	A

Intersection Summary			
Average Delay	73.8		
Intersection Capacity Utilization	111.7%	ICU Level of Service	H
Analysis Period (min)	15		

9: SR-74 Ortega Hwy & Strawberry Ln.
2035 (Future) No-Build - PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑	↱		Y	
Volume (veh/h)	5	[illegible]	1270	2	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	2107	1380	2	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1382				[illegible]	1381
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1382				[illegible]	1381
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	99
cM capacity (veh/h)	491				7	174

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	5	2107	1382	2
Volume Left	5	0	0	0
Volume Right	0	0	2	2
cSH	491	1700	1700	174
Volume to Capacity	0.01	1.24	0.81	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	12.4	0.0	0.0	25.8
Lane LOS	B			D
Approach Delay (s)	0.0		0.0	25.8
Approach LOS				D

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		

10: SR-74 Ortega Hwy & Via Errecarte
2035 (Future) No-Build - PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↑	Y	
Volume (veh/h)	1912	[illegible]	5	1270	2	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2078	[illegible]	5	1380	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2107		[illegible]	[illegible]
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2107		[illegible]	[illegible]
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		66	97
cM capacity (veh/h)			[illegible]		7	65

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	2107	5	1380	4
Volume Left	0	5	0	2
Volume Right	[illegible]	0	0	2
cSH	1700	[illegible]	1700	13
Volume to Capacity	1.24	0.02	0.81	0.35
Queue Length 95th (ft)	0	2	0	22
Control Delay (s)	0.0	10.1	0.0	488.5
Lane LOS		C		F
Approach Delay (s)	0.0	0.1		488.5
Approach LOS				F

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	112.2%	ICU Level of Service	H
Analysis Period (min)	15		

11: SR-74 Ortega Hwy & Avenida Siega
2035 (Future) No-Build - PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱			✢	
Volume (veh/h)	4	[illegible]	11	6	1270	0	3	0	10	1	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	2064	12	7	1380	0	3	0	11	1	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1380			2076			3486	3482	[illegible]	3487	3488	1380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1380			2076			3486	3482	2070	3487	3488	1380
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			7	100	84	64	100	98
cM capacity (veh/h)	482			267			3	5	68	3	5	174

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	4	[illegible]	7	1380	3	11	4
Volume Left	4	0	7	0	3	0	1
Volume Right	0	12	0	0	0	11	3
cSH	482	1700	267	1700	3	68	11
Volume to Capacity	0.01	1.22	0.03	0.81	0.95	0.16	0.38
Queue Length 95th (ft)	1	0	2	0	27	13	23
Control Delay (s)	12.4	0.0	18.8	0.0	1676.7	67.8	464.6
Lane LOS	B		C		F	F	F
Approach Delay (s)	0.0		0.1		480.3		464.6
Approach LOS					F		F

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	118.0%	ICU Level of Service	H
Analysis Period (min)	15		

Synchro 7 Report — 6: SR-74 Ortega Hwy & Calle Entradero
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Configurations	↰	↑↑↱		↰	↑↑↱			✣		↰	↱	
Volume (veh/h)	3	1240	4	4	2142	2	19	0	15	6	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1348	4	4	2372	2	21	0	16	7	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2374			1352			2571	3739	676	3075	3740	1187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2374			1352			2571	3739	676	3075	3740	1187
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			0	100	97	0	100	88
cM capacity (veh/h)	201			505			11	4	395	5	4	161

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1	SB 2
Volume Total	3	899	454	4	1581	793	36	7	18
Volume Left	3	0	0	4	0	0	21	7	0
Volume Right	0	0	4	0	0	2	16	0	18
cSH	201	1700	1700	505	1700	1700	18	5	161
Volume to Capacity	0.02	0.53	0.27	0.01	0.93	0.47	1.97	1.38	0.11
Queue Length 95th (ft)	1	0	0	1	0	0	117	42	9
Control Delay (s)	23.2	0.0	0.0	12.2	0.0	0.0	[illegible]	1489.3	37.3
Lane LOS	C			B			F	F	D
Approach Delay (s)	0.1			0.0			[illegible]	391.9	
Approach LOS							F	F	

Intersection Summary			
Average Delay	10.3		
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report — 7: SR-74 Ortega Hwy & Via Cordova
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱		✣		↰	↱	
Volume (veh/h)	40	1212	5	5	[illegible]	18	10	1	15	6	6	80
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	1318	5	5	[illegible]	20	11	1	16	7	7	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2329			1324			2832	3746	660	3084	3732	1156
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2329			1324			2832	3746	660	3084	3732	1156
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	79			99			0	67	96	0	0	70
cM capacity (veh/h)	210			510			0	3	405	3	3	190

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1	SB 2
Volume Total	43	659	659	5	5	1165	1165	20	28	7	93
Volume Left	43	0	0	0	5	0	0	0	11	7	0
Volume Right	0	0	0	5	0	0	0	20	16	0	93
cSH	210	1700	1700	1700	510	1700	1700	1700	0	3	20
Volume to Capacity	0.21	0.39	0.39	0.00	0.01	0.69	0.69	0.01	Err	2.15	2.20
Queue Length 95th (ft)	19	0	0	0	1	0	0	0	Err	45	190
Control Delay (s)	26.5	0.0	0.0	0.0	12.0	0.0	0.0	0.0	Err	[illegible]	657.3
Lane LOS	D				B				F	F	F
Approach Delay (s)	0.8				0.0				Err	1011.1	
Approach LOS									F	F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

Synchro 7 Report — 8: SR-74 Ortega Hwy & Via Cristal
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Configurations	↰	↑↑	↱	↰	↑↑↱			✣			✣	
Volume (veh/h)	0	[illegible]	6	4	2130	0	22	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	[illegible]	7	4	2311	0	24	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2311			1341			2489	3864	667	2886	3861	1156
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2311			1341			2489	3864	667	2886	3861	1156
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			0	100	95	100	100	100
cM capacity (veh/h)	215			510			14	5	401	5	5	180

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	0	697	697	7	4	1541	770	[illegible]	0
Volume Left	0	0	0	0	4	0	0	24	0
Volume Right	0	0	0	7	0	0	0	0	0
cSH	1700	1700	1700	1700	510	1700	1700	20	1700
Volume to Capacity	0.00	0.39	0.39	0.00	0.01	0.91	0.45	1.97	0.00
Queue Length 95th (ft)	0	0	0	0	1	0	0	110	0
Control Delay (s)	0.0	0.0	0.0	0.0	12.1	0.0	0.0	742.3	0.0
Lane LOS					B			F	A
Approach Delay (s)	0.0				0.0			742.3	0.0
Approach LOS								F	A

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro 7 Report — 9: SR-74 Ortega Hwy & Strawberry Ln.
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	↗	→	←	↖	↘	↙
Lane Configurations	↰	↑↑	↑↑↱		Y	
Volume (veh/h)	3	1240	2130	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1348	2316	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2316				2992	1158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2316				2992	1158
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	100
cM capacity (veh/h)	213				11	180

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	3	674	674	1544	772	0
Volume Left	3	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	213	1700	1700	1700	1700	1700
Volume to Capacity	0.02	0.39	0.39	0.91	0.45	0.00
Queue Length 95th (ft)	1	0	0	0	0	0
Control Delay (s)	22.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C					A
Approach Delay (s)	0.1			0.0		0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	68.3%	ICU Level of Service	[illegible]
Analysis Period (min)	15		

Synchro 7 Report — 10: SR-74 Ortega Hwy & Via Errecarte
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	→	↘	↙	←	↖	↗
Lane Configurations	↑↑↱		↰	↑↑	Y	
Volume (veh/h)	[illegible]	11	0	[illegible]	6	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	[illegible]	12	0	[illegible]	7	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1340		2480	679
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1340		2480	679
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		73	99
cM capacity (veh/h)			510		24	388

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	[illegible]	[illegible]	0	1144	1144	13
Volume Left	0	0	0	0	0	7
Volume Right	0	12	0	0	0	6
cSH	1700	1700	1700	1700	1700	42
Volume to Capacity	0.52	0.27	0.00	0.68	0.68	0.30
Queue Length 95th (ft)	0	0	0	0	0	24
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	121.5
Lane LOS						F
Approach Delay (s)	0.0		0.0			121.5
Approach LOS						F

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro 7 Report — 11: SR-74 Ortega Hwy & Avenida Siega
HCM Unsignalized Intersection Capacity Analysis — 2035 (Future) Build - AM Peak Hour

Movement	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↱			✣	
Volume (veh/h)	3	[illegible]	4	5	2118	0	2	0	4	0	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	[illegible]	4	5	[illegible]	0	2	0	4	0	0	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	[illegible]			[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1151
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2302			1330			2501	3646	665	2987	3650	1151
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			84	100	99	100	100	98
cM capacity (veh/h)	216			516			14	6	402	6	6	181

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	3	884	445	5	[illegible]	767	2	4	4
Volume Left	3	0	0	5	0	0	2	0	0
Volume Right	0	0	4	0	0	0	0	4	4
cSH	215	1700	1700	516	1700	1700	14	402	191
Volume to Capacity	0.02	0.52	0.26	0.01	0.90	0.45	0.16	0.01	0.02
Queue Length 95th (ft)	1	0	0	1	0	0	11	1	2
Control Delay (s)	22.0	0.0	0.0	12.1	0.0	0.0	[illegible]	14.0	24.3
Lane LOS	C			B			F	B	C
Approach Delay (s)	0.1			0.0			111.6		24.3
Approach LOS							F		C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

6: SR-74 Ortega Hwy & Calle Entradero

2035 (Future) Build - PM Peak Hour

Lane Configurations												
Volume (veh/h)	13	[illegible]	46	7	[illegible]	2	13	0	6	1	0	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	2174	40	8	1416	2	14	0	7	1	0	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1410			[illegible]			2974	[illegible]	1111	[illegible]	[illegible]	[illegible]
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1418			2223			2974	[illegible]	1111	2564	[illegible]	[illegible]
tC, single (s)	4.1			4.1			7.5	[illegible]	[illegible]	7.5	[illegible]	[illegible]
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			0	100	97	91	100	94
cM capacity (veh/h)	476			231			6	5	[illegible]	12	4	[illegible]

Volume Total	14	1449	774	8	944	476	21	1	34
Volume Left	14	0	0	8	0	0	14	1	0
Volume Right	0	0	40	0	0	2	7	0	34
cSH	476	1700	1700	231	1700	1700	6	12	376
Volume to Capacity	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Queue Length 95th (ft)	2	0	0	3	0	0	[illegible]	6	8
Control Delay (s)	12.8	0.0	0.0	21.1	0.0	0.0	1618.1	387.4	16.2
Lane LOS	B			C			F	F	C
Approach Delay (s)	0.1			0.1			1618.1	38.0	
Approach LOS							F	D	

Average Delay	9.3		
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

7: SR-74 Ortega Hwy & Via Cordova

2035 (Future) Build - PM Peak Hour

Lane Configurations												
Volume (veh/h)	[illegible]	[illegible]	[illegible]	6	[illegible]	0	6	0	3	2	1	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	2114	[illegible]	7	[illegible]	0	6	0	3	2	1	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1391			2136			[illegible]	3010	1057	2547	[illegible]	691
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1391			2136			2948	3010	1057	2547	3023	691
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			97			0	100	[illegible]	82	75	90
cM capacity (veh/h)	486			259			4	5	221	10	5	387

Volume Total	46	1057	1057	32	7	[illegible]	[illegible]	1	9	2	39
Volume Left	46	0	0	0	7	0	0	0	5	2	0
Volume Right	0	0	0	32	0	0	0	0	3	0	39
cSH	486	1700	1700	1700	259	1700	1700	1700	7	12	115
Volume to Capacity	0.09	0.62	0.62	0.01	0.03	0.41	0.41	0.01	1.30	0.18	0.34
Queue Length 95th (ft)	8	0	0	0	2	0	0	0	40	12	34
Control Delay (s)	10.1	0.0	0.0	0.0	19.5	0.0	0.0	0.0	1136.7	388.3	51.5
Lane LOS	B				C				F	F	F
Approach Delay (s)	0.3				0.1				1136.7	87.8	
Approach LOS									F	F	

Average Delay	3.7		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

8: SR-74 Ortega Hwy & Via Cristal

2035 (Future) Build - PM Peak Hour

Lane Configurations												
Volume (veh/h)	0	[illegible]	16	0	1273	0	13	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2160	20	0	1384	0	14	0	12	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1384			2120			[illegible]	3601	1080	[illegible]	3621	692
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1384			2120			2808	3601	1060	2463	3621	692
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			0	100	95	100	100	100
cM capacity (veh/h)	491			254			5	5	224	14	5	386

Volume Total	0	[illegible]	[illegible]	20	0	[illegible]	461	26	0
Volume Left	0	0	0	0	0	0	0	14	0
Volume Right	0	0	0	20	0	0	0	12	0
cSH	1700	1700	1700	1700	254	1700	1700	15	1700
Volume to Capacity	0.00	0.62	0.62	0.01	0.00	0.54	0.27	1.78	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	[illegible]	0
Control Delay (s)	0.0	0.0	0.0	0.0	19.7	0.0	0.0	899.7	0.0
Lane LOS					C			F	A
Approach Delay (s)	0.0				0.1			899.7	0.0
Approach LOS								F	A

Average Delay	6.9		
Intersection Capacity Utilization	66.4%	ICU Level of Service	B
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

9: SR-74 Ortega Hwy & Strawberry Ln.

2035 (Future) Build - PM Peak Hour

Lane Configurations						
Volume (veh/h)	[illegible]	[illegible]	1270	2	0	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	2107	1380	2	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1382				[illegible]	[illegible]
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1382				2466	[illegible]
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	[illegible]				100	[illegible]
cM capacity (veh/h)	487				[illegible]	[illegible]

Volume Total	5	[illegible]	[illegible]	[illegible]	[illegible]	2
Volume Left	5	0	0	0	0	0
Volume Right	0	0	0	0	2	2
cSH	487	1700	1700	1700	1700	[illegible]
Volume to Capacity	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Queue Length 95th (ft)	1	0	0	0	0	[illegible]
Control Delay (s)	12.5	0.0	0.0	0.0	0.0	14.4
Lane LOS	B					B
Approach Delay (s)	0.0			0.0		14.4
Approach LOS						B

Average Delay	[illegible]		
Intersection Capacity Utilization	[illegible]	ICU Level of Service	B
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

10: SR-74 Ortega Hwy & Via Errecarte

2035 (Future) Build - PM Peak Hour

Lane Configurations						
Volume (veh/h)	[illegible]	[illegible]	5	1270	2	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	[illegible]	[illegible]	5	[illegible]	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2107		[illegible]	[illegible]
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2107		2798	[illegible]
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		[illegible]	[illegible]
cM capacity (veh/h)			257		14	[illegible]

Volume Total	[illegible]	[illegible]	5	[illegible]	[illegible]	4
Volume Left	0	0	5	0	0	2
Volume Right	0	[illegible]	0	0	0	2
cSH	1700	1700	257	1700	1700	27
Volume to Capacity	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Queue Length 95th (ft)	0	0	2	0	0	17
Control Delay (s)	0.0	0.0	19.3	0.0	0.0	162.4
Lane LOS			C			F
Approach Delay (s)	0.0		0.1			162.4
Approach LOS						F

Average Delay	0.2		
Intersection Capacity Utilization	[illegible]	ICU Level of Service	B
Analysis Period (min)	15		

Synchro 7 Report
HCM Unsignalized Intersection Capacity Analysis

11: SR-74 Ortega Hwy & Avenida Siega

2035 (Future) Build - PM Peak Hour

Lane Configurations												
Volume (veh/h)	4	[illegible]	11	6	1270	0	3	0	10	1	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	[illegible]	12	7	1380	0	3	0	11	1	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1380			2076			2790	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1380			2076			2790	3482	1038	2466	3488	696
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			61	100	95	93	100	99
cM capacity (veh/h)	488			264			8	6	238	16	6	385

Volume Total	4	[illegible]	709	7	927	460	3	11	4
Volume Left	4	0	0	7	0	0	3	0	1
Volume Right	0	0	12	0	0	0	0	11	3
cSH	488	1700	1700	264	1700	1700	8	226	53
Volume to Capacity	0.01	0.81	0.41	0.02	0.55	0.27	0.39	0.05	0.08
Queue Length 95th (ft)	1	0	0	2	0	0	21	4	6
Control Delay (s)	12.4	0.0	0.0	18.8	0.0	0.0	686.9	21.6	78.5
Lane LOS	B			C			F	C	F
Approach Delay (s)	0.0			0.1			166.4		78.5
Approach LOS							F		F

Average Delay	0.8		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

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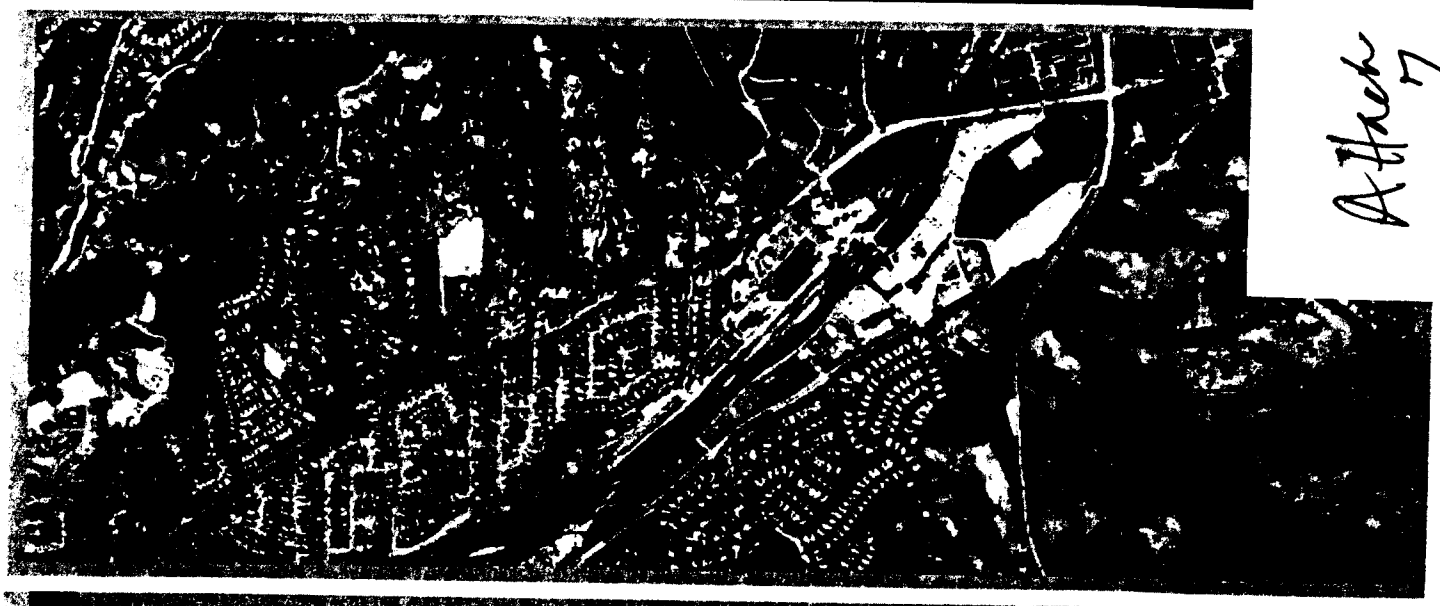
Evaluation of Traffic/Circulation Element of Initial Study (with Proposed Mitigated Negative Declaration) Widening of Lower Ortega Highway (SR-74) San Juan Capistrano, CA

Attach 7



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August 23, 2007

Evaluation of Traffic/Circulation Element of Initial Study

(With Proposed Mitigated Negative Declaration)

Widening of Lower Ortega Highway (SR-74)

City of San Juan Capistrano, CA

August 23, 2007

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1 Introduction

The purpose of the Initial Study (with Mitigated Negative Declaration (MND)) was to address the various details regarding the Proposed Widening of Lower Ortega Highway (SR-74)—in particular, the segment within the Project Limits of Calle Entradero, which is 1.06 miles east of Interstate 5 (located at PM 1.06 and KP 1.7), and the boundary dividing the City of San Juan Capistrano and Unincorporated Orange County across SR-74 Ortega Highway (located at PM 1.9 and KP 3.0). The proposed Caltrans improvements are outlined below:

Highway Widening

The Build Alternative would provide one additional 12-ft.wide lane in each direction, as well as a 12-ft. wide painted median. A 5-ft.-wide paved shoulder would be provided on each side of the roadway to accommodate Class II (striped on-road) bicycle facilities, except from Avenida Siega to the City/County limits where it would transition to an 8-ft.-wide shoulder to merge with the County portion of the project.

Intersection Improvements

There are five roadways that intersect with SR-74 from the south within the Project Limits: Calle Entradero, Via Cordova, Via Cristal, Via Errecarte, and Avenida Siega. North of SR-74, Via Cordova becomes Hunt Club Drive, and Avenida Siega becomes Shade Tree Lane. To the north, Palm Hill Drive and Toyon Drive provide access to private property. Each intersection would be modified/widened to accommodate the additional lanes, median, and shoulders. At intersections where there are existing right-turn pockets (Via Cordova and Via Cristal), the right-turn pocket would remain. No new intersections are being proposed, nor are existing intersections being proposed to be signalized. A traffic study was prepared by Austin-Foust Associates, Inc. for the proposed project (November 2006 and June 2007). According to the Initial Study, none of the five unsignalized intersections met the traffic signal warrants assessment criteria set forth in the 2006 Manual on Uniform Traffic Control Devices (MUTCD) and therefore did not warrant a signalized intersection.

Driveways

On the north side of SR-74 within the Project Limits, there are 11 existing driveways. Each of the 11 driveways would be modified to include reconstruction of the curb return. These driveways would be designed and built to Department standards in order to maintain sight distance and to avoid safety issues.

Pedestrian and Bicycle Facilities

There are existing sidewalks on the north and south sides of SR-74 that begin outside the Project Limits to the west, and continue partially through the project area. The north sidewalk currently terminates at Palm Hill Drive and the south sidewalk currently terminates just east of Avenida Siega. Class II bicycle facilities are planned and would be provided on each side of the roadway as part of the 5-ft.-wide paved shoulders through the Project Limits. These facilities, as stated in the Initial Study, would be in

conformance with the Orange County Transportation Authority (OCTA) Commuters Bikeways Strategic Plan (CBSP). However, the aforesaid document does not clarify any difference between the County's Mountain to Sea Trail Plan, which follows the Creek and CBSP. The City's General Plan states in its *Circulation Element* the need to promote an extensive public bicycle, pedestrian, and equestrian trails network. These bicycle facilities would comply with the City's goals, but does not match with the City plan trail system.

Traffic and Circulation

At the unsignalized intersections, a 12-ft. left-turn lane would be provided to allow for U-turn movement. Such provision would facilitate movement of vehicles that are exiting the minor streets and intending to turn left onto SR-74. Due to the lack of gaps in SR-74 through traffic, such vehicles exiting the minor streets may turn right on SR-74 and complete a U-turn at the next available intersection in lieu of turning left against both directions of traffic. Exclusive right-turn lanes would be provided in the eastbound direction at the Via Cordova and Via Cristal intersections. The aforementioned highway improvement components would require additional user needs and comprehensive forecast justification.

Within the Project Limits, there are no existing signalized intersections and none are proposed. Long-range (2030) traffic volumes for this area were produced using the Ranch Plan Traffic Model (RPTM), a fine-grained model derived from the South Orange County Sub-Area Model (SCSAM).

Affected Environment

Roadway System

SR-74 is part of the State Freeway and Expressway system. It provides interregional access between the employment centers of South Orange County and the residential centers of Riverside County. The highway also carries a high traffic volume and between 31.3% (at PM 0) and 11.7% (at PM 5.242) of trucks with two axles or more during the weekday and recreational travelers on the weekend according to Caltrans 2005 Truck AADT data.

City of San Juan Capistrano's Strategic Transportation Plan (STP)

In 2002, the City of San Juan Capistrano initiated an evaluation on a number of planned local and regional transportation and land development projects, due to the increasing potential for these projects to significantly impact traffic on City streets and State highways. Specific objectives included first diverting through traffic from the community and, and second manage remaining congestion within the community. Significant conclusions of the evaluation of existing transportation issues for the STP include the following:

- In 1997 daily traffic volumes on Ortega Highway were 25,000 near I-5 and 10,600 near the eastern city limits.

- Antonio Parkway opened in mid-1999. While there was little change in daily traffic volumes, the peak hour changes and directional redistribution resulted in significant improvement in the morning peak hour (1.06 to 0.63 Intersection Capacity Utilization (ICU) of the northbound I-5 ramp intersection and a negative impact in the afternoon peak hour (from 0.79 to 0.94 ICU) at the

same intersection. Some of the change at the northbound ramp can also be attributed to an improvement that occurred prior to Antonio opening.

• General Plan updated in December, 1999.

• OCTA released in July, 2001, updated traffic model (OCTAM 3.1) using OCP-2000 socio-economic data. This planning document represents the current policy statement by OCTA and the County regarding future growth (up to 2025) in undeveloped area east of the City. East of the City, 21,000 dwelling units were projected.

• Daily traffic projections for the 2025 horizon on Ortega Highway are 34,000 west of Antonio Parkway and 53,000 between Rancho Viejo and La Novia. These forecasts were higher (40 percent near I5) than the projections presented in the City 1999's General Plan EIR.

• The City's General Plan traffic analysis used OCP-1996 socioeconomic data as a planning base. For the undeveloped area east of the City, the assumed dwelling units increased by over 11,000 when comparing OCP-2000 to OCP-1996. There were also similar employment increases. These increases would have a direct influence on traffic volumes for key roadways like Ortega Highway.

• According to preliminary information from RMV, the proposed dwelling units will be on the order of 14,000 units compared to over 21,000 assumed in OCP-2000. The 14,000 units may be reduced through the review and approval process.

• The extension of La Pata to San Clemente and Foothill Transportation Corridor – South to I-5 have continuously been assumed in all County planning studies.

• The Talega Valley Specific Plan has general transportation mitigation measures that require demonstration of sufficient roadway capacity for each phase of development. Several circulation phasing alternatives were evaluated during the entitlement process, including a phased extension of La Pata, first to Camino Las Ramblas and then to Ortega Highway.

• Riverside County has initiated studies, known as CETAP, for a connection to Orange County. Potential corridors initially identified include Ortega Highway, as well as new routes through central and southern Orange County.

The two specific objectives for the STP, as identified by the City, are:

Primary: Identify transportation strategies that divert through traffic from the community.
Secondary: After diversion strategies have been achieved, reduce the remaining traffic congestion within the community.

Primary Strategies

1. Extension of La Pata from Avenida Pico to Ortega Highway.
2. Extension of Foothill Transportation Corridor South (FTC-S) to I-5.
3. Extension of Crown Valley Parkway east to FTC-S connect to Oso Parkway forming a loop. This is a planned facility of the MPAH.

4. Extension of Avery Parkway to Ortega Highway. This highway was deleted from the MPAH in 1995.
5. Extension of Crown Valley Parkway easterly to North River Road/Ortega Highway.
6. Highway connections "Corridor to Riverside County" to Riverside County northerly of Ortega Highway.
7. Southbound I-5 off-ramp at Stonehill Drive.

Secondary Strategies

8. Eastbound free right turn lanes at Del Obispo and Camino Capistrano intersection.
9. Traffic signal coordination plan on Ortega Highway and downtown.
10. Major reconstruction of Ortega Highway/I-5 Interchange.
11. Widening Ortega Highway to four lanes to eastern city limits.

Minagar & Associates, Inc. has been retained by the law firm Chatten-Brown & Carstens to conduct an independent and objective assessment of the Initial Study with Mitigated Negative Declarations Traffic and Circulation Elements. Field data was collected on a typical weekday (Thursday, August 2, 2007) and derived from photos, measurements, and visual observations conducted along SR-74 Ortega Highway at the intersections of Via Cordova/Hunt Club Drive, Via Cristal/Private driveway, Avenida Siega/Shadetree Lane, and Antonio Parkway/La Pata Avenue. Morning, mid day, and afternoon traffic turning movement counts were observed and recorded at SR-74 Ortega Highway and Antonio Parkway/La Pata Avenue. The gathered data were entered in and processed by PETRAPro software to analyze the traffic counts from the TDC-12 hand-held data collectors. The resulting peak information, along with pertinent details of the project site network, was then inserted into Synchro 6 and SIMTRAFFIC, programs for analyzing, modeling and simulating traffic flow, and investigated comparatively against analogous results of the Initial Study (MND).

In accordance with the evaluation by Minagar & Associates, Inc., the following technical studies were reviewed:

1. State Route 74, Lower Ortega Highway Widening, Orange County, CA
   Caltrans District 12-ORA-74, (KP 1.7/3.0) PM 1.0/1.9, EA 086900, July 2007.

2. SR-74 (Ortega Highway) Widening Project Supplemental Traffic Study,
   Austin-Foust Associates, Inc., June 27, 2007.

3. SR-74 (Ortega Highway) Widening Project Traffic Study,
   Austin-Foust Associates, Inc., November 2, 2006.

4. City of San Juan Capistrano Strategic Transportation Plan, LSA, September 2002.

5. Caltrans, SCAG, OCTA, TCA, County of Riverside & City of San Juan Capistrano websites.

2 Discussions

Minagar & Associates, Inc. has completed its review of the Caltrans Initial Study (with Mitigated Negative Declaration) as well as November 2, 2006 Traffic Study and June 27, 2007 Supplemental Traffic Study by Caltrans' consultant, Austin-Foust Associates, Inc. The review as outlined below has revealed the following discrepancies, inadequacies, inconsistencies and errors:

1. At the unsignalized intersection of SR-74 & Via Cristal, all of the consultant's Synchro and SimTraffic computer analyses are based on wrong geometries. Our field investigation revealed that the IS (with MND) does not show the existing eastbound left turn lane into the private driveway nor it even accounts for the southbound approach (Figure 2, Minagar & Associates, Inc.).

2. At the unsignalized intersection of SR-74 & Via Siega/Shadetree Lane, all of the consultant's Synchro and SimTraffic computer analyses are based on wrong geometries. Our field investigation revealed that the IS (with MND) does not show the existing 12' exclusive northbound left turn lane. Erroneously, it shows and utilizes an exclusive southbound left turn lane and a shared through/right turn lane. The correct lane configuration is an 11' shared left/through/right turn lane (Figure 3, Minagar & Associates, Inc.).

3. At the unsignalized intersection of SR-74 & Via Cordova/Entrance to Gated Community, all of the consultant's Synchro and SimTraffic computer analyses are based on wrong geometries. Our field investigation revealed that the IS (with MND) does not show the existing 14' exclusive westbound right turn lane. Instead it treats the westbound approach as a shared through/right, which is inaccurate and subsequently, it will produce erroneous LOS (Figure 4, Minagar & Associates, Inc.).

4. There are no supporting SimTraffic and Synchro computer printouts for 2030 With Project for all the 3 unsignalized intersections of Ortega/Via Cordova, Ortega/Via Cristal and Ortega/Avenida Siega in the Initial Study's November 2006 and June 2007 supplemental traffic studies.

5. Table 1, Mainline LOS Summary of the June 2007 Supplemental Traffic Study, as well as Table 2.1.4-1, Mainline LOS Summary, Page 2-37 in Chapter 2 of the Initial Study, show an erroneous V/C threshold of 0.88-1.00 for LOS "E". The correct threshold is between 0.89-1.00, based on Caltrans TIA Guidelines for similar facilities.

6. Table 1-1, Existing & Future Levels of Service (LOS) Comparing No Build & Build, Page 1-7 in Chapter 1 of the Initial Study as well as Table 1, Mainline LOS Summary, Page 2, Supplemental Traffic Study, show the existing PM peak hour Level of Service "C" for SR-74 west of Via Cordova, which should be "D" according to our independent Synchro computer analysis (Table 3 and Appendix A, Minagar & Associates, Inc.).

7. Page 2-35, Chapter 2 of the IS, Traffic Condition at Mainline & Intersection states that "Truck traffic is estimated to be 8% of the total traffic" (i.e., 1900 vehicles per day based on actual truck counts taken in 2005), however, the subsequent Synchro computer printouts in both the November 2006 and Supplemental June 2007 traffic reports do not show any evidence that the 8% truck traffic is actually used in the "existing" assessments.

8. The Initial Study's both November 2006 and Supplemental June 2007 traffic reports have omitted documenting existing Measures of Effectiveness for the most critical intersection, Ortega Highway at Antonio Parkway during both AM and PM peak hours.

9. A comparison of existing Measures of Effectiveness (MOEs) regarding travel time per vehicle (minutes) between our independent assessment and the Initial Study reveals substantial variations during AM and PM peak hours, despite using the same traffic volumes at Ortega Highway/Via Cordova, Ortega Highway/Via Cristal and Ortega Highway/Avenida Siega (Table 5, Minagar & Associates, Inc.)

10. Neither the IS (with MND) nor the Traffic Study/Supplemental Traffic Study includes any technical document of traffic signal warrant assessments for the three major intersections of Ortega at Via Cordova, Ortega at Via Cristal and Ortega at Avenida Siega within the project boundaries.

11. The IS (with MND) does not include any Traffic Management Plans (TMP) for review. Since Ortega Highway traverses through the residential areas of San Juan Capistrano, a draft copy of the TMP should have been incorporated for public review and comments.

12. Traffic conditions in South Orange County as well as many other areas of Southern California are dynamic. Traffic volumes fluctuate rapidly due to new developments and employment center changes. On page 2-23, the IS indicates that traffic counts were taken in 2003 and then were projected for 2005. Two-year projections for the eastern San Juan Capistrano area and this type of highway widening are not an acceptable industry/practice norm. To demonstrate the changes and inconsistencies, Minagar & Associates, Inc. conducted an independent Turning Movement Count (TMC) at the most critical intersection along SR-74, Ortega Highway at Antonio Parkway/La Pata Avenue during a typical weekday during 7-9 AM, 11-1 AM, and 4-6 PM peak hours. These results, which are tabulated in Appendix B, reveal the following interesting results: the total traffic volumes have been underestimated by 8.9% and 36.3% during the AM and PM peak hours. Therefore, the existing database and its subsequent analyses are not true representations of the existing conditions (Table 1, Minagar & Associates, Inc.).

13. The Air Quality Report uses the forecast year of 2025, however, the traffic report uses 2030; common years should be utilized.

14. The Supplemental Traffic Study does not utilize the updated Caltrans 2006 All-Vehicle AADT in the overall analyses. On page 2-35, Chapter 2 of the IS, the existing Average Daily Traffic (ADT) and Peak Hour Volumes within the project limits on SR-74 (both directions) are 24,000 and 2,360 vehicles, respectively, for the year 2005. However, the new 2006 All-Vehicle AADT (Table 2, Minagar & Associates, Inc.) shows 29,500 and 2,675 vehicles, respectively, for the year 2006. Therefore, the existing base heavy traffic along the corridor has been underestimated.

15. The November 2006 Traffic Study and June 2007 Supplemental Traffic Study both use inconsistent heavy vehicle percentages on Synchro and SimTraffic computer programs.

16. On page 2-35 of the IS, the estimated truck traffic is 8%, however, on Caltrans web site (Table 2, Minagar & Associates, Inc.) the truck percentages are 31.3% and 11.7% between I-5 junction (PM 0) and Conrock Entrance (PM 5.242), a drastic difference of 13.5%.

17. The number of accidents for a 3-year period from January 1, 2003, through December 31, 2005, is shown as 53 accidents, page 2-38 in Chapter 2 of the Initial Study. However, in the Air Quality report, page 2, Table 1.2-3, the number of accidents used is during the four-year period, January 1, 2000 through December 31, 2003 with 22 accidents—a 141% increase.

18. None of the technical studies document the growth factors and specific trip generation figures for the Ranch Plan Traffic Model (RPTM) nor for the South Orange County Sub-Area Model (SCSAM).

19. Our field traffic investigation and reconnaissance indicates that the existing signalized intersection of Ortega Highway at Antonio Parkway is currently undergoing a massive lane expansion/construction. These changes should have been included in Synchro and SimTraffic computer program evaluations.

20. The Supplemental Traffic Study, on page 1, states that, "for the No Build, the capacity (of roadway sections along Ortega Highway) was reduced by 15% to account for the existing facility being two lanes with substandard shoulders and other constraints (the 15% reduction was estimated by examining the various factors affecting capacity as discussed in the HCM)." The action taken must be justified by specific numerical documentation which is the norm in preparing technical documents for the public. The aforementioned 15% capacity reduction for the No-Build scenario in the year 2030 would cause the results of MOEs, SimTraffic and Synchro to be unreliable.

21. Regarding minimization and mitigation measures, the IS, Appendix D, page D-1 states that, "The project shall provide eastbound left-turn lanes at the unsignalized intersection and allow U-turns at these locations to alleviate side-street delays. This would facilitate the movement of minor street traffic onto the SR-74/Ortega Highway via a right turn and then a U-turn at the next available intersection." This, in contrast to other state routes with similar characteristics where they have

avoided providing U-turn at unsignalized intersections to provide public safety and enhance flow of traffic? Since SR-91 (North Orange County) and SR-78 (North San Diego County) are very far apart to the north and the south of the project site, respectively, inevitably Ortega Highway becomes the only, as it is serving as so now, east-west connection between I-5 (Orange County) and I-15 (Riverside County).

22. An independent computer analysis (Synchro & SimTraffic) comparison of the major unsignalized intersection of Sr-74 west of Via Cordova reveals that the correct Level of Service for the existing PM peak hour is "D," not "C" as shown in the IS and the Supplemental Traffic Study (Table 3, Minagar & Associates, Inc.).

23. An independent computer analysis (Synchro & SimTraffic) comparison of all the unsignalized intersections within the project boundaries for the existing conditions, as listed in the technical documents, reveals drastic deviations on street approach delays. For example, the existing motorists at Ortega Highway at Via Cordova, northbound left turn lane, would face 118 and 106 seconds of delay according to the IS during the AM and PM peak hours, respectively, versus 1,494 and 255 seconds of delay according to the independent assessment (Table 4, Minagar & Associates, Inc.)

24. An independent traffic signal installation warrant assessment reveals that the existing unsignalized intersections of Ortega Highway at Via Cordova and Ortega Highway at Avenida Siega/Shadetree Lane are warranted for signalization each during the AM and PM peak hours, respectively, under the Future Year 2030 Without Project conditions. These warrant assessment results are shown in the review report on Table 7A. It should be noted that since no documentation of any of signal warrant assessments was included in the aforementioned technical studies, verification of any of their assumptions is impossible.

25. None of the studies identify any prudent traffic diversion strategies for the proposed project as needed according to the City of San Juan Capistrano's Strategic Transportation Plan (STP).

26. From a local/community perspective, considering the traffic growth along Ortega Highway and that there are no signalized intersections within the 1 mile project boundaries, crossing of any pedestrian, bicyclist, and/or equestrian as well as vehicles U-turning would cause unavoidable safety impedances and potential future litigations against Caltrans, primarily, and the City of San Juan Capistrano, secondarily.

27. None of the studies included any future traffic growth factors and list of all ambient developments with their corresponding land use, square foot and construction target year. As a result, no independent quality control, quality assurance and Synchro/SimTraffic analyses could be made, thereby making all the traffic technical documents inadequate and incomplete.

28. The proposed Rancho Mission Viejo development inevitably would be the largest residential project in the south County with major traffic impacts. None of the

aforementioned technical studies provides indication on the assumed number of dwelling units. Was it 14,000 units?

29. None of the traffic studies address the South Orange County Major Investment Study, which is currently underway by OCTA. The aforementioned study reveals that given significant growth in South Orange County, by 2030, roadway congestion is expected to grow by 133 percent, underscoring the need for a more comprehensive approach to the proposed State Highway 74 widening plans.

30. The existing delineation and striping of SR-74 at Via Cordova should be reconfigured to eliminate the "no man's land" in order to improve mobility and enhance public safety.

31. An independent computer analysis (Synchro & SimTraffic) Comparison of the Measures of Effectiveness on travel time per vehicle at the following 3 unsignalized intersections of Ortega Highway at Via Cordova, Via Cristal and Avenida Siega reveals that there is a wide discrepancy between +33.33% to -43.33%, which is not acceptable (Table 5, Minagar & Associates, Inc.)

Conclusions

As set forth in detail above with all the supporting independent field and computer analyses, observed traffic volumes at key intersection(s) affected by the proposed project are already significantly more than the IS, November 2006 Traffic Study and the June 2007 Supplemental Traffic Study. This is in large part because the growth rate projection relied on in all the traffic reports simply do not document the assumptions nor tabulate future developments' projected traffic. Further study of the Ortega Highway widening traffic impacts based on current observed traffic volumes and more accurate projection of traffic growth is required.

Because existing traffic volumes are significantly higher than expected (up to 36.3% at an observed location), the IS' conclusion that any impacts of the widening have been adequately addressed should be revisited. At a minimum, further analysis of the proposed mitigation measures' effect on existing traffic, in specific potential signalization of the three major unsignalized intersections within the project boundaries should be conducted. Moreover, the IS, the November 2006 Traffic Study and the June 2007 Supplemental Traffic Study, frequently misstated and omitted the actual proposed mitigation measures at the eleven(11) existing driveways and five(5) unsignalized intersections of issue, and further analyses at these locations are required.

REVIEW OF STATE ROUTE 74
LOWER ORTEGA HIGHWAY WIDENING
CITY OF SAN JUAN CAPISTRANO, CA

FIGURE A
VICINITY MAP
SR-74 ORTEGA HIGHWAY & ANTONIO PARKWAY

MINAGAR & ASSOCIATES, INC.
ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL
18662 MACARTHUR BOULEVARD, SUITE 435
IRVINE, CA 92612

TABLE 1
Sample Existing Traffic Volumes Comparison
Ortega Highway (SR-74 @ Antonio Parkway)

	[illegible]				[illegible]				[illegible]	
Initial Study (MND)	751	1,180	1,112	409	65	130	627	568	2,555	2,287
Independent Assessment	752	1,538	1,232	554	87	92	711	933	2,782	3,117
									8.9%	36.3%

TABLE 2
Traffic Volumes

2006 ALL VEHICLE AADT

12	74	ORA	-	0.000	SAN JUAN CAPISTRANO, JCT RTE 5	-	-	-	2600	30000	29000
12	74	ORA	-	1.060	CALLE ENTRADERO DRIVE	2600	30000	29000	2750	29000	27500
12	74	ORA	R	2.151	RANCHO VIEJO WAY/ SANTA MARGARITA	2750	29000	27500	2500	22700	22200

2005 TRUCK AADT

D	Rte.	Cnty	Leg	PM	Description													Verify/ Estimate
12	74	ORA	A	0	SAN JUAN CAPISTRANO, JCT. RTE. 5	28500	8921	31.3	4264	47.8	651	7.3	125	1.4	3881	43.5	82	E
12	74	ORA	B	5.242	CONROCK ENTRANCE	15000	1755	11.7	497	28.3	165	9.4	100	5.7	993	56.6	83	V
12	74	ORA	A	5.242	CONROCK ENTRANCE	11100	355	3.2	253	71.3	38	10.8	37	10.3	27	7.6	83	E

*Source: Caltrans (on-line) http://traffic-counts.dot.ca.gov/

TABLE 3
Existing Mainline LOS Summary Comparison

Location	Lane Design Capacity	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Volume	[illegible]	LOS
SR-74 w/o Via Cordova												
AM	2,100	1	1,785	1,586	0.89	E	2,100	1	1,785	1,723	0.96	E
PM	2,100	1	1,785	1,180	0.66	C	2,100	1	1,785	1,282	0.72	D
SR-74 w/o Cristal												
AM	2,100	1	1,785	1,351	0.76	D	2,100	1	1,785	1,350	0.76	D
PM	2,100	1	1,785	1,121	0.63	C	2,100	1	1,785	1,219	0.68	C
SR-74 w/o Avenida Siega												
AM	2,100	1	1,785	1,305	0.73	D	2,100	1	1,785	1,419	0.79	D
PM	2,100	1	1,785	1,001	0.56	C	2,100	1	1,785	1,088	0.61	C
SR-74 E/o Avenida Siega												
AM	2,100	1	1,785	1,319	0.74	D	2,100	1	1,785	1,420	0.80	D
PM	2,100	1	1,785	1,180	0.66	C	2,100	1	1,785	1,084	0.61	C

*Highest hour-long one-way volume during the day of analysis

Delay (s)	LOS
≤ 0.3	A
0.30-0.47	B
0.48-0.68	C
0.69-0.88	D
0.89-1.00	E
>1.0	F

TABLE 4
Existing Delay and LOS By Intersection Movements Comparison

			Intersection of SR-74/Ortega Hwy @							
			[redacted]							
			[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
EBL	AM	Delay	15	15.1	-	-	12	12.5	-	157
		LOS	B	C	-	-	B	B	-	F
	PM	Delay	*	10.5	-	-	*	9.4	-	105
		LOS	C	B	-	-	C	A	-	F
WBL	AM	Delay	*	9.8	10	10.4	*	9.5	-	81
		LOS	E	A	A	B	D	A	-	F
	PM	Delay	11	11.4	11	11.3	11	10.7	-	72
		LOS	B	B	B	B	B	B	-	E
NBL	AM	Delay	118	1494	**	730	85	149	-	152
		LOS	F	F	F	F	F	F	-	F
	PM	Delay	106	255	64	117.2	91	119	-	108
		LOS	F	F	F	F	F	F	-	F
SBL	AM	Delay	**	408	-	-	123	65.3	-	228
		LOS	F	F	-	-	F	F	-	F
	PM	Delay	173	151	-	-	**	40.6	-	145
		LOS	F	F	-	-	F	E	-	F
SBR	AM	Delay	19	64	-	-	26	65.3	-	107
		LOS	C	F	-	-	D	F	-	F
	PM	Delay	21	20.3	-	-	14	40.6	-	56
		LOS	C	C	-	-	B	E	-	E

* LOS determination based on segment performance (see Table 3)
** Delay > 200 seconds
Old: Initial Study (MND)
New: Independent Assessment

[redacted]	
[redacted]	[redacted]
≤ 10	A
>10-15	B
>15-25	C
>25-30	D
>35-50	E
>50	F

EBL: Eastbound Left
WBL: Westbound Left
NBL: Northbound Left
SBL: Southbound Left
SBR: Southbound Right

TABLE 5
Existing Measures of Effectiveness Comparison

	Intersection of SR-74/Ortega Hwy @	[redacted]					
1.	**Via Cordova**						
	Travel time per vehicle (mins)	0.4	0.5	0.53	0.29	33.33%	-42.00%
2.	**Cristal**						
	Travel time per vehicle (mins)	0.6	0.6	0.54	0.34	-9.21%	-43.33%
3.	**Avenida Siega**						
	Travel time per vehicle (mins)	1.5	1.3	0.98	0.81	-34.65%	-37.69%
4.	**Antonio Pkwy/La Pata Ave**						
	Travel time per vehicle (mins)	-	-	2.03	1.79	N/A	N/A

TABLE 6
Caltrans TIA Guidelines

BASIC FREEWAY SEGMENTS @ 65 mi/hr

LOS	Density (pc/mi/ln)	Average Speed (mph)	Maximum V/C	Maximum Service Flow Rate (pc/hr/ln)
A	11	65	0.30	710
B	18	65	0.50	1170
C	26	64.6	0.71	1680
D	35	59.7	0.89	2090
E	45	52.3	1.00	2350

SIGNALIZED INTERSECTIONS and RAMP TERMINALS

LOS	Average Control Delay (sec/veh)
A	10
B	≤10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

MULTI-LANE HIGHWAYS @ 55 mi/hr

LOS	Density (pc/mi/ln)	Average Speed (mph)	Maximum V/C	Maximum Service Flow Rate (pc/hr/ln)
A	11	55.0	0.29	600
B	18	55.0	0.47	990
C	26	54.9	0.68	1430
D	35	52.9	0.88	1850
E	41	51.2	1	2100

- - - Dotted line represents the transition between LOS 'C' and LOS 'D'

Table 7A
Peak Hour Signal Warrant Summary

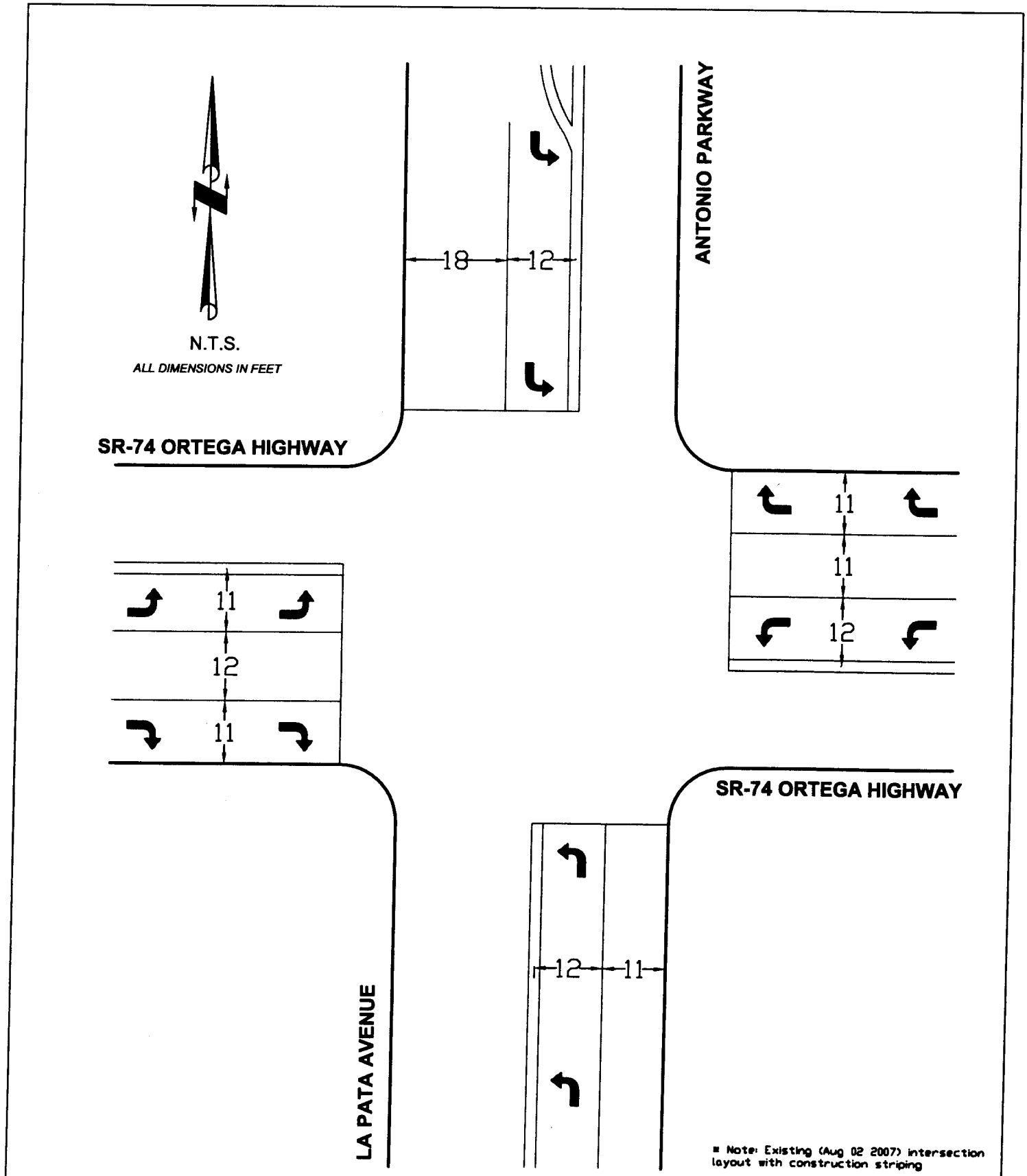
EXISTING 2007 and Future 2030 Without Project

Intersection (N/S Rd. at E/W Rd.)	Direction	AM Peak Hour	PM Peak Hour	
1. Ortega Hwy. (SR-74) at Via Cordova/Hunt Club Dr.				Existing 2007
Major Approach (Ortega Hwy./SR-74)	Eastbound	855	1180	
	Westbound	1522	890	
	Total	**2377**	**2070**	
Minor Approach (Via Cordova/Hunt Club Dr.)	Northbound	20	9	
	Southbound	**68**	**24**	
Satisfies Warrant (higher speeds/rural)?		**NO**	**NO**	
2. Ortega Hwy. (SR-74) at Via Cristal/Private driveway				
Major Approach (Ortega Hwy./SR-74)	Eastbound	958	1121	
	Westbound	1319	805	
	Total	**2277**	**1926**	
Minor Approach (Via Cristal/Private driveway)	Northbound	**36**	**17**	
	Southbound	0	0	
Satisfies Warrant (higher speeds/rural)?		**NO**	**NO**	
3. Ortega Hwy. (SR-74) at Avenida Siega/Shadetree Ln.				
Major Approach (Ortega Hwy./SR-74)	Eastbound	759	1000	
	Westbound	1306	743	
	Total	**2065**	**1743**	
Minor Approach (Avenida Siega/Shadetree Ln.)	Northbound	5	**24**	
	Southbound	**10**	5	
Satisfies Warrant (higher speeds/rural)?		**NO**	**NO**	
Intersection (N/S Rd. at E/W Rd.)	**Direction**	**AM Peak Hour**	**PM Peak Hour**	
1. Ortega Hwy. (SR-74) at Via Cordova/Hunt Club Dr.				Future 2030 Without Project
Major Approach (Ortega Hwy./SR-74)	Eastbound	1744	1973	
	Westbound	1934	1822	
	Total	**3678**	**3795**	
Minor Approach (Via Cordova/Hunt Club Dr.)	Northbound	36	16	
	Southbound	**119**	**53**	
Satisfies Warrant (higher speeds/rural)?		**YES**	**NO**	
2. Ortega Hwy. (SR-74) at Via Cristal/Private driveway				
Major Approach (Ortega Hwy./SR-74)	Eastbound	1690	1809	
	Westbound	1878	1803	
	Total	**3568**	**3612**	
Minor Approach (Via Cristal/Private driveway)	Northbound	**63**	**29**	
	Southbound	0	0	
Satisfies Warrant (higher speeds/rural)?		**NO**	**NO**	
3. Ortega Hwy. (SR-74) at Avenida Siega/Shadetree Ln.				
Major Approach (Ortega Hwy./SR-74)	Eastbound	1679	1778	
	Westbound	1880	1600	
	Total	**3559**	**3378**	
Minor Approach (Avenida Siega/Shadetree Ln.)	Northbound	9	**230**	
	Southbound	**17**	9	
Satisfies Warrant (higher speeds/rural)?		**NO**	**YES**	

Table 7B
Peak Hour Signal Warrant Summary

Future 2030 With Project				
Intersection (N/S Road/E/W Road)	Direction	AM Peak Hour	PM Peak Hour	
1. Ortega Hwy. (SR-74) at Via Cordova/Hunt Club Dr.				Future 2030 With Project †
Major Approach (Ortega Hwy./SR-74)	Eastbound	-	-	
	Westbound	-	-	
	Total	0	0	
Minor Approach (Via Cordova/Hunt Club Dr.)	Northbound	-	-	
	Southbound	-	-	
Satisfies Warrant (higher speeds/rural)?		N/A	N/A	
2. Ortega Hwy. (SR-74) at Via Cristal/Private driveway				
Major Approach (Ortega Hwy./SR-74)	Eastbound	-	-	
	Westbound	-	-	
	Total	0	0	
Minor Approach (Via Cristal/Private driveway)	Northbound	-	-	
	Southbound	-	-	
Satisfies Warrant (higher speeds/rural)?		N/A	N/A	
3. Ortega Hwy. (SR-74) at Avenida Siega/Shadetree Ln.				
Major Approach (Ortega Hwy./SR-74)	Eastbound	-	-	
	Westbound	-	-	
	Total	0	0	
Minor Approach (Avenida Siega/Shadetree Ln.)	Northbound	-	-	
	Southbound	-	-	
Satisfies Warrant (higher speeds/rural)?		N/A	N/A	

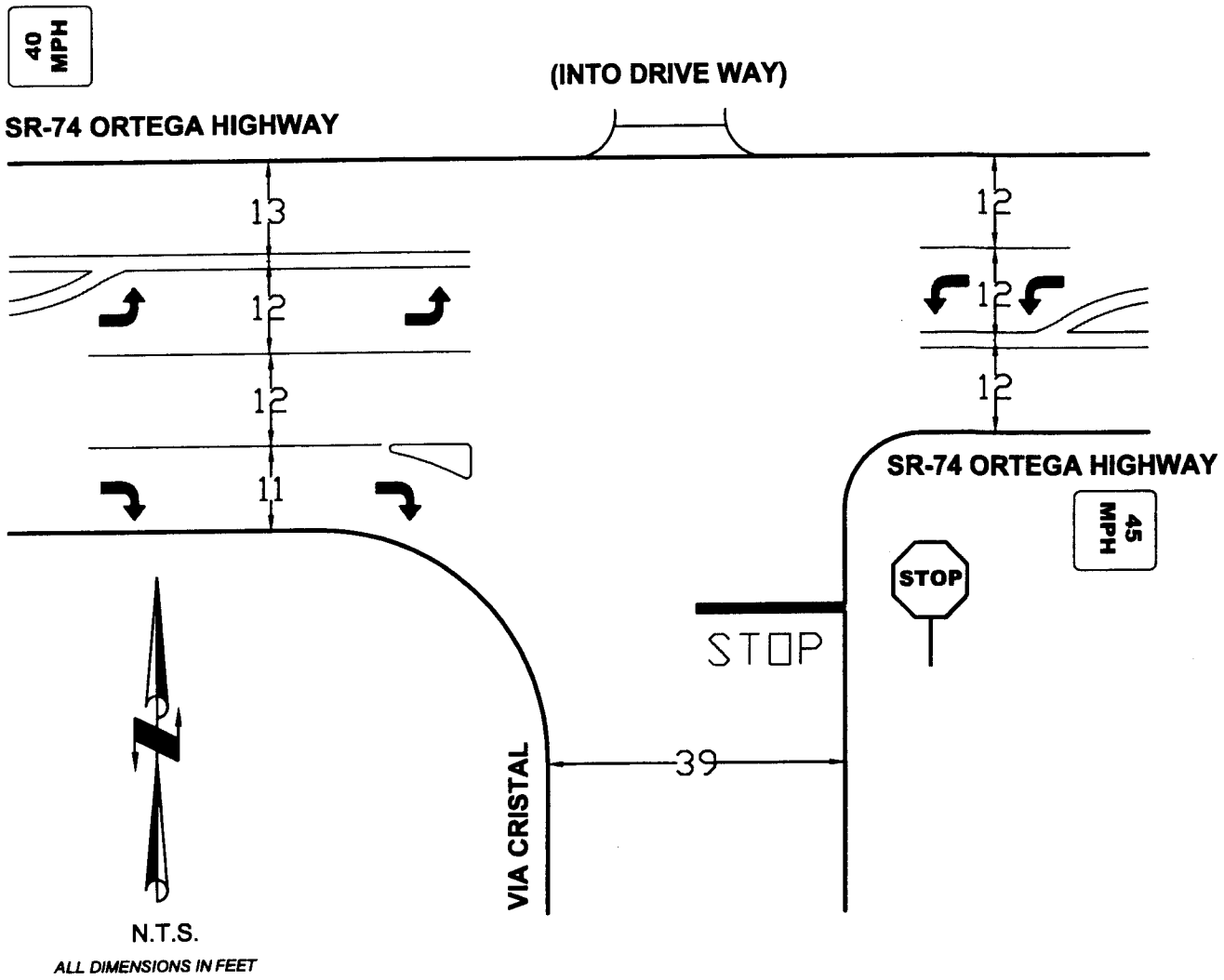
† **NOTE**: No available data on initial study (MND)



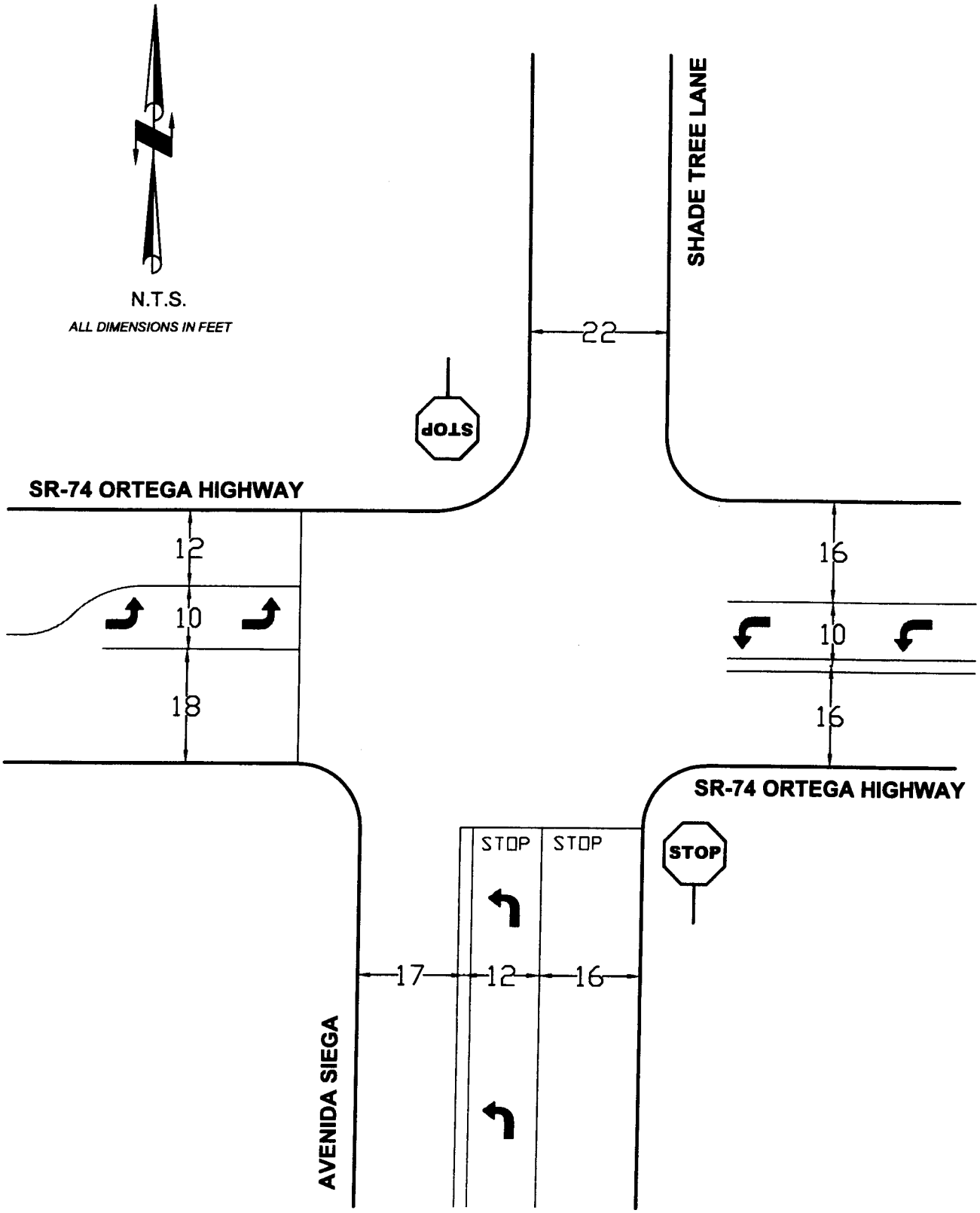
REVIEW OF STATE ROUTE 74
LOWER ORTEGA HIGHWAY WIDENING
CITY OF SAN JUAN CAPISTRANO, CA

FIGURE 1
EXISTING GEOMETRY
SR-74 ORTEGA HWY & ANTONIO PKWY

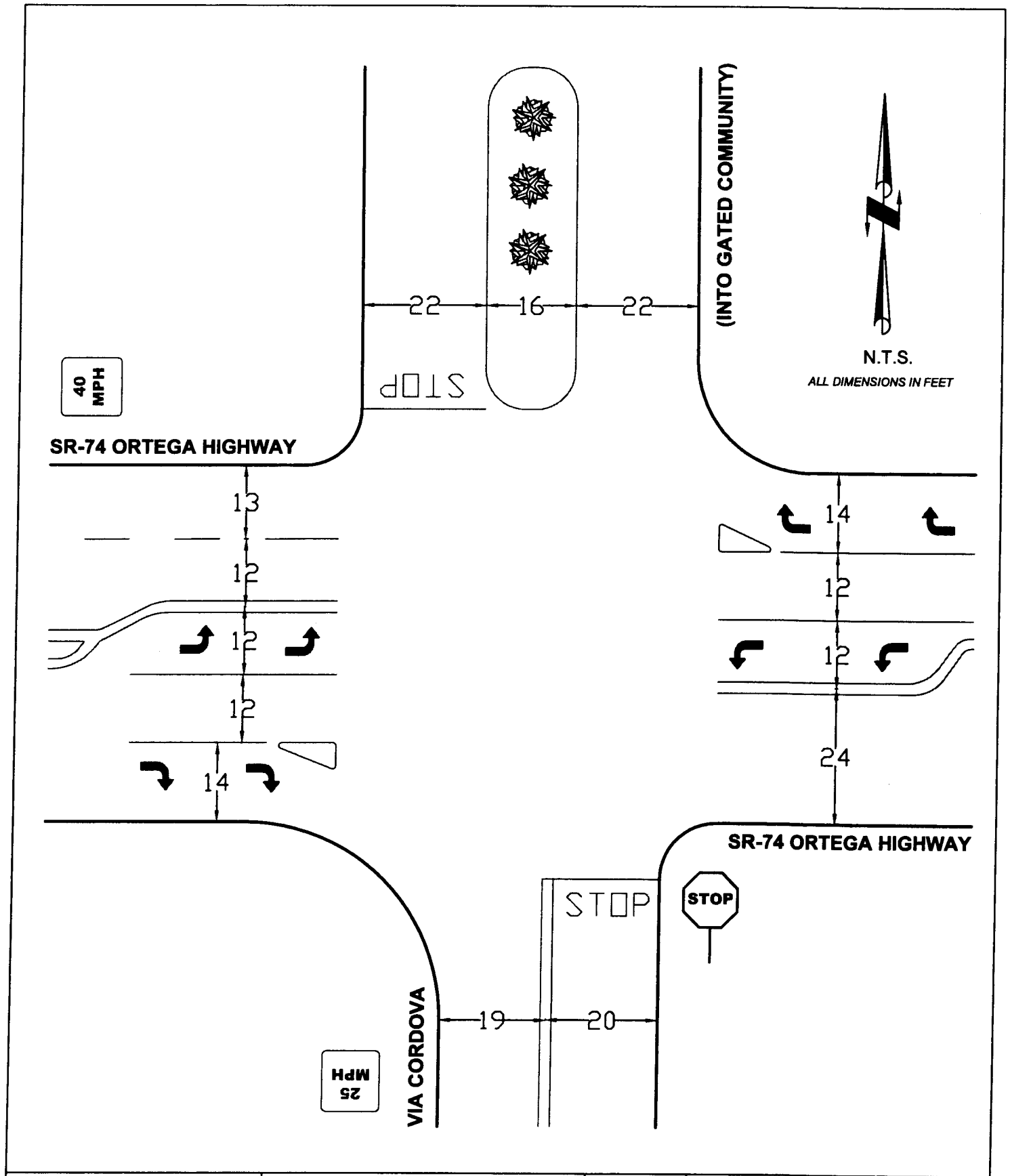
MINAGAR & ASSOCIATES, INC.
ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL
18662 MACARTHUR BOULEVARD, SUITE 435
IRVINE, CA 92612



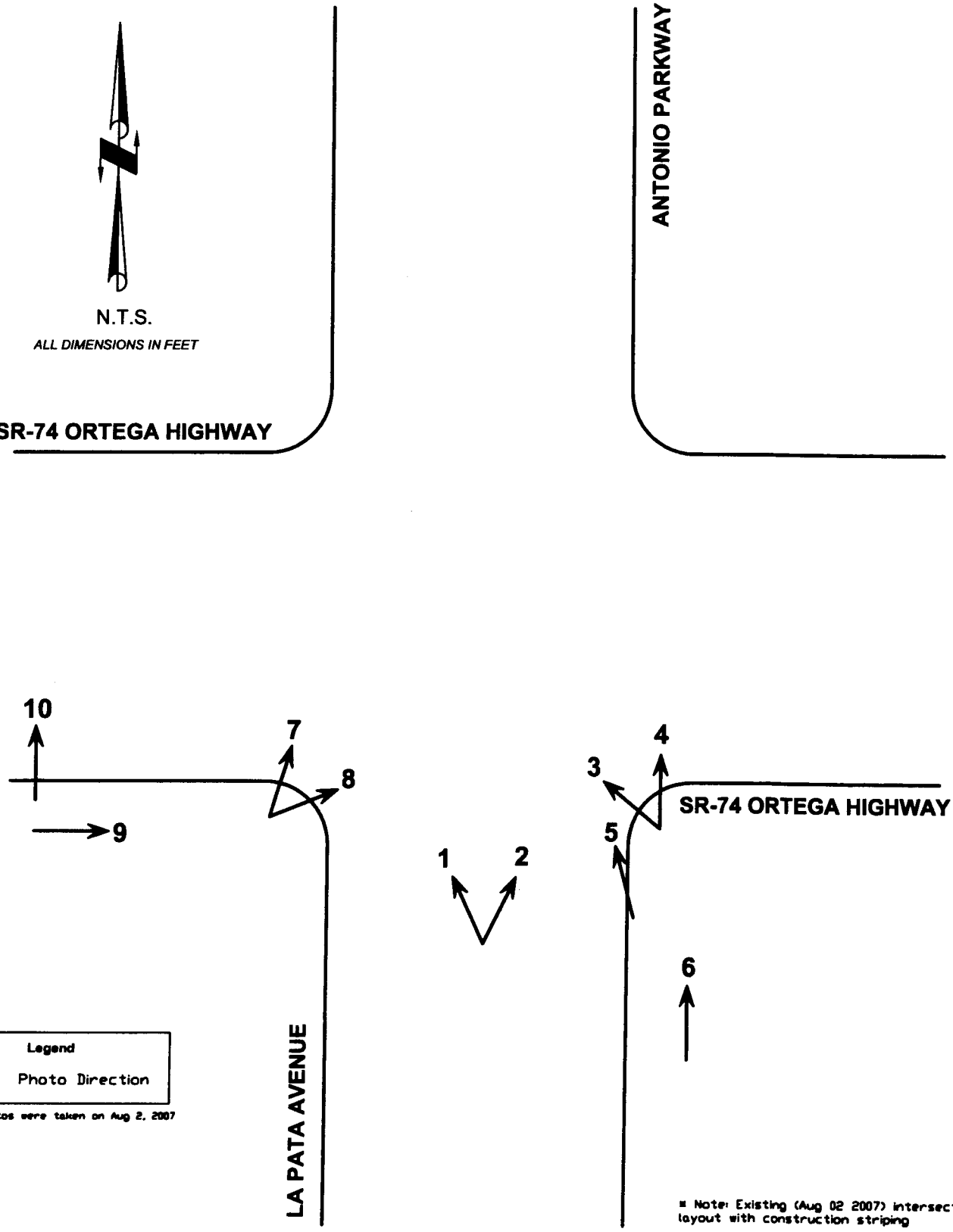
REVIEW OF STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING CITY OF SAN JUAN CAPISTRANO, CA	FIGURE 2 EXISTING GEOMETRY SR-74 ORTEGA HWY & VIA CRISTAL		MINAGAR & ASSOCIATES, INC. ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL 18662 MACARTHUR BOULEVARD, SUITE 425 IRVINE, CA 92612



REVIEW OF STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING CITY OF SAN JUAN CAPISTRANO, CA	FIGURE 3 EXISTING GEOMETRY SR-74 ORTEGA HWY & AVENIDA SIEGA		MINAGAR & ASSOCIATES, INC. ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL 18662 MACARTHUR BOULEVARD, SUITE 435 IRVINE, CA 92612



REVIEW OF STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING CITY OF SAN JUAN CAPISTRANO, CA	FIGURE 4 EXISTING GEOMETRY SR-74 ORTEGA HWY & VIA CORDOVA		MINAGAR & ASSOCIATES, INC. ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL 18662 MACARTHUR BOULEVARD, SUITE 425 IRVINE, CA 92612



REVIEW OF STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING CITY OF SAN JUAN CAPISTRANO, CA	FIGURE 5 PHOTO LOG SR-74 ORTEGA HWY & ANTONIO PKWY		MINAGAR & ASSOCIATES, INC. ITS-TRAFFIC ENGINEERING-TRANSPORTATION PLANNING-CIVIL 18662 MACARTHUR BOULEVARD, SUITE 435 IRVINE, CA 92612

APPENDIX A

SYNCHRO 6 REPORTS

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	33	821	11	2	1511	9	14	0	6	7	0	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	892	12	2	1642	10	15	0	7	8	0	66
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			Raised	
Median storage veh)											0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1652			904			2677	2621	892	2617	2623	1642
vC1, stage 1 conf vol										1647	1647	
vC2, stage 2 conf vol										971	976	
vCu, unblocked vol	1652			904			2677	2621	892	2617	2623	1642
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)										6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			0	100	98	48	100	46
cM capacity (veh/h)	390			752			6	22	341	15	76	123

Volume Total	36	892	12	2	1642	10	22	8	66
Volume Left	36	0	0	2	0	0	15	8	0
Volume Right	0	0	12	0	0	10	7	0	66
cSH	390	1700	1700	752	1700	1700	9	15	123
Volume to Capacity	0.09	0.52	0.01	0.00	0.97	0.01	2.47	0.52	0.54
Queue Length 95th (ft)	8	0	0	0	0	0	94	33	64
Control Delay (s)	15.1	0.0	0.0	9.8	0.0	0.0	1493.9	408.1	63.9
Lane LOS	C			A			F	F	F
Approach Delay (s)	0.6			0.0			1493.9	99.3	
Approach LOS							F	F	

Average Delay	15.0		
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	949	9	1	1318	0	33	0	3	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1032	10	1	1433	0	36	0	3	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1433			1041			2466	2466	1032	2470	2476	1433
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1433			1041			2466	2466	1032	2470	2476	1433
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			0	100	99	100	100	100
cM capacity (veh/h)	474			668			21	30	283	20	30	164

Volume Total	0	1032	10	1	1433	39	0
Volume Left	0	0	0	1	0	36	0
Volume Right	0	0	10	0	0	3	0
cSH	1700	1700	1700	668	1700	22	1700
Volume to Capacity	0.00	0.61	0.01	0.00	0.84	1.75	0.00
Queue Length 95th (ft)	0	0	0	0	0	126	0
Control Delay (s)	0.0	0.0	0.0	10.4	0.0	730.2	0.0
Lane LOS				B		F	A
Approach Delay (s)	0.0			0.0		730.2	0.0
Approach LOS						F	A

Average Delay	11.4		
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	743	13	4	1295	7	3	0	2	3	0	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	808	14	4	1408	8	3	0	2	3	0	8
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1415			822			2245	2245	815	2236	2248	1411
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1415			822			2245	2245	815	2236	2248	1411
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			88	100	99	89	100	96
cM capacity (veh/h)	482			808			28	41	378	30	41	169

Volume Total	3	822	4	1415	3	2	11
Volume Left	3	0	4	0	3	0	3
Volume Right	0	14	0	8	0	2	8
cSH	482	1700	808	1700	28	378	70
Volume to Capacity	0.01	0.48	0.01	0.83	0.12	0.01	0.15
Queue Length 95th (ft)	1	0	0	0	9	0	13
Control Delay (s)	12.5	0.0	9.5	0.0	148.7	14.6	65.3
Lane LOS	B		A		F	B	F
Approach Delay (s)	0.0		0.0		95.1		65.3
Approach LOS					F		F

Average Delay	0.6		
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Configurations												
Volume (vph)	389	249	114	14	993	225	71	7	9	104	19	588
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120											
Volume Combined (vph)	389	249	114	14	993	225	71	16	0	104	607	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	0.85	0.85
Saturated Flow (vph)	1805	1900	1615	1805	1900	1615	1805	1740	0	1805	3092	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	25.9	15.7	8.5	0.9	62.7	16.7	4.7	1.1	0.0	6.9	23.6	0.0
Adj Reference Time (s)	29.9	19.7	12.5	8.0	66.7	20.7	8.7	8.0	0.0	10.9	27.6	0.0
Permitted Option												
Adj Saturation A (vph)	120	1900		120	1900		120	1740		120	1546	
Reference Time A (s)	387.9	15.7		14.0	62.7		70.8	1.1		103.7	23.6	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		0	3092	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		14.9	23.6	
Reference Time (s)		387.9			62.7			70.8			23.6	
Adj Reference Time (s)		391.9			66.7			74.8			27.6	
Split Option												
Ref Time Combined (s)	25.9	15.7		0.9	62.7		4.7	1.1		6.9	23.6	
Ref Time Seperate (s)	25.9	15.7		0.9	62.7		4.7	0.5		6.9	0.7	
Reference Time (s)	25.9	25.9		62.7	62.7		4.7	4.7		23.6	23.6	
Adj Reference Time (s)	29.9	29.9		66.7	66.7		8.7	8.7		27.6	27.6	

Protected Option (s)	96.6	36.3	
Permitted Option (s)	391.9	74.8	
Split Option (s)	96.6	36.3	
Minimum (s)	96.6	36.3	132.9

Adj Reference Time (s)	12.5	20.7
Cross Thru Ref Time (s)	27.6	8.0
Oncoming Left Ref Time (s)	8.0	29.9
Combined (s)	48.0	58.6

Intersection Capacity Utilization 110.7% ICU Level of Service H

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	11	11	12	11	12	12	11	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1863	1531	1770	1801	1531	1770	1651		1770	2924	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1711	1863	1531	1770	1801	1531	1770	1651		1770	2924	
Volume (vph)	389	249	114	14	993	225	71	7	9	104	19	588
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	271	124	15	1079	245	77	8	10	113	21	639
RTOR Reduction (vph)	0	0	38	0	0	47	0	9	0	0	319	0
Lane Group Flow (vph)	423	271	86	15	1079	198	77	9	0	113	341	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	32.0	104.0	104.0	5.0	77.0	77.0	7.0	17.0		8.0	18.0	
Effective Green, g (s)	32.0	104.0	104.0	5.0	77.0	77.0	7.0	17.0		8.0	18.0	
Actuated g/C Ratio	0.21	0.69	0.69	0.03	0.51	0.51	0.05	0.11		0.05	0.12	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	365	1292	1061	59	925	786	83	187		94	351	
v/s Ratio Prot	c0.25	0.15		0.01	c0.60		0.04	0.01		c0.06	c0.12	
v/s Ratio Perm			0.06			0.13						
v/c Ratio	1.16	0.21	0.08	0.25	1.17	0.25	0.93	0.05		1.20	1.27dr	
Uniform Delay, d1	59.0	8.3	7.5	70.7	36.5	20.4	71.2	59.3		71.0	65.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	97.8	0.4	0.1	10.1	86.7	0.8	80.3	0.5		157.0	41.6	
Delay (s)	156.8	8.6	7.6	80.8	123.2	21.2	151.5	59.8		228.0	107.4	
Level of Service	F	A	A	F	F	C	F	E		F	F	
Approach Delay (s)		85.1			104.1			134.1			125.0	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	105.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Arterial Level of Service: EB SR-74 Ortega Hwy

La Pata Ave	II	42	130.0	8.7	138.7	1.53	39.7	A
Total	II		130.0	8.7	138.7	1.53	39.7	A

Arterial Level of Service: WB SR-74 Ortega Hwy

Antonio Pkwy	II	45	10.4	120.8	131.2	0.10	2.6	F
Total	II		10.4	120.8	131.2	0.10	2.6	F

1: SR-74 Ortega Hwy & Via Cordova

Volume (vph)	865	1522	20	68	2475
Control Delay / Veh (s/v)	**1**	**0**	**1494**	**99**	**15**
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	**1**	**0**	**1494**	**99**	**15**
Total Delay (hr)	0	0	8	2	10
Stops / Veh	**0.12**	**0.00**	**1.00**	**1.00**	**0.08**
Stops (#)	100	4	20	68	192
Average Speed (mph)	**29**	**40**	**0**	**2**	**19**
Total Travel Time (hr)	6	6	8	2	22
Distance Traveled (mi)	**166**	**234**	**3**	**3**	**407**
Fuel Consumed (gal)	7	8	6	2	24
Fuel Economy (mpg)	**22.2**	**27.8**	**0.5**	**1.9**	**16.9**
CO Emissions (kg)	0.52	0.59	0.44	0.13	1.68
NOx Emissions (kg)	**0.10**	**0.11**	**0.09**	**0.02**	**0.33**
VOC Emissions (kg)	0.12	0.14	0.10	0.03	0.39
Unserved Vehicles (#)	**0**	**0**	**0**	**0**	**0**
Vehicles in dilemma zone (#)	0	0	0	0	0

2: SR-74 Ortega Hwy & Via Cristal

Volume (vph)	958	1319	36	2313
Control Delay / Veh (s/v)	**0**	**0**	**730**	**11**
Queue Delay / Veh (s/v)	0	0	0	0
Total Delay / Veh (s/v)	**0**	**0**	**730**	**11**
Total Delay (hr)	0	0	7	7
Stops / Veh	**0.00**	**0.00**	**1.00**	**0.02**
Stops (#)	0	2	36	38
Average Speed (mph)	**45**	**40**	**1**	**27**
Total Travel Time (hr)	3	10	7	21
Distance Traveled (mi)	**147**	**412**	**5**	**564**
Fuel Consumed (gal)	5	15	6	26
Fuel Economy (mpg)	**29.2**	**27.9**	**0.9**	**22.1**
CO Emissions (kg)	0.35	1.03	0.40	1.79
NOx Emissions (kg)	**0.07**	**0.20**	**0.08**	**0.35**
VOC Emissions (kg)	0.08	0.24	0.09	0.41
Unserved Vehicles (#)	**0**	**0**	**0**	**0**
Vehicles in dilemma zone (#)	0	0	0	0

3: SR-74 Ortega Hwy & Avenida Siega

Volume (vph)	759	1307	5	10	2081
Control Delay / Veh (s/v)	0	0	95	65	1
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	0	0	95	65	1
Total Delay (hr)	0	0	0	0	0
Stops / Veh	0.01	0.01	1.00	1.00	0.01
Stops (#)	8	8	5	10	31
Average Speed (mph)	45	40	6	3	40
Total Travel Time (hr)	5	28	0	0	34
Distance Traveled (mi)	237	1136	1	1	1375
Fuel Consumed (gal)	8	41	0	0	49
Fuel Economy (mpg)	28.8	27.9	NA	NA	27.8
CO Emissions (kg)	0.58	2.85	0.01	0.02	3.45
NOx Emissions (kg)	0.11	0.55	0.00	0.00	0.67
VOC Emissions (kg)	0.13	0.66	0.00	0.00	0.80
Unserved Vehicles (#)	0	0	0	0	0
Vehicles in dilemma zone (#)	0	0	0	0	0

4: SR-74 Ortega Hwy & Antonio Pkwy

Volume (vph)	752	1232	88	711	2783
Control Delay / Veh (s/v)	80	101	128	83	91
Queue Delay / Veh (s/v)	0	0	0	0	0
Total Delay / Veh (s/v)	80	101	128	83	91
Total Delay (hr)	17	34	3	16	71
Stops / Veh	0.55	0.74	0.76	0.47	0.62
Stops (#)	413	917	67	336	1733
Average Speed (mph)	21	3	6	7	10
Total Travel Time (hr)	31	37	4	21	94
Distance Traveled (mi)	654	118	24	148	944
Fuel Consumed (gal)	40	41	4	20	104
Fuel Economy (mpg)	16.4	2.9	6.5	7.4	9.1
CO Emissions (kg)	2.78	2.85	0.25	1.39	7.27
NOx Emissions (kg)	0.54	0.55	0.05	0.27	1.42
VOC Emissions (kg)	0.64	0.66	0.06	0.32	1.69
Unserved Vehicles (#)	53	142	0	17	213
Vehicles in dilemma zone (#)	8	28	0	0	36

SR-74 Ortega Hwy

Control Delay / Veh (s/v)	18	23	21
Queue Delay / Veh (s/v)	0	0	0
Total Delay / Veh (s/v)	18	23	21
Total Delay (hr)	17	34	51
Stops / Veh	0.16	0.17	0.17
Stops (#)	521	931	1452
Average Speed (mph)	26	23	24
Total Travel Time (hr)	45	82	127
Distance Traveled (mi)	1205	1901	3105
Fuel Consumed (gal)	61	105	165
Fuel Economy (mpg)	19.9	18.2	18.8
CO Emissions (kg)	4.23	7.32	11.55
NOx Emissions (kg)	0.82	1.42	2.25
VOC Emissions (kg)	0.98	1.70	2.68
Unserved Vehicles (#)	53	142	195
Vehicles in dilemma zone (#)	8	28	36
Performance Index	18.3	37.1	55.4

Network Totals

Control Delay / Veh (s/v)	33
Queue Delay / Veh (s/v)	0
Total Delay / Veh (s/v)	33
Total Delay (hr)	89
Stops / Veh	0.21
Stops (#)	1994
Average Speed (mph)	19
Total Travel Time (hr)	171
Distance Traveled (mi)	3290
Fuel Consumed (gal)	203
Fuel Economy (mpg)	16.2
CO Emissions (kg)	14.19
NOx Emissions (kg)	2.76
VOC Emissions (kg)	3.29
Unserved Vehicles (#)	213
Vehicles in dilemma zone (#)	36
Performance Index	94.1

1: SR-74 Ortega Hwy & Via Cordova Performance by movement

Total Delay (hr)	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.7
Delay / Veh (s)	23.1	4.4	11.6	5.9	2.8	35.7	51.0	74.3	12.9	6.2
Total Stops	4	0	0	0	0	4	2	2	8	20
Travel Dist (mi)	0.9	30.2	0.2	27.6	0.5	0.4	0.2	0.1	0.3	60.4
Travel Time (hr)	0.1	1.2	0.0	1.0	0.0	0.1	0.0	0.0	0.0	2.5
Avg Speed (mph)	16	26	23	29	26	7	8	3	7	25
Fuel Used (gal)	0.1	1.4	0.0	1.4	0.0	0.0	0.0	0.0	0.0	3.1
Vehicles Entered	5	159	1	198	3	3	0	2	8	379
Vehicles Exited	5	163	1	196	3	4	2	1	8	383
Hourly Exit Rate	30	978	6	1176	18	24	12	6	48	2298

2: SR-74 Ortega Hwy & Via Cristal Performance by movement

Total Delay (hr)	0.2	0.4	0.1	0.7
Delay / Veh (s)	3.3	8.5	60.2	6.8
Total Stops	0	0	8	8
Travel Dist (mi)	26.8	53.2	1.1	81.1
Travel Time (hr)	0.8	1.8	0.2	2.7
Avg Speed (mph)	33	30	7	30
Fuel Used (gal)	2.7	2.3	0.2	5.1
Vehicles Entered	188	169	8	365
Vehicles Exited	184	165	6	355
Hourly Exit Rate	1104	990	36	2130

3: SR-74 Ortega Hwy & Avenida Siega Performance by movement

Total Delay (hr)	0.0	0.2	0.9	0.0	0.0	0.0	1.1
Delay / Veh (s)	6.0	3.8	15.2	6.6	16.3	14.3	10.0
Total Stops	0	0	0	0	2	3	5
Travel Dist (mi)	0.3	51.2	166.2	0.9	0.4	0.2	219.1
Travel Time (hr)	0.0	1.4	5.2	0.0	0.0	0.0	6.7
Avg Speed (mph)	34	38	32	35	18	9	33
Fuel Used (gal)	0.0	1.9	8.6	0.0	0.0	0.0	10.6
Vehicles Entered	1	183	216	1	2	3	406
Vehicles Exited	1	177	213	1	2	3	397
Hourly Exit Rate	6	1062	1278	6	12	18	2382

4: SR-74 Ortega Hwy & Antonio Pkwy Performance by movement

Total Delay (hr)	2.9	0.4	0.4	0.1	7.3	1.3	0.3	0.0	0.2	0.1	3.4	16.5
Delay / Veh (s)	155.0	40.1	54.5	255.2	204.9	193.6	129.2	174.3	80.9	89.1	134.7	148.6
Total Stops	120	20	19	2	82	14	9	2	12	5	183	468
Travel Dist (mi)	68.0	33.4	22.8	0.3	11.2	2.1	2.3	0.5	2.3	0.9	17.5	161.3
Travel Time (hr)	4.5	1.2	0.9	0.2	7.5	1.4	0.3	0.1	0.3	0.1	4.1	20.7
Avg Speed (mph)	15	28	25	14	6	9	7	8	7	7	4	12
Fuel Used (gal)	3.6	1.5	0.9	0.1	5.5	1.0	0.2	0.1	0.3	0.1	3.0	16.5
Vehicles Entered	80	39	28	3	128	25	9	2	12	5	98	429
Vehicles Exited	56	34	20	2	128	25	6	1	11	4	83	370
Hourly Exit Rate	336	204	120	12	768	150	36	6	66	24	498	2220

Total Network Performance

Total Delay (hr)	19.3
Delay / Veh (s)	143.2
Total Stops	501
Travel Dist (mi)	593.0
Travel Time (hr)	35.5
Avg Speed (mph)	21
Fuel Used (gal)	39.9
Vehicles Entered	528
Vehicles Exited	445
Hourly Exit Rate	2670

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	1085	35	9	877	4	9	0	0	1	2	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	1179	38	10	953	4	10	0	0	1	2	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			Raised	
Median storage veh)											0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	958			1217			2307	2287	1179	2283	2321	953
vC1, stage 1 conf vol										973	973	
vC2, stage 2 conf vol										1310	1348	
vCu, unblocked vol	958			1217			2307	2287	1179	2283	2321	953
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)										6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			98			57	100	100	96	98	93
cM capacity (veh/h)	718			573			23	35	232	26	92	314

Volume Total	65	1179	38	10	953	4	10	1	25
Volume Left	65	0	0	10	0	0	10	1	0
Volume Right	0	0	38	0	0	4	0	0	23
cSH	718	1700	1700	573	1700	1700	23	26	260
Volume to Capacity	0.09	0.69	0.02	0.02	0.56	0.00	0.43	0.04	0.10
Queue Length 95th (ft)	7	0	0	1	0	0	32	3	8
Control Delay (s)	10.5	0.0	0.0	11.4	0.0	0.0	255.4	151.1	20.3
Lane LOS	B			B			F	F	C
Approach Delay (s)	0.5			0.1			255.4	25.8	
Approach LOS							F	D	

Average Delay	1.7		
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	1099	22	2	803	0	13	0	4	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1195	24	2	873	0	14	0	4	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	873			1218			2072	2072	1195	2076	2096	873
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	873			1218			2072	2072	1195	2076	2096	873
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			64	100	98	100	100	100
cM capacity (veh/h)	773			572			40	54	227	39	52	350

Volume Total	0	1195	24	2	873	18	0
Volume Left	0	0	0	2	0	14	0
Volume Right	0	0	24	0	0	4	0
cSH	1700	1700	1700	572	1700	49	1700
Volume to Capacity	0.00	0.70	0.01	0.00	0.51	0.38	0.00
Queue Length 95th (ft)	0	0	0	0	0	34	0
Control Delay (s)	0.0	0.0	0.0	11.3	0.0	117.2	0.0
Lane LOS				B		F	A
Approach Delay (s)	0.0			0.0		117.2	0.0
Approach LOS						F	A

Average Delay	1.0		
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	1	991	9	9	730	5	20	0	4	2	0	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1077	10	10	793	5	22	0	4	2	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	799			1087			1901	1903	1082	1899	1905	796
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	799			1087			1901	1903	1082	1899	1905	796
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			58	100	98	96	100	99
cM capacity (veh/h)	824			642			51	68	264	51	68	387

Volume Total	1	1087	10	799	22	4	5
Volume Left	1	0	10	0	22	0	2
Volume Right	0	10	0	5	0	4	3
cSH	824	1700	642	1700	51	264	107
Volume to Capacity	0.00	0.64	0.02	0.47	0.42	0.02	0.05
Queue Length 95th (ft)	0	0	1	0	39	1	4
Control Delay (s)	9.4	0.0	10.7	0.0	119.0	18.8	40.6
Lane LOS	A		B		F	C	E
Approach Delay (s)	0.0		0.1		102.3		40.6
Approach LOS					F		E

Average Delay	1.6		
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	12	11	12	11	11	12	11	12	12	11	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.92		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1863	1531	1770	1801	1531	1770	1652		1770	2913	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1711	1863	1531	1770	1801	1531	1770	1652		1770	2913	
Volume (vph)	672	857	9	1	447	106	74	8	10	234	7	692
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	730	932	10	1	486	115	80	9	11	254	8	752
RTOR Reduction (vph)	0	0	3	0	0	49	0	10	0	0	550	0
Lane Group Flow (vph)	730	932	7	1	486	66	80	10	0	254	210	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	59.0	93.0	93.0	4.0	38.0	38.0	9.0	17.0		20.0	28.0	
Effective Green, g (s)	59.0	93.0	93.0	4.0	38.0	38.0	9.0	17.0		20.0	28.0	
Actuated g/C Ratio	0.39	0.62	0.62	0.03	0.25	0.25	0.06	0.11		0.13	0.19	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	673	1155	949	47	456	388	106	187		236	544	
v/s Ratio Prot	c0.43	0.50		0.00	c0.27		0.05	0.01		c0.14	c0.07	
v/s Ratio Perm			0.00			0.04						
v/c Ratio	1.08	0.81	0.01	0.02	1.07	0.17	0.75	0.05		1.08	0.90dr	
Uniform Delay, d1	45.5	21.7	10.9	71.1	56.0	43.7	69.4	59.3		65.0	53.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	59.9	6.1	0.0	0.8	60.8	1.0	38.7	0.6		80.3	2.1	
Delay (s)	105.4	27.8	10.9	71.9	116.8	44.7	108.1	59.9		145.3	55.5	
Level of Service	F	C	B	E	F	D	F	E		F	E	
Approach Delay (s)		61.6			102.9			98.5			78.0	
Approach LOS		E			F			F			E	

HCM Average Control Delay	74.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Lane Configurations												
Volume (vph)	672	857	9	1	447	106	74	8	10	234	7	692
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120											
Volume Combined (vph)	672	857	9	1	447	106	74	18	0	234	699	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.92	0.85	0.95	0.85	0.85
Saturated Flow (vph)	1805	1900	1615	1805	1900	1615	1805	1742	0	1805	3080	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	44.7	54.1	0.7	0.1	28.2	7.9	4.9	1.2	0.0	15.6	27.2	0.0
Adj Reference Time (s)	48.7	58.1	8.0	8.0	32.2	11.9	8.9	8.0	0.0	19.6	31.2	0.0
Permitted Option												
Adj Saturation A (vph)	120	1900		120	1900		120	1742		120	1540	
Reference Time A (s)	670.1	54.1		1.0	28.2		73.8	1.2		233.4	27.2	
Adj Saturation B (vph	NA	NA		NA	NA		NA	NA		0	3080	
Reference Time B (s)	NA	NA		NA	NA		NA	NA		23.6	27.2	
Reference Time (s)		670.1			28.2			73.8			27.2	
Adj Reference Time (s)		674.1			32.2			77.8			31.2	
Split Option												
Ref Time Combined (s)	44.7	54.1		0.1	28.2		4.9	1.2		15.6	27.2	
Ref Time Seperate (s)	44.7	54.1		0.1	28.2		4.9	0.6		15.6	0.3	
Reference Time (s)	54.1	54.1		28.2	28.2		4.9	4.9		27.2	27.2	
Adj Reference Time (s)	58.1	58.1		32.2	32.2		8.9	8.9		31.2	31.2	

Protected Option (s)		80.9	40.1	
Permitted Option (s)		674.1	77.8	
Split Option (s)		90.4	40.1	
Minimum (s)		80.9	40.1	121.1

Adj Reference Time (s)	8.0	11.9
Cross Thru Ref Time (s)	31.2	8.0
Oncoming Left Ref Time (s)	8.0	48.7
Combined (s)	47.2	68.6

Intersection Capacity Utilization 100.9% ICU Level of Service G

Reference Times and Phasing Options do not represent an optimized timing plan.

Arterial Level of Service: EB SR-74 Ortega Hwy

La Pata Ave	**II**	**45**	**122.3**	**28.6**	**150.9**	**1.53**	**36.4**	**A**
Total	II		122.3	28.6	150.9	1.53	36.4	A

Arterial Level of Service: WB SR-74 Ortega Hwy

Antonio Pkwy	**II**	**45**	**10.4**	**113.0**	**123.4**	**0.10**	**2.8**	**F**
Total	II		10.4	113.0	123.4	0.10	2.8	F

1: SR-74 Ortega Hwy & Hunt Club Dr Performance by movement

Total Delay (hr)	0.0	0.3	0.0	0.0	0.4	0.0	0.1	0.8
Delay / Veh (s)	5.8	2.5	0.1	24.6	4.3	66.9	18.1	3.8
Total Stops	10	0	0	2	0	2	10	24
Travel Dist (mi)	3.6	71.1	1.1	0.3	45.6	0.1	0.4	122.2
Travel Time (hr)	0.1	1.9	0.0	0.0	1.5	0.0	0.1	3.7
Avg Speed (mph)	29	39	38	14	30	2	6	34
Fuel Used (gal)	0.2	3.5	0.0	0.0	3.0	0.0	0.1	6.9
Vehicles Entered	19	382	6	2	316	2	10	737
Vehicles Exited	18	386	6	2	316	2	10	740
Hourly Exit Rate	54	1158	18	6	948	6	30	2220

2: SR-74 Ortega Hwy & (Private Driveway) Performance by movement

Total Delay (hr)	0.2	0.0	0.4	0.0	0.0	0.7
Delay / Veh (s)	2.0	0.2	5.5	54.1	0.9	3.6
Total Stops	2	0	0	2	1	5
Travel Dist (mi)	59.6	0.9	85.8	0.3	0.0	146.6
Travel Time (hr)	1.6	0.0	2.6	0.0	0.0	4.2
Avg Speed (mph)	38	35	33	7	1	35
Fuel Used (gal)	2.5	0.1	4.5	0.0	0.0	7.1
Vehicles Entered	394	6	281	2	1	684
Vehicles Exited	394	6	284	2	2	688
Hourly Exit Rate	1182	18	852	6	6	2064

3: SR-74 Ortega Hwy & Shade Tree Ln Performance by movement

Total Delay (hr)	0.4	0.0	0.0	0.8	0.0	0.1	0.0	1.3
Delay / Veh (s)	3.6	3.0	19.3	7.9		35.7	10.8	6.1
Total Stops	0	0	4	0	0	8	2	14
Travel Dist (mi)	114.5	1.9	3.3	278.3	1.5	1.5	0.4	401.4
Travel Time (hr)	3.0	0.1	0.1	8.2	0.0	0.1	0.0	11.6
Avg Speed (mph)	38	35	31	34	33	11	19	35
Fuel Used (gal)	5.1	0.1	0.2	21.1	0.1	0.1	0.0	26.7
Vehicles Entered	390	6	4	386	1	8	2	797
Vehicles Exited	390	6	4	384	0	8	2	794
Hourly Exit Rate	1170	18	12	1152	0	24	6	2382

4: SR-74 Ortega Hwy & Antonio Pkwy Performance by movement

Total Delay (hr)	5.7	6.1	0.0	5.8	0.9	0.5	0.1	2.3	0.7	22.0
Delay / Veh (s)	109.5	78.1	56.7	141.6	85.3	80.3	108.9	105.9	10.5	80.6
Total Stops	256	244	2	178	52	24	4	95	180	1035
Travel Dist (mi)	156.0	206.0	1.7	13.5	3.1	5.9	1.0	15.0	43.8	446.1
Travel Time (hr)	9.5	10.8	0.1	6.1	1.0	0.8	0.1	2.9	2.4	33.5
Avg Speed (mph)	19	23	24	3	5	8	10	5	19	15
Fuel Used (gal)	8.9	12.1	0.1	4.2	0.8	0.6	0.1	2.1	2.6	31.3
Vehicles Entered	197	288	2	152	37	24	3	78	221	1002
Vehicles Exited	182	272	2	142	36	24	2	78	228	966
Hourly Exit Rate	546	816	6	426	108	72	6	234	684	2898

Total Network Performance

Total Delay (hr)	25.7
Delay / Veh (s)	82.0
Total Stops	1078
Travel Dist (mi)	1270.5
Travel Time (hr)	58.4
Avg Speed (mph)	24
Fuel Used (gal)	87.2
Vehicles Entered	1146
Vehicles Exited	1108
Hourly Exit Rate	3324

1: SR-74 Ortega Hwy & Hunt Club Dr Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	SBT	SBR	All
Total Delay (hr)	0.0	0.3	0.0	0.0	0.4	0.0	0.1	0.8
Delay / Veh (s)	5.8	2.5	0.1	24.6	4.3	66.9	18.1	3.8
Total Stops	10	0	0	2	0	2	10	24
Travel Dist (mi)	3.6	71.1	1.1	0.3	45.6	0.1	0.4	122.2
Travel Time (hr)	0.1	1.9	0.0	0.0	1.5	0.0	0.1	3.7
Avg Speed (mph)	29	39	38	14	30	2	6	34
Fuel Used (gal)	0.2	3.5	0.0	0.0	3.0	0.0	0.1	6.9
Vehicles Entered	19	382	6	2	316	2	10	737
Vehicles Exited	18	386	6	2	316	2	10	740
Hourly Exit Rate	54	1158	18	6	948	6	30	2220

2: SR-74 Ortega Hwy & (Private Driveway) Performance by movement

Movement	EBT	EBR	WBT	NBL	NBR	All
Total Delay (hr)	0.2	0.0	0.4	0.0	0.0	0.7
Delay / Veh (s)	2.0	0.2	5.5	54.1	0.9	3.6
Total Stops	2	0	0	2	1	5
Travel Dist (mi)	59.6	0.9	85.8	0.3	0.0	146.6
Travel Time (hr)	1.6	0.0	2.6	0.0	0.0	4.2
Avg Speed (mph)	38	35	33	7	1	35
Fuel Used (gal)	2.5	0.1	4.5	0.0	0.0	7.1
Vehicles Entered	394	6	281	2	1	684
Vehicles Exited	394	6	284	2	2	688
Hourly Exit Rate	1182	18	852	6	6	2064

3: SR-74 Ortega Hwy & Shade Tree Ln Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBR	All
Total Delay (hr)	0.4	0.0	0.0	0.8	0.0	0.1	0.0	1.3
Delay / Veh (s)	3.6	3.0	19.3	7.9		35.7	10.8	6.1
Total Stops	0	0	4	0	0	8	2	14
Travel Dist (mi)	114.5	1.9	3.3	278.3	1.5	1.5	0.4	401.4
Travel Time (hr)	3.0	0.1	0.1	8.2	0.0	0.1	0.0	11.6
Avg Speed (mph)	38	35	31	34	33	11	19	35
Fuel Used (gal)	5.1	0.1	0.2	21.1	0.1	0.1	0.0	26.7
Vehicles Entered	390	6	4	386	1	8	2	797
Vehicles Exited	390	6	4	384	0	8	2	794
Hourly Exit Rate	1170	18	12	1152	0	24	6	2382

4: SR-74 Ortega Hwy & Antonio Pkwy Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBR	All
Total Delay (hr)	5.7	6.1	0.0	5.8	0.9	0.5	0.1	2.3	0.7	22.0
Delay / Veh (s)	109.5	78.1	56.7	141.6	85.3	80.3	108.9	105.9	10.5	80.6
Total Stops	256	244	2	178	52	24	4	95	180	1035
Travel Dist (mi)	156.0	206.0	1.7	13.5	3.1	5.9	1.0	15.0	43.8	446.1
Travel Time (hr)	9.5	10.8	0.1	6.1	1.0	0.8	0.1	2.9	2.4	33.5
Avg Speed (mph)	19	23	24	3	5	8	10	5	19	15
Fuel Used (gal)	8.9	12.1	0.1	4.2	0.8	0.6	0.1	2.1	2.6	31.3
Vehicles Entered	197	288	2	152	37	24	3	78	221	1002
Vehicles Exited	182	272	2	142	36	24	2	78	228	966
Hourly Exit Rate	546	816	6	426	108	72	6	234	684	2898

Total Network Performance

Total Delay (hr)	25.7
Delay / Veh (s)	82.0
Total Stops	1078
Travel Dist (mi)	1270.5
Travel Time (hr)	58.4
Avg Speed (mph)	24
Fuel Used (gal)	87.2
Vehicles Entered	1146
Vehicles Exited	1108
Hourly Exit Rate	3324

APPENDIX B

PETRAPRO TURNING MOVEMENT COUNTS

MINAGAR & ASSOCIATES, INC.
18662 MacArthur Blvd., Suite 435
Airport Business Center
Irvine, CA 92612
Tel: (949) 727-3399, Fax: (949) 727-4418

Agency Name:
San Juan Capistrano

File Name : 001 Ortega and Antonio
Site Code : 00000001
Start Date : 8/2/2007
Page No : 1

Groups Printed- Passenger Cars/Heavy Vehicles

	SR-74 ORTEGA HIGHWAY Eastbound			SR-74 ORTEGA HIGHWAY Westbound			LA PATA AVENUE Northbound			ANTONIO PARKWAY Southbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	90	44	20	12	255	42	5	1	1	12	9	102	593
07:15 AM	104	57	32	0	314	72	24	1	2	42	2	113	763
07:30 AM	96	74	29	0	266	69	19	5	2	17	0	166	743
07:45 AM	99	74	33	2	158	42	23	0	4	33	8	207	683
Total	389	249	114	14	993	225	71	7	9	104	19	588	2782
08:00 AM	83	70	30	5	110	31	22	10	1	26	4	139	531
08:15 AM	84	68	19	3	161	39	24	4	3	28	4	179	616
08:30 AM	120	85	32	0	149	36	50	4	1	18	2	215	712
08:45 AM	125	77	25	4	160	46	37	1	0	24	7	169	675
Total	412	300	106	12	580	152	133	19	5	96	17	702	2534
BREAK													
11:00 AM	81	40	18	0	59	14	35	2	2	34	3	75	363
11:15 AM	119	72	28	0	55	14	38	9	2	20	21	89	467
11:30 AM	92	57	26	2	83	9	40	3	3	15	10	144	484
11:45 AM	72	58	36	1	59	8	48	11	3	14	7	131	448
Total	364	227	108	3	256	45	161	25	10	83	41	439	1762
12:00 PM	106	64	29	0	60	7	28	6	2	22	7	120	451
12:15 PM	133	60	32	0	72	8	39	15	3	14	12	121	509
12:30 PM	96	66	25	0	59	6	41	4	0	9	11	118	435
12:45 PM	90	77	21	0	64	18	36	10	1	16	10	151	494
Total	425	267	107	0	255	39	144	35	6	61	40	510	1889
BREAK													
04:00 PM	87	245	9	3	42	10	26	5	7	56	3	110	603
04:15 PM	98	309	10	0	96	35	33	2	5	64	4	101	757
04:30 PM	133	284	10	0	71	25	13	4	2	78	1	128	749
04:45 PM	141	243	5	1	87	22	15	3	3	62	2	147	731
Total	459	1081	34	4	296	92	87	14	17	260	10	486	2840
05:00 PM	165	218	1	0	107	26	22	4	5	39	2	171	760
05:15 PM	180	236	5	0	110	30	20	0	0	65	1	173	820
05:30 PM	163	203	2	0	93	15	18	0	2	65	1	198	760
05:45 PM	164	200	1	1	137	35	14	4	3	65	3	150	777
Total	672	857	9	1	447	106	74	8	10	234	7	692	3117
Grand Total	2721	2981	478	34	2827	659	670	108	57	838	134	3417	14924
Apprch %	44	48.2	7.7	1	80.3	18.7	80.2	12.9	6.8	19.1	3.1	77.9	
Total %	18.2	20	3.2	0.2	18.9	4.4	4.5	0.7	0.4	5.6	0.9	22.9	

MINAGAR & ASSOCIATES, INC.
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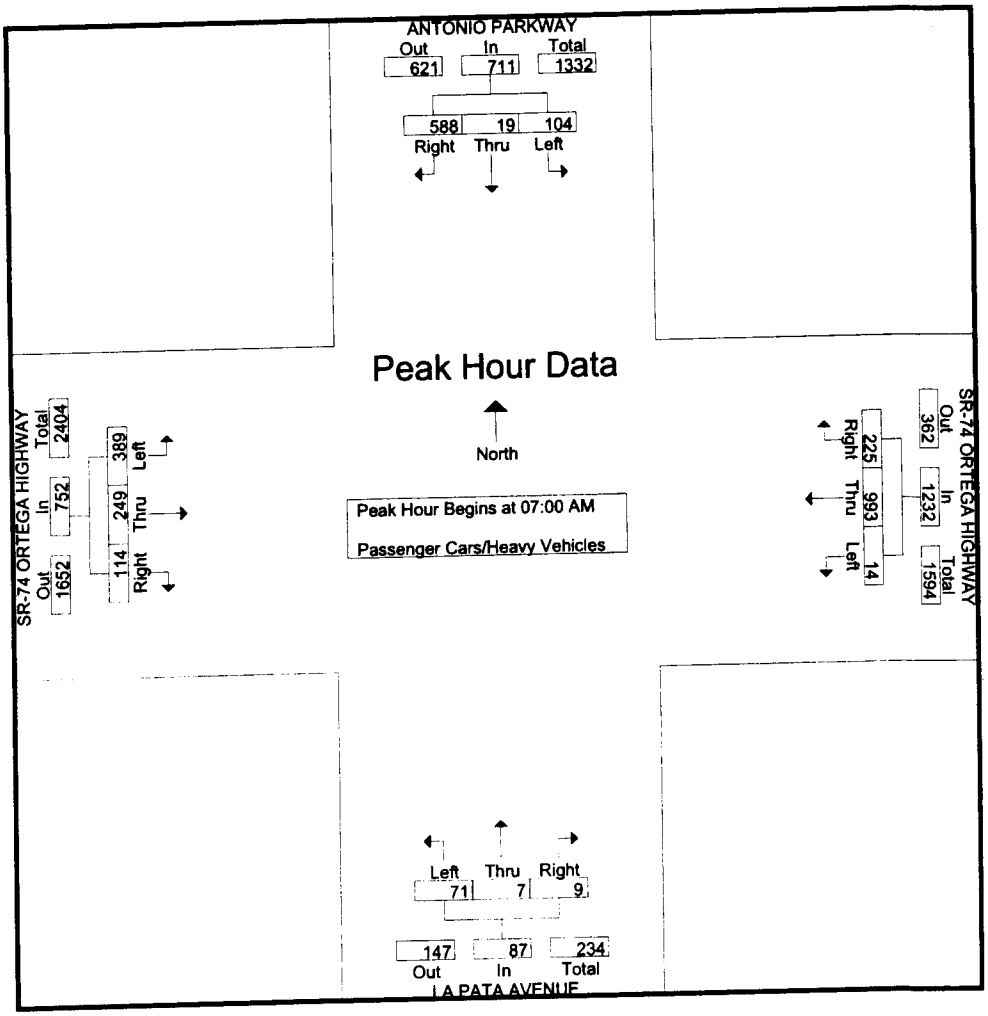
File Name : 001 Ortega and Antonio
Site Code : 00000001
Start Date : 8/2/2007
Page No : 2

	SR-74 ORTEGA HIGHWAY Eastbound				SR-74 ORTEGA HIGHWAY Westbound				LA PATA AVENUE Northbound				ANTONIO PARKWAY Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	90	44	20	154	**12**	255	42	309	5	1	1	7	12	**9**	102	123	593
07:15 AM	**104**	57	32	193	0	**314**	**72**	**386**	**24**	1	2	**27**	**42**	2	113	157	**763**
07:30 AM	96	**74**	29	199	0	266	69	335	19	**5**	2	26	17	0	166	183	743
07:45 AM	99	74	**33**	**206**	2	158	42	202	23	0	**4**	27	33	8	**207**	**248**	683
Total Volume	389	249	114	752	14	993	225	1232	71	7	9	87	104	19	588	711	2782
% App. Total	51.7	33.1	15.2		1.1	80.6	18.3		81.6	8	10.3		14.6	2.7	82.7		
PHF	.935	.841	.864	.913	.292	.791	.781	.798	.740	.350	.562	.806	.619	.528	.710	.717	.912



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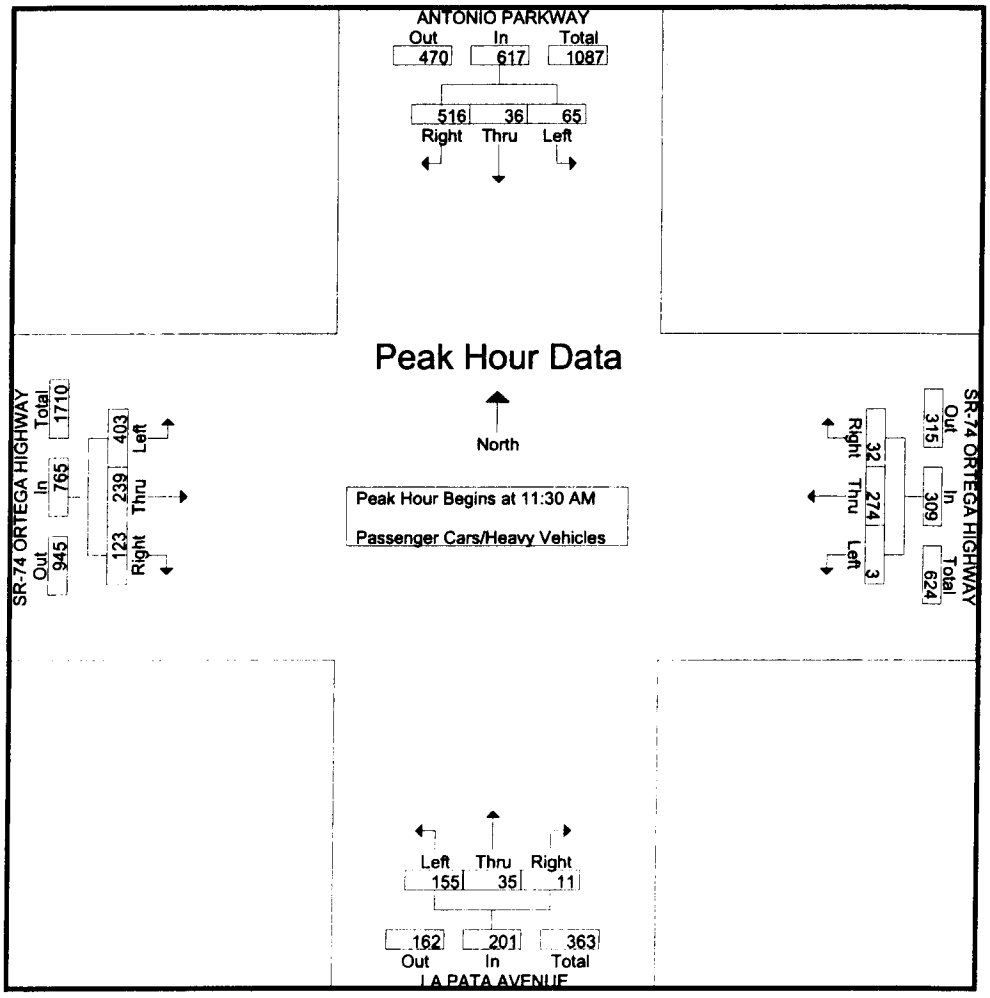
File Name : 001 Ortega and Antonio
Site Code : 00000001
Start Date : 8/2/2007
Page No : 3

	SR-74 ORTEGA HIGHWAY Eastbound				SR-74 ORTEGA HIGHWAY Westbound				LA PATA AVENUE Northbound				ANTONIO PARKWAY Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:30 AM																	
11:30 AM	92	57	26	175	**2**	**83**	**9**	**94**	40	3	**3**	46	15	10	**144**	**169**	484
11:45 AM	72	58	**36**	166	1	59	8	68	**48**	11	3	**62**	14	7	131	152	448
12:00 PM	106	**64**	29	199	0	60	7	67	28	6	2	36	**22**	7	120	149	451
12:15 PM	**133**	60	32	**225**	0	72	8	80	39	**15**	3	57	14	**12**	121	147	**509**
Total Volume	403	239	123	765	3	274	32	309	155	35	11	201	65	36	516	617	1892
% App. Total	52.7	31.2	16.1		1	88.7	10.4		77.1	17.4	5.5		10.5	5.8	83.6		
PHF	.758	.934	.854	.850	.375	.825	.889	.822	.807	.583	.917	.810	.739	.750	.896	.913	.929



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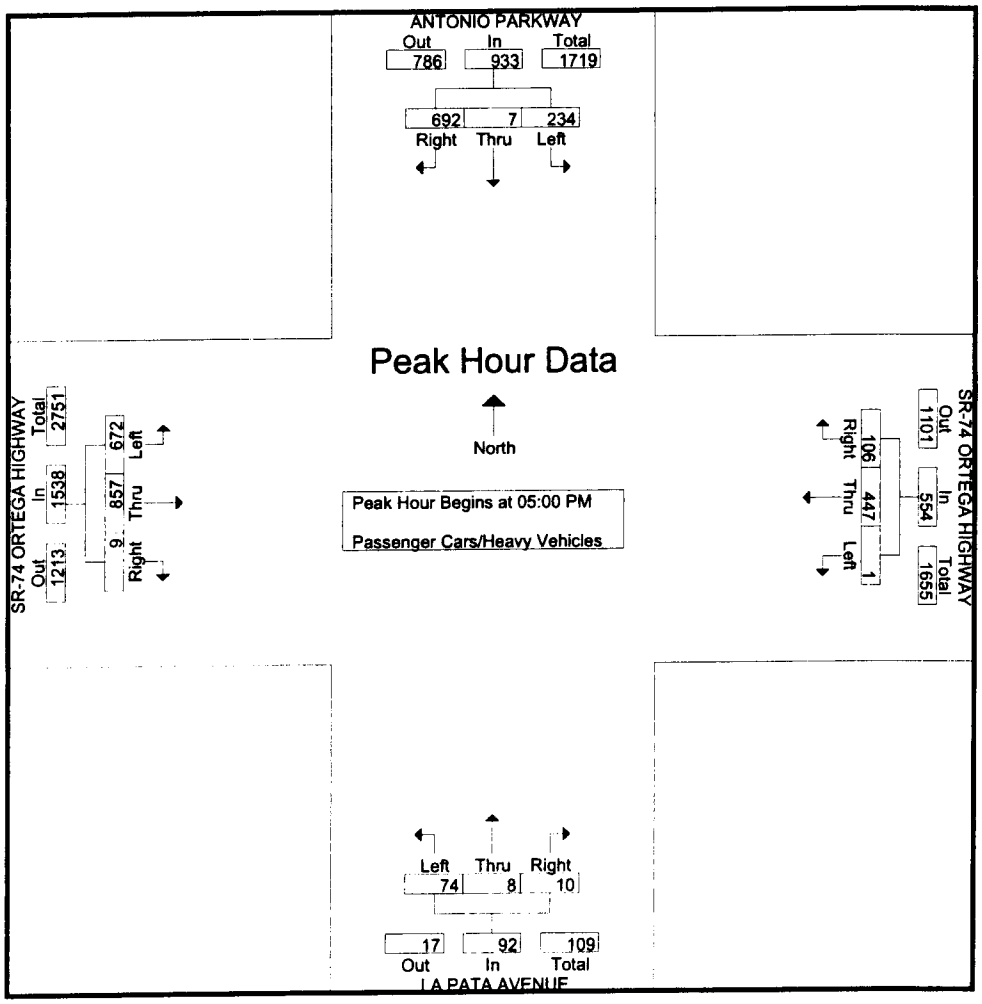
File Name : 001 Ortega and Antonio
Site Code : 00000001
Start Date : 8/2/2007
Page No : 4

	SR-74 ORTEGA HIGHWAY Eastbound				SR-74 ORTEGA HIGHWAY Westbound				LA PATA AVENUE Northbound				ANTONIO PARKWAY Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	165	218	1	384	0	107	26	133	**22**	**4**	**5**	**31**	39	2	171	212	760
05:15 PM	**180**	**236**	**5**	**421**	0	110	30	140	20	0	0	20	**65**	1	173	239	**820**
05:30 PM	163	203	2	368	0	93	15	108	18	0	2	20	65	1	**198**	**264**	760
05:45 PM	164	200	1	365	**1**	**137**	**35**	**173**	14	4	3	21	65	**3**	150	218	777
Total Volume	672	857	9	1538	1	447	106	554	74	8	10	92	234	7	692	933	3117
% App. Total	43.7	55.7	0.6		0.2	80.7	19.1		80.4	8.7	10.9		25.1	0.8	74.2		
PHF	.933	.908	.450	.913	.250	.816	.757	.801	.841	.500	.500	.742	.900	.583	.874	.884	.950



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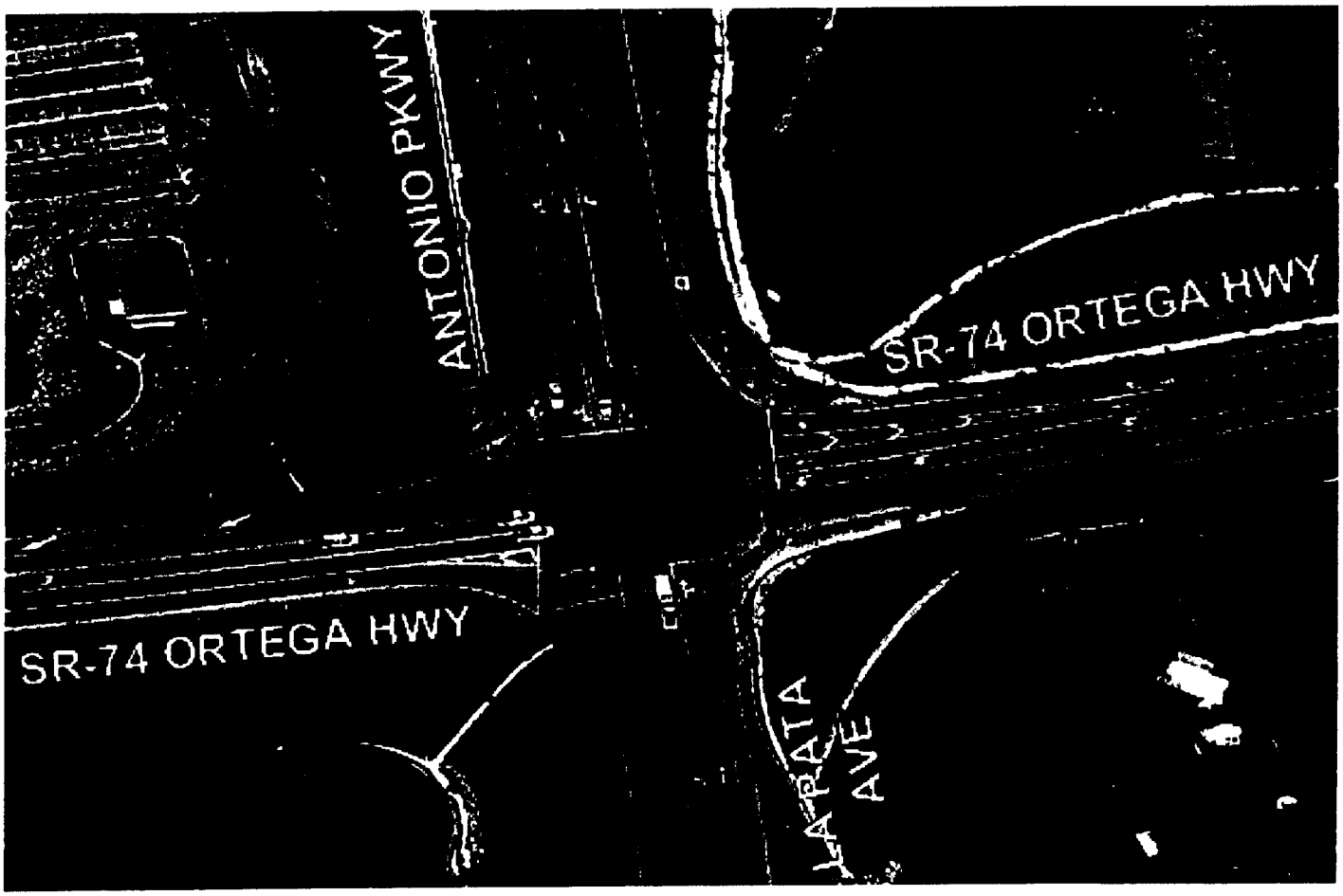
File Name : 001 Ortega and Antonio
Site Code : 00000001
Start Date : 8/2/2007
Page No : 5

Intersection #1



APPENDIX C

PHOTO LOG

Photo Log

Intersection of SR-74 Ortega Highway & Antonio Parkway/La Pata Avenue
Aug 02 2007

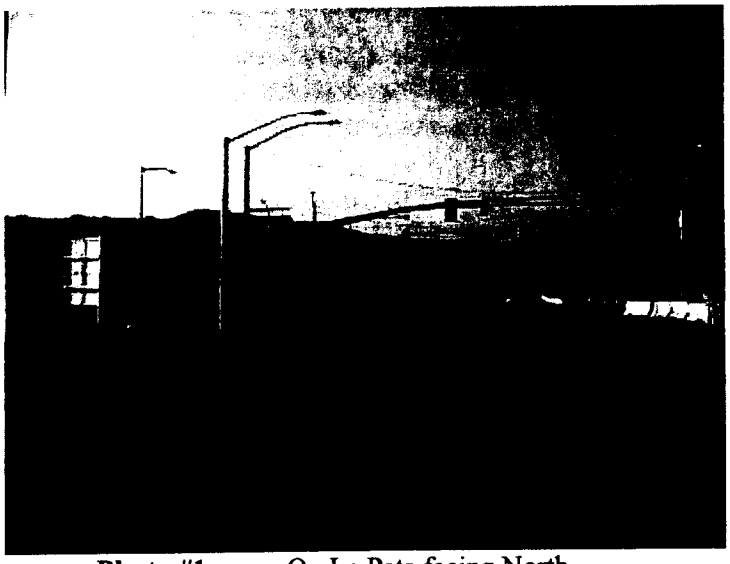


Photo #1: On La Pata facing North

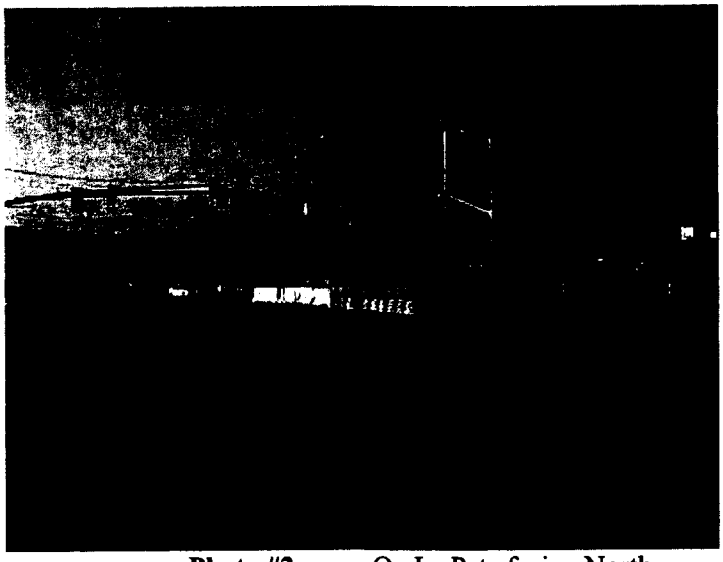


Photo #2: On La Pata facing North

Photo #3: On southeast corner facing intersection (Ortega & La Pata)

Photo #4: On southeast corner facing intersection (Antonio & Ortega)

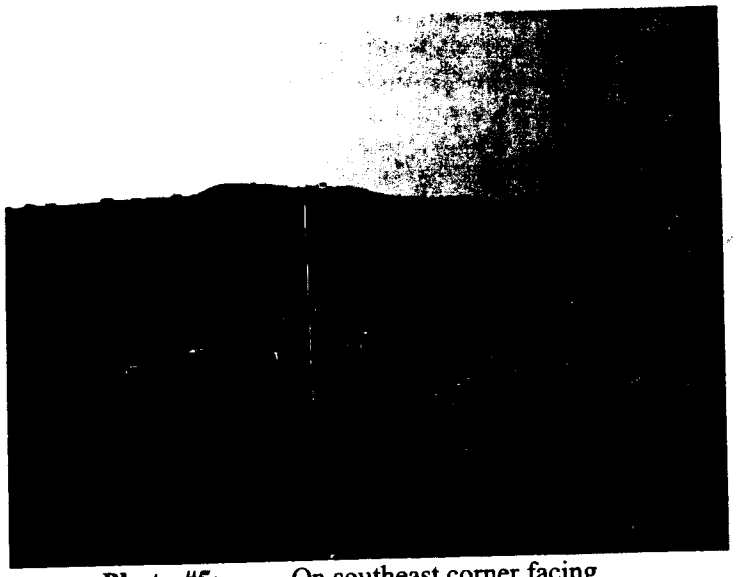


Photo #5: On southeast corner facing intersection (Antonio & Ortega)

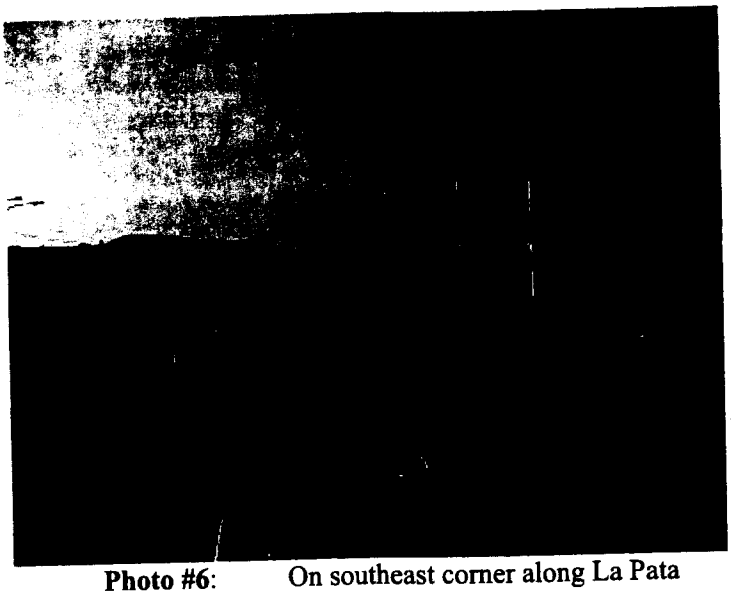


Photo #6: On southeast corner along La Pata facing intersection

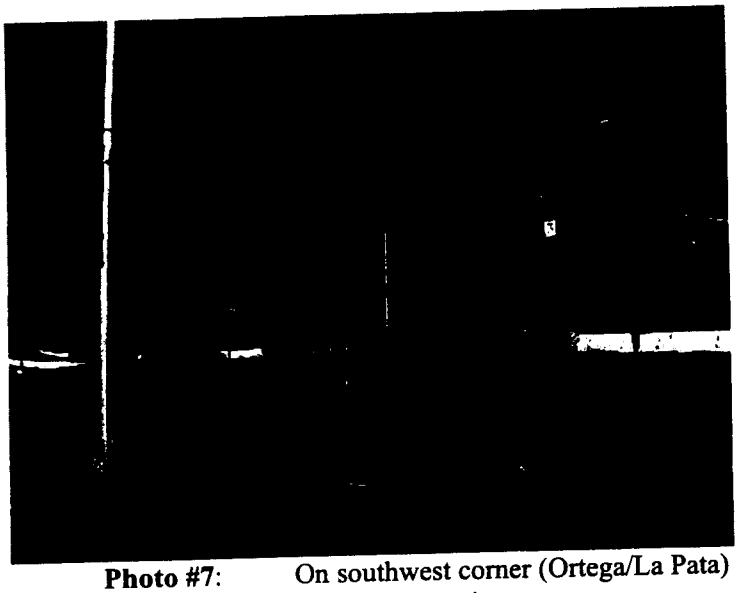


Photo #7: On southwest corner (Ortega/La Pata) facing intersection

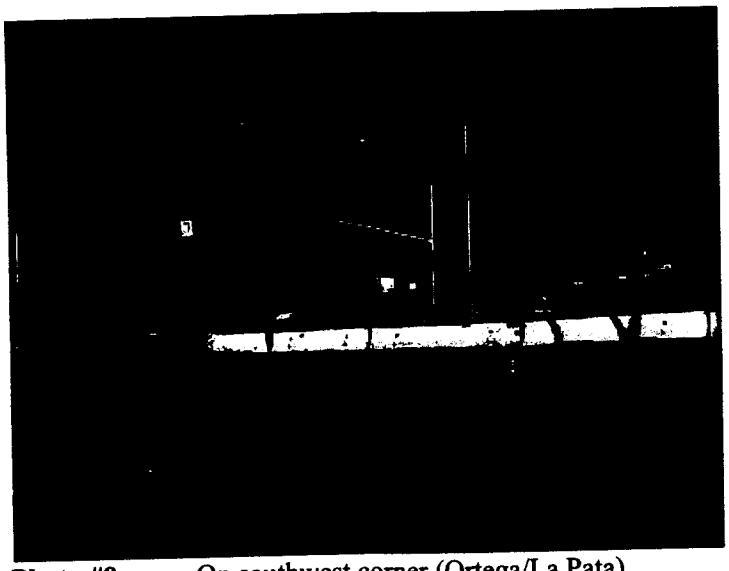


Photo #8: On southwest corner (Ortega/La Pata) facing intersection

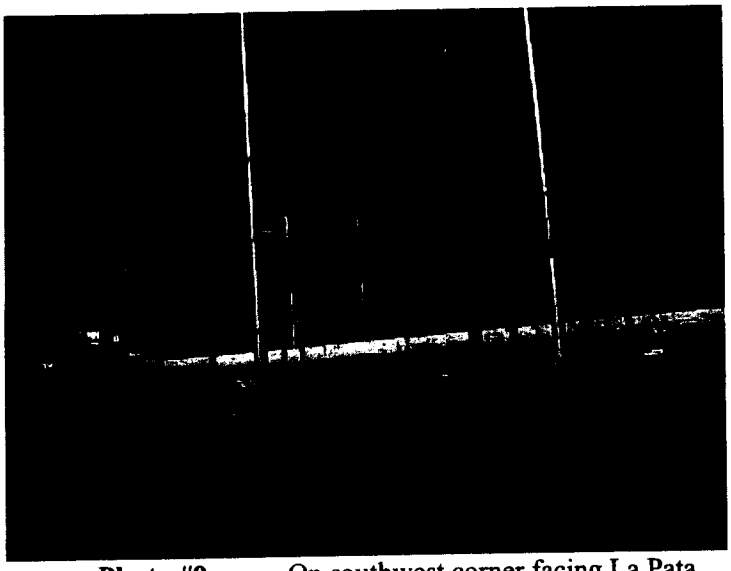


Photo #9: On southwest corner facing La Pata (east approach of Ortega in the distance)

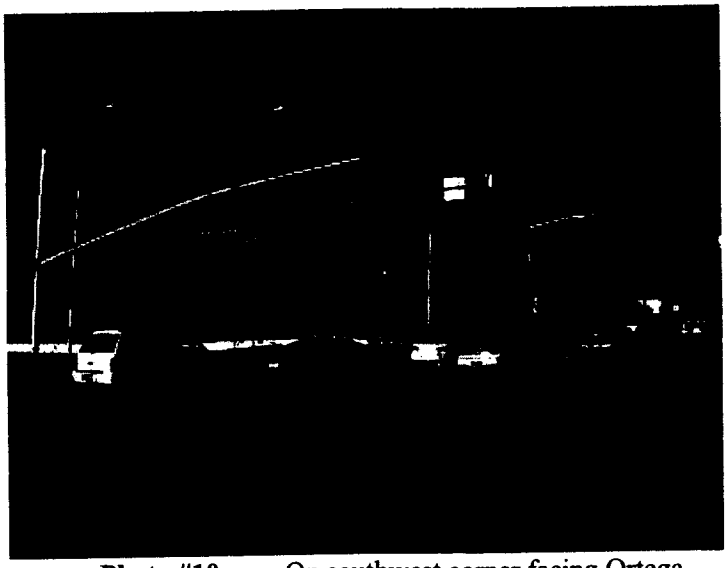
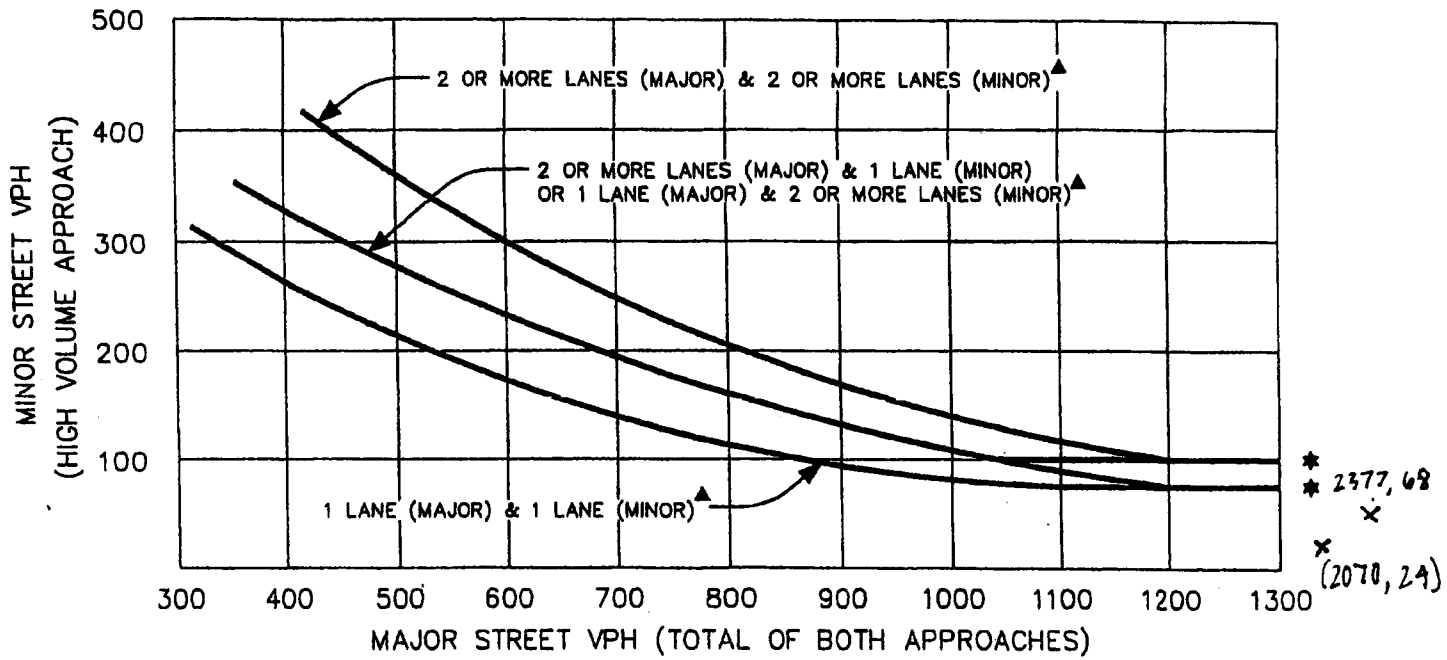


Photo #10: On southwest corner facing Ortega Hwy (west approach)

APPENDIX D

PEAK HOUR SIGNAL WARRANTS CHARTS



EXISTING A
(#) EXISTING P
2030 W/C PROJ. AM
(#) 2030 W/ PROJ. PM

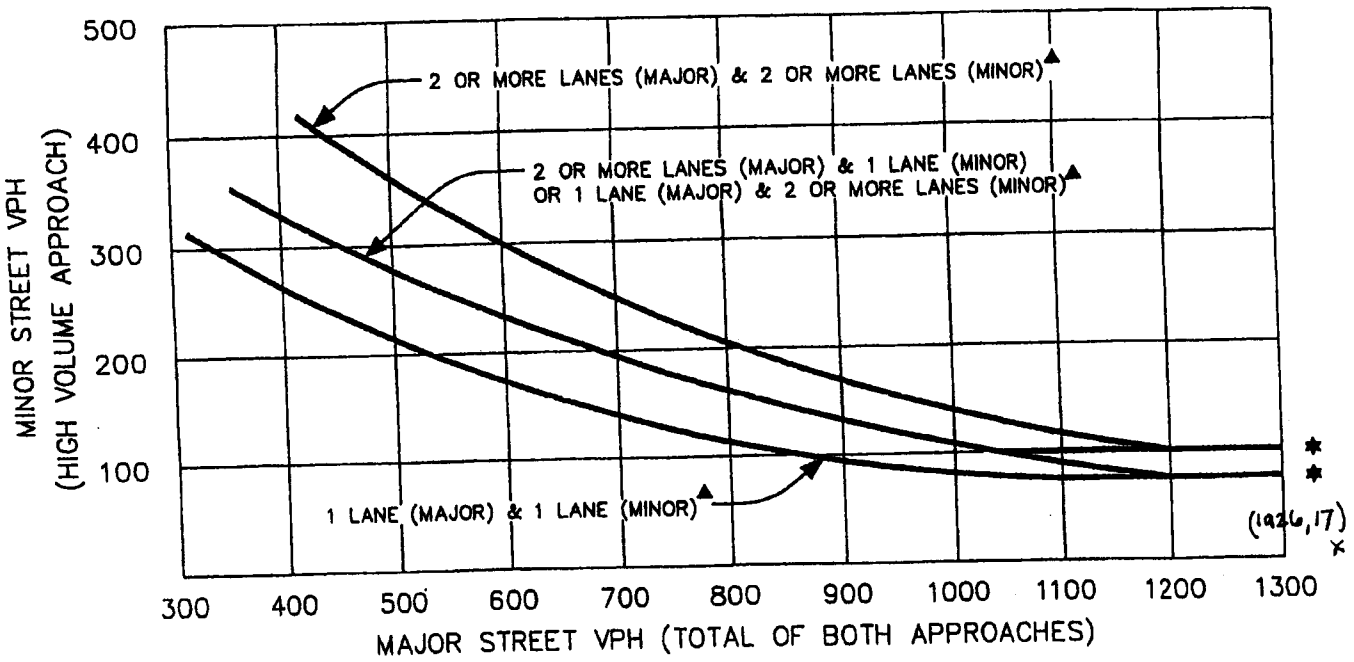
3678, 119
✕
✕
(3795, 53)

▲ NOTE: THESE CURVES ARE RECOMMENDED FOR USE IN AREAS OF RURAL CLASSIFICATION (i.e. POSTED SPEED LIMIT ON THE MAJOR STREET IS 40 MPH OR HIGHER).

✱ NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES, AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

1. ORTEGA AT VIA CORDOVA

PEAK HOUR SIGNAL WARRANTS
(HIGHER SPEEDS/RURAL AREAS)



EXISTING AM
(#) EXISTING PM
2030 W/O PROJ. AM
(#) 2030 W/O PROJ. PM

3568, 63

(1926, 17)

2277, 36

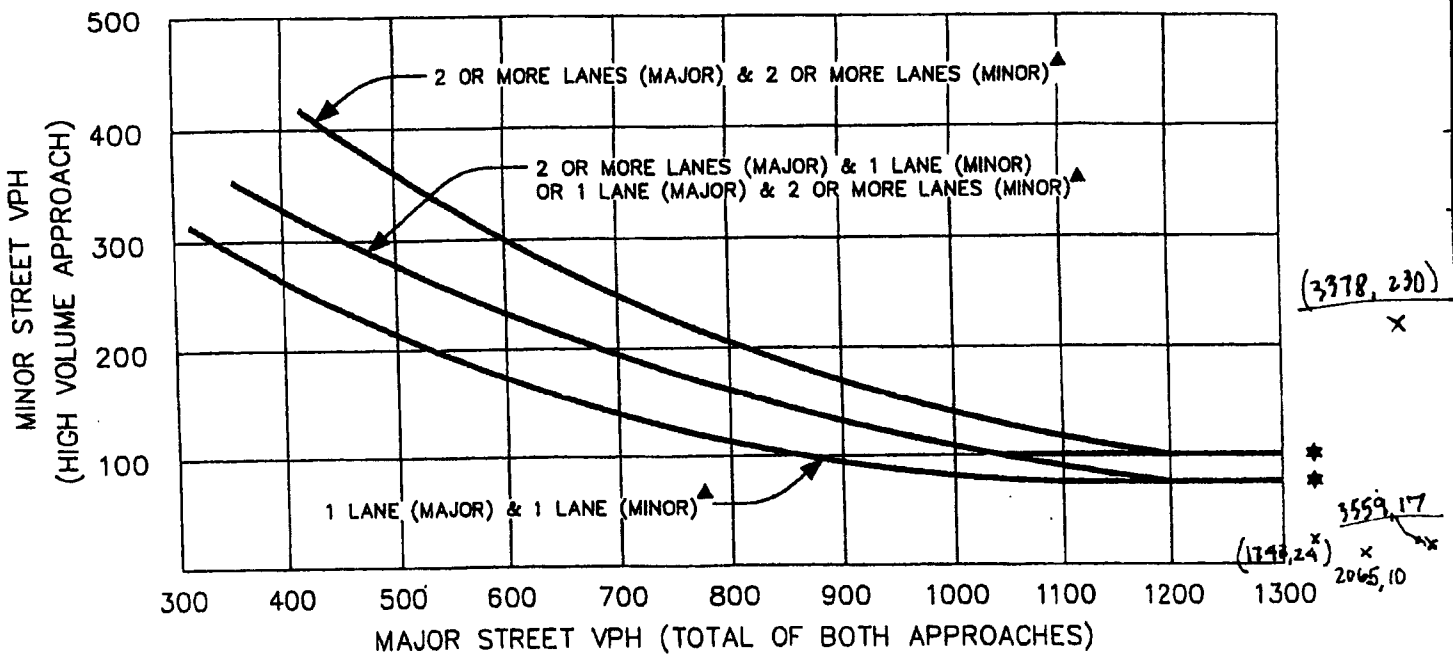
(3612, 29)

▲ NOTE: THESE CURVES ARE RECOMMENDED FOR USE IN AREAS OF RURAL CLASSIFICATION (i.e. POSTED SPEED LIMIT ON THE MAJOR STREET IS 40 MPH OR HIGHER).

✱ NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES, AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

2. ORTEGA AT VIA CRYSTAL

PEAK HOUR SIGNAL WARRANTS
(HIGHER SPEEDS/RURAL AREAS)



EXISTING AM
(#) EXISTING PM
2030 w/O PROJ. AM
(#) 2030 w/O PROJ. PM

▲ NOTE: THESE CURVES ARE RECOMMENDED FOR USE IN AREAS OF RURAL CLASSIFICATION (i.e. POSTED SPEED LIMIT ON THE MAJOR STREET IS 40 MPH OR HIGHER).

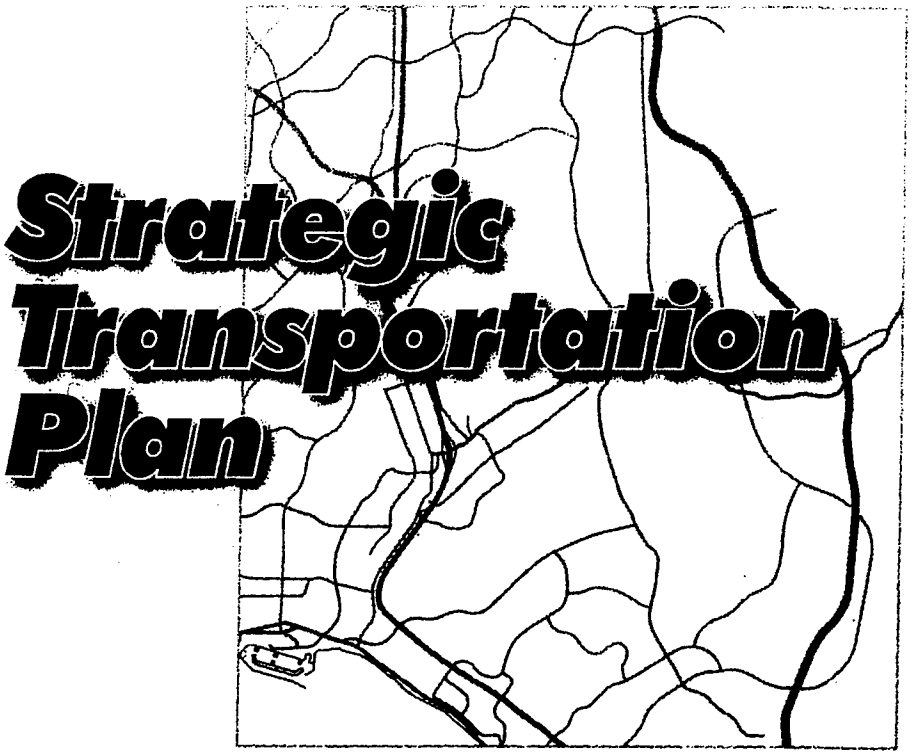
✱ NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES, AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

3. ORTEGA AT AVENIDA SIEGA

PEAK HOUR SIGNAL WARRANTS
(HIGHER SPEEDS/RURAL AREAS)

San Juan Capistrano

Attach 8



Strategic Transportation Plan

September 2002

LSA

Introduction

The City of San Juan Capistrano is faced with a number of planned local and regional transportation and land development projects that have the potential to significantly impact traffic on City streets and State highways. In this context the City initiated an evaluation of these planned projects in relation to specific objectives to first divert through traffic from the community and second manage remaining congestion within the community. A number of planned transportation improvements and a major land development (Rancho Mission Viejo [RMV]) were identified for evaluation and assessment relative to these key objectives. A review of existing transportation issues, identification of all potential future transportation improvements, consideration of adopted General Plan policies, and technical analysis through application of the City's traffic model were accomplished to develop the recommendations for the Strategic Transportation Plan (STP).

All long-range analysis assumed the City General Plan land use, adopted databases for surrounding communities, recently filed land use and circulation plans for RMV undeveloped property, and long-range circulation plans, except as noted on page 4.

Background

An initial effort for the STP was an evaluation of existing transportation issues through review of planning documents, traffic studies, and other pertinent reports to establish a clear and consistent understanding of the City's transportation issues. Appendix A provides a listing of the documents and studies that were reviewed and a summary of key conclusions or facts that relate to the development of the STP.

Key conclusions of those studies include the following:

- Antonio Parkway and Ladera Environmental Impact Report (EIR) was completed in May, 1995. The environmental analysis assumed that La Pata extension to San Clemente would be completed by 2000. The Avery Parkway connection to Ortega Parkway was deleted from the Master Plan of Arterial Highways (MPAH) through this EIR.
- In 1997 daily traffic volumes on Ortega Highway were 25,400 near I-5 and 10,600 at the eastern city limits.
- Antonio Parkway opened in mid-1999. While there was little change in daily traffic volumes, the peak hour changes and directional redistribution resulted in significant improvements in the morning peak hour (from 1.06 to 0.63 Intersection Capacity Utilization [ICU]) of the northbound I-5 ramp intersection and a moderate negative impact in the afternoon peak hour (from 0.79 to 0.94 ICU) at the same intersection. Some of the change at the northbound ramp can also be attributed to an improvement that occurred prior to Antonio opening.
- General Plan updated in December, 1999. There is a stated intent not to extend San Juan Creek Road or Las Ramblas subject to OCTA concurrence.
- Crown Valley Parkway Bridge opening in June, 2001, did not have a significant impact on traffic volumes on Ortega Highway or Antonio Parkway just north of Ortega Highway.
- OCTA releases in July, 2001, updated traffic model (OCTAM 3.1) using OCP-2000 socioeconomic data. This planning document represents the current policy statement by OCTA and the County regarding future growth (up to 2025) in the undeveloped area east of the City. East of the City, 21,000 dwelling units are projected.
- Daily traffic projections for the 2025 horizon on Ortega Highway are 34,000 west of Antonio Parkway and 53,000 between Rancho Viejo and La Novia. These forecasts are higher (40 percent near I-5) than the projections presented in the City's 1999 General Plan EIR.

- The City's General Plan traffic analysis used OCP-1996 socioeconomic data as a planning base. For the undeveloped area east of the City, the assumed dwelling units increased by over 11,000 when comparing OCP-2000 to OCP-1996. There were also similar employment increases. These increases would have a direct influence on traffic volumes for key roadways like Ortega Highway.
- In March, 2002, the County released a preliminary development plan for the RMV property allowing technical studies for the STP to be prepared. According to preliminary information from RMV, the proposed dwelling units will be on the order of 14,000 units compared to over 21,000 assumed in OCP-2000. The 14,000 units may be reduced through the review and approval process.
- The extension of La Pata to San Clemente and Foothill Transportation Corridor - South to I-5 have continuously been assumed in all County planning studies. Currently the County is preparing a Request for Proposal to initiate the preliminary design efforts for the La Pata extension.
- The Talega Valley Specific Plan has general transportation mitigation measures that require demonstration of sufficient roadway capacity for each phase of development. Several circulation phasing alternatives were evaluated during the entitlement process, including a phased extension of La Pata, first to Camino Las Ramblas and then to Ortega Highway.
- Riverside County has initiated studies, known as CETAP, for a connection to Orange County. Potential corridors initially identified include Ortega Highway, as well as new routes through central and southern Orange County.

Identification of Preliminary Strategies

The City has identified two specific objectives for the STP.

Primary: Identify transportation strategies that divert through traffic from the community.

Secondary: After diversion strategies have been achieved, reduce the remaining traffic congestion within the community.

With the background information as a foundation, coupled with consideration of the primary and secondary transportation objectives, preliminary strategies were identified.

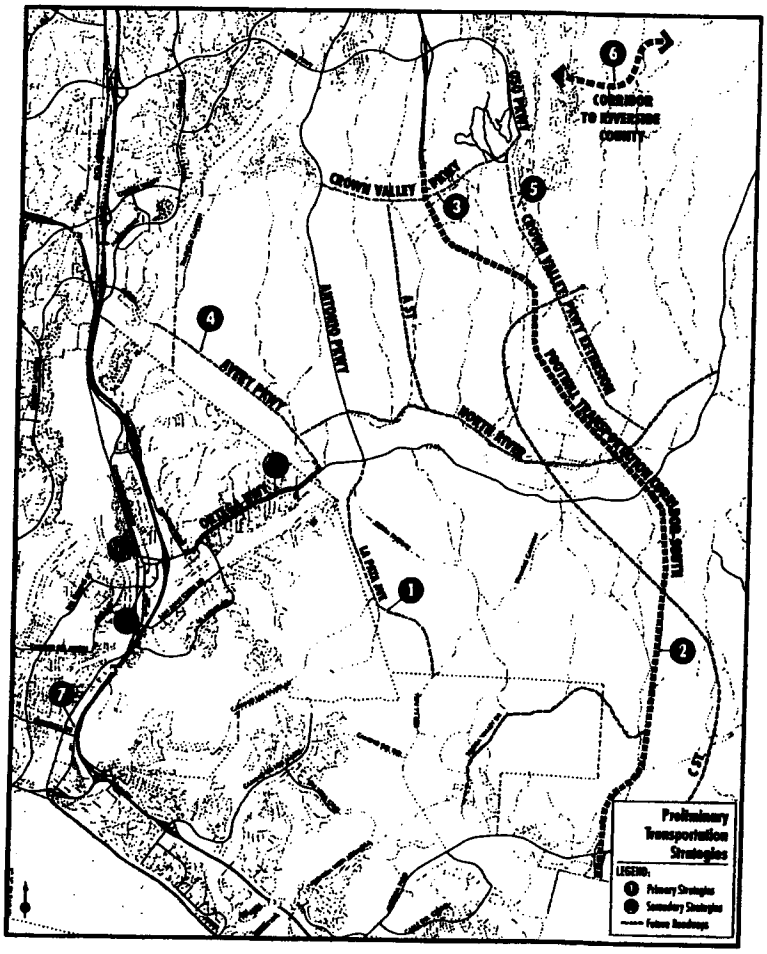
Primary Strategies

1. Extension of La Pata from Avenida Pico to Ortega Highway.
2. Extension of Foothill Transportation Corridor South (FTC-S) to I-5.
3. Extension of Crown Valley Parkway east to FTC-S to connect to Oso Parkway forming a loop. This is a planned facility of the MPAH.
4. Extension of Avery Parkway to Ortega Highway. This highway was deleted from the MPAH in 1995.
5. Extension of a highway from Crown Valley Parkway extension to Ortega Highway.
6. Highway connections to Riverside County north of Ortega Highway.
7. Southbound I-5 off-ramp at Stonehill Drive.

The following additional strategies address the secondary objective of reducing congestion once the maximum through traffic diversion has been achieved. This is an important understanding, since the following strategies may attract additional traffic if the diversion strategies have not been implemented:

Secondary Strategies

8. Eastbound free right turn lanes at Del Obispo and Camino Capistrano intersection.
9. Traffic signal coordination plan on Ortega Highway and downtown.
10. Major reconstruction of Ortega Highway/I-5 Interchange.
11. Widening Ortega Highway to four lanes to eastern city limits.



Evaluation of Preliminary Strategies

With the identification of preliminary strategies, the next step was to review all previous technical analysis that might provide information relative to the consistency (or not) of each strategy with the plan objectives. It was also a stated desire of the City to be as firm as possible with any recommendation and to provide the highest levels of assurance that the strategies would, in fact, accomplish the objectives.

The strategies were at first qualitatively evaluated with available data and then each one was quantitatively analyzed applying the City's General Plan build out traffic model.

To accomplish this procedure the City's traffic model was updated with the OCP-2000 database to be consistent with all other local and regional planning efforts. In addition, for all long-range analyses the land use and circulation plans recently filed by RMV for the undeveloped property to the east of the City were input in place of the previous County forecast in OCP-2000. All of the long-range analyses maintained a consistent land use assumption (i.e., City General Plan and OCP-2000 modified by the RMV plan) and circulation plan with the following modifications:

- No extension of San Juan Creek Road to La Pata;
- No extension of Las Ramblas except as noted for specific strategy analysis;
- No extension of Camino Los Padres between Golden Lantern and Camino Capistrano.

Intersection Level of Service (LOS)

LOS	ICU Range
A	0.51-0.60
B	0.61-0.70
C	0.71-0.80
D	0.81-0.90
E	0.91-1.00
F	>1.00

Various highway network alternatives were then developed in an effort to isolate the impact of each of the strategies, as well as to assess cumulative conditions. The output data, both daily traffic volumes and peak hour intersection turn movements, were then analyzed and weighed against the primary and secondary objectives of the plan. Both average daily traffic (ADT) volumes and a.m. and p.m. peak hour intersection turn movements were analyzed to provide the highest level of assurance regarding technical conclusions. The data presented in the following exhibits include both ADT volumes, which are weekday 24 hour two-way traffic volumes, expressed in thousands. The intersection data are expressed as an ICU or volume to capacity ratio. These ICUs can also be expressed in Level of Service (LOS) terms based on the noted ranges. For this evaluation process it is relevant to focus on changes in actual ratios not just LOS since a significant impact can occur within an LOS range and could be missed if only LOS levels were reported. In the following analyses and exhibits only those intersections that experienced measurable changes are reported. A measurable change is defined as about one-half LOS or 0.05 ICU. The following evaluation of each specific preliminary strategy applies this procedure.

Primary Strategies

1. Extension of La Pata from Avenida Pico (San Clemente) to Ortega Highway

La Pata Extension Benefits:

- 2,000-3,000 ADT reduction on Ortega Highway
- One-half LOS improvement @ Ortega/I-5 ramps

The extension of La Pata was studied in the Talega Valley EIR in 1988. It was viewed as a mitigation measure providing alternate access to I-5 first through Camino Las Ramblas and then to Ortega Highway in later phases of Talega development. The incremental extensions of La Pata allowed the Talega development to increase dwelling unit maximums proportionately.

With this trend of providing more capacity for Talega development, the extension of La Pata would, at first, appear contrary to the objectives of San Juan Capistrano to divert through traffic from the community. Based on Talega traffic alone, the extension of La Pata to either Camino Las Ramblas or Ortega Highway would likely result in additional through traffic on Camino Las Ramblas and Ortega Highway desiring access to I-5 northbound

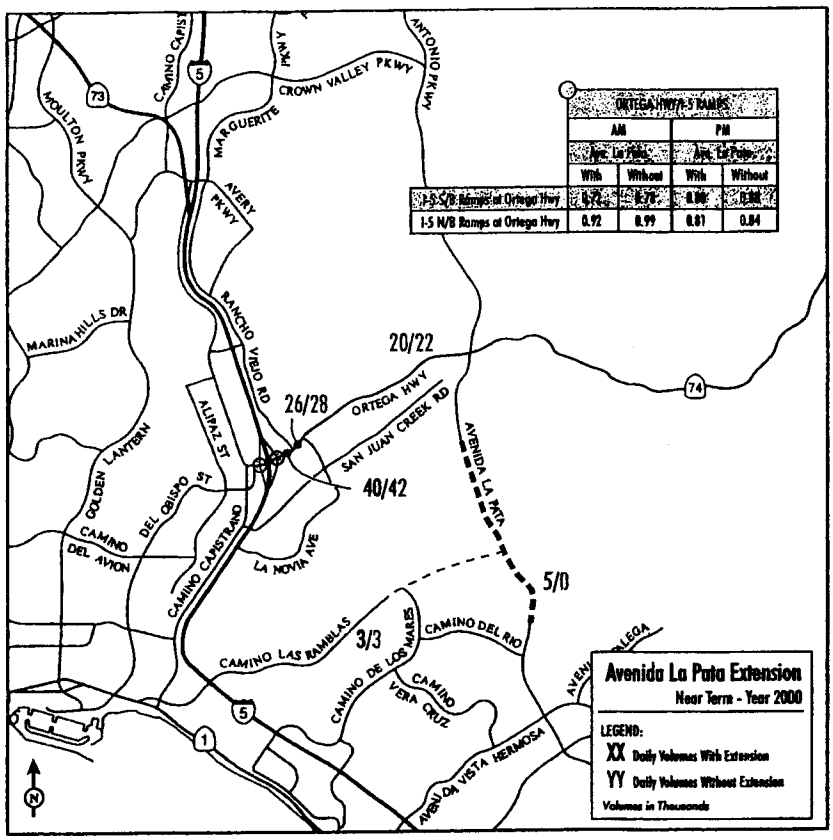
and the reverse movement in the opposite peak hour.

However, this extension could also serve Ladera and other similar oriented traffic with access to San Clemente and I-5 to the south instead of using Antonio Parkway to Ortega Highway to I-5, through San Juan Capistrano.

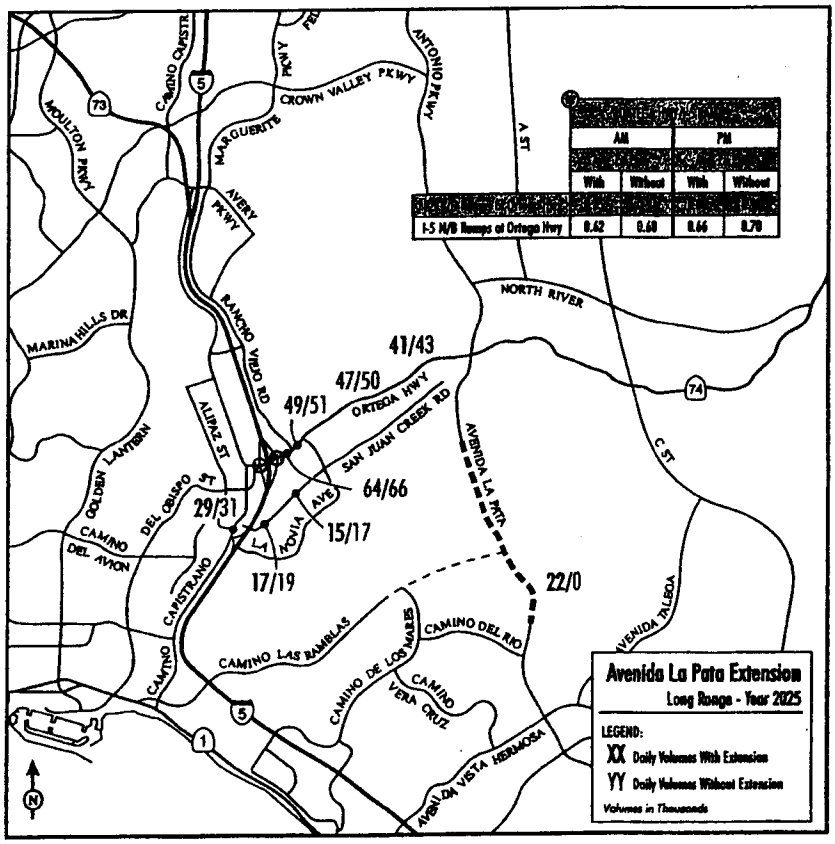
The current technical evaluation has confirmed the benefit of the La Pata extension. The analysis examined both ADT and peak hour intersection conditions. Daily traffic volumes are decreased on Ortega Highway between Antonio Parkway and I-5 by about 2,000 ADT in the near term and 2,000 to 3,000 ADT in the long range. This is equivalent to about five to ten percent, but more important there are measurable benefits at the interchange of Ortega Highway and I-5 when La Pata is extended to Ortega Highway. These conclusions are confirmed with both existing land use and long-range 2025 with RMV proposed land use plans. Volumes on I-5 through the City are also reduced by about 10,000 ADT in the long range when La Pata is extended.

A mid-term analysis was also conducted assuming the completion of the Ladera and Talega developments as they are currently approved. This evaluation also confirmed the previous results that the completion of La Pata extension provides a reduction of the traffic volumes on Ortega Highway similar to the data previously reported. The figures at right illustrate this information.

The extension of La Pata from Ortega Highway south to San Clemente is consistent with the objective to divert traffic around the community. There is little benefit to an incremental extension from San Clemente to Camino Las Ramblas.



ORTEGA HWY/I-5 RAMPS	AM		PM	
	Apr. La Pata		Apr. La Pata	
	With	Without	With	Without
I-5 S/B Ramps at Ortega Hwy	0.72	0.76	0.86	0.84
I-5 N/B Ramps at Ortega Hwy	0.92	0.99	0.81	0.84



	AM		PM	
	With	Without	With	Without
I-5 N/B Ramps at Ortega Hwy	0.62	0.60	0.66	0.70

2. Extension of Foothill Transportation Corridor South (FTC-S) to I-5

The extension of FTC-S was studied by the Transportation Corridor Agencies in 1990 and is currently being reevaluated in a federal environmental process. Based on the 1990 studies, the following conclusions, all assuming the same land use base, are supported:

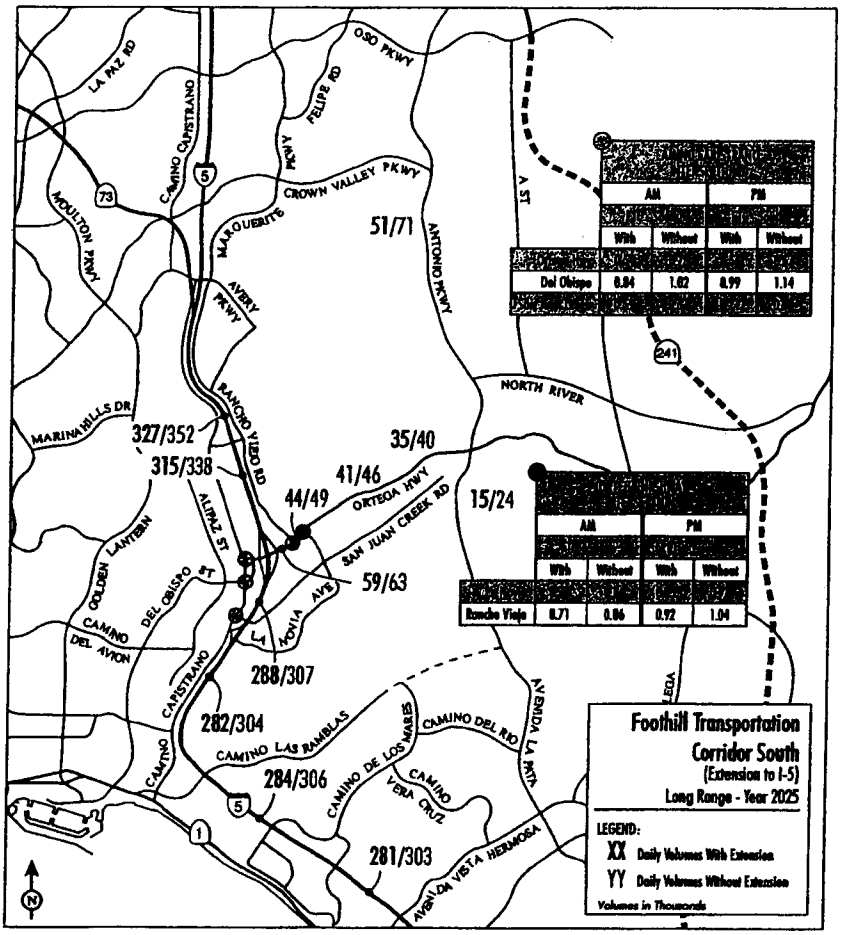
- The No Project scenario results in the highest traffic demand on I-5 and remaining parallel arterial highways such as the extension of La Pata and Antonio Parkway.
- Phasing FTC-S, i.e., not constructing the facility all the way to I-5 and stopping at Ortega Highway, would substantially alter the traffic impacts of the complete facility. In other words, significant negative impacts would occur to Ortega Highway if FTC-South was phased to initially stop at Ortega Highway.
- In the City's 1999 Updated General Plan, Policy 5.1 states: "Support the implementation of the Orange County MPAH and the South Foothill Tollway Segment (CP Alignment)."

FTC-South Benefits:

- 20,000-25,000 ADT reduction on I-5
- 5,000 ADT reduction on Ortega Hwy.
- Full LOS benefit at intersections on Ortega Hwy. and Camino Capistrano

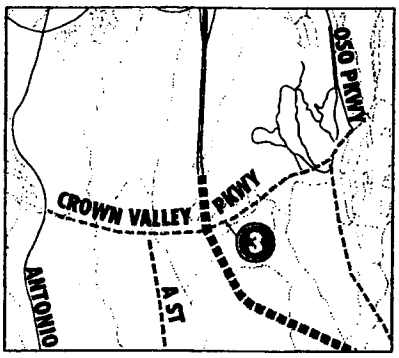
Consideration of this information leads to the conclusion that a complete FTC-S extension to I-5 is consistent with the objectives of the strategic plan, i.e., divert through traffic from the community. A phased completion of the FTC would have the opposite effect and is not recommended.

The results of the traffic modeling confirm the preliminary conclusions, in that an extension of FTC-S (CP Alignment) provides a 20,000 to 25,000 ADT reduction (about seven percent) in daily traffic volumes on I-5 through San Juan Capistrano and a 20,000 ADT reduction on Antonio Parkway. Reductions on Ortega Highway between Antonio and the I-5 are about 5,000 ADT and represent about a ten percent reduction with the FTC-S extension. Peak hour intersection performance along Ortega Highway at the intersections of Rancho Viejo and La Novia and Camino Capistrano at the intersections of Ortega, Del Obispo, and San Juan Creek Road is also improved, as illustrated to the left.



While these trends are not likely to change, it is important to note that extensive traffic analysis is currently underway for the FTC-S federal environmental process examining numerous additional alternative corridor alignments and functional designs that may influence these conclusions.

3. Extension of Crown Valley Parkway Easterly of Antonio Parkway Consistent with the Master Plan of Arterial Highways (MPAH)



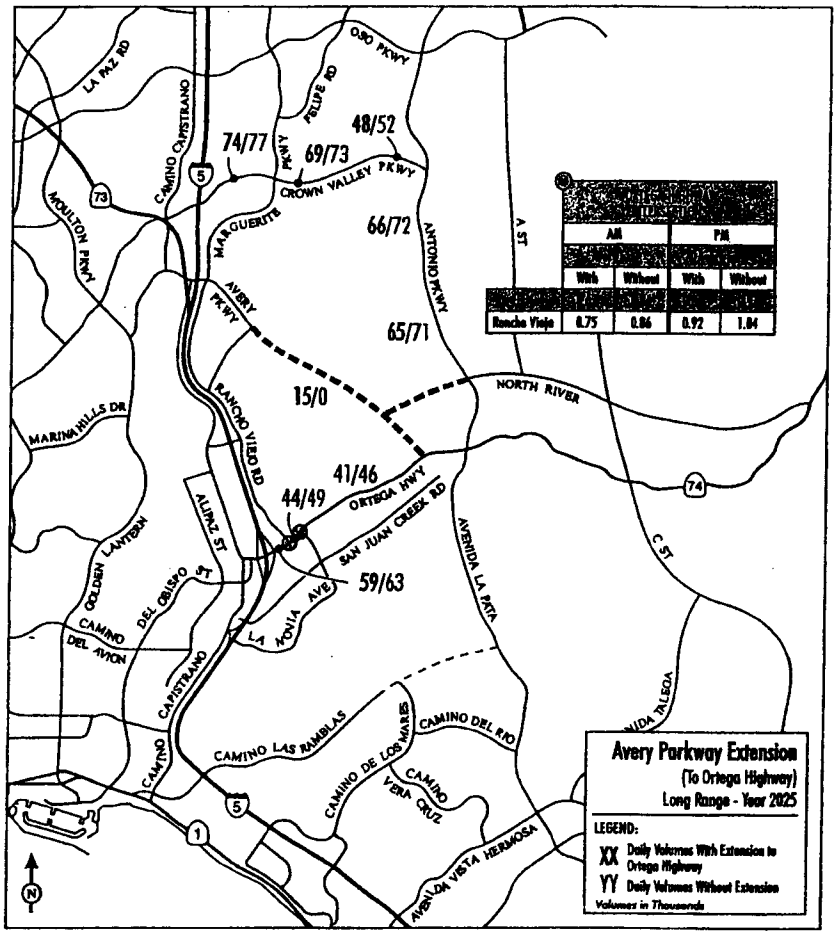
The current MPAH envisions an extension of Crown Valley Parkway from Antonio Parkway easterly to an interchange with FTC-S and further connection to a loop of Oso Parkway. All previous FTC-S studies have assumed this interchange with Crown Valley Parkway. As we understand the RMV plans recently filed, this MPAH facility is proposed to be deleted.

The results of the traffic modeling indicate that consideration of the extension of Crown Valley Parkway east of Antonio Parkway by itself does not have a measurable impact on daily traffic or peak hour intersection performance in the core area of San Juan Capistrano. This conclusion is the same with or without consideration of the extension of FTC-S. However, there are other MPAH facilities (Avery Parkway and Crown Valley Parkway) in the area that should be studied at the same time and, therefore, consideration of deletion of this facility from the MPAH should involve the adopted cooperative study process with San Juan Capistrano as an active participant.

4. Extension of Avery Parkway to Ortega Highway

This highway link was deleted from the MPAH in 1995 during the Planned Community (PC) approval process for Ladera Ranch. A typical MPAH amendment cooperative process involving affected communities was not undertaken. Based on the traffic studies completed for Ladera Ranch (May, 1995), the extension of Avery Parkway to Ortega Highway does provide a measurable traffic reduction to Ortega Highway within San Juan Capistrano.

The results of the traffic modeling confirm the previous conclusions that the extension of Avery Parkway does reduce daily volumes (about 5,000 ADT) on Ortega Highway within the city limits. Daily volumes are also reduced (4,000 to 6,000 ADT) on Antonio Parkway, Crown Valley Parkway, and I-5 between Ortega Highway and Avery Parkway. Peak hour intersection performance along Ortega Highway at the intersections of Rancho Viejo and La Novia is also measurably improved (by about one full level of service). The figure at right illustrates this information.



It is significant to note that the studies used by the

Avery Parkway Extension Benefits:

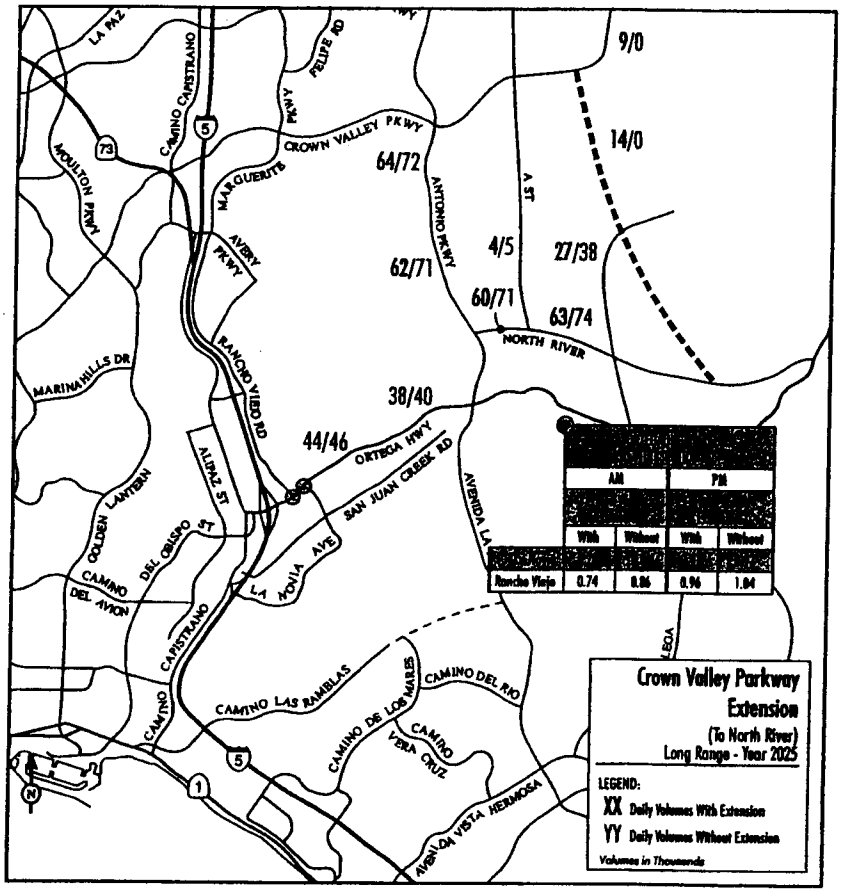
- 5,000 ADT reduction on Ortega Hwy.
- Significant intersection LOS improvement on Ortega at La Novia and Rancho Viejo
- 4,000-6,000 ADT reduction on Antonio, Crown Valley, and I-5

County to analyze the impacts of deleting Avery Parkway in 1995 did not include the large RMV development currently being considered east of the City. The County used data known as OCP-92, which assumed about 5,000 dwelling units east of the City. The current planning data, known as OCP-2000, assume about 21,000 units east of the City, and the recently filed plans by RMV would reduce that to about 14,000 units. The point is that, at a minimum, an additional 9,000 units are now planned in the area that would contribute directly to the need for Avery Parkway and this represents a reasonable foundation to request reconsideration of Avery Parkway.

While the evaluation of Avery Parkway assumed the historical alignment from the MPAH, i.e., connection to Ortega Highway, the recently filed RMV plan suggests another option. Connection to North River Road, which is parallel to Ortega Highway, connects to Antonio Parkway in a tee intersection. Based on the high daily volumes (in excess of 70,000 ADT) River Road is projected to carry, it appears logical to consider connecting it to Avery Parkway. This alignment of Avery Parkway was modeled, and the results do indicate a significant improvement (ten percent reductions in ADT) to Antonio Parkway and Crown Valley Parkway. The impacts to Ortega Highway within the City are the same as with the historical MPAH connection to Ortega Highway.

5. Extension of Crown Valley Parkway Easterly to North River Road

The function of this extension, which would generally parallel the planned alignment of FTC-S to Ortega Highway, would also duplicate some of the FTC's purpose if both facilities were built. However, with the uncertainty of FTC-S it is recommended that this type of extension be evaluated to determine potential traffic implications. It could serve as an attractive cutoff for Riverside County traffic destined for FTC-North, Mission Viejo, and Lake Forest. There may be significant topographic and other engineering and environmental issues associated with pursuing this facility. This facility is evaluated assuming no extension of FTC-South.



This concept was conceived prior to the availability of the land use and circulation plan submitted by RMV for the area east of the City. The proposed RMV plan has two similar facilities known as "A Street" and "C Street" connecting Oso Parkway and North River Road and FTC-S to Ortega Highway, respectively. "A Street" is not, however, attracting an arterial highway level of traffic, probably due to the assumed classification and/

Crown Valley Parkway Easterly Extension Benefits:

- Significant ADT reduction on Antonio (9,000) and North River (11,000)
- One-half to full LOS improvement on Ortega @ La Novia and Ranch Viejo intersections in peak hours
- 2,000 ADT reduction on Ortega Highway

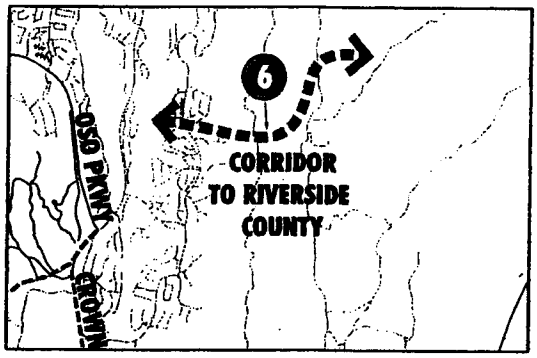
or access to development areas. "C Street" is projected to carry at least a four lane demand of traffic.

The technical evaluation suggests that this type of facility would lessen the high daily volume demand on Antonio Parkway and North River Road and provide measurable peak hour intersection benefits along Ortega Highway at La Novia and Rancho Viejo. These results are shown at left.

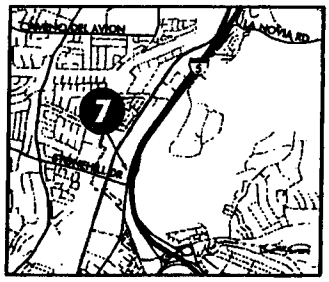
The potential function and benefits of this type of facility could be considered in the context of the ongoing cooperative planning effort for the RMV property. In this setting the proper relationship of this concept to the environmental, topographic, and land use issues can be considered.

6. Connections to Riverside County Northerly of Ortega Highway

Studies of alternative transportation corridors connecting Orange and Riverside counties have been stalled pending further discussions between the two counties. In the near term it appears that efforts will be focused on improvements to the Route 91 freeway before considering new corridors. When and if the study process resumes, the City should suggest a corridor alignment northerly of Ortega Highway connecting to FTC-South. The function of this type of facility would be to reduce demand to Ortega Highway into San Juan Capistrano.



7. Southbound I-5 Off-Ramp at Stonehill Drive



The technical analysis of this proposed southbound off-ramp is currently being refined; however, based on the initial evaluation, this improvement would provide minimal benefit to Ortega Highway/I-5 interchange and a greater benefit to the Camino Capistrano and Pacific Coast Highway southbound off-ramp intersection. This evaluation has been reviewed by several traffic analysts, and there is a high level of confidence in this conclusion of minimal diversion from Ortega Highway interchange. This ramp diverts some traffic from the Ortega southbound off-ramp (50 a.m./60 p.m. trips) and a greater amount from the Camino Capistrano ramp (150 a.m./160 p.m. trips). While the construction costs are significant, it is an improvement that meets the strategic plan objectives, and it is recommended to continue project development advancement through preparation of a Project Study Report and Project Report. It may also be desirable to keep it packaged as long as possible with the Ortega Highway/I-5 interchange improvement process.

Secondary Strategies

The remaining secondary strategic plan concepts address the objective of reducing congestion once the maximum through traffic diversion has been achieved. This is an important understanding, since the following strategies may attract additional traffic if the diversion strategies have not been implemented.

In general the Primary Strategies should be implemented ahead of the Secondary Strategies. However, the City may proceed with a Secondary Strategy if it believes there are circumstances that warrant the project's implementation sooner than later. Secondary Strategies should be carefully and thoughtfully evaluated prior to proceeding with their implementation. Analysis of the impacts to the existing roadway network on a short-term and mid-term basis should be carefully reviewed when considering the Secondary Strategies.

8. Eastbound Free Right Turn Lane at Del Obispo/Camino Capistrano Intersection

This is an intersection improvement that would be designed to further encourage traffic destined for I-5 northbound to take Camino Capistrano to San Juan Creek Road rather than use the Ortega Highway interchange. It is recommended that a preliminary engineering plan and traffic analysis be initiated to determine cost, feasibility, right-of-way requirements, and benefits.

9. Traffic Signal Coordination Plan on Ortega Highway and Downtown

The purpose of this strategy is to optimize and coordinate the operation of these traffic signals in an effort to improve traffic flow and reduce congestion and delay. Physical capacity is not increased. This strategy is being implemented by City staff.

10. Major Reconstruction of Ortega Highway/I-5 Interchange

The engineering and traffic studies for this improvement are well underway, and it is prudent to continue the project development process in a timely manner. The levels of service at both intersections of the freeway ramps are projected to significantly degrade in the future. At the southbound ramp intersection the LOS is projected to decrease from LOS C to E and LOS C to F in the morning and afternoon peak hours, respectively. It should be noted that these LOS levels consider the intersection only in isolation and not from an operational perspective, which would result in lower levels of service. For purposes of the analysis in this report we are looking for significant changes on a long range basis, to intersection levels of service. The operational analysis, which looks at issues of how an intersection's operation may be affected by closely spaced adjacent intersections, would not yield any additional information relative to the influence of the various roadway alternatives studied. Therefore, utilizing only the individual intersection LOS is justified as it provides a valuable tool in revealing whether the proposed road improvements being considered are trending toward bettering or worsening the LOS. At the northbound ramps the LOS is projected to decrease from LOS C to F and LOS B to E in the a.m./p.m. peak hours, respectively. The alternative designs being considered increase capacity and reduce congestion. Improvements to the Junipero Serra/I-5 interchange will also be considered as alternatives in this engineering and traffic study.

It should also be noted that improvements to the southbound I-5 off-ramp intersection at Camino Capistrano are being implemented through the OCTA Freeway Chokepoint Program. A Project Study Report has been completed, and engineering and construction funds have been approved.

11. Widening Ortega Highway to Four Lanes to Easterly City Limits

Assuming the same traffic volume, this improvement will reduce congestion along this section of highway; however, without prudent traffic diversion strategies, traffic volumes could increase, resulting in the same, or worse, congestion levels, only now with four lanes instead of two. This project is directly related to the planned improvements at the interchange with I-5 and should not occur until the interchange is improved, as existing interchange congestion would be exacerbated. It is further suggested that the City pursue and achieve commitments or resolution to the first five recommended strategies prior to further discussions or commitments to the widening of Ortega Highway.

Recommendations

The purpose of the STP is to specifically identify community policies related to the implementation of transportation improvements that will complement the objectives of 1) diverting through traffic around the community and 2) effectively managing the traffic that remains. With that purpose and the results of the previously documented technical evaluation, the following strategies are recommended:

Primary Strategies

1. Support the early implementation of the extension of La Pata from Avenido Pico to Ortega Highway as a single phase project.
2. Support the extension of Foothill Transportation Corridor – South from Oso Parkway to I-5, south of San Clemente, as a single phase project.
3. Request participation in any cooperative study process initiated by OCTA to consider deletion of Crown Valley Parkway from the MPAH. At this time the potential benefits of this facility are not clearly understood and, therefore, a distinct policy position is not recommended.
4. Support reconsideration of Avery Parkway extension from I-5 to Ortega Highway, or connecting to River Road. Request through the RMV planning process specific evaluation of this facility as previously included on the MPAH.
5. Support, through the RMV planning process, an extension of Crown Valley Parkway easterly to North River Road (an arterial highway parallel to Antonio Parkway), which may be required if FTC-S is not extended.
6. Monitor the transportation planning activities between Riverside and Orange counties and request active participation if specific corridor studies are initiated that consider connections between the Lake Elsinore area and Orange County.
7. Pursue project development efforts for a southbound I-5 off-ramp at Stonehill, if it is determined beneficial as a result of the City's current analysis of the Ortega Highway Interchange alternatives.

Secondary Strategies

In general the Primary Strategies should be implemented ahead of the Secondary Strategies. However, the City may proceed with a Secondary Strategy if it believes there are circumstances that warrant the project's implementation sooner than later. Secondary Strategies should be carefully and thoughtfully evaluated prior to proceeding with their implementation. Analysis of the impacts to the existing roadway network on a short-term and mid-term basis should be carefully reviewed when considering the Secondary Strategies.

8. Proceed with preparation of preliminary engineering and a Project Report to fully analyze the costs and benefits of constructing an eastbound free right turn at Del Obispo/Camino Capistrano intersection.
9. Continue with a traffic signal coordination plan on Ortega Highway and downtown.
10. Continue the project development process for major improvements at the Ortega Highway/I-5 interchange.
11. Table the project development activities for widening Ortega Highway until commitments or resolution is achieved on strategies 1 through 5 and 10.

Appendix A

Strategic Transportation Plan Summary of Traffic Studies and Reports

Antonio Parkway and Ladera EIR – May, 1995

Contrary to actual conditions in 2001, the La Pata extension to San Clemente was assumed completed in the Year 2000 Antonio Parkway and Ladera environmental analysis.

The Avery Parkway connection to Ortega Highway was deleted from the MPAH through this EIR process.

Ortega Highway Traffic Mitigation Study – May, 1997

Expanded use of landfill (i.e., imported trash) will marginally increase truck traffic on Ortega Highway. Initial estimates were 50 to 100 loads per day each way. Initial reports were only 30 percent of maximum permitted, i.e., 600 tons/day.

Existing (1997) Average Daily Traffic (ADT) on Ortega Highway near I-5 is 25,400, decreasing to 10,600 at the eastern city limits.

Traffic has increased 18,000 ADT in the past 20 years. Increases of 12,000 ADT are projected in the next 20 years.

ADT on Ortega Highway west of Antonio Parkway was expected to drop 8,000 ADT upon opening of Antonio Parkway. (This did not occur; there was only a minor change of 1,000 ADT.)

The maximum trash truck increase (100 loads per day or 200 trips) constitutes about one percent of the total ADT (200/26,400 = 0.008).

Ortega Highway is designated for special safety enforcement, and fines are doubled.

Eighty-seven percent of all accidents occur within a three block segment between La Novia and I-5.

Substantial congestion occurs at the I-5 ramps. The westbound left turn to southbound I-5 exceeds storage and blocks through lanes. The addition of 50 to 100 trash trucks is expected to exacerbate this deficiency significantly.

Antonio Parkway Extension Before and After – June, 1999

Ortega Highway west of Antonio dropped only 1,000 ADT with Antonio Parkway (13K to 12K), and there was no change between I-5 and Rancho Viejo.

However, a substantial change did occur in the peak hour at the intersection of the I-5 northbound ramps and Ortega Highway: from 1.06 to .63 Intersection Capacity Utilization (ICU) in the a.m. (a four LOS improvement) and in p.m. from .79 to .94 ICU (one LOS decrease).

In summary, while there was little change in ADT, the peak hour changes and directional redistribution resulted in significant benefits (four LOS) to the a.m. I-5 northbound ramp intersection and a moderate negative impact (1.5 LOS) to the p.m. northbound ramp intersection. There were no changes to the I-5 southbound ramp intersection.

Ortega Highway Traffic Forecasts – August, 1999

This report updates the previous forecast of Antonio Parkway impacts and revises the impact substantially to no ADT change with Antonio Parkway opening. However, peak hour link volumes near Antonio Parkway do change significantly: 43 percent increase in a.m. (31 percent in peak direction) and 29 percent increase in p.m. (18 percent in peak direction).

City General Plan – December, 1999

The stated intent is not to extend San Juan Creek Road or Las Ramblas subject to OCTA concurrence.

The General Plan traffic analysis used OCP-96 as the basis for growth outside the City's sphere. Approximately 10,000 dwelling units were assumed for the unincorporated areas east of the City. The proposed RMV plan would increase that to 14,000 units. Traffic volumes on Ortega Highway near I-5 are projected to be 20 percent higher. The additional development contributed to this increase.

Policy 1.5 - Reduce congestion at Ortega Highway/I-5

Policy 5.1 - Support CP alignment of FTC - South

Crown Valley Parkway Bridge Opening – June, 2001

Before and after traffic counts were taken to document the effect of this roadway connection between Marguerite and Antonio Parkway. On a daily volume basis, there was no measurable effect on Ortega Highway or Antonio Parkway just north of Ortega Highway. On a peak hour basis, there were some variations at the five intersections counted along Ortega Highway, both higher and lower, but no trend was apparent.

OCP 2000 and OCTAM 3.1 – July, 2001

This planning document represents the most recent policy statement by Orange County regarding future growth in the undeveloped area east of the City. Between 2000 and 2025, total dwelling units are planned to increase by over 21,000 in this area.

Daily traffic forecasts for the 2025 horizon on Ortega Highway are 34,000 west of Antonio Parkway and 53,000 between Rancho Viejo Road and La Novia. These forecasts are higher (40 percent higher near I-5) than the long-range ADT reported in the City's 1999 General Plan EIR, which used OCP-96 as a foundation.

According to preliminary information from Rancho Mission Viejo, the proposed dwelling units will be about 7,000 units lower than currently assumed in OCP-2000.

La Pata Assumptions

Consistent with the Master Plan of Arterial Highways, the La Pata Avenue extension to San Clemente is included in all OCP-96 and OCP-2000 traffic models.

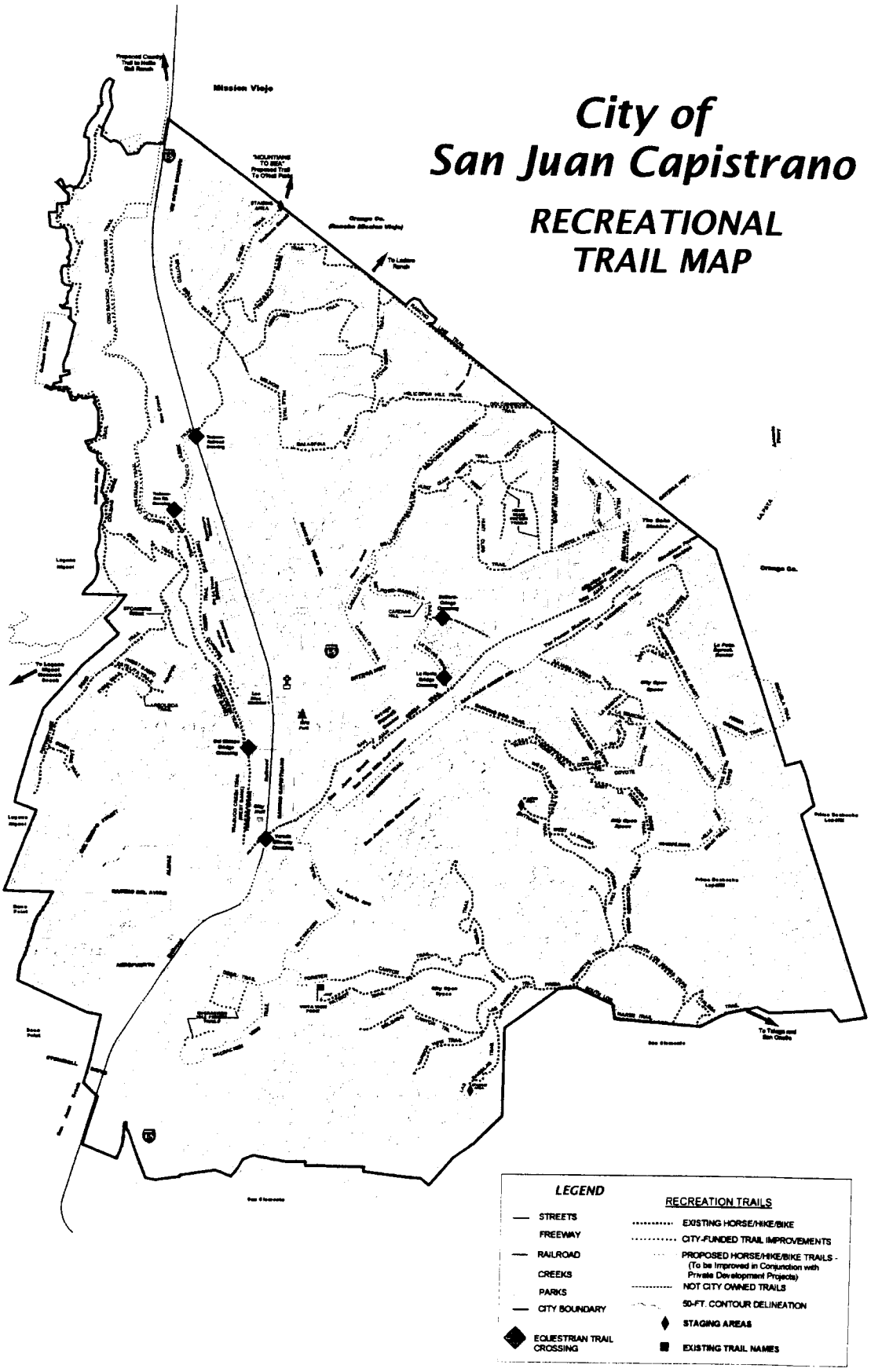
Talega Valley Specific Plan

The transportation mitigation measures for this development require the demonstration that sufficient roadway capacity exists to accommodate each phase of development. Several circulation phasing alternatives were evaluated during the entitlement process, including provisions for the phased extension of La Pata, first to Camino Las Ramblas, and then to Ortega Highway.

Attach 9

City of San Juan Capistrano

RECREATIONAL TRAIL MAP



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November 2007 - Prepared by Dept. of Engineering & Building - Image/ecart

RecreationalTrail Map (Unpaved Trails Only)

Proposed and Existing

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Attach 10

11.1 Hot Mix Asphalt Plants

11.1.1 General[1-3,23, 392-394]

Hot mix asphalt (HMA) paving materials are a mixture of size-graded, high quality aggregate (which can include reclaimed asphalt pavement [RAP]), and liquid asphalt cement, which is heated and mixed in measured quantities to produce HMA. Aggregate and RAP (if used) constitute over 92 percent by weight of the total mixture. Aside from the amount and grade of asphalt cement used, mix characteristics are determined by the relative amounts and types of aggregate and RAP used. A certain percentage of fine aggregate (less than 74 micrometers [μm] in physical diameter) is required for the production of good quality HMA.

Hot mix asphalt paving materials can be manufactured by: (1) batch mix plants, (2) continuous mix (mix outside dryer drum) plants, (3) parallel flow drum mix plants, and (4) counterflow drum mix plants. This order of listing generally reflects the chronological order of development and use within the HMA industry.

In 1996, approximately 500 million tons of HMA were produced at the 3,600 (estimated) active asphalt plants in the United States. Of these 3,600 plants, approximately 2,300 are batch plants, 1,000 are parallel flow drum mix plants, and 300 are counterflow drum mix plants. The total 1996 HMA production from batch and drum mix plants is estimated at about 240 million tons and 260 million tons, respectively. About 85 percent of plants being manufactured today are of the counterflow drum mix design, while batch plants and parallel flow drum mix plants account for 10 percent and 5 percent respectively. Continuous mix plants represent a very small fraction of the plants in use (≤0.5 percent) and, therefore, are not discussed further.

An HMA plant can be constructed as a permanent plant, a skid-mounted (easily relocated) plant, or a portable plant. All plants can have RAP processing capabilities. Virtually all plants being manufactured today have RAP processing capability. Most plants have the capability to use either gaseous fuels (natural gas) or fuel oil. However, based upon Department of Energy and limited State inventory information, between 70 and 90 percent of the HMA is produced using natural gas as the fuel to dry and heat the aggregate.

11.1.1.1 Batch Mix Plants -

Figure 11.1-1 shows the batch mix HMA production process. Raw aggregate normally is stockpiled near the production unit. The bulk aggregate moisture content typically stabilizes between 3 to 5 percent by weight.

Processing begins as the aggregate is hauled from the storage piles and is placed in the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transported into a rotary dryer (typically gas- or oil-fired). Dryers are equipped with flights designed to shower the aggregate inside the drum to promote drying efficiency.

As the hot aggregate leaves the dryer, it drops into a bucket elevator and is transferred to a set of vibrating screens, where it is classified into as many as four different grades (sizes) and is dropped into individual "hot" bins according to size. At newer facilities, RAP also may be transferred to a separate heated storage bin. To control aggregate size distribution in the final batch mix, the operator opens various hot bins over a weigh hopper until the desired mix and weight are obtained. Concurrent with the aggregate being weighed, liquid asphalt cement is pumped from a heated storage tank to an asphalt bucket, where it is weighed to achieve the desired aggregate-to-asphalt cement ratio in the final mix.

The aggregate from the weigh hopper is dropped into the mixer (pug mill) and dry-mixed for 6 to 10 seconds. The liquid asphalt is then dropped into the pug mill where it is mixed for an additional period of time. At older plants, RAP typically is conveyed directly to the pug mill from storage hoppers and combined with the hot aggregate. Total mixing time usually is less than 60 seconds. Then the hot mix is conveyed to a hot storage silo or is dropped directly into a truck and hauled to the job site.

11.1.1.2 Parallel Flow Drum Mix Plants -

Figure 11.1-2 shows the parallel flow drum mix process. This process is a continuous mixing type process, using proportioning cold feed controls for the process materials. The major difference between this process and the batch process is that the dryer is used not only to dry the material but also to mix the heated and dried aggregates with the liquid asphalt cement. Aggregate, which has been proportioned by size gradations, is introduced to the drum at the burner end. As the drum rotates, the aggregates, as well as the combustion products, move toward the other end of the drum in parallel. Liquid asphalt cement flow is controlled by a variable flow pump electronically linked to the new (virgin) aggregate and RAP weigh scales. The asphalt cement is introduced in the mixing zone midway down the drum in a lower temperature zone, along with any RAP and particulate matter (PM) from collectors.

The mixture is discharged at the end of the drum and is conveyed to either a surge bin or HMA storage silos, where it is loaded into transport trucks. The exhaust gases also exit the end of the drum and pass on to the collection system.

Parallel flow drum mixers have an advantage, in that mixing in the discharge end of the drum captures a substantial portion of the aggregate dust, therefore lowering the load on the downstream PM collection equipment. For this reason, most parallel flow drum mixers are followed only by primary collection equipment (usually a baghouse or venturi scrubber). However, because the mixing of aggregate and liquid asphalt cement occurs in the hot combustion product flow, organic emissions (gaseous and liquid aerosol) may be greater than in other asphalt mixing processes. Because data are not available to distinguish significant emissions differences between the two process designs, this effect on emissions cannot be verified.

11.1.1.3 Counterflow Drum Mix Plants -

Figure 11.1-3 shows a counterflow drum mix plant. In this type of plant, the material flow in the drum is opposite or counterflow to the direction of exhaust gases. In addition, the liquid asphalt cement mixing zone is located behind the burner flame zone so as to remove the materials from direct contact with hot exhaust gases.

Liquid asphalt cement flow is controlled by a variable flow pump which is electronically linked to the virgin aggregate and RAP weigh scales. It is injected into the mixing zone along with any RAP and particulate matter from primary and secondary collectors.

Because the liquid asphalt cement, virgin aggregate, and RAP are mixed in a zone removed from the exhaust gas stream, counterflow drum mix plants will likely have organic emissions (gaseous and liquid aerosol) that are lower than parallel flow drum mix plants. However, the available data are insufficient to discern any differences in emissions that result from differences in the two processes. A counterflow drum mix plant can normally process RAP at ratios up to 50 percent with little or no observed effect upon emissions.

11.1.1.4 Recycle Processes[393] -

In recent years, the use of RAP has been initiated in the HMA industry. Reclaimed asphalt pavement significantly reduces the amount of virgin rock and asphalt cement needed to produce HMA.

In the reclamation process, old asphalt pavement is removed from the road base. This material is then transported to the plant, and is crushed and screened to the appropriate size for further processing. The paving material is then heated and mixed with new aggregate (if applicable), and the proper amount of new asphalt cement is added to produce HMA that meets the required quality specifications.

11.1.2 Emissions And Controls[2-3,23]

Emissions from HMA plants may be divided into ducted production emissions, pre-production fugitive dust emissions, and other production-related fugitive emissions. Pre-production fugitive dust sources associated with HMA plants include vehicular traffic generating fugitive dust on paved and unpaved roads, aggregate material handling, and other aggregate processing operations. Fugitive dust may range from 0.1 μm to more than 300 μm in aerodynamic diameter. On average, 5 percent of cold aggregate feed is less than 74 μm (minus 200 mesh). Fugitive dust that may escape collection before primary control generally consists of PM with 50 to 70 percent of the total mass less than 74 μm. Uncontrolled PM emission factors for various types of fugitive sources in HMA plants are addressed in Sections 11.19.2, "Crushed Stone Processing", 13.2.1, "Paved Roads", 13.2.2, "Unpaved Roads", 13.2.3, "Heavy Construction Operations", and 13.2.4, "Aggregate Handling and Storage Piles." Production-related fugitive emissions and emissions from ducted production operations are discussed below. Emission points discussed below refer to Figure 11.1-1 for batch mix asphalt plants and to Figures 11.1-2 and 11.1-3 for drum mix plants.

11.1.2.1 Batch Mix Plants -

As with most facilities in the mineral products industry, batch mix HMA plants have two major categories of emissions: ducted sources (those vented to the atmosphere through some type of stack, vent, or pipe), and fugitive sources (those not confined to ducts and vents but emitted directly from the source to the ambient air). Ducted emissions are usually collected and transported by an industrial ventilation system having one or more fans or air movers, eventually to be emitted to the atmosphere through some type of stack. Fugitive emissions result from process and open sources and consist of a combination of gaseous pollutants and PM.

The most significant ducted source of emissions of most pollutants from batch mix HMA plants is the rotary drum dryer. The dryer emissions consist of water (as steam evaporated from the aggregate); PM; products of combustion (carbon dioxide [CO_2], nitrogen oxides [NO_x], and sulfur oxides [SO_x]); carbon monoxide (CO); and small amounts of organic compounds of various species (including volatile organic compounds [VOC], methane [CH_4], and hazardous air pollutants [HAP]). The CO and organic compound emissions result from incomplete combustion of the fuel. It is estimated that between 70 and 90 percent of the energy used at HMA plants is from the combustion of natural gas.

Other potential process sources include the hot-side conveying, classifying, and mixing equipment, which are vented either to the primary dust collector (along with the dryer gas) or to a separate dust collection system. The vents and enclosures that collect emissions from these sources are commonly called "fugitive air" or "scavenger" systems. The scavenger system may or may not have its own separate air mover device, depending on the particular facility. The emissions captured and transported by the scavenger system are mostly aggregate dust, but they may also contain gaseous organic compounds and a fine aerosol of condensed organic particles. This organic aerosol is created by the condensation of vapor into particles during cooling of organic vapors volatilized from the asphalt cement in the mixer (pug mill). The amount of organic aerosol produced depends to a large extent on the temperature of the asphalt cement and aggregate entering the pug mill. Organic vapor and its associated

aerosol also are emitted directly to the atmosphere as process fugitives during truck load-out, from the bed of the truck itself during transport to the job site, and from the asphalt storage tank. Both the low molecular weight organic compounds and the higher weight organic aerosol contain small amounts of HAP. The ducted emissions from the heated asphalt storage tanks include gaseous and aerosol organic compounds and combustion products from the tank heater.

The choice of applicable emission controls for PM emissions from the dryer and vent line includes dry mechanical collectors, scrubbers, and fabric filters. Attempts to apply electrostatic precipitators have met with little success. Practically all plants use primary dust collection equipment such as large diameter cyclones, skimmers, or settling chambers. These chambers often are used as classifiers to return collected material to the hot elevator and to combine it with the drier aggregate. To capture remaining PM, the primary collector effluent is ducted to a secondary collection device. Most plants use either a fabric filter or a venturi scrubber for secondary emissions control. As with any combustion process, the design, operation, and maintenance of the burner provides opportunities to minimize emissions of NO_x, CO, and organic compounds.

11.1.2.2 Parallel Flow Drum Mix Plants -

The most significant ducted source of emissions from parallel-flow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The organic compound and CO emissions result from incomplete combustion of the fuel and from heating and mixing of the liquid asphalt cement inside the drum. Although it has been suggested that the processing of RAP materials at these type plants may increase organic compound emissions because of an increase in mixing zone temperature during processing, the data supporting this hypothesis are very weak. Specifically, although the data show a relationship only between RAP content and condensible organic particulate emissions, 89 percent of the variations in the data were the result of other unknown process variables.

Once the organic compounds cool after discharge from the process stack, some condense to form a fine organic aerosol or "blue smoke" plume. A number of process modifications or restrictions have been introduced to reduce blue smoke, including installation of flame shields, rearrangement of flights inside the drum, adjustments of the asphalt injection point, and other design changes.

11.1.2.3 Counterflow Drum Mix Plants -

The most significant ducted source of emissions from counterflow drum mix plants is the rotary drum dryer. Emissions from the drum consist of water (as steam evaporated from the aggregate); PM; products of combustion; CO; and small amounts of organic compounds of various species (including VOC, CH_4, and HAP). The CO and organic compound emissions result primarily from incomplete combustion of the fuel, and can also be released from the heated asphalt. Liquid asphalt cement, aggregate, and sometimes RAP, are mixed in a zone not in contact with the hot exhaust gas stream. As a result, kiln stack emissions of organic compounds from counterflow drum mix plants may be lower than parallel flow drum mix plants. However, variations in the emissions due to other unknown process variables are more significant. As a result, the emission factors for parallel flow and counterflow drum mix plants are the same.

11.1.2.4 Parallel and Counterflow Drum Mix Plants -

Process fugitive emissions associated with batch plant hot screens, elevators, and the mixer (pug mill) are not present in the drum mix processes. However, there are fugitive PM and VOC emissions from transport and handling of the HMA from the drum mixer to the storage silo and also from the load-out operations to the delivery trucks. Since the drum process is continuous, these plants have surge

L-3

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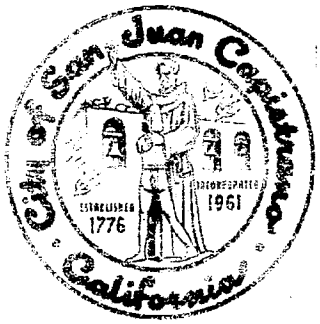

MEMBERS OF THE CITY COUNCIL
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MARK NIELSEN
DR. LONDRES USO

Office of the Mayor

January 7, 2009

Ms. Cindy Quon
District Director
Department of Transportation
3337 Michelson Drive, Suite 380
Irvine, CA 92612-8894

RE: Ortega Highway Widening Project - Comment Period

Dear Ms. Quon:

As we had anticipated the release of the environmental document for widening of Ortega Highway in the City of San Juan Capistrano, our residents and interested parties continue to debate the potential impacts of the project on our community.

My colleagues and I on the City Council have been discussing this project as we hear wide ranging opinions on the Widening from our constituents with respect to its environmental impacts. Due to a recent furlough for City staff, necessitated by the current state of economy, we believe a longer comment period is necessary to review the draft EIR in depth and we would like to urge you to consider the following: 1

- Extend the comment period by thirty days and receive input on the project until March 3, 2009.

Thank you for your kind attention to our concerns and we look forward to working with you and your staff to inform our citizens about this project.

Sincerely,

Mark Nielsen
Mayor

01-12-09P08:47 RCVD

C: Council Members
Dave Adams
Nasser Abbaszadeh
Steve Apple

San Juan Capistrano: Preserving the Past to Enhance the Future

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4. Organizations-Businesses Comments

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EDMOND M. CONNOR
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DOUGLAS A. HEDENKAMP
SHIRY TANNENBAUM

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CONNOR, FLETCHER & WILLIAMS LLP

ATTORNEYS AT LAW

February 14, 2009

CALTRANS District 12 Office
Attn: Scott Shelley
3337 Michelson Drive, Suite 380
Irvine, California 92612-8894

VIA E-MAIL & FIRST CLASS MAIL

Re: *DEIR for Proposed Widening of State Route 74*

Dear Mr. Shelley:

My family and I reside at 30651 Steeplechase Drive, San Juan Capistrano, California, which is located in the Hunt Club development. I am writing to object to the Draft Environmental Impact Report ("DEIR") for the proposed widening of State Route 74 (Ortega Highway) from Calle Entradero to the City/County line (the "Widening Project").

Given the dearth of substantive information about the residential developments that are situated on the north side of Ortega Highway and that will be directly impacted by the Widening Project, the Caltrans officials in Sacramento who will decide whether to approve the Widening Project may have no idea where the Hunt Club is located or how many persons reside in that development. For their information, therefore, Phases I and II of the Hunt Club, were developed approximately 28 years ago, long before Ortega became a busy arterial highway. The Hunt Club presently consists of 169 custom homes and lots and several hundred people reside there. The Hunt Club development abuts Ortega Highway roughly between Hunt Club Drive (the main gate) and Calle Entradero (the residents' gate). 1

As a resident of the Hunt Club, I am a member of the Hunt Club Community Association (the "Association") and I have been authorized to submit this letter on behalf of the Association. I believe that the Association's consultant, Schmitz & Associates, Inc., will also be submitting a letter on behalf of the Association. In addition, I am enclosing herewith a total of twenty (20) "Public Comment Cards" regarding the DEIR that have been filled out by 18 Hunt Club residents and two security guards who work at the main entrance to the Hunt Club.

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I. FAILURE TO CONDUCT PROPER PUBLIC HEARING.

As a threshold matter, I must object to the deceptive and improper conduct of Caltrans in mailing out, and posting on the Internet, notices (see enclosed) stating that a "public hearing" on the DEIR was going to be held on January 14, 2009, at Marco Forster Middle School in San Juan when, in fact, Caltrans had no intention of conducting a public hearing within the meaning of section 21177 of the California Environmental Quality Act ("CEQA") and section 15202 of the CEQA Guidelines. A "hearing" has been defined as "[a]ny setting in which an affected person presents arguments to an agency decision-maker." (Black's Law Dict. (8th ed. 2004) p. 737.) Over 70 years ago, the U.S. Supreme Court noted that "[t]he one who decides must hear." (*Morgan v. United* States (1936) 298 U.S. 468, 481.) That, however, is not what happened at the January 14th public hearing that Caltrans held on the DEIR.

I attended the January 14th public hearing and, along with numerous other members of the public who attended that night, I came prepared to make public comments to the Caltrans decision-makers whom I naturally assumed would be at the hearing. To my great surprise and disappointment, however, I was informed by Caltrans staff members that there were no decision-makers present at the hearing and, as such, there would be no opportunity for members of the public to address their concerns about the DEIR to the actual Caltrans officials who would be deciding whether to proceed with the Widening Project. 2

Regardless of whether Caltrans was legally required to hold a public hearing on the adequacy of the DEIR, once Caltrans elected to do so, and once the public had relied on Caltrans's commitment to do so and had attended the hearing, Caltrans was no longer free to segregate environmental review from project approval. (See, *Bakersfield Citizens for Local Control v City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1200.) In *Bakersfield*, the court acknowledged that public hearings are not explicitly required by CEQA, but it underscored the requirement articulated in section 15202(b) of the CEQA Guidelines that "[i]f an agency provides a public hearing on its decision to carry out or approve a project, the agency should include environmental review as one of the subjects for the hearing." In *Bakersfield*, the court overturned the certification of the EIR and the approval of the project on the ground that "the City had improperly segregated environmental review from project approval in contravention of Guidelines section 15202, subdivision (b)."

At the January 14th public hearing on the DEIR, two individuals representing Caltrans made presentations to the audience, but the members of the public who were present at the hearing were not allowed to address comments or questions to the speakers. Instead, they were told to go stand in a corner of the auditorium and wait their turn to address any comments they might have to a court reporter. I cannot

imagine a more inconvenient and intimidating way to discourage public comment on the DEIR.

In addition to improperly segregating environmental review from project approval in violation of section 15202 of the CEQA Guidelines, the unorthodox manner in which Caltrans conducted the January 14th public hearing resulted in a denial of due process and dissuaded, if not prevented, those in attendance at the hearing from expressing their views on the DEIR and the Widening Project. A review of the sign-in sheets for the public hearing will demonstrate that very few of the persons in attendance at the hearing provided comments to the court reporter. I also suspect that very few of these persons submitted written comments on the DEIR following the public hearing. The presumption should be, therefore, that the people who took the time to attend the public hearing came prepared to address oral comments on the DEIR to the Caltrans decision-makers, but were wrongfully deprived of an opportunity to do so and invariably ended up submitting no oral or written comments on the DEIR or the Widening Project. The "bait and switch" tactic that Caltrans employed in noticing a public hearing and then not properly conducting it has irreparably tainted and prejudiced the CEQA review and project approval process. 2

II. FAILURE TO COMPLY WITH CEQA AND THE GUIDELINES.

In order to avoid needless duplication of effort, this letter will not attempt to repeat the numerous objections to the DEIR that will be raised by other project opponents. Instead, this letter will focus on certain traffic-related impacts associated with the Widening Project. Those of us who live in the Hunt Club feel that the DEIR is woefully deficient in that (1) the DEIR fails to adequately assess the impacts that the Widening Project will have on the ability of persons living immediately north and south of Ortega Highway to safely access that thoroughfare; (2) the DEIR fails to consider a reasonable project alternative to avoid or substantially lessen these impacts and (3) the DEIR fails to identify the most obvious of mitigation measures, i.e., the installation of one or more traffic signals, to minimize these impacts. 3

In this regard, Caltrans has failed to comply with CEQA and the Guidelines in the following respects, among others:

1. Failure to Adequately Describe Environmental Setting. In violation of section 15125 of the CEQA Guidelines, the DEIR does not contain an adequate description of the physical environmental conditions in the vicinity of the Widening Project. No one reading the DEIR would understand that the residential communities which are situated north of Ortega Highway and that lie within the project impact zone, such as the Hunt Club, Belford Terrace, El Nido Motorhome Park, Verde San Juan Estates, etc. have only one point of ingress and egress -- Ortega Highway. Unlike the residential communities that abut the south side of Ortega Highway, such as Mission 4

Woods, Mission Glen, Mission Springs, etc., the developments on the north side of Ortega have no points of secondary access; rather, the only way into or out of these communities is via Ortega Highway.

The failure of the DEIR to discuss how critically important it is for the north-side communities, such as the Hunt Club, to be able to safely access Ortega for all daily vehicle trips by the residents of those communities, as well as their guests and contractors, has resulted in a gross understatement of the "baseline physical conditions" in the vicinity of the Widening Project. Unless one understands how the several hundred residents of the Hunt Club are entirely dependent on being able to safely access Ortega in order to drive to and from their homes each day, one cannot properly evaluate the impacts that the Widening Project will have on these residents. Yet, this fact is nowhere discussed in the DEIR and this has distorted what little real traffic analysis there is in the DEIR. 4

The second respect in which the "environmental setting" portion of the DEIR is inadequate can be seen in its failure to describe the peak hour traffic conditions that exist on Ortega Highway in the vicinity of the Widening Project. At a minimum, the DEIR should report that, during peak hours, it is extremely difficult and unsafe to enter or exit the Hunt Club from either the main gate or the residents' gate. A left-hand turn from either gate to an eastbound lane on Ortega is <u>virtually impossible</u> during peak hours, unless the driver is willing to live dangerously by darting into on-coming traffic from both directions. The same is true for someone trying to make a left-hand turn into a westbound lane from one of the communities on the south side of Ortega. In addition, with cars approaching on Ortega at speeds of 40 to 50 mph, even a right-hand turn exiting the Hunt Club into a westbound lane on Ortega often requires the driver to "floor it" to avoid being hit from behind. 5

This is not hard to understand because, without a traffic signal to allow them safe and easy access onto Ortega, all drivers leaving the Hunt Club during peak hours must start from a dead stop, wait patiently for a "gap" in the traffic to suddenly open up, and then trounce on the accelerator to quickly reach the same speed as the continuous flow of traffic streaming up and down Ortega Highway. What the DEIR fails to acknowledge is that the ingress/egress conditions that presently exist on Ortega -- where there are <u>no</u> traffic signals for at least a four mile stretch from La Novia to Antonio Parkway -- are extremely rare and are dangerous *per se*. I defy Caltrans to cite another example anywhere in South Orange County where a subdivision of several hundred people is forced to enter and exit a busy arterial without the aid of a traffic signal. This is another example of the environmental "context" that is missing from the DEIR.

Each of the 20 Public Comment Cards enclosed with this letter addresses how harrowing it is to enter or exit the Hunt Club during peak hour traffic conditions. The Comment Cards provide personal, eye-witness accounts regarding how dangerous it is 6

at present to try to turn in or out the Hunt Club during peak hours. These comments speak to the "baseline conditions" that presently exist as to how unsafe it is to go in and out of the Hunt Club during peak traffic hours. Without an understanding of these baseline conditions affecting safe access to and from the residential communities on the north side of Ortega, no one can possibly understand the extent to which these conditions will ***worsen*** once 15,000 Average Daily Trips (ADT) are added to Ortega as a result of the Widening Project. 6

In short, the DEIR is devoid of any honest assessment of the unsafe traffic conditions that ***currently*** exist on Ortega during peak hours. Unlike virtually every other large subdivision in the south Orange County area which is allowed to access a major arterial highway by means of a traffic signal, the residential communities on the north and south side of Ortega in the vicinity of the Widening Project have been forced to fend for themselves as the traffic volumes on Ortega have increased dramatically over the past several years. This lack of signalization, and the extremely dangerous left-hand turns onto Ortega that it requires, must be adequately described in the DEIR so that the Caltrans decision-makers and the public can fully appreciate how the Widening Project will make it ***far less safe*** for the persons living in these communities to access Ortega. 7

2. Failure to Adequately Identify Impacts on Safe Access. In violation of section 15126.2 of the CEQA Guidelines, the DEIR fails to adequate describe the significant adverse impacts that the Widening Project will have on the ability of persons residing in communities on the north side of Ortega to safely access that highway. The DEIR fails utterly to evaluate how difficult and unsafe it will be, without the benefit of a traffic signal, to safely access Ortega during peak hours after 15,000 ADT are added to the highway as a result of Widening Project.

Instead of a good faith analysis that is written in plain English for everyone to understand, the DEIR sets forth traffic studies that contain cryptic, undecipherable information that is basically useless to the average reader of the DEIR. For example, there is no explanation in Chapters 2 and 3 of the 2008 Draft Traffic Study that is attached to the DEIR as to what the side street data on Figures 2-1, 2-2, 3-1, and 3-2 mean or what assumptions were made in generating this data. The reason that it is important that these assumptions be subjected to public scrutiny is because, on page 87 of the DEIR, Caltrans concedes that "[t]he side street delay analysis assumed gap acceptance parameters and may not be representative of actual conditions of driver behavior at individual locations." This is another example of where the DEIR is not based on actual traffic conditions that exist on Ortega. As a final point, Tables 2-2 and 3-2 in the Draft Traffic Study, and all of the tables set forth in Appendix B thereto, provide no legends for the average reader in trying to understand what the abbreviations mean, such as "NBL" and "SBR." 8

Although the 2008 Draft Traffic Study concedes that the Widening Project will cause **"unacceptable delays"** for side street entering movements at all intersections affected by the Widening Project (p. 3-1), what is missing from the DEIR is a straightforward discussion of these delays expressed in terms that the average citizen can comprehend. The DEIR should not only quantify these increased delays in sentence form, but it should also explain in more detail than the mere 25 words that appear on p. 90 of the DEIR that "[t]raffic exiting local streets and attempting to turn left onto westbound SR-74 would incur extended delays due to lack of gaps in the through traffic." Clearly, the public deserves a more complete explanation than this simple sentence provides. 8

Of course, what about vehicles trying to turn left onto eastbound Ortega from the Hunt Club, for example? No mention is made in the DEIR about this death-defying act, either now or when the Widening Project is completed. CEQA and the Guidelines require Caltrans to provide the public with an honest appraisal of the "unacceptable delays" and significant dangers that drivers trying to turn left onto Ortega will face because of the Widening Project.

3. Failure to Describe all Feasible Mitigate Measures. In violation of section 15126.4 of the CEQA Guidelines, the DEIR fails to describe all feasible mitigation measures which could minimize the significant adverse impacts associated with the Widening Project. What is absolutely astounding is that, in the face of the irrefutable evidence that the unsafe traffic access conditions that presently exist on Ortega will significantly worsen once the Widening Project is completed, the DEIR does not provide for any traffic signals at any of the intersections directly impacted by this Project. What is even more astounding is that the DEIR contains no more than a one sentence discussion of this subject. On page 83 of the DEIR, Caltrans states "no existing intersections are proposed to be signalized (no intersections meet a signal warrant)." 9

Inexplicably, the DEIR fails to provide any backup information to support the bald-faced assertion that "no intersections meet a signal warrant." At the January 14th public hearing, I specifically asked the Caltrans traffic engineer who was present to answer questions whether the signal warrant study was included as part of the DEIR so that the public could understand how Caltrans had possibly concluded that none of the impacted intersections would warrant a signal, either under existing conditions or under project build-out conditions. The engineer admitted that the study may not have been included in DEIR, and I certainly have not been able to find it in searching through the DEIR.

That, of course, is a fatal omission of critically-important information and it renders the DEIR's discussion of mitigation measures legally defective. In the face of the candid admission in the 2008 Draft Traffic Study that the Widening Project will cause "unacceptable delays" at all affected intersections, how can Caltrans possibly

maintain that the installation of one or more traffic signals at these heavily-impacted intersections would not constitute a feasible, practical, and effective mitigation measure to "minimize" these delays and help alleviate the significant adverse impacts that the Widening Project will have on the ability of drivers to safely enter or exit Ortega from a side street? 9

In the letter, dated September 4, 2007, that counsel for the Association sent to Caltrans objecting to its announced intention to rely on a Mitigated Negative Declaration, rather than an EIR, in approving the Widening Project, counsel for the Association stated as follows:

> "The hundreds of residents, as well as the hundreds of service providers and homeowner guests, who travel to and from the Hunt Club every day will be faced with extremely unsafe road conditions as they attempt to enter or exit the Hunt Club. As local residents observe (see newspaper articles in Exhibit "A" hereto), drivers – and particularly teenage drivers traveling to and from Santa Margarita High School and the new San Juan Hills High School off of La Plata – have an increased likelihood to be involved in auto and vehicular collisions either when these drivers attempt to access Ortega Highway, (particularly when making left-hand turns), or when the drivers make left turns from Ortega Highway into residential tracts. These significant potential traffic safety impacts should be analyzed by Caltrans in an EIR prior to approval of the Project because the likelihood of serious traffic accidents and injuries cannot be ignored. At various public information sessions held by Caltrans, it has apparently been suggested by Caltrans personnel that, to avoid the radically-increased safety hazards that will be faced by vehicles attempting to turn left out of the Hunt Club, drivers should only turn right (west-bound) and then attempt to make a "u-turn" on Ortega to travel in the desired eastern direction. Needless to say, such proposed mitigation is whimsical at best and fails to address the realities of the terribly hazardous conditions that the Project is imposing on the Hunt Club residents and all motorists on Ortega Highway."

10

Regrettably, instead of providing for any traffic signals to alleviate the adverse impacts that will be caused by the Widening Project, the DEIR has simply incorporated the same "U-turn" proposal that was set forth in the 2007 Mitigated Negative Declaration. Indeed, on page 90 of the DEIR, it states that "[i]n order to avoid extended traffic delays, the project is providing eastbound left-turn lanes at the unsignalized intersections to allow vehicles to turn right onto eastbound SR-74 and complete a U-turn at the next available intersection." In other words, in order to avoid putting in one or more traffic signals, Caltrans is proposing that people on the south side of Ortega who want to turn left onto westbound Ortega actually turn right first and then try to pull a

U-turn in the face of the same continuous flow of traffic that made it impossible for them to turn left in the first place. Such a difficult, time-consuming, and undeniably dangerous maneuver will further compound the traffic safety hazards on Ortega that will result from the Widening Project. Obviously, traffic signals could significantly minimize these hazards. 10

What is noteworthy is that, although the DEIR discusses the U-turn mitigation measure for those drivers who wish to turn left onto westbound Ortega during peak hours, the DEIR is completely silent about any mitigation measures for drivers who wish to turn left onto eastbound Ortega during peak hours. As underscored in the above-quoted excerpt from the Association's September 4, 2007 letter to Caltrans, the early-morning drivers seeking to turn left onto eastbound Ortega out of the Hunt Club would include teenage drivers trying to get to San Juan Hills High School and Santa Margarita High School. As such, it is nothing short of gross negligence for Caltrans to ignore the most obvious mitigation measure to protect these young drivers (not to mention their parents and neighbors): the installment of a traffic signal to allow them to safely exit from the main entrance of the Hunt Club and travel eastbound on Ortega.

Instead of meeting its legal obligation to describe all feasible mitigation measures, Caltrans has "punted" on this requirement and, in violation of section 15126.4(a)(1)(B) of the CEQA Guidelines, has unlawfully deferred traffic signalization for future consideration. As stated on page 25 of the DEIR, Caltrans has decided to worry about this later: "[h]owever, in the future should there be a need for a signal/pedestrian crossing, the current design does not preclude the opportunity to install a signal." 11

4. Failure to Analyze Reasonable Range of Project Alternatives. In violation of section 15126.6 of the CEQA Guidelines, the DEIR fails to analyze a reasonable range of project alternatives to avoid or substantially lessen the significant traffic impacts associated with the Widening Project. What would seem to be an obvious alternative that should have been addressed in the DEIR is a project design that would have included the installation of one or more traffic signals at the impacted intersections to see if that would have lessened delays and safety hazards by providing the traffic "gaps" necessary to safely make turns onto or off of Ortega. In light of the DEIR's admission that the Widening Project will make it difficult, if not impossible, to turn left onto Ortega from a side street during peak hours because of "extended delays due to a lack of gaps in the through traffic" (p. 90), would it not make sense to study a project alternative that might lessen or alleviate this problem? Would that not be an alternative that would involve the installation of traffic signals similar to what are found on major arterials throughout Orange County? 12

* * *

As a final point, very few of the deficiencies regarding the environmental analysis of the Widening Project that was set forth in the 2007 Mitigated Negative Declaration, which deficiencies were described in detail in the Association's September 4, 2007 letter to Caltrans, have been addressed and corrected in the DEIR. Accordingly, I hereby reiterate those deficiencies regarding visual and aesthetic impacts, air quality impacts, noise impacts, traffic impacts, growth-inducing impacts, and biological impacts by incorporating all of them as objections to the DEIR 13

Very truly yours,

Edmond M. Connor

Notice of Public Hearing

Anuncio de Audiencia Pública

January 14, 2009

6-8 p.m.

Marco F. Forster
Middle School
25601 Camino Del Avion
San Juan Capistrano

For more information about this study, call CALTRANS/
Para obtener más información, llame a CALTRANS:
Attn: Scott Shelley (949) 724-2705

Caltrans District 12
State Route 74 Widening Project
Division of Environmental Analysis
3337 Michelson Dr., Suite 380
Irvine, CA 92612

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Public Hearing, Draft Environmental Impact Report for State Route 74

Anuncio de Audiencia Pública, Borrador del Informe de Impacto Ambiental para la Ruta Estatal 74

The California Department of Transportation will host a public hearing on January 14, 2009 to receive comments related to the Draft Environmental Impact Report for the proposed widening of State Route 74 from Calle Entradero to the City/County Line.

CALTRANS (Departamento de Transporte de California) va a ofrecer una audiencia pública que se llevará a cabo el Miércoles 14 de enero 2009 para recibir comentarios sobre el Informe de Impacto Ambiental en relación con en proyecto propuesto de ampliar la Ruta Estatal 74 (SR-74) desde la Calle Entradero y los límites del la Ciudad y el Condado.

Please Join Us

Wednesday, January 14, 2009, 6-8 p.m.
6:30 p.m. Project Presentation
Marco F. Forster Middle School
25601 Camino Del Avion
San Juan Capistrano, CA 92675

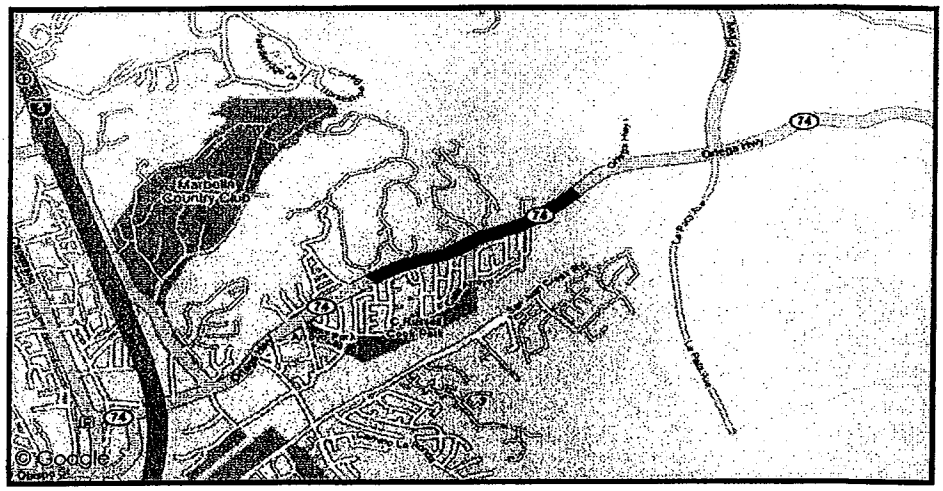
Venga y Participe

Miércoles, 14 de enero 2009, 6-8 p.m.
6:30 p.m. Presentación de la Visión General del Proyecto
Marco F. Forster Middle School
25601 Camino Del Avion
San Juan Capistrano, CA 92675

"Caltrans Improves Mobility Across California"

Public Notice

Draft Environmental Impact Report for State Route 74 Announcement of Public Hearing



WHAT'S BEING PLANNED

CALTRANS (California Department of Transportation) is proposing to widen State Route 74 (SR-74) from two lanes to four lanes from Calle Entradero in the City of San Juan Capistrano to the City/Orange County line.

WHY THIS AD

CALTRANS has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of the project location for most environmental concerns. The report that explains why is called an Environmental Impact Report. This notice is to inform you of the availability of the Draft Environmental Impact Report. In addition, a public hearing is scheduled to discuss certain design features of the project with CALTRANS' staff before the final design is selected. The tentative schedule for the purchase of land for right of way and construction will be discussed.

WHAT'S AVAILABLE

You can look at, or obtain a copy of (fees apply), the Draft Environmental Impact Report at the CALTRANS District 12 Office, 3347 Michelson Dr., Ste. 100, Irvine, CA 92612 on weekdays from 8:00 a.m. to 5:00 p.m. Maps and other information are also available. The Draft Environmental Impact Report is also available for review during regular business hours at:

City of San Juan Capistrano, Planning Services Department, 32400 Paseo Adelanto, San Juan Capistrano, CA 92675. Monday through Thursday - 7:30 a.m. to 4:30 p.m. and Friday - 7:30 a.m. to 4:00 p.m.

San Juan Capistrano Regional Library, 31495 El Camino Real, San Juan Capistrano, CA 92675. Monday through Wednesday – 10:00 a.m. to 8:00 p.m.; Thursday – 10 a.m. to 6:00 p.m.; Saturday – 10:00 a.m. to 5:00 p.m.; and Sunday – 12:00 p.m. to 5:00 p.m.

And online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WHERE YOU COME IN

Have the potential impacts been addressed? Do you have information that should be included? Your comments will be part of the public record. If you wish to make a comment on the report and/or you can not attend the hearing, you may submit your written comments until **January 30, 2009** to CALTRANS District 12 Office, 3337 Michelson Dr., Ste. 380, Irvine, CA 92612-8894 (Attn Scott Shelley) or email to: lower74EIR_D12@dot.ca.gov.

WHEN AND WHERE

A public hearing will be held on:
Wednesday, January 14, 2009
6 – 8 p.m.
6:30 p.m. Project Overview Presentation
Marco F. Forster Middle School
25601 Camino Del Avion
San Juan Capistrano, CA 92675

Individuals who require special accommodation (American Sign Language interpreter, accessible seating, documentation in alternate formats, etc.) are requested to contact Caltrans District 12, Attn: Scott Shelley (949) 724-2705 at least 21 days prior to the scheduled hearing date. TDD users may contact the California Relay Service TTY line at (800) 735-2929 or voiceline at 1-800-735-2922

CONTACT

For more information about this study or any transportation matter, call CALTRANS, Attn: Scott Shelley (949) 724-2705.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: William, Jane, Erin and Brett Emery
Golden Ridge Lane

Comment:

At most times of day it is nearly impossible to make a left turn onto Ortega Highway from the Hunt Club main gate. The flow of traffic from the east is nearly continuous - few breaks occur and when they do, a turn is still not possible due to traffic oncoming from the west side. On many occasions I have waited for more than 5 minutes. I often give up - turn right instead and then make a U turn later or a left turn into a side street and then a right turn back onto Ortega. The problem is intensified every morning as school trucks line up in the left turn lane on Ortega trying to get into the Hunt Club. Since they have the right-of-way, anyone trying to exit the Hunt Club community heading eastward doesn't stand a chance. This dangerous situation causes people to "dart" out with a left turn "cutting it close" many times. A traffic signal is the only way to mitigate this problem and needs to be installed Now before a serious and potentially fatal accident occurs 14

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Roscoe + Dawn Cole

Comment: I feel a traffic light is warranted at the main gate of the Hunt Club. During high peak traffic hours it is almost impossible to get in and out of this community. Our only way in and out of this community is on Ortega Hwy. The steady flow of traffic makes it almost impossible and dangerous to to exit this area.

I saw one horseback rider almost get hit by oncoming traffic trying to cross Ortega. Several times I myself have had to try to Exit Hunt Club Dr. onto Ortega and almost been rear-ended. The steady flow of cars, dump trucks, trash haulers, motorcycles and buses makes it difficult to get out and into the flow of traffic.

A traffic light would give us a safe way in and out. Please consider the importance of this issue. 15

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Shing-Hwa MA & WOEN-RU MA
30772 Steeplechase Dr., SJC, CA 92675

Comment:

We strongly object the widening of 74 Lower Ortega Hwy project and urge Caltrans to install a signal light at the Hunt Club main entrance area. During the past 8 years, we have experienced dramatic increase in traffic on Route 74. Every morning, start up from 6 AM, the cars on Ortega Hwy are non-stop and have created a problem for us to leave the Hunt Club. We have to wait and wait before there is an opening. During the winter time, it is especially dangerous to go out of the community. In the afternoon, traffic starts to build up around 3 PM. Sometimes I have to sit at the left turn area for a long time before it is safe to turn into the gate. We strongly urge Caltrans to install a signal light such that we can leave & enter the gate with a peace of mind.. Safely

16

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: James Richard McEwen / Phone 949/240-0920
30921 Steeplechase Drive, S.J.Capistrano CA. 92675

Comment:
At the January 14th Public Hearing, Caltrans stated that Ortega Highway narrowed from four lanes to two lanes between Calle Entradero and Via Cordova/Hunt Club Drive. In actual fact the width of Ortega is the same from La Novia to 100 ft. ± east of Via Cordova. The lanes are stripped to guide traffic to two lanes to provide for the actual narrowing of the highway just beyond Via Cordova. The decision to widen Ortega from La Entradero east rather than to widen from the actual narrowing point east of Hunt Club Drive is very arbitrary and unnecessary until some future date. If traffic solutions are not found to avoid congestion on Ortega, the widening should be done from east of Hunt Club Drive all the way to La Novia. 17

At the hearing it was stated that studies showed that traffic was insufficient to justify a traffic signal at Hunt Club Drive. In actuality the dangers of accidents with present traffic should warrant a signal before people are killed trying to enter or leave our community. With future traffic it will be impossible to turn left out of or into the communities on the north side of Ortega 18

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: BILL + KIM CHETNEY

Comment:
It is with increasing sadness that the northern communities along the Ortega must shoulder the burden of burgeoning traffic to benefit commuting travelers. With Ortega Highway as our only point of entry and exit, and the impending flow of traffic looming greatly in our future, it seems only fair that a traffic gap created by a signal be installed. Ortega Highway will become a pinball chute, with cars racing to and from the 5, while our neighbors and their families try to dart oncoming traffic to get to and from their homes.

It seems reasonable to assume that with a widening that cars will increase in number, and speed. It seems fair that a light be installed before anyone becomes needlessly hurt, especially when we are being told to accept this dreadful impact on our community. Surely this is a small compromise in the grand scheme of this project.

19

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: DANA CREATH

Comment:
I HAVE LIVED IN THE HUNT CLUB FOR THE PAST FIFTEEN YEARS. I AM TRULY AMAZED THAT I HAVE NOT BEEN IN AN ACCIDENT LEAVING THE FRONT GATE. MAKING A LEFT TURN ONTO ORTEGA HWY. IS A NIGHTMARE. 20

I CANT IMAGINE WHAT IT WOULD BE LIKE IF THE PROPOSED HWY. WIDENING PROJECT GOES THROUGH

Dana Creath
949-661-7737

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: GISELE GERVAIS

Comment: One must exercise great patience and caution in leaving the Hunt Club gate these days. Going east bound is impossible, I either go west bound & turn around at the first signal or delay my trip until I happen to be going east bound.

We built our home in the hopes of enjoying a long quiet peaceful & healthy retirement. Being a daily 'walker' I shudder to think of the impact the fuel emission & dust caused by the heavy traffic will have on my lungs.

In addition to all of the above, we have to consider the tremendous devaluation of our property.

To ensure our sanity & well being I suggest installing a traffic signal at the Hunt Club gate

21

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Thank you

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: PAUL MIKOS

Comment: WITH THE EXCESSIVE TRAFFIC ON THE ORTEGA HWY DURING AM & PM COMMUTE HOURS IT'S IMPOSSIBLE TO MAKE A SAFE LEFT HAND TURN FROM THE HUNT CLUB. TAKING MY GRANDSON TO SCHOOL IN THE MORNING MAKES IT DANGEROUS & IRRESPONSIBLE TO MAKE A LEFT HAND TURN. I MUST MAKE A RIGHT TURN & THEN GO SEVERAL BLOCKS WEST OUT OF MY WAY, TO REVERSE MY DIRECTION & RETURN EASTBOUND. EVEN THEN IT'S DIFFICULT TO TURN BACK ON THE ORTEGA HWY EASTBOUND. WITHOUT A LIGHT AT THE HUNT CLUB GATE, SOMEONE WILL TRY A LEFT HAND TURN & A TERRIBLE & DEADLY CRASH WILL OCCUR. IT IS EVEN DIFFICULT TO MAKE A SAFE RIGHT HAND TURN IN THE AM BETWEEN 6-8 AM.

22

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Kenneth K. Westbrook / [illegible]

Comment:
I urge CalTrans to consider the following:

1. The widening of Ortega Highway will adversely increase risk to those who use it or reside near it. The current configuration (from 4 lanes to 2 lanes) creates a traffic "funnel" that reduces speeds to a safe level and allows for safe traffic flow. 23
2. A traffic signal needs to be installed at the Hunt Club main gate is overdue. Injuries and collisions have occurred and fatalities are imminent.
3. Do not change Ortega Highway nor the area by the Hunt Club main gate to maintain the current look that San Juan Capistrano citizens want and expect to remain as is. 24
4. Other alternatives to route traffic from Ortega Highway need to be pursued. San Juan Capistrano has carried a disproportionate share of multi-county traffic and other options need to be implemented. 25

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Margaret Sinner - Lives in Hunt Club

Comment:

I find it extremely difficult to navigate Ortega Hwy out of the Hunt Club.

Because there is no stoplight it is almost impossible to turn left. Even turning right feels constantly like I'm risking being hit by oncoming traffic. It is extremely dangerous.

During peak hours all of this is exaggerated 20-fold.

I can't imagine how bad it could get if the Hwy is widened.

Please register a "No" on my part.!!!
At least please add a Traffic light!!!

26

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Margie Sinner

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: ANTHONY + CAROLE FIORE
30994 STEEPLECHASE DRIVE, SJC 92675

Comment:
WE ARE IN OPPOSITION OF WIDENING ORTEGA HIGHWAY AND IN THE PROCESS IMPAIRING THE BEAUTY AND RUSTIC ENTRANCE TO THE HUNT CLUB, THE BEAUTIFUL TREES AND HORSE TRAIL. THIS IS ONE OF THE FEW REMAINING NATURAL SCENIC LANDSCAPES AND IT WILL BE DESTROYED UNNESSESARILY. 27

IN ADDITION, DO WE HAVE TO SEE A FATAL ACCIDENT OR SERIOUS INJURY BEFORE A TRAFFIC LIGHT IS INSTALLED AT THE GUARD GATE ENTRANCE ON HUNT CLUB DRIVE AND ORTEGA PARKWAY. RESIDENTS, GUESTS AND CONTRACTORS HAVE TO WAIT 10-15 MINUTES AT TIMES TO EXIT HUNT CLUB DRIVE TO MAKE A LEFT TURN. WE BELIEVE IT IS IRRESPONSIBLE TO WAIT FOR A SERIOUS ACCIDENT BEFORE THIS IS CONSIDERED. WIDENING WILL MAKE AN EXIT CATASTROPHIC. 28

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: CHRISTOPHER STAFF

Comment: Do not widen Ortega here.
The Hunt Club Exit/Entrance is
like a shooting gallery
Garbage trucks cars cycles at
50 mph or more literally makes
exit or left hand entrance a
dangerous turn at all times
Waiting leads to a multi car
backup into the through lane
We need a light or protective
barrier for egress now!!.

29

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Annamaria Reithoff

Comment: We take our 2 young children to school everyday & make a right hand turn out of our subdivision. Even though we currently have a turn lane out, the traffic coming from Antonio & Lasona is driving so fast & cuts into this lane that it makes it almost impossible to pull out safely & we have had several close calls. The same situation exist if coming back into the community in the morning or mid to late afternoon. It's almost impossible to get back into our subdivision, safely - the traffic is heavy & driving fast to cut in front of them to go home is scary & unsafe. At times, the turn lane back into the community is backed up all the way back to the residence gate. When the road, we understand the importance of that & agree but atleast give us a light

30

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so we can safely enter & exit
our Homes & not Have to Lose
our kids parents, grandparents, friends
& neighbors to car accidents because
you Refuse to put in a simple
traffic light. How would you
feel, How would you react if
the Hent club was your Home &
you Had to deal with this &
consider the safety of your family.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Sharon Holdt 30792 Hunt Club Dr SJC

Comment:
I am deeply distressed that Cal-Trans is not even willing to consider a decision to install a traffic light at our main entrance in the Hunt Club. You say there is not enough traffic to warrant a signal at that site but there is enough to totally devastate our beautiful entrance by widening the Ortega and yet there is to widen it and install horrible looking sound walls — 31

yes, I do have trouble pulling out. I have a friend on the other side of the Ortega that I pick up for meetings quite often and she me. We joke about playing "frogger" to get across. A light would help this and still maintain the beauty of this area. 32

One thing that concerns me is that I never hear any comments about what to do 33

(over)

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about all the traffic that uses this road from Riverside county on a daily basis to work in OC. Is this not a regional problem? Why should the alleviation fall on the backs of a small group of San Juan residents. 33

Garbage trucks are another problem. The county is working it's way out of the bankruptcy — do we still need to take trash from other counties? 34

Would the need to widen the Ortega still exist if there were not going to be more houses built out on the Ortega East of San Juan? 35

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Patty Collin

Comment: San Juan Capistrano is not only a treasured historical city, but also, one that is unique to any other. Over the years, our community has been dedicated to maintaining the early California character of the town by maintaining Spanish architecture, open space, hillside crestline, horse trails and many activities that celebrate the history of San Juan Capistrano's Mission and early California settlers.

To widen the Ortega would change the whole character of our town that we have worked so hard to preserve.

California schools have acknowledged SJC as a perfect field trip for the fourth grade curriculum. Many tourists enjoy our town.

36

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The Ortega started as a country road and still gives the feeling, upon entering the city limits, that you are in a pastoral setting.

All this could be lost if the Ortega is widened.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Steve & Glenda Wilson

Comment:
Making a right or left turn out of the Hunt Club is precariously possible because most of the westbound traffic on the Ortega remains in the left lane as Ortega progresses from a single to a double lane. In addition, the speed limit (40mph) is strictly enforced by motorcycle officers.

If the Ortega is widened to 2 lanes in both directions, a left turn out of the Hunt Club, across 2 lanes of oncoming traffic in both directions would be almost impossible and highly dangerous.

Likewise, eastbound drivers attempting to turn into the Hunt Club would have to cross 2 heavily-filled lanes of oncoming traffic. I have witnessed several nearly-missed head-on collisions when drivers were entering or exiting the Hunt Club during my nine years as a resident.

If the Ortega must be a continuous 4 lane highway with probable speeds of 45-50mph, there must be a traffic light installed. ~~If it takes a serious accident or~~ 37

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I hope it doesn't take a serious accident death to convince CalTrans that we need a light. Please do not be short-sighted or negligent in this matter.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: James McEachern 30592 Steeplechase Drive

Comment:

1. Saint Margaret is a school with pre-school children and up-to high school children. It is right at Route 74 and La Novia Ave. It will be unsafe for the children to have a 4-lane freeway at the corner of their school. 38

2. If widen, more cars will come through and will also creating more pollution and noise for the school and children. As it is, drivers are speeding on this 2-lane road. The number of speeding tickets issued at this part of the road is countless. It will be improbable for cars to slow-down if widen. 39

3. San Juan is a small historical town with a 200 plus year old San Juan Mission at the heart of town that needs much protection. Widening will destroy the small historical town feel and the mission with noise and pollution and harsh energy and vibration to this small quaint neighborhood town. 40

4. It is difficult to leave the community of Hunt Club at certain time of the day and a traffic light is much needed. It will also help slow down the speeding drivers which will help relieve the cops having to be there writing up numerous tickets each day. 41

5. This is a peaceful neighborhood. The heart of San Juan is historical and quaint. We ask for help to please keep it that way. 42

6. We need to be more green... not cut down trees along the road and that would be the result if the widening project goes through. 43

NO, Widening Route 74!

Please help. Thank you.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Helen Lee 30592 Steeplechase Dr.

Comment:

Please
See back.

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3. San Juan is a small historical town with a 200 plus year old San Juan Mission at the heart of town that needs much protection. Widening will destroy the small historical town feel and the mission with noise and pollution and harsh energy and vibration to this small quaint neighborhood town. 44

4. It is difficult to leave the community of Hunt Club at certain time of the day and a traffic light is much needed. It will also help slow down the speeding drivers which will help relieve the cops having to be there writing up numerous tickets each day.

5. This is a peaceful neighborhood. The heart of San Juan is historical and quaint. We ask for help to please keep it that way.

6. We need to be more green... not cut down trees along the road and that would be the result if the widening project goes through.

NO, Widening Route 74!

Please help. Thank you.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Chad Foster

Comment:

This letter is a short summary on what will happen if the proposed plan from Caltrans becomes approved

We would Lose an estimate of 8-10 feet of runway (not driveway...this is the only processing and investigative center for the entire Hunt Club Community). This runway is where we investigate, process, deny (for security proposes), and identify guests and residents entering into the Main Gate. This driveway can now only accommodate at best three vehicles. If the proposed plan takes effect... My staff we not have any room to do our jobs. The investigate process on finding out information on every single vehicle will be impossible to accomplish. There are so many variables to this... Including one fact that we are contending with a Major California Highway using only one lane with no traffic signal to slow down aggressive vehicles trying to cross oncoming westbound traffic sometimes waiting up to five or more minutes to wait for a break in the oncoming westbound Ortega Highway traffic, darting residents and guests into our already crowded three car processing runway

A field interview with me on this matter might be more helpful if this email cannot visually give the idea on how impossible this is

If you have anything to ask please feel free to see me at The Main Gate or call 949.493.7332

Thank you

Chad Foster
Post Commander
Hunt Club Main Gate Security

45

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: WAYNE FLYNN

Comment: I HAVE worked at the Hunt club Front gate for almost Five years And watched close call after close call with people coming home After work And when they leave for dinner.
Drivers on ortega Hwy. Drive very fast And Dont slow Down because you want to Turn left or Right A Signal would help Make people stop and wait.

Please Dont Widein Ortega We can only get Three cars in are gate lane Now Maybe a Semi Truck, if you widein ortega We Wont have Room for Semi trucks They Will Stick out on ortega and block Traffic Both Directions.

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February 13, 2009

Attn: Scott Shelley
CALTRANS: District 12
3337 Michelson Drive Ste. CN-380
Irvine, CA 92612

SENT VIA EMAIL AND FEDERAL EXPRESS

RE: Ortega Highway Widening Project DEIR Comment Letter

Dear Mr. Shelley:

Our firm was hired to represent the Hunt Club Community Association (Hunt Club), to review the Ortega Highway Widening Project (Project) Draft Environmental Impact Report (DEIR), coordinate with the California Department of Transportation (Caltrans) and the City of San Juan Capistrano (City) regarding potential project impacts and community concerns, and to work with all stakeholders to address those concerns. The following are our comments on the DEIR for the Project.

I. The DEIR Contains an Inaccurate and Inadequate Project Description Which Fails to Provide Meaningful Information on the Scope, Nature or Environmental Impacts of the Proposed Project and Contains Mitigation Measures Which May Not be Feasible.

To date, despite our best efforts to interact with agency officials at Caltrans and the City, and despite several Public Records Act requests, correspondences, telephone conversations, meetings and appearances at public hearings, we have been unable to obtain any information requested[1].

It is and continues to be our position that without being able to review the highway survey (a public record as duly noted in the attached Caltrans correspondence[2]) and full sized, scalable project plans, it is impossible for anyone to ascertain the full project description/scope or analyze the potential for or severity of project-related impacts on an individual or cumulatively considerable basis. 1

The DEIR contains only reduced size, non-scalable project plans which are so busy in detail and at the same time so nondescript (lacking specificity and/or clarity with "call outs") as to be functionally indecipherable. For example, in the area between Calle Entradero and Palm Hill Drive (Hunt Club vicinity) it is impossible to ascertain the existing roadbed parameters and those proposed by the project, or where the existing sidewalks are located vis-à-vis the proposed improvements. The plans note that the sidewalks on the South side of the highway are being removed but the plans do not note where the new curb and gutter or sidewalks will be located (relocated); hence, the future

road bed width and makeup cannot be ascertained from the plans. The term "Right of way" ("ROW") on the reduced project plans (see including but not limited to, e.g., sheet L-2 of CA DOT Project Layout dated 9-30-2007 prepared by Bruce Smith) is used very generally and it is often unclear whether that term refers to City ROW or Caltrans ROW and it is similarly unclear whether the ROW is existing (dedicated) or proposed (planned).

Right of way details are critical to ascertaining not only project parameters and impacts but also to determine which public agency must and will carry out adopted EIR mitigation measures; specifically, Section 83 of the California Streets and Highways Code requires that Caltrans conduct all highway maintenance for improvements within its right of way. It is therefore critical for purposes of project implementation, maintenance and mitigation implementation to determine the precise highway boundaries in accordance with sections 83 and 233 of the California Streets and Highways Code.

The DEIR is fatally flawed in this respect in that Caltrans acknowledges its own failure to specifically locate the precise boundaries of the highway. Specifically, Caltrans has acknowledged that the project plans are "*preliminary*" and "*...only meant to give a general idea of the highway boundary*."[3] (Emphasis added). The project description is thus inadequate due to the fact that it is has no definite parameters or scope and it is thus similarly impossible to determine which agency will be responsible for carrying out mitigation measures and maintenance if the highway boundaries are indeterminate in location; moreover the plans are misleading insomuch as they purport to show "details" for grading, drainage, sidewalk removal, curb and gutter, etc. These types of details are indicative of working drawings hence the plans that Caltrans includes in the DEIR connote that the plans are "final" or determinate in nature contrary to statements made in the March 14, 2007 email[4]. 1

In addition to the fact that the ROW information and project parameters are unascertainable, earthwork and topographic impacts are impossible to analyze given the size of the plans (11" X 17" depicting 1' contour intervals at an approximate scale of 1" to 95'). Moreover, the reduced plans purport to be scalable at 1" to 50'. Perhaps the original reduced sized plans (of unknown original plot size) were at that scale although the reduced grading and drainage plans in the DEIR clearly are not. 2

The plans in the DEIR, ***purporting to be to scale*** thus provide false information and are misleading. Several large retaining walls are proposed alongside the highway edge for which grading is required. There does not appear to be any discussion of grading 3

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[1] See attached Public Records Act Request from Schmitz & Associates, Inc. to Caltrans Dated 12.17.2008, and Cal Trans Responses thereto dated 12.23.2008 and 2.5.09 as well as Schmitz & Associates, Inc. subsequent response to Caltrans dated 1.13.2009 all of which are incorporated herein by reference and included with this public comment letter and intended to be submitted for inclusion in the Administrative Record for the Project.

[2] March 14, 2008 Email correspondence from Allen Shahood to Hunt Club resident Lennie DeCarro; a verbal response to a Public Records Act Request (No Document Production).

[3] Id.

[4] *Id.*

impacts, air quality impacts, or temporary construction impacts associated with those construction activities and the physical location of those improvements (along with the height and design of the retaining walls) cannot be ascertained if the project plans are "transient" in nature as indicated by the March 2008 correspondence[5]. 3

What can be ascertained from the reduced plans is that Caltrans will need to obtain additional right-of-way (via Eminent Domain) from the Hunt Club in order to complete grade transitioning from the highway into the Hunt Club premises. It is not clear from the reduced plans whether this can be feasibly accomplished while maintaining a reasonable and code compliant access way gradient and/or without requiring the demolition and relocation of the gatehouses at both Hunt Club Dr. and Calle Entradero. Additionally, the DEIR does not indentify the size or location of those "sliver parcels" that will need to be acquired by the State via eminent domain; rather Caltrans merely notes the *number* of parcels to be acquired. This information is needed to provide a complete project description. 4

Additionally, as noted in the Hunt Club's previous comment letter[6] on the prior MND, the Project Description remains inadequate as the DEIR continues not to analyze the project as a "whole". The improvements to SR-74 in the Unincorporated Orange County Area have not been evaluated properly as part of the entire project and the impacts (e.g., traffic) occasioned by the whole of the action have not been studied but rather said analysis has been piecemealed. The July 18, 2008 Austin Faust Traffic Report notes on page I-3 of that report that "Several recent studies have relevance with respect to this project [Ortega Highway Widening Project]." The report then goes on at page I-6 to reference the environmental study for the pending I-5/SR-74 Interchange Project noting that the interchange "...project report and accompanying environmental documentation are currently nearing completion". The DEIR and traffic study hence both draw ultimate conclusions with respect to project impacts direct and cumulative without considering all relevant environmental information. The Environmental assessment for the interchange and the impacts that project will have on traffic flows eastbound from then interchange onto Ortega Highway are integral to proper environmental assessment. Additionally, the Interchange Project is yet another example of unlawful project piecemealing and that project should be analyzed in the same environmental document. 5

II. The Project Will Have Significant Impacts on Traffic and Pedestrian and Bicycle Safety Which Have Not Been Analyzed in the DEIR

A. Stacking & Turning Safety 6

Additionally, it appears that the highway widening proposed will create stacking problems on the highway for vehicles entering the Hunt Club at both Calle Entradero and Hunt Club Dr. This will create a significant traffic safety concern as traffic both enters

[5] *Id.*
[6] September 4, 2007 letter from the Rutan Law Firm on behalf of the Hunt Club

and exits the Hunt Club from SR-74 in both eastbound and westbound directions. This issue has not been addressed in the DEIR.

Upon review of an existing survey (per the Hunt Club Tract Map and Entitlement Materials) it appears that the gate houses at both Hunt Club Dr. and Calle Entradero are currently set back approximately fifty feet (50') from the current edge of pavement for the highway. Hunt Club security guards, as well as many of the Hunt Club residents, have advised us that there is an existing stacking problem at both entrances to the Hunt Club Community from vehicles entering the community at Hunt Club Dr. and Calle Entradero from the highway. It is axiomatic that the widening of the highway will reduce the current gatehouses' distance from the Highway and further exacerbate these stacking issues for vehicles turning into the community from the highway. Traffic will then "back up" on the highway (especially during peak hours when residents and their guests are waiting to enter the community at the guard gate) and this situation will in turn create a greater risk of traffic accidents occurring along the highway for those vehicles stopped "waiting in line" in the through/right turn lanes to enter the community. 6

This risk is especially significant coupled with the fact that the road widening project is projected to significantly increase the average flow of traffic and speed (and number) of vehicles traveling the highway in this vicinity. The DEIR states that the current Level of Service (LOS) for the highway in this area (Via Cordova/ Hunt Club Dr.) is already at level "E" in the morning peak hour and level "D" in the evening peak hour (i.e. relatively slow). Post-Project levels of service are expected to increase to a "C" level per the DEIR. This is of course good for the overall flow of traffic; however, the Project will increase the risk of traffic accidents for the aforementioned stacking reasons. The DEIR notes some statistics on currently "reported" traffic accidents in the vicinity (baseline conditions only). However, the DEIR does not specifically consider what impact the increased speeds and volume will have on the subject intersections, nor does the DEIR assess the Project's safety impacts from reducing the lengths of the existing off-highway stacking areas at the above-referenced two intersections. 7

Vehicles travelling on the highway (post-project) will be travelling at higher rates of speed and consequently will have less reaction time to either stop or slow down when approaching vehicles turning in or out of the Hunt Club Community and surrounding communities. After project construction, left turns out of the SR-74 adjacent communities onto the highway will be lengthened (both physically and temporally) and average highway traffic speeds will increase. Left turns onto the highway will no longer be safe without signalization and other mitigation measures (see infra below). The EIR should evaluate these impacts and consider whether, in addition to traffic signals (discussed infra), designated deceleration and/or acceleration lanes will be needed to avoid these significant impacts. 8

Currently the project description and plans do not make it clear what the "post-project" lane configurations will be at the ingress/egress points to the Hunt Club or elsewhere 9

along the portion of the highway being improved[7]. The DEIR project description is fatally flawed in this respect in that it is necessary to have lane configuration information on a highway widening project in order to assess whether post- project traffic flows will be safe and efficient. 9

In sum, with increased speeds as well as the growth-inducing nature of the highway expansion, longer and additional stacking lanes will be needed to allow through traffic and turning traffic to operate safely and independently of one another (for right turns). The DEIR is silent in addressing this significant impact and providing mitigation measures therefore. There is no analysis of the direct, indirect or cumulative project impacts in this respect in the DEIR. 10

B. Bicycle Safety

The DEIR notes that Class II bicycle lanes will be provided within the shoulders of the highway[8]. The Cal Trans Highway Design Manual (HDM) requires (per Figure 1003.2(A) attached) that 5 foot bike lanes be provided with a minimum of 3' dedicated to the bike lane exclusive of curb and gutter width. The DEIR does not clearly describe how wide the gutter/drainage will be and hence does not evaluate whether a Class II bike lane could fit within the proposed highway shoulders on each side of the motorway. Additionally, 1003.2(4) of the HDM specifies that Caltrans should consult directly with local agencies to determine whether bike lanes are safe and appropriate near interchanges. Cal Trans has planned this Class 2 bike lane to provide access to local schools located to the West of the I-5 interchange. The City should be consulted on this project aspect and involved in the decision making process per Cal Trans regulations. Currently the bike path plan is not in conformance with these regulations and Cal Trans has not evaluated with the City the potentially significant impacts occasioned by the bike path in the vicinity of the interchange. Additionally, Caltrans asserts that the path is in conformance with the San Juan Capistrano General Plan and promotes the policies therein regarding multi-modalism; however there is no identification of these polices nor any analysis of the project conformance with those policies. The DEIR utilizes circular reasoning and has no meaningful analysis and posits no identifiable significance thresholds for this issue. It should be noted that there are no existing or planned bike paths (locally planned) to the east or west of the project along or adjacent to the highway; hence, this bike path appears to be a path to nowhere. Caltrans should coordinate with the City as required by its own HDM and revise the DEIR to establish appropriate significance criteria and conduct adequate issue analysis which also takes into account additional safety issues posed by the I-5 interchange project. 11

[7] The DEIR does mention generally lane configurations; however those configurations change along the highway with dedicated turn lanes and locations where medians and sidewalks narrow, etc. A plan depicting lane configurations is needed in the EIR for all stretches of highway being improved. Accurate curb and gutter details and locations should also be provided along with shoulder & bicycle lane delineations depicting how all improvements will fit within the existing right of way/ highway boundaries.
[8] Page 90 DEIR

C. The DEIR's Significance Analysis of the Need for Traffic Signals is Insufficient, Inaccurate and Misleading and Requires Further Analysis

The DEIR acknowledges that **left-turn traffic out of the adjacent residential communities** (on the South side of SR-74) **would experience "extended traffic delays due to a lack of gaps in the through traffic."** The DEIR acknowledges this as a **significant impact** and notes that the project is "providing east bound left-turn lanes at unsignalized intersections to allow vehicles to turn right onto eastbound SR-74 and complete a U-turn at the next available intersection.[9]"

First, it is important to note that communities on the north side of the highway (Hunt Club) have the exact same problem as those on the south side of SR-74 in that there will be extensive left turn times across the highway (failing LOS). This issue is not limited to those communities on the south side of the highway turning left onto SR-74 westbound; therefore the DEIR is inadequate in that it does not analyze the impacts of left turn traffic out of the Hunt Club and other communities that are located to the north of the highway (i.e., traffic turning left onto eastbound SR-74).

Second, the notion that a right turn, followed by at least two lane changes, followed by a U-turn (to replace a single left turn) is a safe and adequate mitigation measure to avoid failing wait times and left turn hazards, is astonishing and unacceptable. U-turns in and of themselves are the single most dangerous turns on highways; similarly, the concept of multiple lane changes and turns as a substitute for a single turn is counterintuitive. Moreover, the DEIR makes it clear that the U-turns will occur at similarly situated "unsignalized" intersections. The DEIR does not specify where these U-Turn/ Left Turn lanes will be located. Presumably, these unlocated and unsignalized intersections allocated for U-turns will be dealing with the same safety issues as those drivers beginning left turns from the north or south onto the highway (same wait times for turn completion) only the U-turn drivers will be facing **head-on traffic** as opposed to cross-traffic. I.e., providing U turn lanes will not mitigate the identified significant impact and is in fact an inferior and more dangerous alternative. Utilization of these unsignalized "U-turn" intersections is inappropriate and legally inadequate as project mitigation measures as they have not been specifically identified or studied for safety. It is foreseeable that encouraging U-turns at unsignalized intersections on a State Highway (55-60 MPH under normal driving conditions[10]) will lead to additional accidents and likely fatalities. It should be clear that this is not accepted practice for Caltrans on State Highways and has been noted by previous traffic engineers to be unacceptably dangerous and inadvisable as a mitigation measure[11]. This particular mitigation measure creates a significant impact and actually exacerbates the problem created by the project.

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[9] Pg. 90 Ortega Widening Draft Environmental Impact Report (DEIR)

[10] See Project Mitigated Negative Declaration 2-40 and underlying Traffic Report (Austin Faust 11.2.2006)

[11] See Comment#21 pages 7-8 in the Minagar Traffic Report prepared for the City of San Juan Capistrano (MND) for the proposed project. Said Report is attached hereto for incorporation into the record and the Hunt Club wishes to incorporate by reference herein all comments and questions raised in that prior report as the Hunt Club believes that many of those questions have yet to date gone unanswered.

Clearly, traffic signals are needed at several of these currently unsignalized intersections to avoid significant impacts. The DEIR states that "A Highway Capacity Manual (HCM) delay analysis was carried out for turning movements to and from SR-74 to six side streets (unsignalized intersections).[12]" The DEIR then goes on to state that "The side street delay analysis assumed certain gap acceptance parameters and may not be representative of actual conditions or driver behavior at individual locations [calling into question the usefulness of the model]. HCM values are accepted practice for comparative purposes when an intersection LOS (delay of less than 50 seconds per vehicle) is being evaluated.[13]" Here, the DEIR makes it clear that for any intersection which has more than a 50 second delay time, the HCM delay analysis (assumedly the objective threshold criteria) is inapplicable. Out of the 6 intersections studied, 4 of those had worse than a 50 second existing delay time for turns. Both ingress/egress points to the Hunt Club Community exceeded the 50 second delay time and therefore the HCM delay analysis was found to be inappropriate significance criteria. The DEIR, having disclaimed the HCM as the appropriate threshold criteria, does not provide any information regarding any alternative threshold of significance criteria to be utilized. The DEIR is fatally flawed in this respect as it does not provide any meaningful information, study, or objective analysis at all as to how the potential for impacts at these intersections was studied and analyzed. In fact, while Tables such as 2.1.5-1 in the DEIR describe baseline conditions and future conditions and analysis for the highway Levels of Service (LOS), no analysis seems to have been conducted analyzing what affect increased traffic and speeds might have on the currently unsignalized intersections along the highway servicing these large rural-residential communities. 13

As stated previously, it appears that, *without reference to objective or scientific significance criteria* (A common problem throughout the DEIR), Caltrans found that there would be a significant impact to left turn traffic crossing SR-74 heading west towards Interstate 5. This begs this question what significance criteria, if any, was utilized to reach this conclusion and if objective significance threshold criteria was utilized why was it not applied to left turn traffic from the Hunt Club community heading eastbound on SR-74? No threshold is provided to assess traffic safety concerns at those intersections and increased traffic and speeds are not analyzed. The DEIR simply states that the unsignalized intersections along the highway did not meet the "signal warrants;" however, this appears contrary to several comments in the Minagar August 23, 2007 Traffic Report (MND). The Minagar report states on page 8 (pgh#24) that signals **are warranted in 2030 projections at both the Via Cordova (Hunt Club Drive) and Avenida Siega intersections**. The DEIR must assess whether the road widening will result in future direct or cumulatively considerable impacts and the DEIR must provide an objective scientific standard for making this significance determination; the document is currently silent in this regard. Currently, there appear to be no discernable legitimate significance criteria in the entire traffic section (violative of CEQA). The DEIR only states that Caltrans has not adopted formal significance criteria[14]. While that may be true, 14

[12] Page 87 DEIR pgh 2 (Traffic Section)
[13] Id. At 87.
[14] See page 31 of the DEIR which expressly and inappropriately disclaims the need for applying significance thresholds in an EIR for highway improvements as follows: "The Department [Caltrans] has

this does not relieve Caltrans from its duty to conduct a thorough and informative analysis with scientifically established, objective significance criteria. Those criteria must be clearly explained in the DEIR and the analysis must be clear and well-reasoned. 14

D. The DEIR Fails to Consider the CIP Cue Projects Such as the Signalization of Avenida Siega in its Traffic Impacts Analysis

CEQA requires that all foreseeable projects and future project conditions be analyzed in order to accurately assess the individual direct, indirect and cumulative project impacts. The City of San Juan Capistrano has made all appropriate or required legal findings and has currently established a plan and set aside money for the construction of a traffic signal at the intersection of avenida siega and SR-74. Enclosed please find a copy of the City of San Juan Capistrano's Capital Improvement Program (CIP). The CIP states as follows,

"The projects included in the CIP reflect the highest priorities of the City of San Juan Capistrano. Projects required for public safety and the protection of the City's existing capital improvements are of the highest priority. Projects which further expand or extend existing capital improvements according to approved plans are also priorities. **These priorities are established based upon a review of deficiencies in infrastructure** as conducted by City staff, and with the input of the commissions, boards and committees established by the City Council." [Emphasis added). 15

TRCP 44 allocates funds for the installation of a 4 way traffic signal at the intersection of Ortega Highway and Avenida Siega. The DEIR traffic study and traffic analysis fails to take into account the impact that this traffic signal will have on traffic conditions when the project is completed and in future (2030) conditions. The construction of this signal will impact the project baseline and future baseline conditions and will impact the LOS for the highway. Additionally, there are several other traffic/safety improvement projects identified in the City's Traffic Congestion Relief Program (TCRP) and the CIP which are proposed along SR74 (project portion or adjacent thereto). These projects must all be considered when evaluating project traffic impacts and current and future levels of service along the highway[15].

The traffic study should be modified and the DEIR updated and recirculated to reflect the appropriate baseline and future conditions for accurate impact assessment; the current DEIR is inadequate in that it lacks this assessment.

III. The DEIR Does Not Adequately Address Temporary Construction Impacts 16

A. Temporary Construction Noise Impacts Are Significant and Unavoidable

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not adopted thresholds of significance pursuant to CEQA. As a statewide agency covering diverse geographic areas, the Department has, as a matter of policy, left the determination of significance to District PDT... The term 'thresholds of significance" is not used for projects on the State Highway System."

[15] See specifically 2004-2011 San Juan Capistrano CIP (attached) and see specifically CIP#s 109, 134, & 141; TRCPs# 14, 15, 16, 21, & 44* all projects having an impact upon the project segment of SR74.

The DEIR utilizes unreasonable significance criteria for significance assessment with respect to temporary noise impacts. The DEIR continues to utilize the Cal Trans Sound Control Requirements as significance criteria. The Cal Trans manual specifies that construction noise shall be kept below 86 DBA (according to Caltrans anything higher constitutes a significant impact). Cal Trans does not explain why this threshold of significance is appropriate or how it was derived (reasoning/science behind the standard).

First, this is a flawed and unreasonable significance criteria for noise impact assessment given that the standard is completely arbitrary and does not account for the normal baseline environment prior to construction. In many cases the baseline environment could be a DBA of 40, 50, 55 etc. The significance of the noise impact can only be reasonably measured or determined relative to existing baseline conditions and the Caltrans threshold does not account for this. The standard threshold of significance in most jurisdictions in California is an increase of 3DBA over baseline (after mitigation or without mitigation) as a 3DBA increase over baseline represents a doubling in the noise volume (inherently significant). Thus, Caltrans' purported significance criteria is wholly unscientific, arbitrary, and unreasonable and grossly deviates from accepted practice without explanation or logic.

Second, even utilizing this significance threshold of 86DBA max, the DEIR demonstrates that there would be significant impacts; specifically, the DEIR notes on page 208 that temporary construction noise can reach up to 89 DBA. The DEIR notes on the same page that "The worst-case composite noise level at the nearest noise sensitive receptor during this phase of construction would be **91 DBA lmax** (at a distance of 15 Meters [50 feet] from an active construction area." [emphasis added]. Hence, even under Caltrans adopted significance threshold of 87 DBA max the project will have significant unmitigated impacts. Clearly, there is no analysis in the DEIR whereby (other than citing to the threshold requiring a lower DBA) Caltrans explains how they intend to limit forseeably high noise levels during construction from sensitive receptors. It should be noted when considering the reasonableness of the 87 DBA significance threshold that Jackhammers have a DBA of 75-85 DBA at 50 ft. from the activity; especially given that several residences/ sound receptors are located within 50' of the highway. Hence, Caltrans' has determined (again, without explanation) that a jackhammer operating 50' away from someone on their back porch drinking lemonade is a reasonable sound impact upon the neighborhood; hence non-significant. Caltrans needs to utilize *a reasonable, objective, and scientific significance criteria* when analyzing temporary noise impacts and provide reasoned and useful information on available mitigation measures. Simply citing to an unreasonable and obvious self-serving regulatory policy without more is clearly violative of CEQA. 16

B. <u>The DEIR Inappropriately and Unlawfully Defers Analysis and Mitigation of Temporary Traffic Impacts</u> 17

The DEIR states in Section 2.1.5.3 in a conclusory manner that temporary impacts to Traffic both pedestrian and vehicular will occur during construction although these impacts are not discussed or analyzed nor are significance thresholds and analysis provided. This entire section provides no factual information and concludes by stating that "...with implementation of a TMP [Traffic Management Plan] (described in section 1.5.1.13, construction), temporary impacts to traffic and pedestrians would be reduced to less than significant." Section 1.5.1.13 merely describes what a TMP does and does not reflect any actual plan or established mitigation. Caltrans is unlawfully deferring mitigation under CEQA. It should be noted that Caltrans was made aware of this issue in past comment letters[16] and has not conducted any analysis in the DEIR regarding the same. 17

C. Construction Fencing is Proposed on Private Property Effecting a Temporary Taking and Interfering with Pedestrian and Equestrian Circulation Creating a Significant Impact That is Not Addressed in the DEIR

Brief review of the reduced site plans for the project show temporary construction fencing located outside of the proposed and future right of way (on private property owned by Hunt Club residents from Calle Enterado all the way past the Hunt Club Community boundaries and on towards the East). Caltrans may not erect structures on private property as such without the permission of these residents or without proper due process of law. The errection of the planned construction fences constitutes a physical occupation of private property without due process (a taking). Notwithstanding that important issue, it is unclear why the fences need to be placed so far to the north of purported highway boundary. Additionally, the fences would block the "private" equestrian trail and would deprive the residents of the Hunt Club subdivision of the use and enjoyment of their easement hence further depriving the property owners of their property rights without due process of law. The plans must be revised to omit any and all temporary construction fencing outside of the Public's right of way. The Hunt Club is willing to meet with Caltrans to discuss the same and would appreciate be consulted with prior to Caltrans making such plans and appropriating such property for public use. 18

III. **The DEIR Public Comment Period Should be Extended to Provide for a Meaningful Opportunity for Public Participation and Interaction with Lead Agency Officials** 19

At the core of CEQA is the importance of public participation.

[16] Page 3 (Under Section (B) of the Chatten Brown MND Comment Letter dated 2.14.08, proffered by the City of San Juan Capistrano.

"[T]he privileged position that members of the public hold in the CEQA process is based on a belief that citizens can make important contributions to environmental protection and on notions of democratic decision making. **CEQA compels an interactive process of assessment of environmental impacts and responsive project modification which must be genuine**. It must be **open to the public**, premised upon **full and meaningful disclosure**. In short, a project must be open for public discussion and subject to agency modification during the CEQA process. This process helps demonstrate to the public that the agency has in fact analyzed and considered the environmental implications of its action." Concerned Citizens of Costa Mesa, Inc. V.3 Dist. Agricultural Assn., 42 Cal.3d.929, 936 (1986).

To date there has been a dearth of meaningful and substantive communication with the public on this project by the lead agency. Additionally, the DEIR itself does not provide the public with enough information for the public to be adequately informed or to demonstrate that the lead agency has made a reasoned effort to analyze the project's impacts. Until such time as Caltrans conducts open, public and *interactive* public meetings to discuss the project, and until such time as Caltrans provides simple project plans (basic project information) for purposes of discussion and analysis, any action on the EIR is premature and inappropriate. 19

Hunt Club shares the concerns articulated in City's February 14, 2008 correspondence to Cal Trans[17]; namely, that the "public" meetings held to date have been highly ineffective in providing the public with answers or information on the scope of the project. Additional scoping meetings are needed with "question and answer" sessions being handled by a single project manager/facilitator rather than by directing the public from booth to booth to speak with various department heads that more often than not simply refer the public back to another Department or worse yet (and often) back to the text of the DEIR. Clearly this is an ineffective format as noted by the City and one that is inconsistent with the provisions of CEQA. It should be noted for the record that Cal Trans held an additional public hearing on January 14, 2009 and ignored previous pleas from the City to modify this ineffective format.

The Lead Agency should conduct additional study and analysis that takes into account the concerns articulated herein and should revised the DEIR accordingly and recirculate the same for public review. Of particular concern to the Hunt Club is the need for Cal Trans to provide safe pedestrian and vehicular ingress and egress across and onto the highway from its community. This would include signalizing the intersections at SR-74 and Hunt Club Dr. as well as SR-74 and Calle Entradero. Signalization of these intersections would provide adequate mitigation for the previously articulated significant impacts and would also avoid significant impacts to community character and preserve the rural residential feel of the neighborhood. 20

[17] February 14, 2008 Letter from Chatten, Brown & Carstens on behalf of the City of San Juan Capistrano

We look forward to your responses and thank you for your time and consideration in this matter.

Best Regards,
Schmitz & Associates, Inc.

Christopher M. Deleau
Special Projects Manager

CC:

Hunt Club Community Association

San Juan Capistrano City Council

* Note: A duplicate request was also submitted via email by Amy Ablakat on December 19, 2008.

December 17, 2008

Ms. Tracey Lavelle
CALTRANS: District 12
3337 Michelson Drive Ste. CN-380
Irvine, CA 92612

RE: **STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING PROJECT**

REQUEST FOR PUBLIC RECORDS PURSUANT TO THE PUBLIC RECORDS ACT (California Gov't Code § 6250-6268)

Sent Via Facsimile and E-Mail

Dear Ms. Lavelle,

State agencies are covered by the California Public Records Act (PRA), which provides that all records are open for inspection and copying. §§ 6252 (a) and 6253 (a). Records include "any writing containing information relating to the conduct of the public's business, prepared, owned, used or retained by any state . . . agency regardless of physical form or characteristics."

Pursuant to § 6253 (b) upon a request for a copy of records the state agency "shall make the records promptly available to any person upon payment of fees covering direct costs of duplication, or a statutory fee if applicable. Upon request, an exact copy shall be provided unless impracticable to do so."

Pursuant to this correspondence we are requesting immediate access and exact copies of the following:

1. **True and correct copies of any and all conceptual project site and grading plans** (in full size and scaleable format)

2. **A true and correct copy of the Base Land Survey for the project.**

3. **A bound copy of the DRAFT Environmental Impact Report (DEIR)**

A written response to this request is expected within 10 days pursuant to §6253(c). In addition, please provide the amount of fees necessary for the duplication.

SCHMITZ & ASSOCIATES, INC.
PROVIDERS OF LAND USE PLANNING FOR A BETTER COMMUNITY

HEADQUARTERS - MALIBU OFFICE
29350 PACIFIC COAST HWY., SUITE 12
MALIBU, CA 90265
TEL: 310.589.0773 FAX: 310.589.0353
EMAIL: INFO@SCHMITZANDASSOCIATES.NET

REGIONAL - CONEJO VALLEY OFFICE
5234 CHESEBRO ROAD, SUITE 200
AGOURA HILLS, CA 91301
TEL: 818.338.3636 FAX: 818.338.3423
WEBSITE: WWW.SCHMITZANDASSOCIATES.COM

Thank you for your time and consideration regarding this matter, and please do not hesitate to contact us should you have any questions or comments.

Sincerely,

SCHMITZ & ASSOCIATES, INC.

By

CHRISTOPHER DELEAU,
Special Projects Manager

Appendix B

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PUBLIC RECORDS ACT REQUEST

ADM-3003 (REV 3/2004)

Instructions:

1. This form is used only for those requests for public records which are made pursuant to the California Public Records Act (Government Code sec. 6250 et seq.). Requests for personal information concerning employees, agents, or customers of the Department are subject to the Information Practices Act (Civil Code sec. 1798 et seq.) and should be submitted on Form ADM-0028 (Record Disclosure Request).

2. Use of this form by public individuals is voluntary. Public Records Act Requests may be submitted in person, by letter, email, fax or telephone. If such an alternate method has been used, this form should be completed by the person responding to the request and the original request must be attached.

3. Copies of records may be provided to the requester after reproduction costs have been paid. Instructions for determining cost and for making payment are on the reverse.

REQUESTED BY Christopher Delcau
NAME (typed or printed) TELEPHONE

5234 Chesebro Road Ste. 200 Agoura Hills, CA. 91301
ADDRESS CITY STATE ZIP CODE

REQUESTER'S SIGNATURE 12-17-2008
DATE

DESCRIPTION OF MATERIAL REQUESTED *(Please be as specific as possible. General descriptions and broad requests such as "all documents relating to Interstate 5" will cause uncertainty and delay the processing of your request. Please indicate dates and location of material if known. Attach extra sheet if necessary).*

Is this information being requested for pending or anticipated litigation in which Caltrans may be a party? ☐ YES ☑ NO

Is this request for media purposes? ☐ YES ☑ NO If so, what affiliation _____

Have you, or has anyone on your behalf, requested this information from anyone else within the Department?
☑ YES ☐ NO If so, to who and when Amy Ablakat on Thursday, October 9, 2008

For Department Use Only: ☐ WRITTEN REQUEST ☐ ORAL REQUEST
If an oral request, employee completing this form should document the conversation, including the date and time, and attach it to the form.

Office/Employee Responding
Name Office Phone

Date Received Date of Response Date Completed Log No.

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

PUBLIC RECORDS ACT REQUEST

ADM-3003 (REV 3/2004)

FOR DEPARTMENT USE ONLY
(If requester wants copies, use the space below for charges)

RECORD SERIES	DATE OF DISCLOSURE
BUSINESS ADDRESS	BUSINESS PHONE
INFORMATION DISCLOSED	
PURPOSE OF DISCLOSURE	
NAME *(Authorized Person Releasing Information) (Please Print)*	DISTRICT/DIVISION/OFFICE
AUTHORIZED PERSON *(Signature)*	DATE

RETENTION OF DISCLOSURE

The Department retains this form for at least seven (7) years after disclosure for which the accounting is made, or until the record is destroyed, whichever is shorter.

DEFINITIONS AS USED ON THIS FORM

Disclose - means to disclose, release, transfer, disseminate, or otherwise communicate all or any part of any record orally, in writing, or by electronic or any other means to any person or entity.

Public Records - includes any writing containing information relating to the conduct of the public's business prepared, owned, used or retained by any state or local agency regardless of physical form or characteristics.

Personal Information - means any information that is maintained by an agency that identifies or describes an individual.

NOTE: There are exemptions to disclosures in Public & Personal Records. If you are not sure, check with Legal.

COPY COST AND COLLECTION

The requester should pay the appropriate fee, if any, to the Cashier's Unit. Records can be released upon proof of receipt of payment. Prices are subject to change without notice.

The Cashiers Unit in Headquarters (counter) is located at 1820 Alhambra Blvd., 2nd floor. A cashier is also available in each of the twelve districts.

DESCRIPTION OF PUBLIC RECORDS	QUANTITY	COST PER UNIT	SUBTOTAL
PERSONAL RECORDS *(Any Size Paper)*		$ .25 Per Page	$ 0.00
8.5" x 14" OR SMALLER, 20# COPIES		$ .25 Per Page	$ 0.00
COLOR COPIES *(Any size Paper)*		$ .50 Per Page	$ 0.00
11" x 17" REDUCED DRAWINGS (C Size)		$ .25 Per Page	$ 0.00
Size:		$	$ 0.00
COMPUTER DISK		$ 1.00 Per Disk	$
AUDIO / VIDEO / PHOTO		Cost of outside vendor + $7.00 shipping	$
ENGINEERING (C-E SIZE)			
20# BOND Size:		$ .13 Square Foot	$ 0.00
VELLUM Size:		$ .20 Square Foot	$ 0.00
BLUELINES Size:		$ .13 Square Foot	$ 0.00
Size:		$	$ 0.00
MICROFILM			
APERTURE CARDS COPIES		$ .63 Each Card	$ 0.00
COPIES MADE FROM MICROFILM Size: 11" X 17"		$ 2.50 Per Sheet	$ 0.00
Size: 24" X 36"		$ 7.50 Per Sheet	$ 0.00
PUBLICATIONS & CONTRACTOR'S PAYROLL RECORDS	SPECIAL RATES	CHECK THE GUIDELINES	$
		PLEASE PAY TOTAL → →	$ 0.00

CHECK/RECEIPT NUMBER:	AMOUNT PAID:

DEPARTMENT OF TRANSPORTATION
District 12
3337 MICHELSON DRIVE, SUITE 380
IRVINE, CA 92612-8894
PHONE (949) 724-2341
FAX (949) 724-2019
TTY (949) 756-7813

Flex your power!
Be energy efficient!

December 23, 2008

Mr. Christopher Deleau
5234 Chesebro Road Suite 200
Agoura Hills, CA 91301

Dear Mr. Deleau:

This letter is in response to your request of December 17, 2008 to the California Department of Transportation pursuant to the California Public Records Act (CPRA; Government Code Sections 6250-6276).

Your California Public Records Act request indicates that you want to obtain the following information:

1. True and correct copies of any and all conceptual project site and grading plans.
2. A true and correct copy of the Base Land Survey for the project.
3. A bound copy of the Draft Environmental Impact Report.

All the information which Caltrans has available to the public on this project is available on line via the main Caltrans website: **www. dot .ca. gov/dist12** If you wish to purchase a hardcopy of the information from Caltrans, a price listing is at the bottom of the website. There is no other information available to the public other than the information listed in this website. Should your office wish to purchase any of this information, please contact my office and we will arrange for copies to be sent to you at the quoted price.

If you have any questions, please feel free to contact my office at (949) 724-2000 for assistance.

Sincerely,

Allen J. Shahood
Public Information Officer
Caltrans District 12

January 9, 2009

Mr. Alan J. Shahood
Public Information Office
CALTRANS: District 12
3337 Michelson Drive Ste. CN-380
Irvine, CA 92612

Via Email and U.S. Certified Mail

RE: **STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING PROJECT**

REQUEST FOR PUBLIC RECORDS PURSUANT TO THE PUBLIC RECORDS ACT (California Gov't Code § 6250-6268)

Dear Mr. Shahood:

We are in receipt of your letter dated December 23, 2008 denying our client's request for access to the public records requested and specified in our Public Records Act (PRA) Request dated December 18, 2008 (both documents enclosed).

Please note that section 6253(b) of the PRA requires Caltrans to *identify all public records* that fall within the scope of the request. Additionally, section 6255 of the Act requires a written explanation by a public agency accompanied by statutory reference (exemptions) for any withholding of records that fall within the scope of the request.

Your December 23, 2008 response is insufficient as it does not; 1. Identify any and all records that are responsive to our request and; 2. does not provide the legal justification for not providing the documents requested.

Additionally, in your response letter you misstate the scope of our request by omitting pertinent information; specifically, we are seeking (in very important part) copies of *"scaleable"* project plans. Cal Trans and City officials have informed us that these documents exist; however, both agencies have denied access to these documents without explanation. It is crucial for us to be able to review plans that are "to scale" in order to assess possible environmental impacts and/or the feasibility of project alternatives.

As you are most likely well aware, there is a very short time frame allotted pursuant to the California Environmental Quality Act (CEQA) for interested public participants to review the Draft Environmental Impact Report (DEIR) and make meaningful and effective comments thereupon. Specifically, the end of the public comment period is **January 30, 2009** (end of 45

SCHMITZ & ASSOCIATES, INC.
PROVIDERS OF LAND USE PLANNING FOR A BETTER COMMUNITY
HEADQUARTERS - MALIBU OFFICE
29350 PACIFIC COAST HWY., SUITE 12
MALIBU, CA 90265
TEL: 310.589.0773 FAX: 310.589.0353
REGIONAL - CONEJO VALLEY OFFICE
5234 CHESEBRO ROAD, SUITE 200
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TEL: 818.338.3636 FAX: 818.338.3423
EMAIL: INFO@SCHMITZANDASSOCIATES.NET WEBSITE: WWW.SCHMITZANDASSOCIATES.COM

day comment period). It is our client's contention that the DEIR is significantly lacking in meaningful information needed by the public at large to properly assess the proposed Ortega Highway Project. The purpose of our Records Act Request was to help answer questions that have been left open in the DEIR. Our client's request for information is an attempt to participate in this vital public process. A response from your office referencing back in conclusory fashion to the DEIR is more than practically insufficient; it is violative of the core principles of CEQA.

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In sum, given that time is of the essence, we expect a prompt and legally adequate response to our previous Records Act request. We would also greatly appreciate it if you could provide us with a copy of Cal Trans' Records Act guidelines which are required to be established and provided to a requesting party pursuant to section 6253.4(a) of the Act.

Please note that given the short timeframes involved (45 day DEIR public comment period) and our client's critical need to obtain the information sought in order to properly assess the potential impacts of the Ortega Highway Project upon our client's community, a prompt response is vital.

We thank you for your time and consideration in this matter and look forward to hearing from you shortly.

Regards,
Schmitz & Associates, Inc.

Christopher M. Deleau
Special Projects Manager

California Department of Transportation
Office of Public Information
3337 Michelson Drive, Suite 380
Irvine, CA 92612

Fax

To:	**Mr. Christopher Deleau**	**From:**	**Tracey Lavelle**
Fax:	**(818) 338-3423**	**Date:**	**February 5, 2009**
Phone:	**(818) 338-3636**	**Phone:**	**(949) 724-2031**
Re:	**CPRA Request**	**Pages:**	**2**

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** X **Fax Only – Original**

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
District 12
337 MICHELSON DRIVE, SUITE 380
IRVINE, CA 92612-8894
PHONE (949) 724-2341
FAX (949) 724-2019
TTY (949) 756-7813

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February 5, 2009

Mr. Christopher Deleau
Schmitz & Associates
29350 Pacific Coast Hwy, Ste 12
Malibu, CA 90265

Dear Mr. Deleau:

The Department is in receipt of a copy of your letter dated January 9, 2009 via a third party. We do not have a record of receiving it, but are responding none the less.

Currently, the Department is in the draft Environmental Impact Report phase for this project, therefore there are no final design and/or final grading plans. However, there are reference materials relating to the project from a third party that were used to develop plans for the environmental document. This reference material is not available on the Department's website but is available to any member of the public wishing to review the information within the context of the California Public Records Act. Furthermore, additional clarification is needed in order to address your request for a "Base Land Survey for the project". It is not clear what information or document you seek.

In closing, the reference material will be available for your review in our District Office and arrangements can be made for you to have access to these documents. Should you wish to obtain a hardcopy of the information listed on the Department's website, you can either download the information or a price listing is available on that page. If you wish to purchase a copy of the reference material, a price listing is also available on the second page of the California Public Records Act Request form for your reference. Please contact Allen Shahood, Public Information at (949) 724-2341 for assistance.

Sincerely,

Tracey Lavelle

Tracey Lavelle
Public Information Officer
District 12

----- Original Message -----
From: Allen Shahood
To: justice4i@cox.net
Sent: Friday, March 14, 2008 10:47 AM
Subject: Fw: CPRA Request, ea08692, SR-74, Lower Ortega Improvement Project

Dear Ms. DeCaro:

Please see the information below which was provided to the Public Information Office by our Right of Way engineers. This is all the information that is available at this time.(If you go to the bottom of this email, you will see the two requests you sent to Pam Gorniak a while back.) I trust this will provide an answer to your inquiries.

Allen Shahood
D12-Public Information Office
949-724-2341
----- Forwarded by Allen Shahood/D12/Caltrans/CAGov on 03/14/2008 11:29 AM -----
Allen,

As Ahmed correctly points out, there are no final approved proposed R/W lines for the portion of the Lower Ortega Improvement Project within the City limits. Planning documents have been distributed to the public which show proposed lines. However, the proposed lines in those documents are preliminary and are only meant to give a general idea of the highway boundary after project completion. The final approved proposed lines would only be transmitted to R/W Eng. by Design when the PS&E package had sufficiently matured to the point that those determinations could be made. At this time we seem to be some way from that point in the City portion of the project.

In support of the project, R/W Eng. has established the location of the existing Highway R/W boundary and documented that work as Record of Survey 2006-1029 (see attached file "RS 2006-1029.pdf). This map has been placed on file in the County Recorder's office as public record.

Within the Highway R/W boundary as shown on the portion of the map that lies within the City limits, there exists areas of State jurisdiction and title and areas of City jurisdiction and title. Surveyors Note 5 on Sheet 2 of the RS declares the State's position with respect to the demarcation between State R/W and City R/W within the Highway boundary. That note states as follows:

5. STATE R/W JURISDICTION OVER THOSE PORTIONS OF ORTEGA HWY R/W SHOWN HEREON AS BEING CREATED BY DEED DEDICATIONS OR BY SUBDIVISION MAP DEDICATIONS ORIGINALLY IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, WAS ESTABLISHED OVER THOSE PORTIONS OF EACH DEDICATION ACTUALLY BEING USED FOR ACCEPTED HWY PURPOSES PER SECTION 83 AND SECTION 233 OF THE CALIFORNIA STREETS AND HIGHWAYS CODE.

Within the City limits a portion of the current Highway R/W was placed in the public domain by

subdivision map dedication or deed dedication to the City as a permitting condition for the construction of housing tracts along the Highway. Within the dedicated areas the City required the construction of meandering sidewalks within landscaped pedestrian parkways, Caltrans maintenance policy for regular highways states that such pedestrian parkways do not meet the definition of an accepted Highway purpose and therefore are not operated or maintained as State R/W. Only that portion of the dedicated area utilized for accepted Highway purposes was transferred into the State R/W, which in this case is the actual operating vehicle travel way delineated by the back of curb.

Should the Highway widening require the use of portions of the remaining City R/W within the existing Highway boundary for accepted Highway purposes, State jurisdiction over that area shall be established pursuant to Section 83 of the Streets and Highway Code, and title shall pass by operation of law pursuant to Section 233 of said Code.

The relevant Code states as follows:
CALIFORNIA CODES
STREETS AND **HIGHWAYS CODE**

83. Any public street or highway or portion thereof which is within the boundaries of a state highway, including a traversable highway adopted or designated as a state highway, shall constitute a part of the right of way of such state highway without compensation being paid therefor, and the department shall have jurisdiction thereover and responsibility for the maintenance thereof.

233. All title acquired by the public or by any governmental agency to any real property, or interests therein, used for rights of way of any highway heretofore or hereafter constituted a State highway is vested in the name of the people of the State of California.

Tod Coleman
D12 R/W Eng.
x-2666

Ahmed Abou-Abdou/D12/Caltrans/CAGov

03/11/2008 02:43 PM

To Allen Shahood/D12/Caltrans/CAGov@DOT, Tod Coleman/D12/Caltrans/CAGov@DOT

cc Pam Gorniak/D12/Caltrans/CAGov@DOT

Subject Re: CPRA Request Link

Allen,

We can only share information that is finalized. At this point, we are still working on defining the R/W lines.

Tod,

What is the latest approved R/W information that we can share with the public for the City portion of the Lower 74 project?

Thank you.

Ahmed Abou-Abdou, PE, PMP

Project Manager
(949)724-2768

Allen Shahood/D12/Caltrans/CAGov

03/11/2008 09:51 AM

To Ahmed Abou-Abdou/D12/Caltrans/CAGov@DOT
cc
Subject Re: CPRA Request Link

Ahmed Abou-Abdou/D12/Caltrans/CAGov

03/11/2008 09:45 AM

To Allen Shahood/D12/Caltrans/CAGov@DOT
cc Pam Gomlak/D12/Caltrans/CAGov@DOT
Subject Re: CPRA Request Link

Allen Shahood/D12/Caltrans/CAGov

03/11/2008 08:44 AM

To Ahmed Abou-Abdou/D12/Caltrans/CAGov@DOT
cc
Subject CPRA Request

Design construction detail for the driveways were not included in the MND,
it only stated ("see construction detail"), which then, was only made available at the branch. I am asking that those details be made available,
or if they were never designed or completed, I would like confirmation of
such. If they are available, I want confirmation of when they were done. If
they are available, please make copies, contact me for immediate payment to
have them mailed. (There are no plans for this project as yet. PLease notify Ms. DeCarro).

As for the right of way. I am requesting the recorded surveyed map records
depicting portion of road under Caltrans right of way. As you know, Ortega
was originally Hot Springs road, a two lane road. Please have your right of
way department, confirm what Caltrans currently shows as "Caltrans right of
way". This is obviously the most basic of questions, considering Caltrans
proposes to widen this roadway. Obviously, Caltrans would need to assess
jurisdiction prior to even starting this whole project. Caltrans would

need
to know just exactly what right of way they have over this road, now wouldn't they? I have been more than patient in this request and this is
not a new request, therefore, I would expect an immediate response back. (This would fall under Greg
Grant's department. She is asking for the right of way mapping for the stretch of road
that is under the Route 74 widening project, called the Lower Ortega Project. You will need to get
the postmile data from the project manager, Ahmed Abou-Abdou, then work with Greg for the maps.)

D12-Public Information Office
949-724-2341

Attach. 1

December 17, 2008

Ms. Tracey Lavelle
CALTRANS, District 12
3337 Michelson Drive Ste. CN-380
Irvine, CA 92612

RE: **STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING PROJECT**

REQUEST FOR PUBLIC RECORDS PURSUANT TO THE PUBLIC RECORDS ACT (California Gov't Code § 6250-6268)

Sent Via Facsimile and E-Mail

Dear Ms. Lavelle,

State agencies are covered by the California Public Records Act (PRA), which provides that all records are open for inspection and copying. §§ 6252 (a) and 6253 (a). Records include "any writing containing information relating to the conduct of the public's business, prepared, owned, used or retained by any state . . . agency regardless of physical form or characteristics."

Pursuant to § 6253 (b) upon a request for a copy of records the state agency "shall make the records promptly available to any person upon payment of fees covering direct costs of duplication, or a statutory fee if applicable. Upon request, an exact copy shall be provided unless impracticable to do so."

Pursuant to this correspondence we are requesting immediate access and exact copies of the following:

1. **True and correct copies of any and all conceptual project site and grading plans** (in full size and scaleable format)

2. **A true and correct copy of the Base Land Survey for the project.**

3. **A bound copy of the DRAFT Environmental Impact Report (DEIR)**

A written response to this request is expected within 10 days pursuant to §6253(c). In addition, please provide the amount of fees necessary for the duplication.

SCHMITZ & ASSOCIATES, INC.
PROVIDERS OF LAND USE PLANNING FOR A BETTER COMMUNITY

HEADQUARTERS - MALIBU OFFICE
29350 PACIFIC COAST HWY., SUITE 12
MALIBU, CA 90265
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AGOURA HILLS, CA 91301
TEL: 818.338.3636 FAX: 818.338.3423

EMAIL: INFO@SCHMITZANDASSOCIATES.NET WEBSITE: WWW.SCHMITZANDASSOCIATES.COM

Thank you for your time and consideration regarding this matter, and please do not hesitate to contact us should you have any questions or comments.

Sincerely,

SCHMITZ & ASSOCIATES, INC.

By

CHRISTOPHER DELEAU,
Special Projects Manager

Appendix B

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PUBLIC RECORDS ACT REQUEST

ADM-3003 (REV 3/2004)

Instructions:

1. This form is used only for those requests for public records which are made pursuant to the California Public Records Act (Government Code sec. 6250 et seq.). Requests for personal information concerning employees, agents, or customers of the Department are subject to the Information Practices Act (Civil Code sec. 1798 et seq.) and should be submitted on Form ADM-0028 (Record Disclosure Request).

2. Use of this form by public individuals is voluntary. Public Records Act Requests may be submitted in person, by letter, email, fax or telephone. If such an alternate method has been used, this form should be completed by the person responding to the request and the original request must be attached.

3. Copies of records may be provided to the requester after reproduction costs have been paid. Instructions for determining cost and for making payment are on the reverse.

REQUESTED BY Christopher Deleau (818) 338-3636

NAME (typed or printed) TELEPHONE

5234 Chesebro Road Ste. 200 Agoura Hills, CA. 91301

ADDRESS CITY STATE ZIP CODE

12-17-2008

REQUESTER'S SIGNATURE DATE

DESCRIPTION OF MATERIAL REQUESTED *(Please be as specific as possible. General descriptions and broad requests such as "all documents relating to Interstate 5" will cause uncertainty and delay the processing of your request. Please indicate dates and location of material if known. Attach extra sheet if necessary).*

Is this information being requested for pending or anticipated litigation in which Caltrans may be a party? ☐ YES ☑ NO

Is this request for media purposes? ☐ YES ☑ NO If so, what affiliation _____

Have you, or has anyone on your behalf, requested this information from anyone else within the Department?

☑ YES ☐ NO If so, to who and when Amy Ablakat on Thursday, October 9, 2008

For Department Use Only: ☐ WRITTEN REQUEST ☐ ORAL REQUEST

If an oral request, employee completing this form should document the conversation, including the date and time, and attach it to the form.

Office/Employee Responding

Name Office Phone

Date Received Date of Response Date Completed Log No.

ADA Notice For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814.

PUBLIC RECORDS ACT REQUEST

ADM-3003 (REV 3/2004)

Appendix B

FOR DEPARTMENT USE ONLY
(If requester wants copies, use the space below for charges)

RECORD SERIES	DATE OF DISCLOSURE
BUSINESS ADDRESS	BUSINESS PHONE
INFORMATION DISCLOSED	
PURPOSE OF DISCLOSURE	
NAME *(Authorized Person Releasing Information) (Please Print)*	DISTRICT/DIVISION/OFFICE
AUTHORIZED PERSON *(Signature)*	DATE

RETENTION OF DISCLOSURE

The Department retains this form for at least seven (7) years after disclosure for which the accounting is made, or until the record is destroyed, whichever is shorter.

DEFINITIONS AS USED ON THIS FORM

Disclose - means to disclose, release, transfer, disseminate, or otherwise communicate all or any part of any record orally, in writing, or by electronic or any other means to any person or entity.

Public Records - includes any writing containing information relating to the conduct of the public's business prepared, owned, used or retained by any state or local agency regardless of physical form or characteristics.

Personal Information - means any information that is maintained by an agency that identifies or describes an individual.

NOTE: There are exemptions to disclosures in Public & Personal Records. If you are not sure, check with Legal.

COPY COST AND COLLECTION

The requester should pay the appropriate fee, if any, to the Cashier's Unit. Records can be released upon proof of receipt of payment. Prices are subject to change without notice.

The Cashiers Unit in Headquarters (counter) is located at 1820 Alhambra Blvd., 2nd floor. A cashier is also available in each of the twelve districts.

DESCRIPTION OF PUBLIC RECORDS	QUANTITY	COST PER UNIT	SUBTOTAL
PERSONAL RECORDS *(Any Size Paper)*		$ .25 Per Page	$ 0.00
8.5" x 14" OR SMALLER, 20# COPIES		$ .25 Per Page	$ 0.00
COLOR COPIES *(Any size Paper)*		$ .50 Per Page	$ 0.00
11" x 17" REDUCED DRAWINGS (C Size)		$ .25 Per Page	$ 0.00
Size:		$	$ 0.00
COMPUTER DISK		$ 1.00 Per Disk	$
AUDIO / VIDEO / PHOTO		Cost of outside vendor + $7.00 shipping	$
ENGINEERING (C-E SIZE)			
20# BOND Size:		$ .13 Square Foot	$ 0.00
VELLUM Size:		$ .20 Square Foot	$ 0.00
BLUELINES Size:		$ .13 Square Foot	$ 0.00
Size:		$	$ 0.00
MICROFILM			
APERTURE CARDS COPIES		$ .63 Each Card	$ 0.00
COPIES MADE FROM MICROFILM Size: 11" X 17"		$ 2.50 Per Sheet	$ 0.00
Size: 24" X 36"		$ 7.50 Per Sheet	$ 0.00
PUBLICATIONS & CONTRACTOR'S PAYROLL RECORDS	SPECIAL RATES	CHECK THE GUIDELINES	$
		PLEASE PAY TOTAL ➔➔	$ 0.00

CHECK/RECEIPT NUMBER:	AMOUNT PAID:

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DEPARTMENT OF TRANSPORTATION
District 12
3337 MICHELSON DRIVE, SUITE 380
IRVINE, CA 92612-8894
PHONE (949) 724-2341
FAX (949) 724-2019
TTY (949) 756-7813

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Attach. 2

December 23, 2008

Mr. Christopher Deleau
5234 Chesebro Road Suite 200
Agoura Hills, CA 91301

Dear Mr. Deleau:

This letter is in response to your request of December 17, 2008 to the California Department of Transportation pursuant to the California Public Records Act (CPRA; Government Code Sections 6250-6276).

Your California Public Records Act request indicates that you want to obtain the following information:

1. True and correct copies of any and all conceptual project site and grading plans.
2. A true and correct copy of the Base Land Survey for the project.
3. A bound copy of the Draft Environmental Impact Report.

All the information which Caltrans has available to the public on this project is available on line via the main Caltrans website: **www. dot .ca. gov/dist12** If you wish to purchase a hardcopy of the information from Caltrans, a price listing is at the bottom of the website. There is no other information available to the public other than the information listed in this website. Should your office wish to purchase any of this information, please contact my office and we will arrange for copies to be sent to you at the quoted price.

If you have any questions, please feel free to contact my office at (949) 724-2000 for assistance.

Sincerely,

Allen J. Shahood
Public Information Officer
Caltrans District 12

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Attach. 3

January 9, 2009

Mr. Alan J. Shahood
Public Information Office
CALTRANS: District 12
3337 Michelson Drive Ste. CN-380
Irvine, CA 92612

Via Email and U.S. Certified Mail

RE: **STATE ROUTE 74 LOWER ORTEGA HIGHWAY WIDENING PROJECT**

REQUEST FOR PUBLIC RECORDS PURSUANT TO THE PUBLIC RECORDS ACT (California Gov't Code § 6250-6268)

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As you are most likely well aware, there is a very short time frame allotted pursuant to the California Environmental Quality Act (CEQA) for interested public participants to review the Draft Environmental Impact Report (DEIR) and make meaningful and effective comments thereupon. Specifically, the end of the public comment period is **January 30, 2009** (end of 45

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Regards,
Schmitz & Associates, Inc.

Christopher M. Deleau
Special Projects Manager

California Department of Transportation
Office of Public Information
3337 Michelson Drive, Suite 380
Irvine, CA 92612

Attach. 4

Fax

To:	**Mr. Christopher Deleau**	**From:**	**Tracey Lavelle**
Fax:	**(818) 338-3423**	**Date:**	**February 5, 2009**
Phone:	**(818) 338-3636**	**Phone:**	**(949) 724-2031**
Re:	**CPRA Request**	**Pages:**	**2**

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** x **Fax Only – Original**

TATE OF CALIFORNIA--BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
District 12
337 MICHELSON DRIVE, SUITE 380
RVINE, CA 92612-8894
HONE (949) 724-2341
AX (949) 724-2019
TY (949) 756-7813

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February 5, 2009

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Schmitz & Associates
29350 Pacific Coast Hwy, Ste 12
Malibu, CA 90265

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Sincerely,

Tracey Lavelle

Tracey Lavelle
Public Information Officer
District 12

Attach 5

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To: justice4l@cox.net
Sent: Friday, March 14, 2008 10:47 AM
Subject: Fw: CPRA Request, ea08692, SR-74, Lower Ortega Improvement Project

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949-724-2341
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As Ahmed correctly points out, there are no final approved proposed R/W lines for the portion of the Lower Ortega Improvement Project within the City limits. Planning documents have been distributed to the public which show proposed lines. However, the proposed lines in those documents are preliminary and are only meant to give a general idea of the highway boundary after project completion. The final approved proposed lines would only be transmitted to R/W Eng. by Design when the PS&E package had sufficiently matured to the point that those determinations could be made. At this time we seem to be some way from that point in the City portion of the project.

In support of the project, R/W Eng. has established the location of the existing Highway R/W boundary and documented that work as Record of Survey 2006-1029 (see attached file "RS 2006-1029.pdf). This map has been placed on file in the County Recorder's office as public record.

Within the Highway R/W boundary as shown on the portion of the map that lies within the City limits, there exists areas of State jurisdiction and title and areas of City jurisdiction and title. Surveyors Note 5 on Sheet 2 of the RS declares the State's position with respect to the demarcation between State R/W and City R/W within the Highway boundary. That note states as follows:

5. STATE R/W JURISDICTION OVER THOSE PORTIONS OF ORTEGA HWY R/W SHOWN HEREON AS BEING CREATED BY DEED DEDICATIONS OR BY SUBDIVISION MAP DEDICATIONS ORIGINALLY IN FAVOR OF THE CITY OF SAN JUAN CAPISTRANO, WAS ESTABLISHED OVER THOSE PORTIONS OF EACH DEDICATION ACTUALLY BEING USED FOR ACCEPTED HWY PURPOSES PER SECTION 83 AND SECTION 233 OF THE CALIFORNIA STREETS AND HIGHWAYS CODE.

Within the City limits a portion of the current Highway R/W was placed in the public domain by

subdivision map dedication or deed dedication to the City as a permitting condition for the construction of housing tracts along the Highway. Within the dedicated areas the City required the construction of meandering sidewalks within landscaped pedestrian parkways, Caltrans maintenance policy for regular highways states that such pedestrian parkways do not meet the definition of an accepted Highway purpose and therefore are not operated or maintained as State R/W. Only that portion of the dedicated area utilized for accepted Highway purposes was transferred into the State R/W, which in this case is the actual operating vehicle travel way delineated by the back of curb.

Should the Highway widening require the use of portions of the remaining City R/W within the existing Highway boundary for accepted Highway purposes, State jurisdiction over that area shall be established pursuant to Section 83 of the Streets and Highway Code, and title shall pass by operation of law pursuant to Section 233 of said Code.

The relevant Code states as follows:
CALIFORNIA CODES
STREETS AND **HIGHWAYS CODE**

83. Any public street or highway or portion thereof which is within the boundaries of a state highway, including a traversable highway adopted or designated as a state highway, shall constitute a part of the right of way of such state highway without compensation being paid therefor, and the department shall have jurisdiction thereover and responsibility for the maintenance thereof.

233. All title acquired by the public or by any governmental agency to any real property, or interests therein, used for rights of way of any highway heretofore or hereafter constituted a State highway is vested in the name of the people of the State of California.

Tod Coleman
D12 R/W Eng.
x-2666

Ahmed Abou-Abdou/D12/Caltrans/CAGov

03/11/2008 02:43 PM

To Allen Shahood/D12/Caltrans/CAGov@DOT, Tod Coleman/D12/Caltrans/CAGov@DOT

cc Pam Gorniak/D12/Caltrans/CAGov@DOT

Subject Re: CPRA Request Link

Allen,

We can only share information that is finalized. At this point, we are still working on defining the R/W lines.

Tod,

What is the latest approved R/W information that we can share with the public for the City portion of the Lower 74 project?

Thank you

Ahmed Abou-Abdou, PE, PMP

Project Manager
(949)724-2768

Allen Shahood/D12/Caltrans/CAGov

03/11/2008 09:51 AM

To Ahmed Abou-Abdou/D12/Caltrans/CAGov@DOT
cc
Subject Re: CPRA Request Link

Ahmed Abou-Abdou/D12/Caltrans/CAGov

03/11/2008 09:45 AM

To Allen Shahood/D12/Caltrans/CAGov@DOT
cc Pam Gomlak/D12/Caltrans/CAGov@DOT
Subject Re: CPRA Request Link

Allen Shahood/D12/Caltrans/CAGov

03/11/2008 08:44 AM

To Ahmed Abou-Abdou/D12/Caltrans/CAGov@DOT
cc
Subject CPRA Request

Design construction detail for the driveways were not included in the MND,
it only stated ("see construction detail"), which then, was only made available at the branch. I am asking that those details be made available,
or if they were never designed or completed, I would like confirmation of
such. If they are available, I want confirmation of when they were done. If
they are available, please make copies, contact me for immediate payment to
have them mailed. (There are no plans for this project as yet. PLease notify Ms. DeCarro).

As for the right of way. I am requesting the recorded surveyed map records
depicting portion of road under Caltrans right of way. As you know, Ortega
was originally Hot Springs road, a two lane road. Please have your right of
way department, confirm what Caltrans currently shows as "Caltrans right of
way". This is obviously the most basic of questions, considering Caltrans
proposes to widen this roadway. Obviously, Caltrans would need to assess
jurisdiction prior to even starting this whole project. Caltrans would

need
to know just exactly what right of way they have over this road, now wouldn't they? I have been more than patient in this request and this is
not a new request, therefore, I would expect an immediate response back. (This would fall under Greg
Grant's department. She is asking for the right of way mapping for the stretch of road
that is under the Route 74 widening project, called the Lower Ortega Project. You will need to get
the postmile data from the project manager, Ahmed Abou-Abdou, then work with Greg for the maps.)

D12-Public Information Office
949-724-2341

RUTAN
ATTORNEYS AT LAW

E-m

Attach #6

5-6

September 4, 2007

VIA U.S. MAIL and E-MAIL flower74_D12@dot.ca.gov

California Department of Transportation
Environmental Planning
Smita Deshpande, Environmental Branch Chief
Attention: Iffat Qamar
3337 Michelson Drive, No. 380
Irvine, CA 92612

Re: Mitigated Negative Declaration for State Route 74
Lower Ortega Highway Widening Project

Dear Ms. Qamar:

This office has been retained by the Hunt Club Community Association (the "HCAA") to submit comments on the Initial Study and draft Mitigated Negative Declaration ("MND") for CalTrans' proposed Lower Ortega Highway Widening Project ("Project"). The HCAA is a private community, developed approximately 25 years ago, and it presently consists of 132 custom homes and lots; a number of these homes border directly on the north side of Ortega Highway between Calle Entradero and Hunt Club Drive, which are the only two points of ingress and egress serving the Hunt Club. The Hunt Club II development, consisting of an additional 37 custom homes and lots, also takes access from these same two streets.

With no other access available, driving on Ortega Highway is the ***only*** way for the Hunt Club residents to get in or out of their community – a fact of life that the Hunt Club shares with several other developments in the immediate vicinity, whose vehicular access is limited solely from the north side of Ortega Highway. As such, the several hundred people who reside in the Hunt Club will be acutely impacted by the Project and will suffer direct and significant adverse impacts from the widening of Ortega Highway. 1

On behalf of its members, therefore, the HCCA objects to Caltrans' failure to prepare and circulate an appropriate environmental impact report ("EIR") to address these impacts and to consider reasonable Project alternatives and feasible mitigation measures to avoid them. The members of the HCCA are very upset that Caltrans appears intent on rejecting the public's earnest request to prepare an EIR for the 3-mile-long widening project that will entail significant new traffic impacts (increased vehicle trips, emissions, noise, speeds, safety hazards, among others, as detailed below), the construction of massive retaining walls in place of mature landscaping, the destruction or removal of some 111 trees, sidewalks, equestrian crossings and other features, and the adverse visual and aesthetic impacts associated with permanently 2 13 14 15 16 17 18 19 10 11 12 26

transforming the rustic surroundings at the eastern "gateway" to the City of San Juan Capistrano into an asphalt super-highway to serve thousands of proposed new homes outside of this community.

The residents of the Hunt Club cannot understand how Caltrans can possibly claim that every one of these numerous significant environmental impacts resulting from the Project will be "mitigated" to a level of "insignificance" so as to excuse the preparation of an EIR. In order to proceed with the project, Caltrans must comply with the requirements of the California Environmental Quality Act, Public Resources Code Section 21000 *et seq.* ("CEQA"). Caltrans has chosen to comply with CEQA by preparing the MND, rather than a full EIR. However, under CEQA, there is "a low threshold requirement for preparation of an EIR, *No Oil, Inc. v. City of Los Angeles*, 13 Cal. 3d 68, 84 (1974), and a "preference to resolve doubts in favor of full-blown environmental review," *Sierra Club v. California Dept. of Forestry & Fire Protection*, 150 Cal.App.4th 370, 381-383 (2007). Accordingly, an EIR must be prepared "whenever it can be fairly argued on the basis of substantial evidence that the project ***may*** have significant environmental impact, even if there is substantial evidence to the contrary," *Bowman v. City of Berkeley*, 122 Cal.App.4th 572, 580 (2004) (emphasis added); *Pocket Protectors v. City of Sacramento*, 124 Cal.App.4th 903, 927 (2004).

The "fair argument" test requires a lead agency to prepare an EIR where "there is substantial evidence that ***any*** aspect of the project, either individually or cumulatively, ***may*** cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial," CEQA Guidelines § 15063(b)(1) (emphasis added); see, *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 42 Cal.App.4th 608, 614-615 (1996). Stated differently, "for projects that may cause both beneficial and adverse significant impacts on the environment, preparation of an EIR is ***required*** because the consideration of feasible alternatives and mitigation measures ***might*** result in changes to the project that decrease its adverse impacts on California's environment," *County Sanitation Dist. No. 2 v. County of Kern*, 127 Cal.App.4th 1544, 1580 (2005) (emphasis added).

Our review of the MND reveals that it fails to comply with the mandatory requirements of CEQA in numerous respects, and is vulnerable to legal challenge if adopted by Caltrans. As an initial consideration, and as pointed out in the environmental consultant analyses attached to this letter as Exhibits "A" and "C," the MND does not even conform to the organizational and form requirements of the CEQA Guidelines. In order to comply with CEQA, Caltrans must abandon the truncated mitigated negative declaration process, and prepare and circulate for public review a full and complete EIR, analyzing all the potential impacts of the proposed Project, as well as an analysis of a full range of alternatives to the Project and its various components.

Among its many CEQA shortcomings, the MND fails to comply with California law in the following respects:

1. Inadequate Project Description – Piecemealing: A complete, adequate project description is at the core of any environmental analysis, and an inadequate project description invalidates an assessment under CEQA, *Cadiz Land Co. v. Rail Cycle, LP*, 83 Cal.App.4th 74 (2000). An agency may not "chop" a large project into smaller pieces, each with minimal impacts on the environment, to avoid full environmental disclosure, *Bozung v. LAFCO*, 13 Cal. 3rd 263, 283-284 (1975). Here, the Project improperly chops the Ortega Highway project widening into two pieces. The MND defines the total Project as extending from Calle Entradero to the intersection of San Antonio/La Plata. However, Caltrans is responsible for that portion of the Ortega Highway widening from Calle Entradero to the San Juan Capistrano/County boundary, while the County of Orange ("County") is responsible for that portion of the Project from the City/County boundary to San Antonio/La Plata (MND, pp. 1-1, 1-3). The MND also makes clear that the County will construct ***both*** of these portions of the Ortega Highway project ***concurrently*** (MND, p. 1-9); but the MND includes no analysis of the environmental impacts resulting from the ***entirety*** of the Project. By analyzing the impacts of just that portion of the Project being approved by Caltrans, the MND improperly piecemeals the SR 74 Project, ignoring the real direct and cumulative environmental impacts of the Project as a whole. See, *Christward Ministry v. Superior Court*, 184 Cal.App.3rd 180, 193 (1986). 14

2. Unmitigable and Unavoidable Visual and Aesthetic Impacts: The MND fails to recognize that the Project will cause significant, unavoidable and unmitigable impacts associated with the loss of the rural atmosphere and aesthetic qualities that have long characterized the eastern "gateway" to San Juan Capistrano along the Ortega Highway. The MND does acknowledge that the Project is within a semi-rural setting with "sensitive visual resources" (MND, p. 2-45). While methodologically flawed as shown in the "Ortega Highway Review – Aesthetics" report attached hereto as the Exhibit "A," the "Visual Impact Assessment" prepared for the MND provides some detail regarding the visual resources associated with the existing alignment of Ortega Highway. For example, the area near the Hunt Club has "significant streetscape elements," including tree plantings, meandering sidewalks, groundcover and horse trails, creating a visual landscape with "no intrusions," joining "to form coherent, harmonious visual patterns" with "elements that combine striking visual patterns" (Visual Impact Assessment, p. 16). Further east, the existing SR-74 alignment reflects "consistent variety of color contrasts" and "consistent variety of textures that create perceivable patterns in the landscape" (Visual Impact Assessment, p. 17). 15

The proposed Project will eliminate these long-standing landscape improvements and aesthetic resources, and replace them with block walls and asphalt. Existing slopes will be graded flat and existing vegetation and 110 mature trees cut down, in order to construct five retaining walls up to 25 feet high and 850 feet long, and two 14 foot high sound walls (MND, pp. 1-13 through 1-16). As the newspaper articles attached hereto as Exhibit "B" demonstrate, numerous residents have described the serious adverse impacts of the Project, based upon their direct knowledge of the Lower Ortega Highway area and the Project. "Relevant personal observations of area residents on non-technical matters may qualify as substantial evidence for a

fair argument," *Ocean View Estates Homeowners Assn, Inc. v. Montecito Water Dist.*, 116 Cal.App.4th 396, 402 (2004). Indeed, the MND concedes that, after construction, Ortega Highway would feel less like a community drive and more like a thoroughfare, concluding that "the visual impact of the retaining walls and the sound walls on both the motorists and residential viewers would be negative" (MND, p. 2-48).

Common sense dictates that these overwhelming negative visual impacts cannot be mitigated to a level of insignificance. Indeed, the attached Aesthetics Report highlights the defects in the MND's proposed mitigation measures. The mitigation is inadequate, uncertain and incomplete; and the specific "mitigation measures" merely defer mitigation in violation of CEQA. The MND proposes no specific mitigation measures to address the significant adverse visual impact of the sound walls, noting that the actual design is uncertain at this point. While noting that "planting of vines on the walls and small street trees ***can*** help to minimize the harshness of a sound wall (MND, p. 2-64) (emphasis added), the MND neither commits Caltrans to such plantings nor concludes that the plantings in fact ***will*** minimize the admitted harshness of the sound walls. Similarly, the MND proposes no specific retaining wall design, acknowledging that a variety of potential designs exist; but the MND fails to analyze the extent to which any of the possible alternative would mitigate the stark, blank appearance of the retaining walls. Indeed, the mitigation measures do not even ***require*** any treatment to the retaining walls to minimize their appearance. (MND, p. 2-64). 15

While proposing to create new "urban-feel" vertical surfaces through the sound walls and retaining walls, the MND includes no analysis whatsoever of the environmental impacts of likely urban responses to those walls, including vandalism and graffiti. Finally, while the MND frequently references the "need" for replacement trees, shrubs and ground cover, the MND does not ***require*** any landscaping or replacement planting. Indeed, it is not physically possible to install such landscaping based upon the current plans for the Project. Highlighting its own inadequacy in this regard, the MND states that "Replacement planting can be constructed as a separate landscape project" (MND, p. 2-64), underscoring the lack of any real mitigation of these visual impacts.

3. Incomplete, Inadequate Air Quality Analysis: The MND's assessment of air quality impacts from the proposed Project (both construction and long-term operational) is deficient in numerous respects, including the lack of any quantified assessment of construction or operational emissions, the failure to determine whether construction and operation emissions are within South Coast Air Quality Management District ("SCAQMD") maximum thresholds, the failure to conduct an assessment of potential health risks to the residents adjacent to the expanded roadway, and the lack of any analysis of global warming impacts. Attached as Exhibit "C" is a due diligence report on air quality and noise impacts prepared by the environmental consultant firm Synectecology, that sets forth these and other deficiencies with respect to air quality in much greater detail; for your convenience, the defects are summarized as follows: 16

- Contrary to accepted practice, the MND makes no effort to determine the types and number of vehicles and pieces of equipment that will be used in the construction of the Ortega Highway widening; as a result, the MND does not (and cannot) calculate the projected emissions during the construction of the Project. Although a number of air quality models are available to assess construction air quality impacts, Caltrans inexplicably chose not to use ***any*** of them.

- The MND contains no quantified analysis of short-term construction impacts, or the relationship between construction emissions and SCAQMD air quality thresholds for regional significance.

- The MND contains no quantified analysis of operational impacts, or the relationship between operational emissions and SCAQMD air quality thresholds for compliance with ambient air quality standards. 16

- The MND contains no analysis of the health effects to residents adjacent to the proposed widened Ortega Highway, which will now be significantly closer to residences, even though the Air Quality Assessment supporting the MND indicates that almost ***one-third*** of the vehicular trips is comprised of truck traffic. In this regard, a major new study on the health impacts of residential facilities adjacent to freeways and other major thoroughfares was published in January, 2007 in *The Lancet*, a leading medical journal. Based on data from Southern California, the study concludes that vehicle-borne air pollution can substantially impact lung development of children. Given the evidence of the relationship between vehicular pollution and health problems, an analysis of the Project's health effects should be undertaken.

- The MND contains no analysis of global warming. The MND explains the need for such an assessment, but then indicates (without analysis) that individual projects are too small to affect global warming (MND, pp. 2-94, 2-98, 2-100). An agency may not use the failure to gather available data as a basis for failing to analyze impacts, *Lighthouse Field Beach Rescue v. City of Santa Cruz*, 131 Cal.App.4th 1170, 1201 (2005). In fact, a number of air quality models calculate the production of carbon dioxide emissions, which is understood to be the major contributor to global warming. While criteria may not yet be established to determine if greenhouse gas emissions are significant, the MND should at least provide a quantification of these emissions so that Caltans – and the public – can judge their magnitude and significance. It bears emphasis that the California Attorney General has determined that the failure to analyze and mitigate 17

global warming impacts is such a serious CEQA violation that the Attorney General has initiated litigation against local agencies that – like CalTrans here – fail to do so (see newspaper article attached as Exhibit "D").

- The MND and its associated Air Quality Technical Assessment fail to use locally proximate data in the assessment of air quality impacts. Rather than using available data from the Saddleback Monitoring Station, the MND and Assessment instead rely on data from more distant stations, in Anaheim and Costa Mesa. 17

- The MND and Air Quality Technical Assessment use the outdated 2003 Air Quality Management Plan, rather than the recently promulgated 2007 Plan.

4. Unavoidable Noise Impacts: The MND lacks a meaningful assessment of potential noise impacts, and uses an inappropriate threshold of significance that precludes any meaningful determination of whether the impact is significant. The following points summarize more detailed discussion in the Synectecology assessment attached hereto as Exhibit "C":

- The MND uses an improper threshold of 12 dBA as the threshold of significance; the threshold of 12 dBA requires that the volume of noise increase ***15.8 times*** in order to be significant, which is an unreasonably high significance threshold under CEQA. Most governmental agencies and planning and environmental consultants in Southern California deem a noise increase of 3 dBA (*i.e.*, a doubling in noise volume) to be an appropriate threshold for determining significance in noise impacts. 18

- The limited noise analysis in the MND indicates that construction noise could reach 91 dBA at the boundary of local residences, which represents an increase of 20 to 40 dBA from the current noise levels. This increase in fact exceeds the unreasonably high 12 dBA threshold established by Caltrans.

- The MND contains no real analysis of the ability of the proposed sound walls to mitigate impacts from heavy trucks, which the MND indicates comprise 16.3% of all vehicles on Ortega Highway.

- The noise data on which the MND relies is obsolete, having been developed in February of 2004. Standard practice among local governmental agencies and environmental planners in Southern California is to require new noise studies when the data is more than two years old.

5. Inadequate Traffic Analysis: The traffic assessment in the MND is incomplete in that it fails to account for increased traffic on Ortega Highway once it is widened, because the MND fails to assess traffic safety impacts from the widened roadway, and because the assessment of traffic impacts does not consider the possible delay or cancellation of the proposed SR-241 extension:

- The MND does not analyze the potential for increased traffic on SR-74, once it is widened, due to a likely shift of traffic from SR-91 and SR-76. The MND states that the Ortega Highway is the only east-west connector from I-5 to the Inland Empire between State Routes 91 and 76, and it is common knowledge that all three roadways are currently congested. (MND, p. 1-6). By this and other projects, SR-74 will – at least temporarily – cease to be congested, with the MND anticipating vehicle speeds increasing to 55 to 60 mph (MND, p. 2-40). Given that the carrying capacity of SR-74 will essentially double with the widening projects, the MND should assess the likely potential for motorists commuting daily on the congested SR-91 and SR-76 to shift to the widened, temporarily uncongested SR-74 upon completion of the Project. 19

- The MND contains no real assessment of traffic safety impacts. As previously noted, the vehicle speeds on Ortega Highway will increase to 55 to 60 mph as a result of the Project, and this increased speed will increase the existing difficulty of motorists entering or leaving non-signalized streets (and driveways) intersecting Ortega Highway. The hundreds of residents, as well as the hundreds of service providers and homeowner guests, who travel to and from the Hunt Club every day will be faced with extremely unsafe road conditions as they attempt to enter or exit the Hunt Club. As local residents observe (see newspaper articles in Exhibit "B" hereto), drivers – and particularly teenage drivers traveling to and from Santa Margarita High School and the new San Juan Hills High School off of La Plata – have an increased likelihood to be involved in auto and vehicular collisions either when these drivers attempt to access Ortega Highway, (particularly when making left-hand turns), or when the drivers make left turns from Ortega Highway into residential tracts. These significant potential traffic safety impacts should be analyzed by Caltrans in an EIR prior to approval of the Project because the likelihood of serious traffic accidents and injuries cannot be ignored. At various public information sessions held by Caltrans, Caltrans personnel have apparently suggested that, to avoid the radically-increased safety hazards that will be faced by vehicles attempting to turn left out of the Hunt Club, drivers should only turn right (west-bound) and then attempt to make a "u-turn" on Ortega in order to travel in the desired eastern direction. Needless to

say, such proposed "mitigation" is whimsical at best and fails to address the realities of the terribly hazardous conditions that the Project is imposing on the Hunt Club residents and all motorists on Ortega Highway.

- The MND fails to analyze or mitigate the impacts to the public generally, and to disabled persons in particular, for the Project's elimination of the handicapped right-of-way.

- The MND fails to analyze the Project's encroachment upon an easement specifically dedicated for horse trail use, and the resulting traffic and safety impacts of that encroachment.

- The MND does not analyze the effect of a delay or cancellation of the proposed SR-241 extension upon the traffic volumes or speeds of the widened Ortega Highway. The SR-241 extension project is highly controversial, and a number of federal, state and local officials have opposed it (as evidenced in the newspaper article attached as Exhibit "E"). The County's EIR No. 589 for the Ranch Plan succinctly stated, "Whether this road [*i.e.*, SR-241 extension] will be built, and the precise alignment, is uncertain at this time" (EIR No. 589, p. 1-8). The MND improperly fails to assess whether a delay or cancellation of this regional tollway project would impact the volumes and speeds on the widened Ortega Highway, and the extent of such impacts.

6. Failure to Analyze Growth Inducing Impacts: The MND fails to meaningfully assess the growth inducing impacts of widening Ortega Highway, which would affect the air, traffic, and noise impacts. The MND recognizes that the Elsinore area at the eastern terminus of SR-74 is expected to double in population by 2020, while Riverside County as a whole will increase by almost 86% during that time period. At the same time, the Elsinore area contains significant un-entitled vacant, developable land; as the MND notes, some 84,000 acres of land in or near Elsinore are designated as open space or "rural" (MND, p. 2-18). Given the already-significant increases in population and development in the Inland Empire, and the ever-increasing pressure for new housing in Southern California, it is highly likely that a significant portion of these 84,000 acres of open space or rurally designated lands will be redesignated for a more intense residential use. As the court aptly declared in *Stanislaus Audubon Society v. County of Stanislaus*, 33 Cal.App.4th 144, 157 (1995), "Zoning is subject to change and amendment of a general plan is not a rare occurrence."

20

Assuming only 20% of the 84,000 acres (or approximately 17,000 acres) are redesignated to low density (*i.e.*, 4 units per acre) entitlement over the next ten years, development of these lands will result in approximately 68,000 new homes. Applying a common low density trip generation rate of 10 trips per day for single-family detached residences, the redesignation and

development of this small portion of the undeveloped, un-entitled Elsinore area lands would generate an additional 680,000 average daily trips. All projections (including the Riverside County Population and Employment Forecasts referenced in the MND) show that Riverside County will continue to be "jobs poor." From this, it is evident that a significant portion of these daily trips will use SR-74 to travel to the jobs-rich Orange County area. The MND should assess the potential effect of a widened, uncongested SR-74, with freeway-like speeds, on the likelihood for redesignation to more intense residential uses of some or all of the 84,000 currently vacant and developable open space or rural lands in and around Lake Elsinore. 20

7. No Mitigation of Biological Impacts: The MND fails to provide adequate, meaningful mitigation for many of the biological impacts that are acknowledged as a result of this project. In some cases, the MND states that "***The County of Orange shall be responsible*** for mitigation of the project impacts" (MND, pp. 2-121, 2-126) (emphasis added). The MND also states, with respect to another mitigation measure, that "***the County*** shall implement applicable conditions" of certain regulatory documents (MND, p. 2-126) (emphasis added). However, it bears emphasis that "***Each*** public agency is required to comply with CEQA and meet *its* responsibilities, including evaluating mitigation measures . . .", *Citizens for Quality Growth v. City of Mt. Shasta*, 198 Cal.App.3rd 433, 443 (1988) (emphasis added and in original). While CEQA recognizes that a local agency may find that mitigation is within the responsibility and jurisdiction of another public agency ***when certifying an EIR*** (CEQA Guideline Section 15091 (a)(2)), CEQA does not permit a lead agency to delegate mitigation authority to a third party in the context of a ***mitigated negative declaration***. 21

With respect to other biological impacts, the MND defers mitigation, rather than imposing specific measures to reduce or eliminate Project impacts. For example, with respect to the loss of "waters of the United States" resulting from the Project, the MND proposes as mitigation the preparation of a "Compensatory Mitigation Plan" by the United States Army Corps of Engineers; however, conditioning a negative declaration on another agency's future review and mitigation is insufficient to support a determination that potentially significant impacts are mitigated. *Sundstrom v. County of Mendocino*, 202 Cal.App.3rd 296, 311 (1988). In this regard, the MND indicates that the conditions of the Compensatory Mitigation Plan "are expected to include" certain features, without specifying whether Caltrans will in fact impose those mitigation features on the Project.

Yet other mitigation measures are so vague or uncertain as to provide no meaningful assurance of mitigation. For example, with respect to mitigating impacts upon nesting birds, the MND provides that "Vegetation removal in upland areas ***should not occur*** during the primary nesting season . . .," ***but*** "If vegetation removal ***must occur*** during this period, then preconstruction surveys shall be conducted . . ." (MND, pp. 2-133, 2-134) (emphasis added). The mitigation measure is internally inconsistent and sets forth no criteria for determining when vegetation removal "must" occur; and the provision that vegetation removal "should not occur" does not provide sufficient specificity or mandate to constitute adequate mitigation under CEQA.

Similarly, a mitigation measure purporting to protect sensitive plants provides that mapping should be conducted "for appropriate avoidance during construction," but the mapping information will be used for other purposes "if the population cannot be avoided during construction" (MND, p. 2-130). No criteria are established for determining "appropriate avoidance" and "if the population cannot be avoided".

Finally, without defining what constitutes adequate "protection," the MND sets forth as a mitigation measure that, to ensure protection to biological resources, a "Biological Resources Construction Plan (BRCP) that provides for the protection of the resource and establishes the monitoring requirements will be completed" (MND, p. 2-134). The future preparation of a mitigation plan is not acceptable mitigation. Criteria for protection, and the monitoring requirements to ensure protection, should be set forth in the MND, rather than later; a negative declaration that requires the formulation of mitigation measures at a future time, without specific performance standards, is inadequate under CEQA, *League for Protection of Oakland's Etc. Historic Resources v. City of Oakland*, 52 Cal.App.4th 896 (1997). 21

Based upon the above-referenced inadequacies in the draft MND, the HCCA strongly requests that Caltrans suspend the current mitigated negative declaration process, and instead prepare a full, comprehensive environmental impact report that analyzes all of the potential impacts from this Project, assesses reasonable alternatives to the Project and its component elements, and fully analyzes specific, enforceable mitigation measures. The failure to prepare an EIR has deprived HCCA and its members of the opportunity to meaningfully analyze and comment on the impacts associated with a reasonably range of project alternatives that, for example, would eliminate the proposed retaining walls, preserve all or some of the existing landscaping improvements, and reduce the projected road width of the Project. Caltrans cannot avoid its legal obligation under CEQA to provide the public with a reasonable number of widening options other than the proposed Project. Unless Caltrans foregoes the flawed draft MND and embarks upon a comprehensive EIR, Caltrans' approval of the SR-74 widening project will be in violation of CEQA. 22

RUTAN
ATTORNEYS AT LAW

Thank you for this opportunity to submit comments on the draft Mitigated Negative Declaration and Initial Study for the State Route 74 Lower Ortega Highway widening project. Should you have any questions regarding these comments, please feel free to contact me.

Very truly yours,

RUTAN & TUCKER, LLP

Joel D. Kuperberg

JDK:df
Enclosures
cc: Edmond M. Connor, Esq., HCCA
Jim Shubsda, HCCA
Dick McEwen, HCCA
Art Cusolito, HCCA
Ben Trosky, HCCA
Richard Pierce, HCCA
(all via e-mail)

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Attach #7

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February 14, 2008

Via Email (lower74_D12@dot.ca.gov)
Original to follow

Mr. Scott Shelley
Environmental Planning Branch
California Department of Transportation
3337 Michelson Drive, #380
Irvine, California 92612

Re: Comments on Notice of Preparation for State Route 74 Lower Ortega Highway Widening

Dear Mr. Shelley:

On behalf of the City of San Juan Capistrano (City), we provide the following scoping comments for State Route 74 Lower Ortega Widening Project (Project). These comments are based upon our review of the initial study attached to the notice of preparation as well as the analysis contained in the mitigated negative declaration (MND) previously prepared for the Project. We are pleased Caltrans has decided to give this Project the level of study it requires and prepare an environmental impact report (EIR), although we believe the initial study has failed to identify several potentially significant impacts of the Project. These comments address impacts that the City believes require study in the EIR and mitigation measures and alternatives that should be analyzed to minimize the impacts of the Project.

I. SCOPING MEETINGS SHOULD BE USED TO IDENTIFY CONCERNS AND FORM MITIGATION MEASURES.

The City requests that Caltrans conduct a community scoping meeting on the Project to identify public concerns. While Caltrans has previously held a public meeting on this Project, the format of that meeting made it difficult for community members to get a clear understanding of the Project as a whole. The previous meeting consisted of numerous stations, each of which was designated to discuss only one individual aspect of the Project, such as the look of different sound walls or how much property would need to be acquired to implement the Project. The Caltrans staff members at individual stations could not explain how different aspects of the Project would relate to one another. For

instance, the station discussing the aesthetic aspects of the sound walls could not answer questions on the effectiveness of the walls and would refer community members to a different station to answer such questions. The format of any future scoping meeting should include a singular presentation that allows for a better understanding of the entirety of the Project by the community.

We also request that Caltrans meet with City staff members before the Draft EIR is released. Because the highway widening Project is located within the City, our input should be incorporated into the Project. One of the major impacts this Project would have is the degradation of the aesthetics along this City-designated scenic highway. Therefore, Caltrans should carefully consider the City's preferences in the design of the Project. The City may be able to provide financial assistance to Caltrans for mitigation measures that would preserve the visual appeal of the Project site, such as extensive landscaping and undergrounding of utilities. Holding such a meeting early in the process would allow us to discuss mitigation measures for aesthetic and other impacts, especially those where cooperation between the City and Caltrans is needed or City contributions could improve the Project.

II. THE EIR MUST COMPREHENSIVELY ADDRESS ALL OF THE PROJECT'S SIGNIFICANT ENVIRONMENTAL EFFECTS.

To be legally adequate, an EIR must comprehensively identify and address all of the "significant environmental effects" of a proposed project. (Public Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2.) "All phases of a project," including "planning, acquisition, development, and operation," must be addressed. (CEQA Guidelines § 15126.) And both "[d]irect and indirect significant environmental effects" must be analyzed, "giving due consideration to both the short-term and long-term effects." (CEQA Guidelines § 15126.2(a).) The MND for the Project failed to properly address all of the Project's impacts. The initial study indicates that the EIR will rectify some of these inadequacies, but there are several areas where the initial study perpetuates the MND's incorrect claims that impacts would be insignificant, and other areas where it is unclear whether adequate information will be provided on the Project.

A. The EIR Must Contain a Complete Project Description.

The MND previously prepared for this Project failed to comply with CEQA's requirement that the environmental review document provide "[a]n accurate project description" which "is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." (*McQueen v. Board of Directors of the Mid-Peninsula Regional Open Space District* (1988) 202 Cal.App.3d 1136, 1143.) The EIR must correct this problem by including a complete Project description that sets forth

all design aspects of the Project including: whether there would be sound walls and what type of material they would be made from; the type of retaining walls that would be used; whether a sidewalk would be include on both sides of the highway; what type of landscaping would be used; the number of trees that would be removed and where they would be relocated; the location of the staging area required for construction and asphalt batch plant; and the amount of grading that would be required.

B. Traffic Impacts are Potentially Significant.

The initial study incorrectly claims that traffic hazard impacts would not be significant and are not required to be studied in the EIR. (Initial Study p. 16.) The widening of the Ortega Highway, and the increased vehicle speeds that this would allow, could make conditions more dangerous for pedestrians and equestrians attempting to cross the highway. This is a traffic hazard that requires mitigation. Additional traffic hazards may result from the Project's previously described design that would encourage those needing to make a left turn onto the Ortega Highway to instead enter the Ortega Highway with a right turn and then make a u-turn in the middle of the Highway. The City has provided Caltrans with an independent traffic analysis by traffic expert Fred Minigar that demonstrated the need for signalized intersections to alleviate these impacts. Because traffic hazard impacts may be significant, the EIR must analyze the impact and the use of traffic signals as mitigation.

Traffic impacts could also occur during the construction of the Project. Construction of the Project could result in impacts by temporarily closing lanes of the highway, which would slow traffic flow and possibly result in traffic hazards. Surrounding streets could be impacted by increased levels of traffic from those attempting to avoid construction delays on the Ortega Highway. These impacts should be studied in the EIR.

C. Impacts from Light, Glare and Shade Must be Studied.

The initial study fails to acknowledge that impacts from light and glare may be significant. (Initial Study p. 2.) The description of the Project in the MND stated that glass sound walls maybe included. If the sounds walls for the Project are constructed of glass, significant glare from the walls could occur. The potential for this impact should be studied in the EIR so that mitigation, such as using a finish on the glass that is not highly reflective, can be included.

An analysis of the shade that would be caused by the installation of tall sounds walls and its impact on adjacent residents use of their and enjoyment of their yards and pools, if they exist, should also be included in the EIR.

The Project would require the relocation street lights, most likely closer to existing homes. The light impacts from the relocated street lights should be evaluated.

D. Construction Noise Would Be Significant.

The initial study states that there would be no construction noise impacts because the Project would comply with the City's Noise Ordinance. (Initial Study p. 14.) In the MND for the Project, Caltrans stated that noise levels above 67 decibels should be considered significant. The MND also predicted that construction noise levels would be between 70 and 90 decibels, putting the construction noise levels above the threshold of significance. This significant impact would be felt by those residents that have property abutting the Project site and requires analysis in the EIR. Additionally, when analyzing the significance of construction noise impacts, the EIR should be sure to calculate the cumulative noise impact of numerous pieces of equipment operating at the same time and the noise that would be generated by the asphalt batch plant. The location of the batch plant should be identified in the EIR so that its impacts can properly be assessed and mitigated. We have included a discussion below of several measures that should be incorporated into the Project to help mitigate construction noise impacts.

F. Land Use Impacts Should Be Fully Analyzed.

The initial study states that the EIR will evaluate the Project's consistency with local planning documents. (Initial Study p. 13.) The City requests that the EIR analyze the Project's compliance with the following policies and goals from the City's General Plan: Land Use Goals 7 and 2; Land Use Policy 2.2; and Conservation and Open Space Goal 4. These policies and goals all require developments to be compatible with its surroundings and to prevent the degradation of scenic landscapes. The Project may be in violation of these sections because it would degrade the quaint rural nature of the community by widening the highway, removing numerous trees, and installing large retaining and sound walls.

The EIR should also analyze the Project's potential to divide an established community if no crosswalk or stoplight is provided to connect residents to the north of the Ortega Highway with those to the south. The Project's compatibility with adjacent equestrian uses, bicyclists and pedestrians needs to be evaluated as well to minimize the land use conflicts between those persons and vehicles.

G. All Cumulative Impacts of the Project Require Analysis.

The only cumulative impacts identified by the initial study for study in the EIR are

cumulative noise impacts. (Initial Study p. 18.) Cumulative water quality impacts should also be evaluated. The MND identified the Project's potential impact on water quality in the San Juan Creek to be small, but the San Juan Creek is already designated as an impaired water body under the Clean Water Act. Therefore, any contribution by the Project to a reduction in the water quality should be considered cumulatively significant and all feasible mitigation measures should be implemented to prevent any further impairment to the San Juan Creek.

Several other highway expansion projects near the Ortega Highway widening Project are scheduled to be implemented at around the same time as this Project. The EIR should include analysis of the cumulative noise, traffic, and air quality impacts of the Project and the I-5/Ortega Highway interchange project, the Antonio/La Pata Avenue intersection improvements, and the widening of the Ortega Highway east of the Project site. Evaluating the impacts of these projects together can help to identify mitigation measures that may require cooperation between the projects, such as the phasing of these construction projects.

H. Additional Analysis that Should be Included in the EIR.

The EIR should also contain analysis of the following issues:

- The Project's compliance with the City's Strategic Transportation Plan;
- Whether the Project encourages alternative transportation as required by local, regional and statewide policies;
- Access roads and driveways compliance with the Orange County Fire Authority Standards;
- Compliance with the City's tree removal ordinance;
- The potential for graffiti on sound and retaining walls and mitigation measures to prevent this impact;
- Visual simulations of the proposed sound wall from the south side residents' perspective, the highway from the equestrian trail, the proposed changes to the entrance to the Tanaka Farms, and the Project site from residences on the north side of the Ortega Highway;
- Whether innovative design features have been include for bicycles routes, sidewalks, equestrian trails, boundary walls, and parkways, as required by the

City's Community Design Element;

- Whether the Project would increase the desirability of living in less expensive Riverside County communities and working in the more job rich Orange County communities, thus inducing growth in Riverside County.

III. THE EIR MUST COMPREHENSIVELY ANALYZE MITIGATION MEASURES AND ALTERNATIVES TO THE PROJECT.

The EIR must analyze mitigation measures for all of the Project's significant impacts and must discuss alternatives to the proposed Project. (CEQA Guidelines § 15126.) All "feasible mitigation measures which could minimize significant adverse impacts should be described in the EIR" and, when several measures are available to mitigate an impact, the EIR should discuss each measures and provide reasoning for selecting one over another. (CEQA Guidelines § 15126.4.)

The EIR should also "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives . . . even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (CEQA Guidelines § 15126.6.) This discussion must include "sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project," and expressly must address "[t]he specific alternative of 'no project,'" the purpose of which "is to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project."

A. The EIR Cannot Defer Analysis of Mitigation Measures.

The MND that analyzed this Project improperly deferred development of several mitigation measures until after project approval. CEQA requires all mitigation measures for a project to be formulated during the environmental review process so their efficacy can be analyzed in the EIR. (*San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal.App.4th 645, 669-670.) Additionally, any mitigation measure must be "fully enforceable through permit conditions, agreements, or other legally-binding instruments." (CEQA Guidelines § 15126.4(a)(2).)

The EIR, unlike the previously prepared MND, should not defer:

- Analysis of how many trees would be removed as part of the Project and if off-site

replacement of trees is required, where that would take place;

- Identification and analysis of measures to reduce the aesthetic impacts of constructing sound walls and retaining walls, instead of waiting until a post-approval design phase;

- Preparation and analysis of the traffic management plan for the Project;

- Analysis of the feasibility and adequacy of specific mitigation measures for water quality impacts, instead listing only non-specific unenforceable measures as was done in the MND;

- Whether dewatering would be necessary as part of the Project.

B. Caltrans Improperly Limits Mitigation for Significant Traffic Noise.

Traffic noise is acknowledged as being potentially significant, but the initial study states that only mitigation measures determined by the Caltrans' guidelines to be reasonable and feasible would be included in the Project. (Initial Study p. 13.) Feasible measures are defined by the Caltrans' guidelines to be those measures that reduce noise levels by at least 5 decibels and reasonableness is assessed based on a formula that allows only a certain cost for mitigation for each residence that would be protected. Using this formula to determine whether mitigation measures would be included violates CEQA's requirement that all feasible mitigation measures must be included. Caltrans cannot limit the use of mitigation measures just because they would be expensive; only those measures that can definitively be shown to be economically infeasible can be excluded from use in reducing significant traffic noise impacts. (Public Resources Code § 21081.)

C. Mitigation Measures Proposed for Inclusion in the EIR.

The Project would have several significant impacts that require adequate mitigation. The City requests that the mitigation measures discussed in this section be analyzed in the EIR, and included in the Project if they would reduce its impacts.

The installation of retaining and sound walls for the Project would have significant aesthetic impacts. Visual impacts of the retaining walls could potentially be reduced through design features, such as adding texture to walls so that they look more natural. Shrubs and vines could soften the view of the walls and discourage graffiti. The EIR should also consider terraced retaining walls, which would result in several shorter walls instead of one large one.

The use of glass sound walls could reduce the aesthetic impacts of these walls. In considering whether to use glass sound walls, the EIR should consider using Paraglas or a similar material for the "glass" portion of the wall that would be resistant to yellowing. The placement of vegetation along the sound walls could help cut down on the graffiti these walls may otherwise attract.

The Project would also result in significant aesthetic impacts by removing the numerous large trees and vegetation currently found on both sides of the highway and thus reducing the existing rural feel of this portion of the highway. To minimize these impacts, the EIR should analyze the use of landscaped median strips, extensive setbacks, a variety of materials for the replacement sidewalks, and a physical separation of vehicular and non-vehicular traffic, as required by the City's General Plan Community Design Element for scenic corridors within the City. The City is particularly interested in an analysis of landscaping for the proposed 12 foot wide median for the Project, which may help the area retain some of its current visual appeal.

The overhead utilities in place on the sides of the Ortega Highway may need to be moved closer to existing residents as part of the Project. The EIR should study the feasibility of undergrounding utilities to reduce this visual impact. Additionally, establishment of a City Design Committee should be considered as a method for assuring adequate mitigation for the Project's aesthetic impacts.

The City has previously submitted a report by noise expert Michael Hendrix that sets out potential mitigation measures for the significant construction noise impacts from the Project. The EIR should analyze these measures and incorporate those that are feasible. Measures proposed by Michael Hendrix include: temporary noise attenuation between sensitive receptors and construction noise; moving the construction staging areas, lines of haul trucks, and other sources of noise generation as far as practical from residential properties; restricting equipment idling; providing temporary electric construction power to eliminate noise from portable electric generators.

Michael Hendrix also found that impacts from the groundbourne vibrations associated with construction could be reduced by the use of augers and setting retaining wall supports in concrete instead of pile driving and including buffer zones between residential property and the use of vibratory equipment for compaction.

The EIR should also analyze the inclusion of mitigation measures that were required for construction of the nearby Ranch Plan, which also widens a section of the Ortega Highway. These measure include: limiting the hours of construction, with no construction on Sundays or holidays; a requirement that evidence be produced prior to commencement of construction that all construction vehicles or equipment have properly

operating and maintained mufflers; all operations should comply with the San Juan Capistrano noise ordinance; and vehicle staging areas should be located as far as practicable from residences.

The use of Rubberized Asphalt Concrete, which can significantly reduce traffic noise and has been used on many other Caltrans projects throughout the state, should be evaluated in the EIR.

The City also requests that the Project include a restriction to ensure that the Project site is not expanded beyond four lanes in the future. The rest of Ortega Highway east of the City up to the 241 Highway connection has right of way for six lanes, although it is only four lanes currently. A restriction should be put in place to ensure that the Project site is not expanded beyond four lanes in the future. City residents are concerned that this segment of the Ortega Highway could be expanded again in the future, further encroaching on to residents' property and worsening the many impacts discussed above.

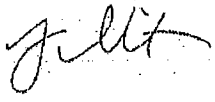
D. Alternative Locations for the Project Should be Analyzed.

Many of the significant impacts of this Project arise from its location on a scenic highway lined by residential uses. The EIR should thoroughly analyze "whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location." (CEQA Guidelines § 15126.6(f)(2)(A).) The widening of other east-west connectors should be analyzed as an alternative to this Project. If other widening projects are rejected, the EIR should disclose its reasons for doing so. (CEQA Guidelines § 15126.6(f)(2)(B).)

CONCLUSION

The City looks forward to working with Caltrans to assure that this Project receives the careful review that it deserves. Thank you for consideration of the City's views.

Sincerely,



Amy Minteer

cc: City of San Juan Capistrano

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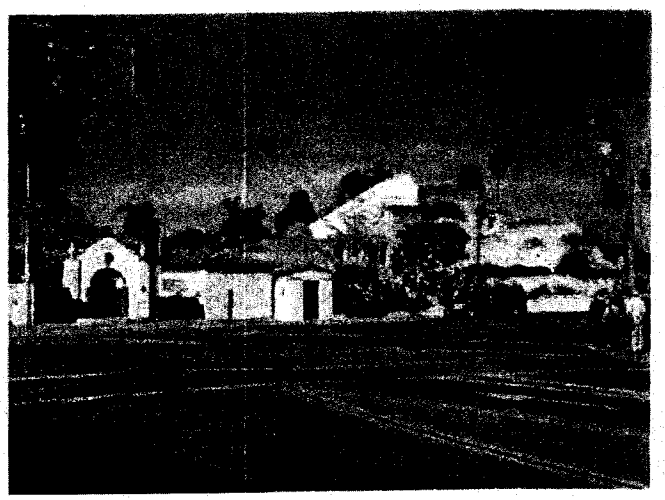

Photograph of the Mission wall right, shortly after completion on the left and the same view today.

Capital Improvement Program

CAPITAL IMPROVEMENT PROGRAM 2004-2011

Each year a significant portion of the City Budget is devoted to capital improvement projects. These projects result in improvements to City streets, additions of curbs, gutters, and sidewalks, modifications of traffic signals, improvements to City parks and waterways, and needed improvements of various public facilities. The combined scope of work for the next seven years constitutes the City's Capital Improvement Program (CIP). The Capital Improvement Program is a seven-year program required to meet requirements imposed by Measure M. The following pages provide an overview of the Capital Improvement Program approved by the City Council for the 2004-2011 fiscal years.

CIP Priorities

The projects included in the CIP reflect the highest priorities of the City of San Juan Capistrano. Projects required for public safety and the protection of the City's existing capital improvements are of the highest priority. Projects which further extend or expand existing capital improvements according to approved plans are also priorities. These priorities are established based on a review of deficiencies in infrastructure as conducted by City staff, and with the input of the commissions, boards and committees established by the City Council. During the public hearings conducted by the City Council in June, 2004, input is also provided by interested citizens about the proposed projects.

Expenditures

After priorities are established, projects are spread out over the seven-year period based on projected yearly revenues. It is anticipated that $145.8 million will be spent for capital improvement projects over the next seven years. The following is a breakdown of the funding for each year of the Capital Improvement Program.

Year Ending June 30	Anticipated Expenditures
2004-2005	$39,194,315
2005-2006	$25,678,000
2006-2007	$22,310,000
2007-2008	$18,601,975
2008-2009	$16,908,500
2009-2010	$15,795,000
2010-2011	$ 7,262,925
TOTAL	$145,750,715

2004-2005 Highlights

The major projects for this year's Capital Improvement Program include several projects which were identified in the City's Traffic Congestion Relief Program (TCRP) which was adopted by City Council in September 2003. These TCRP projects include Del Obispo Circulation Improvements and Bridge Widening, Del Obispo and Camino Capistrano Intersection Improvement Master Plan, Del Obispo Street Widening (300' S of Calle Aspero 400'), Ortega Highway Widening, Del Obispo to I-5 SB On Ramp, I-5 Interchange @ Ortega Highway Preliminary Design, Bus Turn Out @ Camino Capistrano and La Zanja, Ortega Highway Traffic Signal Timing and Coordination, and Trabuco Creek Bridge @ Del Obispo Approach Repairs..

Other major projects for 2004-2005 include completion of El Camino Real Sidewalk, Downtown Lighting Project, and Underground Utilities in the Downtown, Preventative Street Maintenance, Vereda Bikeway Undercrossing, ADA Ramps @ Sun Ranch/Troy Homes/Casitas, Calle Resplendor Drainage Improvements, New Los Mares Trail, Congdon House ADA Improvements, Skate Park Site Assessment and Design, Harrison House Rehabilitation, Camino Capistrano Recreation Corridor Master Plan, Sports Park Field Upgrades, Creekside Park Extension @ Calle Jardin/Alipaz, Los Rios Park Master Plan, Parra Adobe Structural Stabilization, Hydraulic Capacity #1 Project, Sewer Monitoring Project, Cooks Reservoir Repair, Terminal Reservoir No. 3, 760 S. Reservoir, Water Pipeline Improvements at various locations, Recycled Water Wells/Iron & Magnesium Removal System, and Recycled Water Master Plan and Financial Plan.

In addition to the above listed projects, numerous other roadway, sewer, drainage, park, equestrian, and water improvements are also slated for the 2004-2011 Capital Improvement Program.

DESCRIPTION OF FUNDING SOURCES

Systems Development *- Proceeds from development fees collected under Ordinance No. 364 and Ordinance 211 to accommodate new development growth.*

Parks and Recreation *- Proceeds from fees collected under Ordinance No. 210 to develop parks and recreational facilities.*

Drainage *- Proceeds from development fees collected under Ordinance No. 162 for the construction of local drainage facilities in accordance with the Master Plan of Drainage.*

CDBG *- Grant proceeds received from the Department of Housing and Urban Development to be used as additional financing for predetermined projects designated by the granting agency.*

Gas Tax *- Proceeds of state subventions received as the result of Section 2105, 2106, 2107 and 2107.5 of the California Streets and Highways Code to be used for maintenance, rehabilitation or construction of roads and road improvements.*

Measure M *- Proceeds of Orange County Measure M funding received as the result of increased sales tax to be used for construction of roads and road improvements.*

Sewer *- Proceeds from connection fees collected under Resolution No. 83-8-16-2 for the construction of sewer plant and facilities.*

Water *- Proceeds from connection fees, property taxes and specially assessed water charges for the construction of water plant and facilities.*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
CIRCULATION PROJECTS			
101	*Del Obispo Driveway Improvements*	*Complete reconstruction of the driveway approaches to Marie Callenders; McDonald's; Carl Jr's and Denault's Hardware on Del Obispo Street.*	*2004/2005*
102	*Del Obispo Street Widening, 300' South of Calle Aspero to 400' North*	*Design and construction to widen the west side of Del Obispo Street.*	*2004-2006*
105	*Crack Seal Program*	*Preventative Street Maintenance.*	*2004-2005*
107	*Highland Drive Preliminary Geotech*	*Continuation of inclinometer readings to monitor the crest area of Highland Drive, originally monitored in 2000/2001 and 2002/2003.*	*2004-2005*
108	*El Camino Real Sidewalk (HTC Park)*	*Sidewalk, curb, and gutter along the frontage of HTC Park*	*2004-2005*
109	*Ortega Highway Widening @ I-5 -- ROW Reimbursement*	*Reimbursement to Caltrans for Right of Way in conjunction with this highway widening project.*	*2004-2005*
110	*Railroad/Drainage Improvements N/Stonehill*	*Project consists of the installation of drainage facilities and elimination of at-grade crossing north of Stonehill in conjunction with improvement of Home Depot site.*	*2004-2005*
111	*Del Obispo/Camino Capistrano Intersection Improvements Master Plan*	*Completion of master plan study of Del Obispo/Camino Capistrano intersection. Upon completion, together with Project #114, and #117, it will provide for construction of improvements to all four directions of this intersection*	*2004-2006*
112	*Commuter Parking Surveillance*	*Project consists of the installation of a parking surveillance system for the depot parking lot.*	*2004-2005*
114	*Dual Left Turn Lane for WB Del Obispo @ Camino Capistrano*	*Dual Left Turn Lane for Westbound Del Obispo as defined by Master Plan project #111.*	*2004-2006*
117	*Dual Left Turn Lane for EB Del Obispo @ Camino Capistrano*	*Dual Left Turn Lane for Eastbound Del Obispo as defined by Master Plan project #111.*	*2004-2006*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
118	*Downtown Lighting Project*	*Construction of three lights on El Camino Real to replace wood pole mounted lights to be taken down with UUD 99-01 and fourth and final phase of downtown lighting project (approximately 15 poles).*	*2004-2005*
119	*Preventative Street Maintenance/Slurry Seal of City Streets*	*Older City streets are reaching the age when asphalt overlays are required to prevent full reconstruction at a later date. Project also includes design and slurry of City streets.*	*2004-2011*
120	*Junipero Serra Road, I-5 to Rancho Viejo Road Rehabilitation*	*Reconstruction of Junipero Serra Road*	*2004-2005*
122	*Del Obispo Circulation Improvements and Bridge Widening*	*Bridge Widening over Trabuco Creek, right of way acquisition and construction for the widening of the east side of Paseo Adelanto. Project includes dual left turns for WB traffic on Del Obispo Street @ Alipaz and Paseo Adelanto, as well as dual right turns for northbound Paseo Adelanto traffic @ Del Obispo.*	*2004-2008*
125	*Los Rios Parking Lot and Signage*	*Design and construction of public parking in Los Rios District and sign program to divert visitor traffic on Paseo Adelanto.*	*2003-2005*
129	*ADA Compliant Ramps @ Sun Ranch/Troy Homes/Casitas*	*Installation of ADA compliant ramps.*	*2004-2005*
132	*Miscellaneous Engineering Services*	*To provide funds to prepare projects for future funding requests and to develop shelf-ready projects. Could include advance work such as our regular rehabilitation projects, signal construction, traffic engineering support services, etc..*	*2004-2011*
134	*Ortega Highway Widening, Del Obispo to I-5 SB On Ramp*	*Project will extend the eastbound right turn lane (a condition of Honeyman Ranch project) back to Del Obispo Street to provide a continuous right turn lane for eastbound Ortega Highway between Del Obispo Street and I-5 Southbound on ramp.*	*2004-2006*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
136	*El Camino Real @ Don Juan Ret. Wall*	*Construction of a retaining wall in the landscaped slope area adjoining El Camino Real @ Don Juan to insure the integrity of the roadway at this location.*	*2005-2006 and 2008-2009*
141	*Ortega Highway @ I-5 Interchange Preliminary Engineering*	*Completion of a project study report for reconstruction of the Ortega Highway @ I-5 Interchange and preliminary design.*	*2004-2007*
144	*Underground Utilities Downtown*	*Construct underground utilities in downtown area. Includes replacement of one street light on Spring Street, three flood lights on El Camino Real near HTC, and lateral hookups on City Property.*	*2004-2005*
401	*CCFP Administration/Development*	*Administration costs associated with implementation and maintenance of the CCFP program, including development of the various*	*2004-2011*
402	*CCFP Developer Set Aside*	*Required set aside funding to reimburse developers for on-site improvements per CCFP policy guidelines. Set Aside is approximately 50% of projected CCFP revenue.*	*2004-2011*
TCRP 11	*Camino Capistrano @ Stonehill Dr - N/S Split Phasing (Study)*	*Project consists of traffic study to consider north/ south split phasing*	*2004-2005*
TCRP 14	*Ortega Hwy & I-5 Ramp Signal Timing*	*Project consists of working with Caltrans on timing improvements to reduce backup on Ortega Highway*	*2004-2005*
TCRP 15	*Ortega @ I-5 Ramp-Conv. #1 WB Thru Ln to 2nd Left Trn Ln. Study*	*Project consists of traffic study to consider converting the #1 westbound through lane on Ortega Highway to a 2nd dedicated left-turn lane.*	*2004-2005*
TCRP 16	*Rancho V. Rd/Ortega -2nd SB Thru Ln - Study*	*Project consists of restriping southbound Rancho Viejo Road at Ortega Highway to provide an additional through lane*	*2004-2005*
TCRP 17	*Del Obispo & Alipaz Traffic Signal Modifications*	*Project consists of modifying the existing traffic signal to provide a northbound right turn overlap arrow signal phase concurrent with westbound left turns*	*2004-2005*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
TCRP 18	*Camino Capistrano & Stonehill Restriping*	*Project consists of restriping southbound Camino Capistrano at Stonehill Drive to provide a left turn lane, a through lane, a shared through/ right turn lane and an exclusive right turn lane*	*2004-2005*
TCRP 19	*Camino Capistrano Bus Turnout @ La Zanja St.*	*Project consists of design and construction of bus turn out on Camino Capistrano in the vicinity of La Zanja Street.*	*2004-2005*
TCRP 20	*R. Viejo Rd Widen, S. of J. Serra/MP Study/Design/Construction*	*Project consists of intersection master plan, design, construction and right of way acquisition to widen Rancho Viejo Road to provide two left turn lanes and a shared through and right turn lane northbound at Junipero Serra Road.*	*2005-2007*
TCRP 21	*Ortega Hwy Traffic Signal Timing & Coordination*	*Project consists of coordinating and adjusting traffic signal timing on Ortega Highway between Del Obispo Street and La Pata.*	*2004-2005*
TCRP 22	*Cam. Capistrano & I-5 SB Off-Ramp/Interim Imprv to reduce backup*	*Project consists of working with Caltrans on coordination timing between the three area traffic signals Camino Capistrano/ I-5 SB Ramp, Camino Capistrano/ San Juan Creek Road and San Juan Creek Road/ Valle Road*	*2004-2005*
TCRP 24	*126-Trabuco Crk Bridge @ Del Obispo Approach Repairs*	*Project consists of construction of permanent approach repairs*	*2004-2005*
TCRP 25	*J. Serra Rd. EB Right Tun Lane @ Rancho Viejo Rd.*	*Project consists of design, construction and right of way acquisition to provide a right turn lane for eastbound Junipero Serra Road at Rancho Viejo Road*	*2005-2007*
TCRP 26	*J. Serra Rd. WB Right Turn Lane @ I-5 NB On-ramp*	*Project consists of design, construction and right of way acquisition to provide a right turn lane for westbound Junipero Serra Road at I-5 northbound on ramp*	*2005-2007*
TCRP 27	*Camino Capistrano SB Right Turn Improv/Oso Rd*	*Project consists of design, construction and right of way acquisition to accomplish an 8' to 10' widening on the west side of Camino Capistrano to reduce southbound right turn backup at Oso Road*	*2007-2009*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
TCRP 31	*SJ Creek Rd. Widen., Valle Rd to Cam. Capistrano*	*Project consists of design, construction and right of way acquisition to widen San Juan Creek Road under I-5 Overpass between Valle Road and Camino Capistrano*	*2007-2010*
TCRP 33	*Camino Capistrano Widen, Calle Chueca to J. Serra Rd*	*Project consists of design, construction and right of way acquisition to provide two additional lanes on the east side of Camino Capistrano from Calle Chueca to Junipero Serra Road*	*2007-2010*
TCRP 34	*J. Serra Widen, Cam Capacity to Rncho Viejo Rd*	*Project consists of design, construction and right of way acquisition to provide one additional lane on the south side of Junipero Serra Road from Camino Capistrano to Rancho Viejo Road and to modify the two I-5 ramp traffic signals*	*2007-2010*
TCRP 35	*Camino Las Ramblas & I-5 NB Traffic Sig. Modif.*	*Project consists of design and construction to modify the Camino Las Ramblas/ I-5 traffic signals*	*2010-2011*
TCRP 39	*Alipaz Street & Cam. Del Avion Traffic Signal*	*Project consists of design and construction of traffic signal*	*2007-2008*
TCRP 42	*SJ Crk Rd. Widen., La Novia to C. Santo Domingo*	*Project consists of design, construction and right of way acquisition to widen San Juan Creek Road.*	*20007-2010*
TCRP 43	*Camino Capistrano & La Zanja St. Left Turn Phasing*	*Project consists of traffic signal improvements to provide a protected left turn phase for northbound and southbound traffic.*	*2007-2008*
TCRP 44	*Ortega Hwy & Avenida Siega Traffic Signal*	*Project consists of design and construction of traffic signal*	*2007-2008*
TCRP 45	*Camino Del Avion & Via Positiva Traffic Signal*	*Project consists of design and construction of traffic signal*	*2007-2008*
TCRP 46	*Del Obispo & Ave. Pedregal Traffic Signal*	*Project consists of design and construction of traffic signal*	*2008-2009*
TCRP 50	*San Juan Creek Rd & Calle Cartegena Traffic Signal*	*Project consists of design and construction of traffic signal*	*2008-2009*
TCRP 52	*Rancho Viejo Rd & Spotted Bull Ln Traffic Signal*	*Project consists of design and construction of traffic signal*	*2008-2009*
TCRP 53	*Alipaz Widen, Cam. Del Avion to Calle Rolando (Eng)*	*Project consists of design, construction and right of way acquisition to widen Alipaz Street from Camino Del Avion to Calle Rolando*	*2010-2011*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
TCRP 54	*Rancho Viejo Rd & Paseo Espada Traffic Signal*	*Project consists of design and construction of traffic signal*	*2008-2009*
TCRP 55	*Rancho Viejo Rd & Highland Dr. Traffic Signal*	*Project consists of design and construction of traffic signal*	*2010-2011*
TCRP 56	*San Juan Creek Rd Widen, La Novia to Valle Rd (Eng)*	*Project consists of design, construction and right of way acquisition to widen San Juan Creek Road from La Novia Avenue to Valle Road*	*2010-2011*
TCRP 9	*Camino Capistrano Median Modification @ Del Obispo Street*	*Project consists of design and construction of increased length of Camino Capistrano northbound dual left turn lanes at Del Obispo Street*	*2004-2005*
	Alipaz/Barona/De La Vista/Highland Lighting Design	*Study of existing lighting levels and possible design if required.*	*2008-2009*
	Alto Capistrano St. Light Conversion	*Project will convert 72 existing cobra head street lights in Alto Capistrano to Mission Bells.*	*2009-2010*
	Arterial Street Major Rehab Project	*Design and construction of rehabilitation of arterial City Streets*	*2004-2011*
	Bus Bench Rehabilitation	*Removal and replacement of eight bus benches and trash receptacles -- current benches pose a safety hazard and are continuously being vandalized.*	*2004-2005*
	Camino Del Avion Retaining Wall	*Permanent low retaining wall to replace temporary wooden wall at back of sidewalk*	*2005-2006*
	City Hall Parking Lot Resurfacing	*Repairs and 2" overlay to asphalt parking lot. Installation of concrete v-gutter to ensure proper drainage.*	*2004-2005*
	Del Obispo Street Rehab @ Blue Fin (Reimbursement)	*Reimbursement to Dana Point for Street Rehab on Del Obispo*	*2004-2005*
	Del Obispo/Aguacate Rd to Via Belardes	*Landscape and appropriately irrigate the area between the curb and sidewalk.*	*2009-2010*
	La Novia Ave Parkway Geotech Invest.	*Geotechnical review of the area on La Novia Avenue south of Via Capri on the east side and on the west side above Paseo Sienna. Based on*	*2009-20111*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
	Malaspina Rd - Curb, Gutter, Widen.	*Design and construction of curb, gutter, and widening to public portion of Malaspina Road.*	*2009-2010*
	New Poles for Christmas Decorations	*Installation of 11 new poles at the Downtown intersections. The new poles will alleviate having to use the traffic signal poles to support the weight of decorations.*	*2004-2005*
	San Juan Creek Bike Trail Lighting	*Project will provide a low level lighting design for future consideration.*	*2009-2010*
	SJCrk Rd Sidewalk/Camino Lacouague	*Final design and construction of sidewalk from Camino Lacouague to 3000' west.*	*2005-2006 and 2007-2008*
	Spring Street Sidewalk Design	*Design and construction of north side sidewalk for school children safety.*	*2009-2010*
	Trabuco Creek Road Sidewalk	*Design and construction the sidewalk closure between existing and Olsen Tract.*	*2005-2007*
DRAINAGE PROJECTS			
130	*Calle Resplendor Drain*	*Participation with Caltrans to address the property flooding in the Calle Resplendor area.*	*2004-2006*
	St. Pierre Storm Drain Reimbursement	*Reimbursement to St. Pierre for design/construction of Los Corrales/Hidden Mtn Storm Drain -- not payable until 2013*	*2013*
PARKS AND RECREATION PROJECTS			
124	*Vereda Bikeway Crossing at Railroad*	*Project consists of the construction of a bikeway crossing of the railroad facilities along the Vereda Trail adjacent to San Juan Creek.*	*2004-2005*
451	*New Trail - Landfill Trail*	*Trail from North Open Space to San Clemente/San Onofre Trail System. Phase 1 is from City Open Space to Los Mares. Phase II is from Los Mares to San Clemente. Project is coordinated by Supervisor Wilson with Integrated Waste, City of San Clemente, and City of San Juan Capistrano.*	*2004-2006*
452	*Congdon House ADA Improvements*	*ADA upgrades to allow for uses other than residential*	*2004-2005*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
453	*Skate Park Site Assessment and Design*	*Conduct an analysis of potential Skate Park locations within the community and design.*	*2004-2006*
454	*San Juan Capistrano Regional Library Rehab.*	*Design and construction of rehabilitation of San Juan Capistrano Regional Library*	*2004-2005*
456	*Harrison House Rehabilitation*	*Repairs to roof and structural framing to maintain integrity of this historic structure.*	*2004-2005*
459	*Camino Capistrano Recreation Corridor Master Plan (Formerly El Camino Real Park Upgrades and Sports Court Master Plan)*	*Master planning of the recreational users for El Camino Real Park from La Zanja to Oso Road and the Sports Court area located at Acjachema and Camino Capistrano.*	*2004-2007*
462	*Cordova Park Soccer Goal Improvements*	*Export soil in Soccer Goal Areas, install crumb rubber in soil, and replace sod.*	*2004-2005*
467	*Sports Park Field Upgrades*	*Drainage upgrades to alleviate poor soil and turf conditions at new Sports Park. Improvements will include installation of sand-filled silt drainage systems and minor regrading and reseeding of low areas. Two (2) of four (4) fields upgraded in 2001/2002.*	*2004-2005*
468	*New Equestrian Trail Improvements/Existing Trail Easements*	*Project provides for improvement of existing City trail easements. Work will includes Barking Dog Trail, Trail signage/barriers/gates, Evita Feeder Trail, Cook Lane Trail, and Trabuco Creek - Rancho Viejo Road to North City Limit.*	*2004-2005*
471	*Creekside Park Ext (Dana Point) at Calle Jardin/Alipaz*	*Improvement of parksite within SJC, adjacent to Creekside Park in Dana Point*	*2004-2006*
476	*Community Center Parking Lot Circulation Improvements*	*Phase II -- reconstruction of entrance of Community Center from Via Positiva. Phase II will provide secondary access to/from Camino Del Avion for Community Center*	*2004-2005*
477	*Cook Cordova Park Central Irrigation Controller*	*Link three irrigation controllers to one central controller to manage water use.*	*2004-2005*
	Acu Canyon Park Restrooms	*Construction of restroom facilities at Acu Canyon Park.*	*2006-2007*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
	Blas Aguilar Adobe Rehab (Remainder of Phase C)	*The project consists of a reassessment of the structural condition of the Adobe with respect to the Phase C Building Restoration. Includes remaining reconstruction and rehab of the adobe.*	*2009-2011*
	Blas Aguilar Adobe Rehabilitation (Phase C) Roof Improvements	*This project consists of a reassessment of the structural condition of the Blas Aguilar Adobe with respect to the Phase C building restoration improvements.*	*2004-2006*
	Community Center Historic Depiction Program	*Project will provide oversize backlit photo wall murals for Community Center porch walls. Will include depiction of Congdon Family and agriculture with photographs and plaques giving site history.*	*2008-2009*
	Congdon House Water Tower Renovation	*The Congdon House Water Tower renovation proposes the following scope: design for structural stability, interior and exterior surface improvements including interior/exterior painting, repair of doors/windows, weather damage prevention and establishment of a maintenance plan.*	*2006-2007*
	Dog Park Site Study	*Project consists of initial funds to research a location, design concept, and estimate costs for construction in future CIP.*	*2008-2009*
	HTC Park Mat Surfacing	*Installation of grass pavers will provide for vehicle access for special events, stage set ups, etc. over sensitive archeological areas. Pavers will protect the shallow irrigation mainlines within the park.*	*2004-2005*
	Los Rios Historic District Street Lighting Project	*Project will provide for final design and installation of historically appropriate street lighting in Los Rios Historic District.*	*2006-2007*
	Los Rios Historic District Street Lighting Study	*Evaluation of current street lighting conditions, meetings with neighborhood groups and potential manufacturers to determine a standard street light fixture and determine a design for the lighting layout on Los Rios Street.*	*2004-2005*
	Los Rios Park Master Plan	*Master Plan for Los Rios Park as described in the Los Rios Specific Plan update in 1998.*	*2004-2005*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
	Los Rios Park Upgrades	*Installation of plantings, irrigation and walkways in Los Rios Park.*	*2008-2009*
	Los Rios Parking Lot Path to History	*Project scope proposes to provide design and construction of periodic displays or monuments of history along a public access-way from Paseo Adelanto through the proposed Los Rios Parking Lot to the Historic District.*	*2006-2007*
	Montanez Adobe Out Buildings and Master Plan	*The project consists of construction of a wood structure containing an electrical panel, storage and M/W toilet rooms.*	*2008-2010*
	Montanez Adobe Structural Improvements	*The project consists of structural improvements to the Nationally Registered Historic Building, as outlined in the revised Gil Sanchez report from 8/2000.*	*2007-2009*
	Parra Adobe Structural Stabilization	*Structural rehabilitation/repairs to Nationally Registered historic building.*	*2004-2005*
	Parra Adobe/Harrison Farm House Site Improvements	*The Harrison House and Parra adobe site improvements will implement appropriate means for using the site, parking/circulation, ADA solutions and landscaping that maintains the historic integrity of the Parra Adobe and the Harrison House.*	*2005-2006*
	Parra Adobe/Harrison House Farm House Master Plan	*The master plan would define appropriate means for using the site, develop parking/circulation, design ADA solutions and a landscaping strategy that maintains the historic integrity Parra Adobe and the Harrison House.*	*2004-2005*
	Swanner House Water Tower Renovation	*The Swanner House Water Tower renovation proposes the following scope: design for structural stability, interior and exterior surface improvements including interior/exterior painting, repair of doors/windows, weather damage prevention and establishment of a maintenance plan.*	*2008-2010*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	TITLE	DESCRIPTION	FY FUNDING
SEWER PROJECTS			
711	SOCWA PC-2R	Provides for payment of City's portion of SOCWA Projects.	2004-2011
716	Hydraulic Capacity Project #1, San Juan Creek Siphon toTrabuco Crk Siphon	Project will design and reconstruct the existing 18" and 21" diameter existing lines as a 21" diameter line from the San Juan Creek siphon to the Trabuco Creek siphon. Design to include Hydraulic Capacity #6.	2004-2006
728	Major Sewer Repair	Project consists of the repair of offset joints, cracked pipes, and sags that require contract work.	2004-2011
729	Sewer Protection - San Juan Creek	Project consists of the on-going costs for monitoring compliance with Corps Permit.	2004-2006
	Avenida Del La Vista Sewer Lift Station	Project will design and construct a permanent sewer lift station to replace the current temporary one.	2008-2010
	Hydraulic Capacity #3,Cam. Capistrano to Doheny Park Rd.	This project will design and reconstruct the existing sewer as a 12" diameter line from Camino Capistrano to Doheny Park Road.	2006-2008
	Hydraulic Capacity #4,Trunk Line Reconstruction ,SOCWA to 720' N	Hydraulic Capacity Project #4 - Trunk Line Sewer Reconstruction, SOCWA Plant to 720' North	2006-2008
	Hydraulic Capacity #5, Trabuco Creek Sewer & Siphon	This project will design and construct a 12" diameter sewer to replace the sewer previously washed away between R/R trestle and Camino Capistrano/Junipero Serra.	2007-2009
	Hydraulic Capacity. #2, Trunk Line Reconstruction /Alipaz to Calle Jardin	Project will design and reconstruct the existing trunk line sewer as a 24" diameter line from Alipaz Street to Calle Jardin.	2005-2007
	Hydraulic Capacity.#6,San Juan Creek Siphon, San Juan Creek Rd to City Yard	This project will design and construct an 18" diameter sewer and siphon across San Juan Creek from San Juan Creek Road to the City Yard.	2010-2011
	McCracken Hill Sewer	Provide the ability to have a backbone sewer system installed by the residents in the McCracken Hill Development.	2006-2008

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
	Sewer Monitoring Project	*This project will design and construct trunk sewer flow and level monitoring station.*	*2004-2005*
WATER PROJECTS			
753	*Terminal Reservoir #3 (#2 Replacement)*	*Completion of design and construction for a 6 mg replacement facility for the failing Terminal #2 Reservoir.*	*2004-2005*
758	*SJBA Demineralization Project*	*Completion of the Ground Water Recovery Plant which will provide nearly half of the City's annual potable water requirement and emergency water storage needs.*	*2004-2005*
760	*Emergency Generator Connectors*	*Provide connection points for portable electric generators at key wells and pump stations for emergency power.*	*2008-2010*
762	*Atlas Mapping System, GIS, Facilities Mgmt System*	*GIS Mapping, Facilities Management*	*2004-2005*
764	*Recycled Water Well #5 - I & M Removal Facility*	*Recycled water well #5. Iron and manganese removal water treatment plant design and construction.*	*2004-2005, 2006-2010*
765	*Pressure Regulating Station Upgrades*	*System wide modifications to repair/replace/upgrade pressure regulating stations.*	*2005-2007, 2008-2011*
767	*Undefined Replacement Projects*	*Project funded for replacement of unknown system failures during the fiscal year.*	*2004-2011*
768	*SCADA System Retrofit Program*	*Retrofit existing facilities with SCADA controls.*	*2004-2011*
769	*Cooks Reservoir Repair*	*Construction of a 1.5 mg reservoir to replace the failed 0.3 mg Cook's Reservoir on the site intended for the new Cook's reservoir. This reservoir will stabilize pressure in the south end of the 250S service zone and improve fire flow.*	*2004-2005*
774	*Zone 250S 3.0 MG Reservoir and Piping*	*Land Acquisition, feeder pipe, and tank construction for the 250S 3.0 MG Reservoir*	*2008-2010*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
780	*Tri-Cities Transmission Main*	*Capacity charges from Tri-Cities Transmission main ownership.*	*2004-2011*
784	*Del Obispo Connection Lease*	*Lease Capacity for Del Obispo Connection to JWRSS; annual lease payment to SCWD for lease Capacity from the Del Obispo intertie.*	*2004-2011*
790	*High West Side Pipeline Replacement Project*	*Relocate and replace High West Side Pipeline - 8000 LF CML&C steel pipeline and appurtenant connecting facilities.*	*2004-2005, 2008-2009*
791	*Pacific Point SC-4 Terminal, 760 S Reservoir Participation*	*FY 04/05 funding will pay for half the cost of construction of this reservoir. The developer (Pacifica San Juan) will carry the remaining half of the costs until FY 2005/2006, when the City will fund the remainder of the project and repay them.*	*2004-2006*
794	*SC-4 Terminal Pipeline Project*	*24" Transmission pipeline from SC-4 flow regulating facility -- 22,000 LF of CML&C steel pipe and appurtenant facilities.*	*2004-2005*
	Pump Station Improvements and Removals	*Pump station replacements and capacity upgrades as defined in the DWMP.*	*2007-2009*
792	*Recycled Water System EIR & LILA*	*Perform Environmental Impact Review (EIR) and apply for a low interest loan (LILA) and grant from the state and/or federal government; to assist in funding the Recycled System Master Plan adopted in January of 2000.*	*2008-2009*
	Domestic Water Pipeline Improvements @ Various Locations	*Pipeline improvements as identified in DWMP.*	*2004-2011*
	Recycled Water System Pipelines @ Various Locations	*Construct the pipelines as defined in the Recycled System Master Plan adopted in March of 2000.*	*2004-2010*
	Recycled Water System Pressure Reducing Valves (PRV's)	*Construct the pressure reducing valves defined in the Recycled System Master Plan adopted in March 2000.*	*2005-20007, 2008-2010*
	Recycled Water Master Plan	*Revision of the RWMP and RWFP, as a result of the revised DWMP.*	*2004-2005*

CAPITAL IMPROVEMENT PROJECT NARRATIVES

CIP #	*TITLE*	*DESCRIPTION*	*FY FUNDING*
	Recycled Water Advance Treatment Facility (SOCWA)	*Construction of the advanced water treatment plant at the SOCWA J.B. Latham Wastewater Treatment Plant as defined in the RWMP of 2000.*	*2005-2010*
	Recycled Water System Pump Stations	*Construct the pump stations defined in the Recycled System Master Plan adopted in March of 2000.*	*2007-2009*
	Recycled Water System Reservoir	*Construct the reservoirs defined in the Recycled System Master Plan, adopted in March of 2000.*	*2005-2007,2008-2010*
	Recycled Water System Retrofits	*Construct retrofits as defined in the Recycled System Master Plan adopted in March of 2000.*	*2005-2011*

2004-2005

CITY FUNDED CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Systems Develop.	Gas Tax	Measure M	CCFP	Drainage	Parks and Recreation
Beginning Fund Balance	$1,852,741	$(21,058)	$27,378	$10,921	$504,534	$(197,399)	$1,528,365
PROJECTED REVENUE							
Taxes	716,268	716,268	0	0	0	0	0
Fees	5,875,832	39,168	0	0	1,979,048	467,925	3,389,696
Other Agencies							
Federal	1,478,912	400,000	0	0	0	0	1,078,912
State-Annual Revenue	728,934	57,900	671,034	0	0	0	0
State-Other Grants	0	0	0	0	0	0	0
County-Annual Revenue	432,000	0	0	432,000	0	0	0
County-Other Grants	1,626,800	1,526,800	0	0	0	0	100,000
Grant $ to be received	341,741	225,934	0	115,807	0	0	0
Other	615,000	615,000	0	0	0	0	0
CRA	1,719,850	1,679,850	0	0	0	0	40,000
General Fund	285,000	0	0	0	0	0	285,000
Interest Earned	51,780	0	684	273	12,613	0	38,209
PROJECTED REVENUE TOTAL	13,872,115	5,260,918	671,718	548,080	1,991,656	467,925	4,931,817
Unspent Carryover from 03-04	3,256,128	0	136,750	806,000	2,036,378	0	277,000
AVAILABLE RESOURCES TOTAL	18,980,984	5,239,860	835,846	1,365,001	4,532,568	270,526	6,737,182
		CIP # CAPITAL PROJECTS FOR					
CIRCULATION PROJECTS							
TCRP Projects							
101-Del Obispo Driveway Improvements	143,000	0	0	143,000	0	0	0
102-D O St Widening, 300'S Calle Aspero to 400' N	50,000	28,800	0	0	21,200	0	0
109-Ortega Hwy Widening, I-5 to Rancho Viejo Rd	264,000	125,000	0	139,000	0	0	0
111-D.O. Camino Capistrano Intersection Imprv. MP	64,000	0	0	0	64,000	0	0
114-Dual Lft Trn Ln for WB D. O.@ Cam Cap (Eng/ROW)	177,000	0	0	177,000	0	0	0
117-Dual Lft Trn Ln for EB Del Obispo @ Camino Cap (Eng)	25,000	0	0	25,000	0	0	0
120-Junipero Serra Rd. I-5 to RVR Rehab.	146,000	0	146,000	0	0	0	0
122-Del Obispo Circulation Imp. & Bridge Widening	570,000	0	0	0	570,000	0	0
126-Trabuco Crk Bridge @ Del Obispo Approach Rprs	154,000	149,000	5,000	0	0	0	0
134-Ortega Hwy Widen. D. O. to I-5 SB On Ramp (Eng/ROW)	245,000	0	0	0	245,000	0	0
141-I-5 Interchange @ Ortega Hwy Prelim. Design	1,420,000	920,000	0	0	500,000	0	0
401-CCFP Administration/Development	50,000	0	0	0	50,000	0	0
402-CCFP Developer Set Aside	2,565,178	0	0	0	2,565,178	0	0
Cam. Cap & I-5 SB Off-Ramp/Interim Imprv	9,225	9,225	0	0	0	0	0
Cam Cap @ Stonehill Dr - N/S Split Phasing (Study)	5,125	5,125	0	0	0	0	0
Camino Cap Bus Turnout @ La Zanja St.	165,000	165,000	0	0	0	0	0
Camino Cap Median Modific. @ Del Obispo St.	24,000	24,000	0	0	0	0	0
Camino Capistrano & Stonehill Restriping	48,175	0	0	0	48,175	0	0
Del Obispo & Alipaz Traffic Signal Modifications	8,200	8,200	0	0	0	0	0
Ortega @ I-5 Ramp-Conv. of #1 WB Thru Ln to 2nd Left Trn Ln. Study	5,125	5,125	0	0	0	0	0
Ortega Hwy & I-5 Ramp Signal Timing	3,000	3,000	0	0	0	0	0
Ortega Hwy Traffic Signal Timing & Coordination	205,000	205,000	0	0	0	0	0
Rancho V. Rd/Ortega -2nd SB Thru Ln - Study	5,125	5,125	0	0	0	0	0
Other Circulation Projects							
105-Crack Seal Program	25,000	25,000	0	0	0	0	0
107-Highland Drive Prelimin Geotech	16,000	16,000	0	0	0	0	0
108-El Camino Real Sidewalk (HTC Park)	89,000	89,000	0	0	0	0	0
110-Railroad/Drainage Improvements N/Stonehill	710,000	710,000	0	0	0	0	0
112-Commuter Parking Surveillance	110,000	110,000	0	0	0	0	0
118-Downtown Lighting Project	285,750	285,750	0	0	0	0	0
119-Preventative Street Maintenance	858,900	57,900	79,000	722,000	0	0	0
125-Los Rios Parking Lot & Signage	1,275,100	1,275,100	0	0	0	0	0
129-ADA Ramps @ Sun Ranch/Troy Homes/Casitas	74,000	74,000	0	0	0	0	0
132-Miscellanneous Engineering	50,000	50,000	0	0	0	0	0
144-Underground Utilities Downtown	305,000	305,000	0	0	0	0	0

2004-2005
CITY FUNDED CAPITAL IMPROVEMENT PROGRAM

	TOTAL	Systems Develop.	Gas Tax	Measure M	CCFP	Drainage	Parks and Recreation
Arterial St. Major Rehab Project	150,000	0	150,000	0	0	0	0
Bus Bench Rehabilitation	15,000	15,000	0	0	0	0	0
City Hall Parking Lot Resurfacing	175,000	175,000	0	0	0	0	0
New Poles for Christmas Decorations	70,000	70,000	0	0	0	0	0
DRAINAGE PROJECTS							
103-Public Drainage Rehab/Improvement (Scalzo)	380,000	0	0	0	0	380,000	0
130-Calle Resplendor Drainage Improvement	125,000	0	0	0	0	125,000	0
PARK/EQUESTRIAN/OPEN SPACE PROJECTS							
124-Vereda Bikeway Undercrossing	1,498,912	0	0	0	0	0	1,498,912
451-New Trail - Los Mares Trail Phase I	79,000	0	0	0	0	0	79,000
453-Skate Park Site Assessment and Design	37,500	0	0	0	0	0	37,500
454-San Juan Capistrano Regional Library Rehab.	250,000	0	0	0	0	0	250,000
456-Harrison House Rehabilitation	90,000	0	0	0	0	0	90,000
459-Camino Capistrano Rec Corridor Master Plan	33,000	0	0	0	0	0	33,000
462-Cordova Park Soccer Goal Improvements	30,000	0	0	0	0	0	30,000
467-Sports Park Field Upgrades (Fields 1 & 4)	250,000	0	0	0	0	0	250,000
468-New Rec Trail Imp/Existing Trail Easements	117,500	0	0	0	0	0	117,500
476-Community Center Parking Lot Circ. Imp.	20,000	0	0	0	0	0	20,000
477-Cook Cordova Park Central Irrigation Controller	35,000	0	0	0	0	0	35,000
Blas Aguilar Adobe (Phase C) Roof Improvements	13,000	0	0	0	0	0	13,000
Creekside Park Ext. @ Calle Jardin/Alipaz	20,000	0	0	0	0	0	20,000
HTC Park Mat Surfacing	70,000	0	0	0	0	0	70,000
Los Rios Historic District Street Lighting Study	40,000	0	0	0	0	0	40,000
Los Rios Park Master Plan	35,000	0	0	0	0	0	35,000
Parra Adobe Structural Stabilizations	128,000	0	0	0	0	0	128,000
Parra Adobe/Harrison Farm House Master Plan	35,000	0	0	0	0	0	35,000
CITY CIP TOTALS	**13,956,815**	**4,945,350**	**380,000**	**1,246,000**	**4,063,553**	**505,000**	**2,816,912**
INTERFUND TRANSFERS	**$(450,000)**	**$0**	**$(450,000)**	**$0**	**$0**	**$0**	**$0**
ENDING FUND BALANCE	**$4,574,169**	**$294,510**	**$5,846**	**$119,001**	**$469,015**	**$(234,474)**	**$3,920,270**

2004-2005

SEWER AND WATER ENTERPRISE FUNDS CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Sewer Imp	Sewer Repl	Water Imp	Water Repl	Recycl Water
Beginning Fund Balance	$1,063,091	($37,859)	$2,463,929	($1,343,785)	$1,193,105	($1,212,299)
PROJECTED REVENUE						
Taxes	0	0	0	0	0	0
Fees	3,857,308	1,245,217	0	1,975,234	0	636,857
Other Agencies						
Federal	0	0	0	0	0	0
State-Annual Revenue	0	0	0	0	0	0
State-Other Grants	0	0	0	0	0	0
County-Annual Revenue	0	0	0	0	0	0
County-Other Grants	0	0	0	0	0	0
Other	360,751	0	263,251	97,500	0	0
General Fund	0	0	0	0	0	0
Bond Proceeds	20,000,000	0	0	20,000,000	0	0
Interest Earned	428,911	0	61,598	343,451	23,862	0
PROJECTED REVENUE TOTAL	24,646,970	1,245,217	324,849	22,416,185	23,862	636,857
Unspent Carryover from 03/04	4,878,000	25,500	25,500	3,467,000	10,000	1,350,000
AVAILABLE RESOURCES TOTAL	$30,588,061	$1,232,858	$2,814,278	$24,539,400	$1,226,967	$774,558
CIP# CAPITAL PROJECTS FOR						
SEWER PROJECTS						
119-Preventative Street Maintenance	30,000	0	15,000	0	15,000	0
711-SOCWA PC - 2R	919,000	919,000	0	0	0	0
716-Hydraulic Cap. #1, SJ Crk Siphon to Trabuco Crk Siphon	200,000	145,000	55,000	0	0	0
728-Major Sewer Repairs	1,232,500	0	1,232,500	0	0	0
729-Sewer Protection - San Juan Creek	80,000	80,000	0	0	0	0
Sewer Monitoring Project	110,000	110,000	0	0	0	0
WATER PROJECTS						
122-Del Obispo Circulation Improv. & Bridge Widening	10,000	0	0	0	10,000	0
753-Terminal Reservoir No. 3	14,658,000	0	0	14,658,000	0	0
758-SJBA Demineralization Project	455,000	0	0	455,000	0	0
762-GIS System	138,000	0	0	138,000	0	0
767-Undefined Replacement Projects	175,000	0	0	0	175,000	0
768-SCADA System Expansion	115,000	15,000	0	100,000	0	0
769-Cooks Reservoir Repair	2,375,000	0	0	2,375,000	0	0
780-Tri-Cities Transmission Main	73,000	0	0	73,000	0	0
784-Del Obispo Connection Lease	60,000	0	0	60,000	0	0
790-High West Side Pipeline Replacement	150,000	0	0	150,000	0	0
791-760 S. Reservoir	2,062,000	0	0	2,062,000	0	0
794-SC-4 Terminal Pipeline	250,000	0	0	250,000	0	0
Pipeline Improvements (Various Locations)	1,075,000	0	0	1,075,000	0	0
RECYCLED WATER PROJECTS						
764-Recycled Water Wells/Iron & Magnesium Rem. Sys	1,100,000	0	0	0	0	1,100,000
792-Recycled Water - EIR & LLA	250,000	0	0	0	0	250,000
Recycled Water Master Plan	50,000	0	0	0	0	50,000
Recycled Water Pipelines @ Various Locations	50,000	0	0	0	0	50,000
CITY CIP TOTALS	$25,617,500	$1,269,000	$1,302,500	$21,396,000	$200,000	$1,450,000
TRANSFER FROM OTHER FUNDS		$500,000			$488,497	
ENDING FUND BALANCE	$5,959,058	$463,858	$1,511,778	$3,143,400	$1,515,464	$(675,442)

2005-2006

CITY FUNDED CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Systems Develop.	Gas Tax	Measure M	CCFP	Drainage	Parks and Recreation
Beginning Fund Balance	$4,574,169	$294,510	$5,846	$119,001	$469,015	$(234,474)	$3,920,270
PROJECTED REVENUE							
Taxes	724,012	724,012	0	0	0	0	0
Fees	2,631,246	35,566	0	0	1,743,609	14,683	837,389
Other Agencies							
Federal	400,000	400,000	0	0	0	0	0
State-Annual Revenue	684,455	0	684,455	0	0	0	0
State-Other Grants	0	0	0	0	0	0	0
County-Annual Revenue	454,000	0	0	454,000	0	0	0
County-Other Grants	2,392,223	2,392,223	0	0	0	0	0
Other	0	0	0	0	0	0	0
General Fund	0	0	0	0	0	0	0
Interest Earned	120,216	7,363	146	2,975	11,725	0	98,007
PROJECTED REVENUE TOTAL	7,406,152	3,559,163	684,601	456,975	1,755,334	14,683	935,396
AVAILABLE RESOURCES TOTAL	$11,980,321	$3,853,673	$690,448	$575,976	$2,224,350	($219,791)	$4,855,666
CIP # CAPITAL PROJECTS FOR							
CIRCULATION PROJECTS							
TCRP Projects							
102-DO Street Widening, 300'S Calle Aspero to 400' N	413,000	192,223	0	0	220,777	0	0
111-D.O. Camino Capistrano Intersection Imprv. MP	501,000	0	0	0	501,000	0	0
114-Dual Lft Trn Ln for WB Del Obispo @ Camino Cap (Eng/ROW)	146,000	0	0	146,000	0	0	0
117-Dual Lft Trn Ln for EB Del Obispo @ Camino Cap (Eng)	140,000	90,000	0	50,000	0	0	0
122-Del Obispo Circulation Improvements & Bridge Widening	1,200,000	1,200,000	0	0	0	0	0
134-Ortega Hwy Widen. Del Obispo to I-5 SB On Ramp (Eng/ROW)	163,000	0	0	0	163,000	0	0
141-I-5 Interchange @ Ortega Hwy Prelim. Design	2,400,000	1,400,000	0	0	1,000,000	0	0
401-CCFP Administration/Development	50,000	0	0	0	50,000	0	0
402-CCFP Developer Set Aside	850,000	0	0	0	850,000	0	0
Camino Cap Median Modific. @ Del Obispo St.	121,000	121,000	0	0	0	0	0
J. Serra Rd. EB Right Turn Lane (Design)	27,000	27,000	0	0	0	0	0
J. Serra Rd. WB Right Turn Lane @ I-5 NB On-ramp	27,000	27,000	0	0	0	0	0
R. Viejo Rd Widen. S. of J. Serra/MP Study/Design	56,000	56,000	0	0	0	0	0
Other Circulation Projects							
119-Preventative Street Maintenance	380,000	35,000	85,000	260,000	0	0	0
132-Miscellaneous Engineering	50,000	50,000	0	0	0	0	0
Arterial St. Major Rehab Project	150,000	0	150,000	0	0	0	0
Non-TCRP Project	150,000	150,000	0	0	0	0	0
DRAINAGE PROJECTS							
103-Public Drainage Rehab/Improvement (Scafa)	230,000	0	0	0	0	230,000	0
130-Calle Resplendor Drainage Improvement	511,500	0	0	0	0	511,500	0
PARK/EQUESTRIAN/OPEN SPACE PROJECTS							
451-New Trail - Los Mares Trail Phase II	70,000	0	0	0	0	0	70,000
453-Skate Park Site Assessment	400,000	0	0	0	0	0	400,000
459-Camino Capistrano Rec Corridor Master Plan	24,000	0	0	0	0	0	24,000
476-Community Center Parking Lot Circ. Improvements	33,000	0	0	0	0	0	33,000
Blas Aguilar Adobe (Phase C) Roof Improvements	137,000	0	0	0	0	0	137,000
Creekside Park Ext. @ Calle Jardin/Alpaz	230,000	0	0	0	0	0	230,000
Parra Adobe/Harrison Farm House Site Improvmnts	108,500	0	0	0	0	0	108,500
CITY CIP TOTALS	$8,568,000	$3,348,223	$235,000	$456,000	$2,784,777	$741,500	$1,002,500
INTERFUND TRANSFERS	$(450,000)	$0	$(450,000)	$0	$0	$0	$0
ENDING FUND BALANCE	$2,962,321	$505,450	$5,448	$119,976	$(560,427)	$(961,291)	$3,853,166

2005-2006

SEWER AND WATER ENTERPRISE FUNDS CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Sewer Imp	Sewer Repl	Water Imp	Water Repl	Recy Wtr Water
Beginning Fund Balance	$5,959,058	$463,858	$1,511,778	$3,143,400	$1,515,464	$(675,442)
PROJECTED REVENUE						
Taxes	0	0	0	0	0	0
Fees	3,963,083	1,262,809	0	2,532,662	0	167,612
Other Agencies						
Federal	0	0	0	0	0	0
State-Annual Revenue	0	0	0	0	0	0
State-Other Grants	0	0	0	0	0	0
County-Annual Revenue	0	0	0	0	0	0
County-Other Grants	0	0	0	0	0	0
Other	393,569	0	296,069	97,500	0	0
General Fund	0	0	0	0	0	0
Bond Proceeds	0	0	0	0	0	0
Interest Earned	165,863	11,596	37,794	78,585	37,887	0
PROJECTED REVENUE TOTAL	4,522,515	1,274,405	333,863	2,708,747	37,887	167,612
AVAILABLE RESOURCES TOTAL	$10,481,573	$1,738,263	$1,845,642	$5,852,147	$1,553,351	($507,830)
CIP # CAPITAL PROJECTS FOR						
SEWER PROJECTS						
119-Preventative Street Maintenance	30,000	0	15,000	0	15,000	0
711-SOCWA PC - 2 R	841,000	841,000	0	0	0	0
716-Hydr. Cap #1, SJ Crk to Trab. Crk Siphon	1,218,000	609,000	609,000	0	0	0
729 - Sewer Protection San Juan Creek	70,000	70,000	0	0	0	0
Hydr. Cap. #2, Trunk Ln Recon/Alipaz to C. Jardin	55,000	55,000	0	0	0	0
WATER PROJECTS						
765-Pressure Regulating Station (PRV)	190,000	0	0	190,000	0	0
767-Undefined Replacement Projects	200,000	0	0	0	200,000	0
768-SCADA System Expansion	25,000	0	0	25,000	0	0
780-Tri-Cities Transmission Main	74,000	0	0	74,000	0	0
784-Del Obispo Connection Lease	60,000	0	0	60,000	0	0
791-760 S. Reservoir	3,500,000	0	0	3,500,000	0	0
Pipeline Improvements (Various)	477,000	0	0	477,000	0	0
Pump Station Improvements and Removals	350,000	0	0	350,000	0	0
RECYCLED WATER PROJECTS						
Rcycld Wtr Sys Pressure Reduce Vales (PRV's)	50,000	0	0	0	0	50,000
Recycled Water Pipelines (Various)	8,300,000	0	0	0	0	8,300,000
Recycled Water System Reservoirs	600,000	0	0	0	0	600,000
Recycled Water System Retrofits	100,000	0	0	0	0	100,000
Recycled Wtr Adv Treatment Facility (SOCWA)	1,200,000	0	0	0	0	1,200,000
CITY CIP TOTALS	17,340,000	1,575,000	624,000	4,676,000	215,000	10,250,000
TRANSFERS FROM OTHER FUNDS		500,000			999,268	
ENDING FUND BALANCE	($5,359,159)	$663,263	$1,221,642	$1,176,147	$2,337,619	($10,757,830)

2006-2007

CITY FUNDED CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Systems Develop.	Gas Tax	Measure M	CCFP	Drainage	Parks and Recreation
Beginning Fund Balance	$2,962,321	$505,450	$5,448	$119,976	$(560,427)	$(961,291)	$3,853,166
PROJECTED REVENUE							
Taxes	724,012	724,012	0	0	0	0	0
Fees	2,631,246	35,565	0	0	1,743,609	14,683	837,389
Other Agencies							
Federal	0	0	0	0	0	0	0
State-Annual Revenue	698,144	0	698,144	0	0	0	0
State-Other Grants	0	0	0	0	0	0	0
County-Annual Revenue	476,000	0	0	476,000	0	0	0
County-Other Grants	1,000,000	1,000,000	0	0	0	0	0
Other	0	0	0	0	0	0	0
General Fund	0	0	0	0	0	0	0
Interest Earned	112,101	12,636	136	2,999	0	0	96,329
PROJECTED REVENUE TOTAL	5,641,503	1,772,213	698,280	478,999	1,743,609	14,683	933,718
AVAILABLE RESOURCES TOTAL	$8,603,824	$2,277,663	$703,728	$598,975	$1,183,182	($946,608)	$4,786,884
CIP# CAPITAL PROJECTS FOR							
CIRCULATION PROJECTS							
TCRP Projects							
122-Del Obispo Circulation Improvements & Bridge Widening	1,000,000	190,000	0	195,000	615,000	0	0
141-I-5 Interchange @ Ortega Hwy Prelim. Design	1,200,000	1,000,000	0	0	200,000	0	0
401-CCFP Administration/Development	50,000	0	0	0	50,000	0	0
402-CCFP Developer Set Aside	850,000	0	0	0	850,000	0	0
J. Serra Rd. EB Right Turn Lane (Const.)	250,000	250,000	0	0	0	0	0
J. Serra Rd. WB Right Turn Lane @ I-5 NB On-ramp	250,000	250,000	0	0	0	0	0
R. Viejo Rd Widen, S. of J. Serra/MP Const.	223,000	223,000	0	0	0	0	0
Other Circulation Projects							
119-Preventative Street Maintenance	380,000	5,000	95,000	280,000	0	0	0
132-Miscellanneous Engineering	50,000	50,000	0	0	0	0	0
Arterial St. Major Rehab Project	150,000	0	150,000	0	0	0	0
Non-TCRP Project	150,000	150,000	0	0	0	0	0
DRAINAGE PROJECTS							
None	0	0	0	0	0	0	0
PARK/EQUESTRIAN/OPEN SPACE PROJECTS							
459-Camino Capistrano Rec Corridor Master Plan	300,000	0	0	0	0	0	300,000
Acu Canyon Park Restrooms	180,000	0	0	0	0	0	180,000
Congdon House Water Tower Renovation	101,500	0	0	0	0	0	101,500
Los Rios Historic District Street Lighting	96,000	0	0	0	0	0	96,000
Los Rios Parking Lot Path to History	23,500	0	0	0	0	0	23,500
CITY CIP TOTALS	5,254,000	2,118,000	245,000	475,000	1,715,000	0	701,000
INTERFUND TRANSFERS	($450,000)	$0	$(450,000)	$0	$0	$0	$0
ENDING FUND BALANCE	$2,899,824	$159,663	$8,728	$123,975	$(531,818)	$(946,608)	$4,085,884

2006-2007
SEWER AND WATER ENTERPRISE FUNDS CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Sewer Imp	Sewer Repl	Water Imp	Water Repl	Recy.Wtr. Water
Beginning Fund Balance	$(5,359,159)	$663,263	$1,221,642	$1,176,147	$2,337,619	$(10,757,830)
PROJECTED REVENUE						
Taxes	0	0	0	0	0	0
Fees	4,053,968	1,262,809	0	2,623,547	0	167,612
Other Agencies						
Federal	0	0	0	0	0	0
State-Annual Revenue	0	0	0	0	0	0
State-Other Grants	0	0	0	0	0	0
County-Annual Revenue	0	0	0	0	0	0
County-Other Grants	0	0	0	0	0	0
Other	339,883	0	329,883	10,000	0	0
General Fund	0	0	0	0	0	0
Bond Proceeds	0	0	0	0	0	0
Interest Earned	134,967	16,582	30,541	29,404	58,440	0
PROJECTED REVENUE TOTAL	4,528,818	1,279,391	360,424	2,662,951	58,440	167,612
AVAILABLE RESOURCES TOTAL	($830,342)	$1,942,654	$1,582,066	$3,839,098	$2,396,059	($10,590,218)
SEWER PROJECTS						
119-Preventative Street Maintenance	30,000	0	15,000	0	15,000	0
711-SOCWA PC - 2 R	1,106,000	1,106,000	0	0	0	0
728-Major Sewer Repair	145,000	0	145,000	0	0	0
Hyd. Cap #4,Trunk Ln Recon, SOCWA to 720' N	35,000	35,000	0	0	0	0
Hyd. Cap #3,Cam. Cap to Doheny Park Rd.	15,000	7,500	7,500	0	0	0
Hyd. Cap. #2,Trunk Ln Recon,Alipaz to C. Jardin	1,435,000	1,435,000	0	0	0	0
McCracken Hill Sewer	35,000	35,000	0	0	0	0
WATER PROJECTS						
765-Pressure Regulating Station (PRV)	350,000	0	0	350,000	0	0
767-Undefined Replacement Projects	200,000	0	0	0	200,000	0
768-SCADA System Expansion	25,000	0	0	25,000	0	0
780-Tri Cities Transmission Main	75,000	0	0	75,000	0	0
784-DelObispo Connection Lease	60,000	0	0	60,000	0	0
Pipeline Improvements (Various)	1,145,000	0	0	1,145,000	0	0
RECYCLED WATER PROJECTS						
764-Recy.Wtr Wells/I & M Removal System	2,500,000	0	0	0	0	2,500,000
Rcy. Wtr Sys Pressure Reduce Vales (PRV's)	400,000	0	0	0	0	400,000
Recy. Wtr Adv. Treatment Facility @ SOCWA	4,000,000	0	0	0	0	4,000,000
Recycled Water Pipelines (Various)	1,500,000	0	0	0	0	1,500,000
Recycled Water System Reservoirs	3,400,000	0	0	0	0	3,400,000
Recycled Water System Retrofits	600,000	0	0	0	0	600,000
CITY CIP TOTALS	17,056,000	2,618,500	167,500	1,655,000	215,000	12,400,000
INTERFUND TRANSFERS	$0	$250,000	$(250,000)	$0	$0	$0
TRANSFERS FROM OTHER FUNDS		$500,000			$1,168,735	
ENDING FUND BALANCE	($16,217,607)	$74,154	$1,164,566	$2,662,951	$3,349,794	($22,990,218)

2006-2007

SEWER AND WATER ENTERPRISE FUNDS CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Sewer Imp	Sewer Repl	Water Imp	Water Repl	Recy.Wtr Water
Beginning Fund Balance	$(5,359,159)	$663,263	$1,221,642	$1,176,147	$2,337,619	$(10,757,830)
PROJECTED REVENUE						
Taxes	0	0	0	0	0	0
Fees	4,053,968	1,262,809	0	2,623,547	0	167,612
Other Agencies						
Federal	0	0	0	0	0	0
State-Annual Revenue	0	0	0	0	0	0
State-Other Grants	0	0	0	0	0	0
County-Annual Revenue	0	0	0	0	0	0
County-Other Grants	0	0	0	0	0	0
Other	339,883	0	329,883	10,000	0	0
General Fund	0	0	0	0	0	0
Bond Proceeds	0	0	0	0	0	0
Interest Earned	134,967	16,582	30,541	29,404	58,440	0
PROJECTED REVENUE TOTAL	4,528,818	1,279,391	360,424	2,662,951	58,440	167,612
AVAILABLE RESOURCES TOTAL	($830,342)	$1,942,654	$1,582,066	$3,839,098	$2,396,059	($10,590,218)
SEWER PROJECTS						
119-Preventative Street Maintenance	30,000	0	15,000	0	15,000	0
711-SOCWA PC - 2 R	1,106,000	1,106,000	0	0	0	0
728-Major Sewer Repair	145,000	0	145,000	0	0	0
Hyd. Cap #4,Trunk Ln Recon, SOCWA to 720' N	35,000	35,000	0	0	0	0
Hyd. Cap #3,Cam. Cap to Doheny Park Rd.	15,000	7,500	7,500	0	0	0
Hyd. Cap. #2,Trunk Ln Recon,Alipaz to C. Jardin	1,435,000	1,435,000	0	0	0	0
McCracken Hill Sewer	35,000	35,000	0	0	0	0
WATER PROJECTS						
765-Pressure Regulating Station (PRV)	350,000	0	0	350,000	0	0
767-Undefined Replacement Projects	200,000	0	0	0	200,000	0
768-SCADA System Expansion	25,000	0	0	25,000	0	0
780-Tri Cities Transmission Main	75,000	0	0	75,000	0	0
784-DelObispo Connection Lease	60,000	0	0	60,000	0	0
Pipeline Improvements (Various)	1,145,000	0	0	1,145,000	0	0
RECYCLED WATER PROJECTS						
764-Recy.Wtr Wells/I & M Removal System	2,500,000	0	0	0	0	2,500,000
Rcy. Wtr Sys Pressure Reduce Vales (PRV's)	400,000	0	0	0	0	400,000
Recy. Wtr Adv. Treatment Facity @ SOCWA	4,000,000	0	0	0	0	4,000,000
Recycled Water Pipelines (Various)	1,500,000	0	0	0	0	1,500,000
Recycled Water System Reservoirs	3,400,000	0	0	0	0	3,400,000
Recycled Water System Retrofits	600,000	0	0	0	0	600,000
CITY CIP TOTALS	17,056,000	2,618,500	167,500	1,655,000	215,000	12,400,000
INTERFUND TRANSFERS	$0	$250,000	$(250,000)	$0	$0	$0
TRANSFERS FROM OTHER FUNDS		$500,000			$1,168,735	
ENDING FUND BALANCE	($16,217,607)	$74,154	$1,164,566	$2,662,951	$3,349,794	($22,990,218)

2007-2008

CITY FUNDED CAPITAL IMPROVEMENT PROGRAM

AVAILABLE RESOURCES	TOTAL	Systems Develop.	Gas Tax	Measure M	CCFP	Drainage	Parks and Recreation
Beginning Fund Balance	$2,899,824	$159,663	$8,728	$123,975	$(531,818)	$(946,608)	$4,085,884
PROJECTED REVENUE							
Taxes	724,012	724,012	0	0	0	0	0
Fees	2,631,246	35,565	0	0	1,743,609	14,683	837,389
Other Agencies							
Federal	0	0	0	0	0	0	0
State-Annual Revenue	712,107	0	712,107	0	0	0	0
State-Other Grants	0	0	0	0	0	0	0
County-Annual Revenue	498,000	0	0	498,000	0	0	0
County-Other Grants	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
General Fund	0	0	0	0	0	0	0
Interest Earned	109,456	3,992	218	3,099	0	0	102,147
PROJECTED REVENUE TOTAL	4,674,821	763,569	712,325	501,099	1,743,609	14,683	939,536
AVAILABLE RESOURCES TOTAL	8,106,464	923,232	721,053	625,075	1,743,609	(931,925)	5,025,420
CIP # CAPITAL PROJECTS FOR							
CIRCULATION PROJECTS							
TCRP Projects							
401-CCFP Administration/Development	50,000	0	0	0	50,000	0	0
402-CCFP Developer Set Aside	850,000	0	0	0	850,000	0	0
Alipaz Street & Cam. Del Avion Traffic Signal	155,800	155,800	0	0	0	0	0
Camino Cap & La Zanja St. Left Turn Phase	61,500	61,500	0	0	0	0	0
Camino Cap SB Right Turn Improv/Oso Rd (Eng)	16,000	0	0	16,000	0	0	0
Camino Cap Widen, Calle Chueca to J. Serra Rd (Eng)	87,000	0	0	0	87,000	0	0
Camino Del Avion & Via Positiva Traffic Signal	128,125	0	0	128,125	0	0	0
J. Serra Widen, Cam Cap to Rncho Viejo Rd (Eng)	93,000	0	0	0	93,000	0	0
Ortega Hwy & Avenida Siega Traffic Signal	215,250	215,250	0	0	0	0	0
SJ Creek Rd. Widen., Valle Rd to Cam. Cap (Eng)	82,000	0	0	0	82,000	0	0
SJ Crk Rd. Widen., La Novia to C. Santo Domingo	26,000	18,000	8,000	0	0	0	0
Other Circulation Projects							
119-Preventative Street Maintenance	380,000	0	100,000	280,000	0	0	0
132-Miscellanneous Engineering	50,000	50,000	0	0	0	0	0
Arterial St. Major Rehab Project	150,000	0	150,000	0	0	0	0
Non-TCRP Project	150,000	150,000	0	0	0	0	0
DRAINAGE PROJECTS							
None	0	0	0	0	0	0	0
PARK/EQUESTRIAN/OPEN SPACE PROJECTS							
Montanez Adobe Structural Improvements	14,000	0	0	0	0	0	14,000
CITY CIP TOTALS	2,508,675	650,550	258,000	424,125	1,162,000	0	14,000
INTERFUND TRANSFERS	$(450,000)	$0	$(450,000)	$0	$0	$0	$0
ENDING FUND BALANCE	$4,615,970	$272,682	$13,053	$200,950	$49,791	$(931,925)	$5,011,420

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February 13, 2009

Via Electronic and Federal Express

California Department of Transportation, District 12
Smita Deshpande, Chief, Branch A, Environmental Planning
Attn: Scott Shelley
3337 Michelson Dr., Ste. 380,
Irvine, CA 92612-8894

Re: Draft Environmental Impact Report for State Route 74 Lower Ortega Highway Widening

Dear Mr. Shelley:

This firm represents Joan Irvine Smith and Save Ortega on matters relating to the proposed widening of State Route 74 from Calle Entradero in the City of San Juan Capistrano to the City/County of Orange border ("Project"). Mrs. Smith, a resident of San Juan Capistrano who owns a farm, The Oaks, along that portion of the Ortega Highway to be widened, is concerned about the Project's impacts on her community. Save Ortega's goal is the preservation and protection of the scenic Ortega Highway. Our clients are deeply concerned about the far-ranging environmental impacts the Project may have within the City of San Juan Capistrano and Orange County.

1

In conjunction with Terrell Watt, AICP, an urban planning consultant; Tom Brohard and Associates, a licensed Professional Civil Engineer and Professional Traffic Engineer in California; Greg Gilbert, of Autumn Wind Associates, an air quality expert; Hugh Saurenman, of ATS Consulting, a noise expert; and Jared Ikeda, a land use planner and licensed Landscape Architect, we submitted comments on the July 2007 Initial Study/Mitigated Negative Declaration ("MND") for the proposed Project. Our September 6, 2007 letter (hereinafter "MND Letter") explained that given the potentially significant and unmitigated impacts to aesthetics, traffic, public safety, noise, growth-inducement, air quality, water quality and other environmental resources, Caltrans could not

legally approve this Project until it prepared an environmental impact report ("EIR") to analyze the Project's potentially significant environmental impacts. 1

While we are pleased that Caltrans has now prepared an EIR for the Project, we are dismayed that the current environmental document contains many of the same legal and technical deficiencies raised in the MND Letter, including the issues raised by the consultants. After carefully reviewing the draft EIR ("DEIR") for the Project, we have concluded that it fails to comply with the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 *et seq.* Specifically, as described below, the DEIR violates CEQA because: (1) it fails to adequately describe the Project, (2) it fails to analyze the significant environmental impacts of the Project or propose adequate mitigation measures to address those impacts, and (3) it fails to undertake a legally sufficient study of alternatives to the Project. Inasmuch as the DEIR suffers from the same defects as the MND we incorporate herein the MND letter by this reference, including all attachments (*See* Appendix A). Set forth below are some of the DEIR's additional shortcomings. 2

In our opinion, the flaws of the DEIR are so fundamental as to render vulnerable any approval of the Project. Caltrans must revise and recirculate its DEIR as a revised DEIR in order to permit an adequate understanding of the environmental issues at stake.

1. The DEIR's Flawed Project Description Does Not Permit Meaningful Public Review of the Project.

In order for an environmental document to adequately evaluate the environmental ramifications of a project, it must first provide a comprehensive description of the project itself. "An accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus*, 27 Cal.App.4th 713, 730 (1994), quoting *County of Inyo v. City of Los Angeles*, 71 Cal.App.3d 185, 193 (1977). As a result, courts have found that, even if an EIR is adequate in all other respects, the use of a "truncated project concept" violates CEQA and mandates the conclusion that the lead agency did not proceed in a manner required by law. *San Joaquin Raptor*, 27 Cal.App.4th at 730. Furthermore, "[a]n accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *Id.* (citation omitted). Thus, an inaccurate or incomplete project description renders the analysis of significant environmental impacts inherently unreliable. While extensive detail is not necessary, the law mandates that EIRs should describe proposed projects with sufficient detail and accuracy to permit informed decision-making. *See* CEQA Guidelines, §15124 (requirements of an EIR). 3

A. The Project Description Omits Integral Components

Like the MND, the DEIR's description of the Project fails to describe numerous, essential aspects of the Project that have the potential to result in significant impacts. This omitted information includes, but is not limited to:

- Design Standards. The DEIR does not identify the design standard for the proposed Project. As a result, the document provides no information on the desired operating conditions of SR-74 and the six unsignalized intersections within the Project limits. These standards are necessary in order to evaluate alternative approaches to meeting the Project's need and goal.

- Specific location and description of property to be acquired in fee and/or for temporary construction easements.

- Critical construction details. According to the DEIR, no area is available within the Project limits for exclusive use by the contractor (for staging) and construction staging will take place within the highway right-of-way. DEIR at 25. The presence of staging operations in travel lanes would cause severe traffic impacts. Nor does the DEIR describe the timeline for construction, duration of construction, hours of construction activities, number of truck trips associated with grading and other construction-related activities, number of construction employees, or the types of equipment. 4

- Amount of cut and fill (in cubic yards) associated with the Project.

- Location of spoils and soil importation sites, and haul routes.

- Description of additional lighting and landscaping proposed along the highway if any.

Without this information about the Project, the public and decision-makers will not be able to balance the Project's benefits against its environmental cost and evaluate feasible alternatives and mitigation measures. An adequate project description, including the information listed above, must be the basis for any revised environmental document.

B. The DEIR Improperly Segments the Proposed Project from Other Related Actions.

Agencies may not improperly "segment" projects in order to avoid preparing an EIR; instead, they must consider related actions in a single document. *Laurel Heights*, 47 Cal.3d. 376-395 (1988). "Not to require this would permit dividing a project into multiple 'actions,' each of which individually has an insignificant environmental impact, but which collectively have a substantial impact." CEQA regulations require that an EIR describe the entirety of a project, including reasonably foreseeable future actions that are part of a project, and must analyze those reasonably foreseeable actions. 14 Cal. Code Regs § 15378(a).

An EIR need not include speculation about future environmental consequences of a project, but an "EIR must include an analysis of the environmental effects of future expansion or other action if: (1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effect." *Laurel Heights*, 47 Cal.3d at 394-396. Under the *Laurel Heights* standard, "the facts of each case will determine whether and to what extent an EIR must analyze future expansion or other action." *Id.* at p. 396. However, there must be discussion "in at least general terms" of future activity in connection with a project, even if the project is contingent on uncertain occurrences. *Laurel Heights*, 47 Cal.3d at 398. *Laurel Heights* requires a project proponent to analyze future expansion and other such action in an EIR if there is "telling evidence" that the agency has either made decisions or formulated reasonably definite proposals as to expand a project in the future. *Id.* at 396-397. 5

We are aware of at least four other projects that are interdependent on the SR-74 Project and therefore must be analyzed concurrently with the direct impacts of the SR-74: 1) SR-74 widening within Orange County; 2) Upper Ortega Widening Project; 3) the I-5/SR-74 Interchange Project; and 4) San Juan Capistrano Ortega Highway Pipeline Project.

i. SR-74 Widening Within Orange County

Up until September 2008, it appears that Caltrans was considering widening a two-mile segment of SR-74, rather than a one-mile segment. One mile of this widening was to occur within the City of San Juan Capistrano limits (i.e., the current project being evaluated in this DEIR), while the second one-mile segment was located within Orange County. Last fall, Caltrans proposed to amend the State Transportation Improvement Plan to "split the Route 74 widening project (PPNO 4110) into two segments." *See* Memorandum from Cindy McKim to Chair and Commissioners, September 24-25, 2008, attached as Appendix B. The 6

memorandum makes extraordinarily clear that the City and County segments of this widening are in fact one project:

> The limits of the project extend approximately one mile inside and one mile outside the city limits of San Juan Capistrano. The segment outside the city limits (the Orange County segment) has obtained environmental clearance and is ready for construction. Environmental clearance for the segment within the city limits has been delayed due to the need for additional environmental studies. Orange County would like to proceed with construction of the segment outside the city limits. Therefore, it is proposed to split the project into two segments, a city segment and a county segment, as follows: ...

Id.

Clearly, the City and the County segments of the SR-74 widening improvements comprise one project. The DEIR project description should be revised to recognize this fact and comprehensively analyze the impacts from the entire SR-74 Project. 6

ii. I-5/SR-74 Interchange and the Upper Ortega Widening Project

In addition to the widening of Ortega Highway in Orange County, Caltrans has also prepared a DEIR/Environmental Assessment ("DEIR/EA") for a project which would improve the existing I-5/SR-74 interchange in San Juan Capistrano ("Interchange Project"). *See* I-5/SR-74 Interchange Improvement Project DEIR/EA, attached as Appendix C. As the DEIR/EA acknowledges, the Interchange Project is needed to facilitate traffic flows and ease congestion along Ortega Highway and the I-5 freeway on-/off-ramps, accommodate an expected increase in regional traffic, and accommodate increased traffic generated by planned development *east of the interchange along Ortega Highway*. DEIR/EA at v (emphasis added). Moreover, the DEIR/EA for the Interchange Project identifies yet another Caltrans' project to widen Ortega Highway from Trabuco Road to the Orange/Riverside County line. *Id.* 7

It is clear that all of these projects serve the same purpose: to ease existing and future traffic congestion along Ortega Highway. Yet the DEIR has no description of why each of these projects is being evaluated separately. All of these projects are an interconnected part of the same project and therefore need to be analyzed comprehensively.

iii. San Juan Capistrano Ortega Highway Pipeline Project

In addition to these roadway and freeway projects, the City of San Juan Capistrano recently approved a pipeline project consisting of 5,287 linear feet of potable water main pipeline. *See* http://www.ceqanet.ca.gov/ProjectList.asp. This pipeline would be installed within the Ortega Highway right-of-way and is proposed to be installed during the construction of the SR-74 widening Project. *Id.* Inasmuch as this pipeline project is interdependent on the SR-74 Project, its impacts must be analyzed concurrently with the direct impacts of the SR-74. 8

In sum, the DEIR' incomplete, unstable and vague project description undermines the validity of each section of the DEIR analyzing its impacts and identifying mitigation. The document should be revised to correct these many deficiencies.

2. The DEIR's Analysis of and Mitigation for the Impacts of the Proposed Project Are Inadequate.

An EIR must provide a degree of analysis and detail about environmental impacts that will enable decision-makers to make intelligent judgments in light of the environmental consequences of their decisions. CEQA Guidelines section 15151; *Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692 (1990). To this end, the lead agency must make a good faith effort at full disclosure of environmental impacts. Both the public and decision-makers need to fully understand the implications of the choices that are presented related to the project, mitigation measures and alternatives. *Laurel Heights Improvement Ass'n v. Regents of University of California*, 6 Cal.4th 1112, 1123 (1988). In this case, the DEIR's analysis of environmental impacts fails to provide sufficient information to enable informed decision-making by Caltrans and the public. 9

A. The DEIR's Analysis of and Mitigation for the Project's Impacts on Transportation are Inadequate.

Like the MND, the DEIR's analysis of traffic impacts, is severely flawed. Tom Brohard provided extensive comments on the MND's faulty analysis yet the DEIR repeats the same mistakes. Because each of the points in the Brohard Report remains valid, we request that the revised DEIR address each of the issues in his commentary (*see* Appendix A). Set forth below are a few of the most egregious flaws in the DEIR's analysis of transportation impacts. 10

i. The DEIR Omits Critical Information Pertaining to Existing Traffic Conditions.

In order for the public and decision-makers to be able to fully understand the traffic consequences of this Project, more information about existing traffic levels and operations is needed. Although we requested that Caltrans provide this information in our comments on the MND, the DEIR still lacks this necessary detail. Such information includes, but is not limited to:

- A description of the speed limits along the Ortega Highway and average speeds of motorists traveling along the relevant portion of the roadway.
- Data on *current* average daily vehicle miles traveled on the Ortega Highway.
- Data showing the percentage of traffic on the Ortega Highway attributable to commuters, recreational travelers, trucks, and other types of travelers.
- Existing traffic count data. While Tom Brohard's Report criticized Caltrans for its reliance on traffic counts taken in 2003, we can find no date in the DEIR or the Traffic Appendix for the traffic counts. Since details relating to traffic count data are not included in the DEIR, it is not possible to verify the accuracy of the DEIR's estimate of existing or projected traffic volumes and capacity calculations.

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ii. The DEIR Fails to Consider an Adequate Study Area for Evaluating the Project's Transportation Impacts.

The DEIR's analysis of transportation impacts is hamstrung in part by the document's failure to look beyond the immediate boundaries of the proposed Project area. Indeed, the study area for purposes of evaluating the Project's impacts does not even extend beyond the Project limits. This narrow focus is inadequate under CEQA. As the California Supreme Court has emphasized, an EIR may not ignore the regional impacts of a project approval, including those impacts that occur outside of its borders; on the contrary, a regional perspective is required. *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d 553, 575 (1990). An EIR must analyze environmental impacts over the entire area where one might reasonably expect these impacts to occur. *See Kings County Farm Bureau*, 221 Cal.App.3d at 721-23. This principle stems directly from the requirement that an EIR analyze all significant or potentially significant environmental impacts. Pub. Res. Code § 21061, 21068.

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Here, it is particularly important to look beyond the immediate Project area because there may be other opportunities for accommodating traffic demand in the area, other than widening SR-74. For example, the DEIR acknowledges that the Master Plan of Arterial Highways shows two roadways in the Project vicinity that *were not* assumed in the 2035 network: the extension of San Juan Creek Road to La Pata Avenue and the extension of Camino Las Ramblas to La Pata Avenue. 2008 Traffic Study at 4-6. The San Juan Creek Road extension is immediately south of and parallel to the Project section of Ortega Highway (*id.*) and thus serves as an alternative east-west route to SR-74. In addition, SR- 241 and La Pata are both expected to be extended southward by 2035, yet neither of these roadways were included in the DEIR study area. *See* 2008 Traffic Study at 4-3. 12

Moreover, because several of these other roadways were assumed to not be in place in 2035, the DEIR's analysis likely assumed unrealistically elevated traffic volumes – and deficient operation conditions on SR-74. Had the DEIR assumed a realistic 2035 study area, the DEIR preparers may have come to the determination that the regional roadway system has sufficient capacity to accommodate regional traffic without widening SR-74. The revised DEIR should identify the volume-to-capacity ratio within the Project limits based on a realistic 2035 roadway network.

iii. The DEIR Fails to Label the Project's Significant Impacts and Thus Fails to Identify Feasible Mitigation.

The DEIR's analysis of the Project's traffic impacts could not be more disingenuous. The document concludes that the Project would meet the Project's purpose and need to enhance capacity in the long term and that traffic congestion through the Project limits is expected to decrease with the implementation of the Project. DEIR at 89. While we concur that widening SR-74 may result in decreased traffic congestion along SR-74 itself, the Project would certainly not decrease congestion at the six intersections located within the Project limits. For that reason, the Project does not meet the Project's purpose and need. 13

More importantly, the fact that the proposed Project would – by Austin-Foust Associates' own admission – result in unacceptable delays at these intersections constitutes a significant impact. As the Brohard Report notes, the City of San Juan Capistrano has adopted a LOS D or better as the acceptable LOS at intersections in the City. Caltrans itself also strives to maintain LOS C/D or better for its facilities. *See* Brohard Report at 4.

Despite the fact that the Project would result in significant impacts at several intersections along SR-74, the DEIR fails to identify feasible mitigation

measures as required by CEQA. Instead, the document simply suggests that motorists seeking to make a left turn onto SR-74 could instead make a right-turn and then make a U-turn. DEIR at 90. The DEIR never bothers to explain whether the roadway or its intersections are actually wide enough to safely make these U-turns. We are especially perplexed as to why the DEIR does not provide this evaluation inasmuch as the Brohard Report raised this critical concern. His Report made clear that according to the *Policy on Geometric Design of Highways and Streets 2004*, the proposed geometrics of SR-74 are insufficient to allow a U-turn to be made in one continuous movement. As a consequence, motorists will likely attempt different maneuvers such as turning around using a residential driveway or attempting a left-hand turn onto SR-74 without an acceptable gap in traffic that could exceed 50 to 60 miles-per- hour. The revised DEIR must adequately address and mitigate this clearly significant – and dangerous – impact. 13

iv. The DEIR Fails to Adequately Analyze the Project's Increased Public Safety Risk.

The proposed Project would result in a significant increase in average vehicle speed for the section of SR-74 being improved. DEIR at 91. This increase in vehicle speed, coupled with the increase in the amount of traffic traveling along this stretch of roadway, would increase the potential for vehicular accidents and would pose a heightened risk for pedestrians, bicyclists and equestrians. Unfortunately, the DEIR glosses over this critical public safety issue.

As discussed above, and extensively in the Brohard Report, the Project would likely cause an increase in the potential for motor vehicular accidents. Motorists attempting to make left-hand turns into two lanes of traffic traveling up to 60 miles-per- hour and motorists attempting to make a U-turn under these same conditions could cause devastating and potentially lethal accidents. In addition, there are at least 13 driveways within the Project limits. 2008 Air Quality Assessment Report at 12. Ingress and egress from these driveways would likely be treacherous with the increased vehicular speeds that would accompany this Project. The potential for such accidents is all the more heightened inasmuch as the alignment of the existing roadway imposes driving restrictions such as limited sight distance and difficulties in negotiating sharp curves. *See* DEIR at 1. The DEIR never bothers to analyze how these roadway alignment constraints, coupled with increased traffic and vehicular speeds from the proposed Project, would affect the roadway's accident rate. 14

The DEIR also downplays the elevated risk posed by increased traffic volumes and vehicular speed on pedestrians and bicyclists. The document simply concludes, absent sufficient analysis, that any impacts would be less than significant. DEIR at 91. The risk to pedestrians is of particular concern inasmuch

as the Project would necessitate the removal of over 1,000 feet of sidewalk on the north side of SR-74. Sound urban planning principles dictate that streets should be designed to accommodate pedestrians. Streets are not just transportation connections but central to how we live, work and recreate. According to *Mean Streets 2004*, a report published by the Surface Transportation Policy Project, "all too often we are designing hazards into our streets or going back and adding new hazards to our existing streets." The most dangerous metropolitan areas identified in the *Mean Streets* Report share several common characteristics including development served largely by wide, high-speed arterial highways. *See* Surface Transportation Policy Partnership *APA Calls for Good Planning and Safe Growth to Reduce Pedestrian Fatalities*, APA, December 2, 2004, attached as Appendix D. Wide roads, speeding traffic, and a lack of crosswalks or sidewalks can make walking a deadly activity. *See Mean Streets 2004*, attached as Appendix E.

Moreover, the Project would attract bicyclists to this dangerous roadway as the Project proposes to utilize shoulders on both sides of the roadway for a Class II bicycle facility. As the Brohard Report makes clear, the proposed bicycle lanes barely meet the minimum width required in Caltrans' Highway Design Manual. In addition, because the bike path would simply end at the western terminus of the Project, bicyclists would then be required to ride within vehicular travel lanes. While we support the concept of bicycle lanes along SR-74, Caltrans cannot simply ignore the risk to public safety by encouraging bicyclists to travel along this high-speed arterial. 14

Finally, the DEIR ignores impacts to equestrians altogether. Such an omission is especially egregious since – as the Brohard Report notes – equestrians use this stretch of roadway and an equestrian crossing is necessary to connect the trail system north and south of the highway. *See* Brohard Report at 8.

Widening SR-74 to accommodate high-speed traffic – at the expense of pedestrians, bicyclists and equestrians – is a giant step in the wrong direction. The revised DEIR must analyze how the Project would affect pedestrians, bicyclists and equestrians and identify mitigation measures capable of protecting the public.

v. The DEIR Fails to Analyze the Project's Construction-related Transportation Effects.

Although the DEIR asserts that a preliminary Traffic Management Plan ("TMP") has been prepared, the document falls short of actually analyzing the traffic implications of a construction project that is scheduled to span two years. The DEIR further asserts that the TMP evaluates traffic mitigation 15

strategies but again the DEIR provides no detail as to the specific steps that would be taken to minimize traffic impacts during construction.

The document's failure to supply this information is not a superficial deficiency. Construction of this Project would span two years, would generate substantial traffic volumes (*e.g.*, construction employees commuting to/from the job site, delivery of materials, hauling of excavated material, etc.), and cause excessive traffic congestion since it is likely that only one travel lane in each direction would be accessible to motorists. The revised DEIR must address this impact and identify feasible mitigation measures. 15

vi. The DEIR Fails to Evaluate the Project's Cumulative Traffic Impacts.

An EIR must discuss significant "cumulative impacts." CEQA Guidelines § 15130(a). "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines § 15355(a). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects." CEQA Guidelines § 15355(a). A legally adequate "cumulative impacts analysis" views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable future projects whose impacts might compound or interrelate with those of the project at hand. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." CEQA Guidelines § 15355(b). The cumulative impacts concept recognizes that "[t]he full environmental impact of a proposed . . . action cannot be gauged in a vacuum." *Whitman*, 88 Cal. App. 3d at 408. 16

Although the DEIR takes the position that the analysis of future traffic conditions in 2035 is a cumulative analysis, we can find no evidence that the analysis takes into account the other large-scale roadway projects that are on the planning horizon. As discussed above, there are at least two other major roadway projects that *were not* assumed in the 2035 network: the extension of San Juan Creek Road to La Pata Avenue and the extension of Camino Las Ramblas to La Pata Avenue. The extension of La Pata Avenue in particular would result in a tremendous increase in traffic on SR-74. Nor, as we stated in our MND Letter and as discussed above, does Caltrans consider the potential cumulative impacts associated with the simultaneous construction of the Project and the other SR-74 Projects.

Finally, the DEIR cannot ignore the obligation to examine cumulative construction-related impacts on traffic circulation. If construction of any of these roadway or the land use projects identified in the DEIR were to overlap, the impacts to local and regional transportation would likely be extensive. The revised DEIR must include construction-related traffic impacts in its analysis of cumulative traffic impacts. 16

B. The DEIR's Analysis of Air Quality Impacts Is Deficient.

The DEIR's analysis of impacts to air quality is deeply flawed. Because the DEIR does not address the deficiencies identified by Autumn Wind Associates' August 2007 Report, we request that Caltrans address each of the points made therein. (*See* Appendix A.) Inasmuch as the Autumn Wind Report provides extensive discussion of the deficiencies in the MND's air quality analysis, this letter will highlight the additional deficiencies in the DEIR's analysis. 17

i. The DEIR Fails to Adequately Describe the Project's Environmental Setting.

An EIR's description of a project's environmental setting plays a critical part in all of the subsequent parts of the EIR because it provides "the baseline physical conditions by which a lead agency determines whether an impact is significant." CEQA Guidelines § 15125(a). "Knowledge of the regional setting is critical to the assessment of environmental impacts." CEQA Guidelines § 15125 (c).

In the American Lung Association's annual air-quality report, the South Coast Air Basin routinely ranks as having some of the nation's dirtiest air. According to the South Coast Air Quality Management District ("SCAQMD"), an estimated 1,600 people die prematurely each year in the greater Los Angeles/Orange County region due to smog. Thousands more suffer temporary or long-term health effects and millions more are at least inconvenienced. *See* http://www.ocalmanac.com/Environment/ev01.htm. Moreover, air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. *See* California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective* (excerpts), attached as Appendix F. 18

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. The SCAQMD includes in its list of sensitive receptors residences, schools, playgrounds, childcare centers, convalescent homes, retirement homes, rehabilitation centers,

and athletic facilities. Sensitive population groups include children, the elderly, and the acutely and chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered to be sensitive to air pollution because residents tend to be home for extended periods of time, resulting in sustained exposure to any pollutant present. Although SR-74 runs through an established community, the DEIR completely fails to quantitatively, or even qualitatively, identify the number and type of sensitive receptors that would be affected by this proposed Project. 18

Moreover, the DEIR fails to adequately identify and describe local air quality. For example, the document reports that the air quality trends of the two monitoring stations closest to the site – the Mission Viejo-26081 Via Pera Station and the Costa Mesa-Mesa Verde Drive Station – are representative of the ambient air quality in the Project area. DEIR at 187. The DEIR does not, however, provide any documentation explaining how data monitored at these stations are representative of air quality directly adjacent to SR-74. How far are these monitors from SR-74? Unless they are within a mile or two of SR-74, it is unlikely that data from these monitors provide a valid baseline concentration for use in evaluating the Project's air quality impacts. The revised DEIR should include data in immediate proximity to SR-74.

ii. The DEIR Fails to Adequately Analyze and Mitigate the Project's Construction-related Air Quality Impacts.

The DEIR makes no attempt to quantify the construction-related air quality impacts of the proposed Project. Instead, it provides a generic overview, simply stating the obvious: that construction activities produce combustion emissions and that exhaust emissions will vary daily as construction activity changes. DEIR at 189. To conclude as the DEIR does that an impact is less than significant, the analysis must be supported with substantial evidence. Substantial evidence consists of "facts, a reasonable presumption predicated on fact, or expert opinion supported by fact," not "argument, speculation, unsubstantiated opinion or narrative." Pub. Res. Code § 21080(e)(1)-(2). 19

The DEIR makes no attempt to identify thresholds of significance, to identify the number and type of emission sources, to quantify the increase in emissions, or to evaluate the effect that an increase in emissions would have on nearby sensitive receptors. As the Autumn Wind Report explains, it is certainly feasible to evaluate construction-related air emissions: "[e]missions attributable to construction phases and sub-phases are routinely and readily modeled using URBEMIS or other means." *See* Appendix A, Autumn Wind Report at 3.

The DEIR relies upon the eventual adherence to Caltrans specifications and SCAQMD fugitive dust rules to conclude that fugitive dust emissions from construction activities would be less than significant. DEIR at 189. Yet, merely requiring compliance with agency regulations does not conclusively indicate that a proposed project would not have a significant and adverse impact. In *Kings County Farm Bureau*, 221 Cal.App.3d at 716, for example, the court found that the fact that the EPA and the local air pollution control district had issued the necessary air emission permits for the construction of a coal fired cogeneration plant did not nullify the CEQA requirement that the lead agency analyze the significant air quality impacts of the entire project. *See also Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1108- 1109. The DEIR should be revised to include details such as estimated construction fleet composition, construction schedules, estimated efficiency of mitigation controls, impacts of emissions on ambient air quality, and potential health impacts on sensitive receptors. Without this, the DEIR is legally inadequate.

As the Autumn Wind Report explains, an analysis of construction-related air emissions is especially important because nearly all construction equipment is diesel-powered. Diesel particulate matter ("DPM") is a toxic air contaminant ("TAC") and construction emissions can cause highly significant localized and regional emission impacts. *See* Appendix A, Autumn Wind Report at 6. Diesel exhaust is a serious public health issue. It has been causally associated with a range of serious health problems including respiratory disease, lung damage, cancer, and premature death. DPM is inhaled deeply in the lungs, bypassing the body's natural defense systems, where it can result in increased respiratory symptoms and disease. Lung function and volume can decrease with DPM exposures, a fact that is particularly important for children and individuals with asthma. Mortality and morbidity increases due to DPM have been clearly demonstrated. Moreover, as the Autumn Wind Report explains, the South Coast already experiences some of the highest background toxic air contaminant levels in the Country. The increase in exposure to DPM from construction and operation (operational impacts are discussed below) is of critical concern and must be fully evaluated in the revised DEIR. 19

Without any analysis, including modeling, there is simply no way to ensure that DPM emissions resulting from construction activities will not exceed recognized thresholds, leading to unacceptable increases in morbidity and mortality for populations in or near the Project study area.

Because the construction-related air quality impacts are potentially significant, Caltrans must propose and analyze adequate mitigation measures to reduce these impacts. As with the MND, the DEIR relies on generic, inadequate,

and unenforceable measures to mitigate these potentially significant impacts. We again refer Caltrans to the Autumn Wind Report for a detailed accounting of the deficiencies in the DEIR's mitigation measures. 19

iii. The DEIR Fails to Analyze the Project's Operational Air Quality Impacts.

The DEIR fares no better in its analysis of the Project's operational air quality impacts. An accurate evaluation of operational emissions is critical since SR-74 runs through an established community. Studies conducted by the California Air Resources Board and others confirm that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. *See* Appendix F. Specifically, these studies found reduced lung function and increased asthma in children within 1,000 feet of heavy traffic. *Id.* In addition to the respiratory health effects, proximity to freeways increases potential cancer risk. *Id.*

The DEIR fails to study the increased health risk from the proposed widening of SR-74. Instead, the document claims that the Project would result in virtually no increase in vehicular emissions because widening SR-74 would not generate new vehicular traffic trips. DEIR at 190 and 2008 Air Quality Assessment Report at 1. This assumption belies common sense. As envisioned by Caltrans, this Project would eliminate a choke-point by doubling the capacity of an arterial that currently operates under congested conditions. Consequently, this Project would enable more vehicles to travel along this stretch of roadway. Indeed, the DEIR's 2008 Traffic Study confirms this fact: traffic volumes on SR-74 east of Calle Entradero are expected to increase by more than 44 percent by 2035. *See* 2008 Traffic Study at Table 2-4 (page 2-12). Although some of this increase may occur as a result of additional development in the area, by the DEIR's own admission "some traffic currently utilizing other routes would be attracted to use the improved facility thus resulting in slight increases in vehicle miles traveled." DEIR at 190. 20

Thus, while the DEIR does identify a nominal increase in vehicle miles traveled ("VMT") attributable to the proposed Project (*see* Table 2.2.6-3), it makes no attempt to correlate this small increase in VMT with the substantial increase in projected traffic volumes.[1] Nor does the document make any attempt to disclose how much of this increase in traffic volumes along SR-74 would be attributable to the Project. Without this information, it is simply not possible to identify the Project's increase in vehicular emissions. It defies credibility to

[1] Resolution of this issue is critical in that an underestimation of VMT calls into question the accuracy of other impact analyses, including but not limited to transportation, climate change and hydrology.

conclude – as the DEIR does – that the Project would increase SO_x, PM_{10} and $PM_{2.5}$ by only one pound per day, ROG emissions by only two pounds per day and NO_x emissions by only five pounds per day. (*See* Table 2.2.6-4). And, indeed, the facts paint a different picture: the average passenger car emits more than 115 pounds of NO_x and ROG each year. Studies conducted by the Georgia Department of Transportation determined that the average light truck or SUV emits almost 164 pound of NO_x and ROG annually. *See* http://www.dot.state.ga.us/INFORMATIONCENTER/programs/environment/airquality/resources/Pages/FAQs.aspx. The Georgia Department of Transportation's emission information appears to directly contradict the DEIR's dubious claim that the Project would result in a miniscule increase in emissions. The revised DEIR must provide some level of documentation for its assumptions. 20

iv. The DEIR Fails to Analyze the Project's Cumulative Air Quality Impacts.

The DEIR's purported analysis of the Project's cumulative air quality impacts falls well short of CEQA's requirements as it provides no evidentiary basis that such impacts would not be cumulatively considerable. *Citizens of Goleta Valley*, 52 Cal.3d at 568 (CEQA requires an EIR to contain facts and analysis, not just an agency's bare conclusions). For example, although the DEIR suggests that a cumulative air quality analysis should be regional in nature, the document never actually evaluates how the Project, together with past, present and reasonably foreseeable projects in the region would contribute to regional air pollution. Moreover, while the Air Quality Appendix suggests that a CO and PM_{10} screening analysis was performed, we can find no evidence of this analysis in either the DEIR or the technical appendices. The revised DEIR must actually analyze the effect that the proposed Project, together with other projects, would have on local and regional air quality. Clearly, substantial additional work is required to identify, evaluate, and mitigate the Project's cumulative air quality impacts. 21

C. The DEIR Fails to Adequately Evaluate or Mitigate the Project's Cumulative Impacts to Climate Change.

While the DEIR includes a discussion of the Project's impacts on climate change, the analysis is essentially perfunctory. Inasmuch as we alerted Caltrans to the MND's inadequate discussion of climate change impacts, we are surprised that the DEIR presents such a minimal analysis. Unfortunately, the DEIR does not pick up where the MND left off; instead it focuses its efforts on a lengthy discussion about the uncertainties associated with emission calculation methodologies. The DEIR calculates only a portion of the carbon emissions for which the Project will be responsible and then ignores its obligation to determine 22

whether the impact is significant. The document thus fails at the most basic purpose of an EIR: to disclose to the public a project's significant environmental impacts and mitigation for these impacts. 22

i. The DEIR Fails to Properly Quantify the Project's Emissions Contributing to Climate Change.

The DEIR's estimate of the Project's carbon emissions only tells a small part of the story of the Project's contribution to climate change. The document includes calculations of the amount of emissions attributable to vehicle miles traveled ("VMT") and vehicle hours traveled ("VHT"), and then uses this figure to develop only a rough estimate of total emissions. As will be discussed below, the DEIR errs in its failure to identify all of the Project-related emissions.

Gases other than carbon dioxide also contribute to the greenhouse effect. *See, e.g.*, Climate Action Team Report at 11-12. These gases include, but are not limited to, methane ("CH4"), nitrous oxide ("N2O"), and hydrofluorocarbons ("HFCs"). *Id.* In addition, black carbon, which is produced by burning fossil fuels such as diesel fuel, has significant global and regional effects and its contribution to climate change is second only to carbon dioxide. *See*, U.S. House of Representatives Committee on Oversight and Government Reform Hearing, October 18, 2007; Science and Development Network "Black Carbon Climate Danger Underestimated" April 3, 2008. According to five leading researchers in the field who testified at the aforementioned Hearing, decreasing black carbon emissions will immediately slow global warming because unlike carbon dioxide, black carbon remains in the atmosphere for only a matter of days or weeks. Therefore, mitigating black carbon emissions would quickly alleviate its warming effects such that controlling soot emissions can "buy us time" and provide an opportunity for effective policies for reducing carbon dioxide emissions to be implemented. *Id.* The revised DEIR should inventory all of the Project's emissions of each of these other gases and black carbon. (Because carbon dioxide is the prevalent greenhouse gas, we frequently refer here to "carbon emissions;" this should be taken to mean any greenhouse gas emissions including black carbon.) 23

In addition, the DEIR also fails to recognize that the SR-74 Project would generate greenhouse gas emissions beyond those that are emitted directly from vehicles traveling along the widened roadway. To tell the whole story of the Project's role in climate change, the DEIR would need to look beyond VMT and VHT inventory. At a minimum the revised DEIR should identify greenhouse gas emissions from Project construction, energy consumption, the carbon emissions generated throughout the manufacturing and lifecycle of its building materials, black carbon emissions, and estimated emissions resulting from the growth-

inducing effects permitted by easing commuter access to jobs-rich Orange County from inland communities. *See*, Autumn Wind Associates, Inc. comments dated August 31, 2007 at 30. Merely estimating emissions based on VMT does not provide the public with a complete picture of the Project's relationship to global warming. Most importantly, unless the DEIR breaks out its estimates of emissions from different sources, designing appropriate mitigation will be impossible. 23

An agency's first duty under CEQA is to disclose accurately a project's impacts. The DEIR does not do so, because it skips over several potentially significant sources of greenhouse gas emissions. Until greenhouse gasses are properly quantified, the DEIR will remain inadequate.

ii. The DEIR Fails to Justify Its Conclusion That the Project's Contributions to Climate Change Would Be Less Than Significant.

Although the DEIR acknowledges that the proposed Project would generate greenhouse gas emissions (at 292), the document stops short of identifying the Project's impact on climate change as significant. Caltrans has a clear statutory obligation under CEQA to determine whether or not this Project's impacts are significant. The first step in any discussion of an environmental impact is to select a threshold of significance. The DEIR does not choose such a threshold. Under CEQA, a determination of the significance of an environment impact calls for "careful judgment ... based to the extent possible on scientific and factual data." CEQA Guideline § 15064(b). Accordingly, a significance threshold for greenhouse gases must reflect the grave threats posed by the cumulative impact of additional new sources of emissions into an environment where deep reductions from existing emission levels are necessary to avert the worst consequences of global warming. *See Communities for Better Env't v. California Resources Agency* (2002) 103 Cal. App. 4th 98, 120 ("[T]he greater the existing environmental problems are, the lower the threshold for treating a project's contribution to cumulative impacts as significant."); *see also Center for Biological Diversity v. National Highway Traffic Safety Administration* (9th Cir. 2007) 508 F.3d 508, 550 ("[W]e cannot afford to ignore even modest contributions to global warming."). An agency must use its best efforts to analyze impacts, even in the absence of a generally accepted methodology. *See, e.g., Berkeley Jets*, 91 Cal. App. 4th at 1370. The lack of published standards and thresholds of significance alone cannot justify the County's failure to analyze the potentially significant climate change impacts of the Project. 24

The California Air Pollution Control Officers Association ("CAPCOA") published "CEQA & Climate Change," which proposes a variety of potential thresholds of significance, and describes appropriate applications for

each. *See* CEQA & Climate Change, attached as Appendix G. Under CAPCOA's analysis, the only two thresholds that are highly effective at reducing emissions and consistent with AB 32 and Executive Order S-3-05 are a threshold of zero or a quantitative threshold of 900-ton CO2 Eq. The zero threshold is preferable in light of ongoing scientific advances. In addition, even the ambitious emissions reduction targets set by Executive Order S-3-05 in 2005, which were consistent with contemporaneous science indicating that reductions of 80% below 1990 levels by developed countries were sufficient to stabilize the climate, are now believed to be insufficient. Given the recent extreme losses in arctic sea ice, scientists at the National Snow and Ice Data Center have concluded that "the observed changes in the arctic indicate that this feedback loop is now starting to take hold." Based on these and other recent climate change observations, leading scientists now state that "humanity must aim for an even lower level of GHGs." As our current scientific understanding now calls for even greater reductions and indicates that we already may have passed a climactic tipping point, the scientific and factual data support a threshold of significance of zero in order to ensure that new projects do not have a cumulatively significant impact on global warming. Indeed, consistent with scientific data, many EIRs have adopted a zero threshold of significance because it is the most "scientifically supportable" threshold. (*See e.g.*, DEIR, Venoco Ellwood Full Field Development Project at 4.3-33, SCH # 2006061146.) 24

In any event, the Project, with its yearly emissions of nearly 2,500 tons per year of CO2 Eq (at 292), is well above either of the two potential thresholds of significance. Its contribution to global warming must therefore be considered significant. With this significance determination comes CEQA's mandate to identify and adopt feasible mitigation measures that would reduce or avoid the impact. CEQA Guidelines § 15126.3(a)(1); *see also Woodward Park Homeowners Ass'n, Inc. v. City of Fresno* (2007) 150 Cal. App. 4th 683, 724 ("The EIR also must describe feasible measures that could minimize significant impacts.").

While the DEIR points to a handful of measures to reduce impacts, the measures are limited to planting landscaping, using reclaimed water on the landscaping, and using additives in the cement used for the Project. Dozens of potential mitigation measures, at least, are available to reduce the Project's greenhouse gas emissions. A small sampling includes:

- Require all aspects of the Project to be "carbon neutral" through a combination of on-site and off-site measures. An important aspect of this mitigation could be the adoption of an off-set requirement for any reductions that could not be achieved directly. Emissions could be offset either through contributing to the financing of sustainable energy projects

or through the purchase of carbon credits. The programs are increasingly common and thus raise no issue of infeasibility.

- Require that off-road diesel-powered vehicles used for construction be new low-emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by the CARB. (Incidentally, the air quality consultant for the Project identified this measure as appropriate to avoid and minimize construction impacts, yet the DEIR failed to include the measure. See the individual technical study for Air Quality at 30.)

- Dedicate High Occupancy Vehicle (HOV) lanes prior to adding capacity to existing highways.

- Implement toll/user fee programs prior to adding capacity to existing highways. 24

In addition to the mitigation measures identified above, the DEIR should also consider the mitigation measures proposed in CAPCOA's publication. (See Appendix G.)

In short, the DEIR provides no legally sufficient reasoning to support its conclusion that the Project will make a less than significant contribution to climate change. The DEIR must be revised to make the required significance determination. Any thorough analysis will find that the Project's contribution to global climate change is, indeed, significant. The DEIR therefore must be further revised to identify feasible, effective mitigation measures to reduce or avoid that impact.

D. The DEIR Fails to Adequately Analyze or Mitigate the Project's Noise Impacts.

A particularly glaring inadequacy of the DEIR is its analysis of and mitigation for the Project's noise impacts. The proposed Project would generate two distinct categories of noise impacts: construction-related noise, and traffic noise from the cars, trucks and recreational vehicles that would travel along this widened roadway. Some of the closest sensitive receptors will be no more than 25 feet from the roadway. The DEIR admits that noise from construction of the Project could be as high as 91 dBA L_{max} (i.e., louder than a food blender or a garbage disposal at a distance of one meter), while noise from the traffic traveling along the roadway would be considered *severe* in at least one location. DEIR at 208 and 214. 25

The World Health Organization recognizes noise, and in particular traffic noise, as a serious public health problem. *See* excerpts from Traffic Noise Reduction in Europe, attached as Appendix H. Given the severity of the Project's potential noise impacts, coupled with the effect that elevated noise levels has on public health, the DEIR should have rigorously examined this issue. Unfortunately, the document's analysis of noise impacts is riddled with errors and critical omissions. A few of the most troubling errors are briefly reviewed here. 25

i. The DEIR Fails to Adequately Describe the Project's Environmental Setting.

While the DEIR includes several tables depicting existing short and long term noise levels for various receptors, it fails to provide any information as to how these specific sensitive receptors were selected, or whether these locations are in fact representative of all potentially affected sensitive receptors. Thus it is not possible to determine whether the DEIR comprehensively or accurately identifies each potentially affected sensitive receptor. If the DEIR under-represented the number and type of potentially affected receptor locations, it also necessarily underestimated the Project's noise impacts on these receptors. The revised DEIR must provide detailed documentation, including maps, supporting the selection of representative sensitive receptors. 26

Moreover, the DEIR assumes that horse ranches are not considered noise-sensitive. DEIR at 197. While a horse ranch may not be considered a sensitive receptor, horses and individuals residing or using a horse ranch certainly are. As for the former, one need not spend much time around a horse before they clearly understand that the purely auditory cracking of a whip or the backfire of an automobile causes stress to horses. Accordingly, the DEIR must include horse ranches as sensitive receptors. As we clearly pointed out in our MND Letter, the Oaks Farm is a particularly sensitive receptor for noise because it is used, in large part, to raise and train horses. There are also a number of families with small children who reside on the Oaks Farm property.

ii. The DEIR Fails to Set Forth Thresholds or Criteria For the Project's Noise Impacts.

The DEIR does not identify the relevant standard or threshold of significance for determining a significant noise impact. Determining whether or not a project may result in a significant adverse environmental effect is one of the key aspects of CEQA and thresholds are an analytical tool for judging significance. Here, as in almost every other section of the DEIR, the document fails to establish a stable threshold for determining significance of the Project's 27

noise impacts. Since the requirement to provide mitigation is triggered by the identification of a significant impact, the DEIR's failure to identify all of the Project's significant impacts also results in a failure to mitigate these impacts.

Rather than set for the applicable general plan or city noise ordinance threshold, the DEIR simply asserts that "[i]n accordance with CEQA, a noise impact occurs when the future noise level is substantially higher than existing levels." DEIR at 194. Yet, the DEIR does not take the logical next step – the identification of a definition of substantial increase. We suggest Caltrans rely on the CEQA checklist questions which ask if the Project would result in: 27

(a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
(b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

As will be discussed below, had the DEIR relied on such criteria for determining significance, the document would have determined that the Project's noise impacts would likely be significant and unavoidable.

iii. The DEIR Fails to Adequately Analyze or Mitigate the Project's Construction-related Noise Impacts.

The DEIR does not adequately address construction-related noise impacts. Although the DEIR acknowledges that sensitive receptors will be subjected to elevated noise levels during the two year construction period, the DEIR raises more questions than it answers. For example, the DEIR states that the "worst-case composite noise level at the nearest noise-sensitive receptor" would be 91 dBA L_{max} at a distance of 50 feet from the construction area. DEIR at 208. Yet the Final Technical Noise Impact Analysis Report Addendum ("Noise Addendum") actually shows that some homes are considerably closer than 50 feet to SR-74. Specifically a residence on the southeast corner of Calle Entradero and Ortega Highway is 25 feet from the edge of SR-74. Noise Addendum at 16. We can find no evidence that the DEIR discloses the decibel of construction noise at this residence. Nor does the DEIR disclose the noise levels at any other locations along the SR-74 alignment. It is not sufficient to identify only the worst case composite noise level. The DEIR must identify each receptor location that would experience a substantial increase in ambient noise levels. 28

Moreover, the document never actually shows how it arrived at the above referenced dBA L_{max} figure. While the worst-case composite noise level may indeed be 91 dBA L_{max}, the document provides no methodology to support its analysis. A conclusion regarding the significance of an environmental impact that is not based on an analysis of the relevant facts fails to fulfill CEQA's informational goal. *See Stanislaus Natural Heritage Project*, 48 Cal.App.4th at 182; *Citizens of Goleta Valley*, 52 Cal.3d at 568. The DEIR fails to fulfill this paramount CEQA purpose both because it neglects to present all relevant facts relating to the Project's construction noise impacts upon sensitive receptors and because its cursory conclusions are based upon no analysis. Without a detailed analysis of construction related noise, it is not possible to determine the severity of these impacts or whether the proposed mitigation measures would effectively reduce such effects. Such an evaluation is complex, requiring a thorough description of and understanding of the duration of the exposure at a particular receptor and the amplitude of the noise exposure at a particular receptor. Without a thorough evaluation of the construction noise environment, it is impossible to make a finding regarding a substantial temporary or periodic increase in ambient noise levels. Since the DEIR only includes conclusory statements and lacks a full assessment, the impact analysis is inadequate. 28

The revised DEIR must provide detailed documentation, including maps, identifying the change in noise levels at each sensitive receptor location as well as a detailed description of the impact analysis methodology and assumptions. Absent this information, residents along SR-74 have no idea whether they will be significantly impacted by excessive noise levels during Project construction.

In addition, although the DEIR acknowledges that vibration levels generated by asphalt placement and heavy tracked construction equipment would be *strongly perceptible to humans*, the DEIR concludes that impacts relating to groundborne vibrations will be less than significant. DEIR at 211 (emphasis added). Groundborne vibration can be a source of tremendous annoyance, especially when vibration occurs in conjunction with on-going construction noise. The DEIR's conclusion that this impact would be less than significant cannot be sustained.

Nor does the DEIR ever analyze the effect that the removal of buffering trees and foliage directly adjacent to the Oaks Farm would have on this sensitive receptor. Once this vegetation is removed, horse corrals, stalls, and pens would be directly exposed to the new sidewalk and widened highway. In fact, if the buffering trees and foliage are removed from the Oaks Farm, horse corrals, stalls, and pens will be directly exposed to the new sidewalk and widened highway.

Finally, the DEIR does not provide any evidentiary support that the construction-related noise impacts would be reduced to a less than significant level. Like the DEIR's purported mitigation for air quality discussed above, the DEIR looks to implementation of standard Caltrans noise specifications to conclude that construction noise would be less than significant. DEIR at 209. While the DEIR states that noise from the contractor's operations shall not exceed 86 dBA (at 208), the DEIR provides no evidence that such a noise reduction is even feasible. As discussed above, adherence to specifications does not necessarily translate to a less-than-significant impact. Indeed, the DEIR fails to identify even one specific measure to reduce actual noise levels. Rather the document's approach to minimize noise impacts is a "mere expression[] of hope" that Caltrans will be able to devise a way around the problem of excessive construction noise. *Lincoln Place Tenants Ass'n v. City of Los Angeles*, --- Cal. App. 4th ---, 2005 WL 1635178, at *10 (July 13, 2005). CEQA requires more than that to mitigate significant impacts. *Id.* 28

iv. The DEIR Fails to Adequately Analyze or Mitigate the Project's Operational Noise Impacts.

As with the DEIR's analysis of construction-related noise impacts, the document's analysis of operational noise contains so little detail that it is not possible to verify the accuracy of the analysis. As discussed above, the DEIR never discloses the locations of the sensitive receptors, fails to describe the methodology for evaluating traffic noise impacts and lacks significance thresholds. All of this information is critical to allow for an independent evaluation of the accuracy of the DEIR's conclusion that traffic noise would impact only one location along the proposed Project alignment. (As discussed below, we disagree with the DEIR's conclusion that the Project's significant noise impacts would be limited to just one residence.) 29

Moreover, the DEIR provides insufficient evidence to support the conclusion that impacts to Receptor 31K5 would be less than significant. DEIR at 215. Indeed, the DEIR assumes that offering interior noise mitigation would satisfactorily reduce impacts to this receptor. *Id.* While reducing interior noise levels is critically important, the proposed measures would do nothing to reduce excessive exterior noise exposure levels. Residents have a right to quiet enjoyment of the outdoors, not just the interiors of their houses.

Although Table 2.2.7-10 clearly shows receptors 33, 34, and 35 would experience an increase in noise levels of 5.0, 4.5 and 4.9 dBA respectively, the DEIR appears to conclude this increase in noise would not be significant because these receptors are located outside of the Project limits. DEIR at 213. If

the Project would cause a substantial permanent increase in ambient noise levels at these receptor locations, the DEIR is obligated to identify this as a significant impact of the Project and identify feasible mitigation. As discussed above, "an EIR may not ignore the regional impacts of a project approval, including those impacts that occur outside of its borders; on the contrary, a regional perspective is required." *Citizens of Goleta Valley v. Board of Supervisors*, 52 Cal.3d 553, 575 (1990). Moreover, it would appear that the Project would cause a significant increase in noise at receptor 32, yet the DEIR does not identify this increase as significant. The revised DEIR should explain this apparent discrepancy.

Nor is it clear whether the DEIR's analysis of operational noise impacts assumes the implementation of soundwalls. Specifically, do the projected noise levels in the columns labeled "Future (2035) Build" and "Change from Existing Noise Levels" in Table 2.2.7-10 reflect noise abatement from soundwalls? If so, the document must also identify noise levels *without* noise abatement measures inasmuch as the Noise Addendum clearly states that Caltrans has not committed to noise abatement and that the "soundwalls are only *recommended* for consideration." Noise Addendum at 12 (emphasis added). The revised DEIR must identify noise levels at each receptor location with and without noise abatement. 29

Another particularly egregious oversight is the DEIR's failure to evaluate single noise events or nighttime noise. Motor vehicle noise is characterized by a high number of individual events, which often create a higher sustained noise level in proximity to areas sensitive to noise exposure. Heavy trucks, tractor-trailers and recreational vehicles generate significantly more single noise events than other vehicle types.

Although the DEIR's noise analysis does not specifically call out trucks and recreational vehicles, other sections of the DEIR make clear that trucks comprise a substantial proportion of the total traffic volumes through the Project. This is related to the Prima Deshecha Land Fill operation and to existing sand and gravel operations along Ortega Highway. 2008 Traffic Study at 2-11. Truck traffic is estimated to be 19.6 percent of total traffic along SR-74. DEIR at 85. SR-74 also carries a high volume of recreational travelers on the weekends. *Id.* at 84. The DEIR' noise analysis should have evaluated how single noise events from trucks and recreational vehicles traveling along the roadway would impact sensitive receptors, some of which would be no more than 25 feet from the road.

Analyzing only average noise impacts has been rejected by California courts because impacted residents do not hear noise averages, but single events. *See Berkeley Keep Jets Over the Bay Committee v. Port of Oakland*, 91 Cal.App.4th 1344, 1382 (2001). Single event noise levels have been shown to be

likely to result in sleep disruption and speech interference, and heightened levels of stress and annoyance. Noting that "sound exposure level [SEL] has been found to be the most appropriate and useful descriptor for most types of single event sounds," the court in *Berkeley Keep Jets* held that the Port must prepare a supplementary noise analysis calculating the impacts of single-event sounds. *Id.* at 1382. Accordingly, the revised DEIR must analyze the impacts of single event noise on sleep, speech, stress and annoyance levels, and analyze adequate measures to mitigate those impacts.

Nor does the DEIR differentiate between daytime and nighttime noise. Noise can be far more intrusive during the evening and nighttime hours when ambient noise levels are at their lowest and when sensitive receptors are sleeping. Since the surrounding area is quieter at these times, the masking effect of other noise does not screen the roadway noise. The DEIR should have taken into account this higher sensitivity to noise and evaluated how the increase in noise from the proposed Project would affect receptors during these sensitive time periods. 29

Finally, the DEIR comes to the illogical conclusion that since the Project would use new asphalt pavement, there would be no potholes, bumps, expansion joints, or other discontinuities in the road surface that would generate groundboune vibration or noise impacts from vehicular traffic traveling on SR-74. DEIR at 213. While pavement would certainly be new and the roadway relatively smooth during the initial years, the roadway surface – especially because of the large number of trucks and recreational vehicles – will undoubtedly wear down. The DEIR is obligated to analyze the potential for noise and vibration impacts throughout the entire Project duration. The revised DEIR must assess, assuming reasonable wear and tear, the potential for groundborne vibration from trucks and recreational vehicles traveling this stretch of roadway through the planning horizon (i.e., 2035).

E. The DEIR Fails to Adequately Analyze or Mitigate the Project's Visual/Aesthetic Impacts.

Despite the extensive commentary raised in this firm's letter on the MND, we are dismayed at the extensive deficiencies in the DEIR's analysis of visual and aesthetic impacts. We again refer Caltrans to the letter on the MND and request that each issue in that letter be addressed in the revised DEIR. (*See* Appendix A). We highlight only a few of the most egregious deficiencies in the DEIR's visual impact analysis below. 30

In the few key views the DEIR chooses to disclose, the document admits that the Project's impact on viewer awareness would be moderately high.

Despite this acknowledgment, the DEIR's text and simulations do not do accurately depict the severity and extent of the change in this scenic corridor's visual ambience. SR-74 is more than just a way to move motorists from point A to point B. In our automobile-oriented culture, scenic corridors such as Ortega Highway help shape perceptions of the community's sense of place and natural beauty. Whereas the City, the County and Caltrans should be undertaking beautification projects intended to preserve, protect and enhance this scenic corridor, this Project would instead strip the corridor of its rural, tree-lined ambience and replace it with a series of sterile, monotonous concrete walls.

Rather than comprehensively analyze how the Project would affect this corridor's visual character, the document claims that the severity of the impact would vary depending on what architectural treatments are implemented. *See* DEIR at 119 and125. General and ambiguous statements such as this do nothing to inform the public of the Project's visual impacts. These sound barriers are considered to be fundamental components of the Project. DEIR at 22. Without detailed information as to the type and design of the sound barriers that may ultimately be constructed, it is all but impossible to effectively gauge the extent of the visual transformation of this scenic roadway. The document's failure to supply critical information pertaining to the design of the barriers is therefore not a superficial deficiency. Rather, the DEIR's glaring omissions of essential Project components impede reasoned and informed consideration of its environmental impacts. *See Santiago County Water Dist.*, 118 Cal. App. 3d at 829; *Whitman*, 88 Cal. App. 3d at 414-15; *San Joaquin Raptor*, 27 Cal. App. 4th at 721-22; *Stanislaus Natural Heritage Project*, 48 Cal. App.4th at 194-95. 30

Moreover, the DEIR's visual simulations are deceptive because they employ wide-angle or panoramic lens for all views and the images of existing and project conditions are presented on separate pages. The simulations thus do not accurately depict the change in key visual features once this roadway is widened. For example, although the Project would cause the removal of up to 111 trees (at 243), the effect of the loss of these trees is not described in the visual/aesthetics section nor do the simulations make this loss apparent. Furthermore, in most of the simulations, the roadway does not appear any wider in the "after" simulation than shown in the "before" photograph.

Nor do the DEIR's limited measures proposed to minimize significant impacts to the community's visual character actually mitigate the visual impacts of the Project. For example, the DEIR looks to the installation of landscaping to minimize Project impacts, yet the document does not include a Landscape Plan. Instead it defers the preparation of a landscape concept and plant palette until after Project approval. DEIR at 132. In addition, the DEIR proposes to minimize the visual impacts caused by the extensive large-scale walls with

"wall aesthetic enhancements." Here too, the DEIR fails to provide any descriptive analysis of these aesthetic enhancements. The DEIR must describe the aesthetic design of the proposed mitigation in order to allow decision-makers and the affected public to understand how this widened roadway would look on the landscape. As such, the design template for aesthetic features must be identified and described now; it cannot be deferred until after project approval. 30

F. The DEIR Fails to Adequately Analyze and Mitigate the Project's Hydrological Impacts.

The DEIR, like the MND, substantially understates the Project's water quality impacts because it omits critical information. The document does not adequately consider the impacts of the Project's drainage on water quality, failing in particular to consider the cumulative impacts of the Project on the important and increasingly threatened San Juan Creek. San Juan Creek is the ultimate receiving water body for runoff from the site. This shortcoming is particularly egregious since the creek is listed as "impaired" under the Clean Water Act for bacteriological indicators. DEIR at 278.

The document's purported analysis of impacts from the increase in motor vehicle-related pollutants discharged into the watershed and drainage channels is particularly lacking. While the DEIR acknowledges the potential for this to occur (at 153), it fails to actually identify the amount of chemically-laden runoff or analyze how this runoff would impact San Juan Creek. Instead, the DEIR concludes "the increase in the amount of motor-vehicle related pollutants....is expected to have a less than significant impact on surface water quality with the minimization measures incorporated into the project plans. *Id.* This conclusion is not supported by any evidence. The DEIR relies on undisclosed mitigation measures to assume that this increase in pollutants would be minimized to less-than-significant levels. 31

The DEIR's treatment of post-construction erosion impacts is similarly deficient. The document acknowledges that erosion can occur from cut slopes and that sediment may be carried to drainages and streams during rain events or strong winds. *Id.* However, rather than describe the existing conditions and then examine how the Project will alter them, the DEIR merely acknowledges that there may be impacts.

The DEIR goes on to suggest that mitigation measures such as vegetating the slopes and other Best Management Practices would greatly reduce the amount of erosion and siltation, but stops short of actually identifying specific mitigation measures appropriate to this Project site to ensure that impacts are minimized to less-than-significant levels. The document's deferral of the

identification of specific mitigation measures to a future date provides no evidence that the measures will minimize effects. This improper deferral of analysis of impacts and mitigation until after project approval is unacceptable under CEQA. *See Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 309 (deferral of mitigation until after project approval is inadequate; *see also Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 884-885 ("CEQA process demands that . . . environmental information be complete and relevant and that environmental decisions be made in an accountable arena."). Impacts to surface water quality and mitigation for these impacts must be addressed now, not after project approval.

The DEIR also fails to support the conclusion that the increase in impervious surfaces, and the accompanying diversion of runoff into constructed drainages, would have a less-than-significant impact on surface water quality and ground water quantity. The additional Project-related runoff diverted to San Juan Creek from constructed drainages would alter drainage patterns and could result in increased erosion in the Creek. While the DEIR states that the Project would "increase the percentage of impervious area in the project limits by 42 percent" and would increase the runoff coefficient for the project limits by 1.1 percent, it fails to actually analyze what effect this increase in runoff would have on water quality in the Creek. DEIR at 152. Furthermore, while the DEIR recognizes that the increased runoff will also result in a decrease in the amount of water available to recharge the groundwater basin, the document fails to analyze potential impacts to available ground water supplies. DEIR at 153. CEQA requires that an EIR provide information about the magnitude and type of environmental impacts; it may not, as this document does, simply acknowledge that the Project will result in increased runoff and pollutants and hope for the best. *See Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal. App. 4th 182, 196-97. Here, the "analysis" includes little information on the expected effects of the Project. These impacts must be evaluated and appropriate mitigation measures identified in the revised DEIR.

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Finally, the DEIR's analysis of cumulative impacts to water quality is cursory and superficial. Notwithstanding our previous comments on these same short-comings in the MND, the DEIR foregoes a proper analysis of the Project's contribution to cumulative impacts to water quality and, absent any evidence, concludes that all of the other cumulative projects would implement mitigation measures that "would reduce their cumulative operational impact to water quality." DEIR at 279. This "analysis" does not come close to meeting CEQA's requirements. An EIR must include objective measurements of a cumulative impact when such data are available or can be produced by further study and are necessary to ensure disclosure of the impact. *See Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692, 729 (1990).

Despite CEQA's clear mandate with regard to cumulative impacts, the DEIR provides no quantification or meaningful discussion of the combined water quality impacts of the Project and other projects within the San Juan Creek watershed. Given that San Juan Creek is "documented as having poor surface water quality", the DEIR cannot simply conclude that the cumulative impact to water supply is less than significant without providing evidence as to how impacts would be avoided or minimized. The DEIR must be revised to comply with CEQA 31

G. The DEIR Lacks an Adequate Analysis of Population, Jobs and Housing Impacts.

Despite the discussion of this issue in our comments on the MND, the DEIR fails entirely to address, let alone analyze or mitigate, the Project's potentially significant impacts on the jobs-housing imbalance in the region. (*See* Appendix A.) In particular, the Project would: (1) create a need for new employees and an increased demand in the local housing market, which in turn could result in physical environmental impacts; (2) exacerbate the jobs-housing imbalance in the region, and create additional housing demand in eastern Orange County and Riverside County by facilitating the commute from Riverside County to the coast; and (3) increase the number of vehicle miles travelled in the region, which would result in corresponding increases in air pollution, and greenhouse gas emissions. The Project's individual and cumulative impacts related to this jobs-housing imbalance must be analyzed as required by CEQA. CEQA Guidelines §§ 15131, 15064(f) and 15382. We direct Caltrans to the population, jobs and housing section of the MND Letter and request that each of the issues raised therein be addressed in the revised DEIR. 32

H. The DEIR Fails to Fully Analyze the Project's Growth-Inducing Impacts.

This firm's letter on the MND provided extensive commentary regarding the Project's potential to increase growth. Specifically, we explained that by widening the Ortega Highway, and increasing its capacity, the Project would remove one of the primary barriers to growth in eastern Orange County and Riverside County: inadequate traffic capacity. In addition, as we stated above, this Project is one step in a larger plan to widen the entire length of SR-74 from I-5 east to the Orange County/Riverside County border. Widening this span of SR-74, especially because it traverses undeveloped land would clearly promote further development in the region. Notwithstanding our comments, the DEIR suffers from the same deficiencies as the analysis in the MND. We direct Caltrans to this firm's letter on the MND and request that the comments in that letter be addressed in the revised DEIR. (*See* Appendix A) 33

3. The DEIR Does Not Adequately Identify or Analyze a Reasonable Range of Alternatives.

An EIR must describe a range of alternatives to the proposed project, and to its location, that would feasibly attain the project's basic objectives while avoiding or substantially lessening the project's significant impacts. Pub. Res. Code § 21100(b)(4); CEQA Guidelines § 15126.6(a). A proper analysis of alternatives is essential for Caltrans to comply with CEQA's mandate that significant environmental damage be avoided or substantially lessened where feasible. Pub. Res. Code § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126.6(a); *Citizens for Quality Growth v. City of Mount Shasta* (1988), 198 Cal.App.3d 433, 443-45. As stated in *Laurel Heights*, "[w]ithout meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process. . . . [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d 376, 404 (1988). Here, the DEIR's discussion of alternatives fails to live up to these standards. 34

The primary flaw in the DEIR's alternatives analysis is its failure to identify and consider a reasonable range of alternatives that reduce the Project's impacts, as CEQA requires. *See* CEQA Guidelines § 15126.6(c); *Citizens of Goleta Valley*, 52 Cal.3d at 566. The discussion of alternatives must focus on alternatives that attain most of the basic objectives of the project and avoid or substantially lessen the adverse environmental effects of a project, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." CEQA Guidelines § 15126.6(b).

Had the DEIR adequately analyzed Project impacts, the document preparers would have recognized that, in addition to visual impacts, the Project would have numerous significant environmental impacts. As discussed above, the DEIR fails to recognize obviously significant impacts such as the increase in air emissions and noise levels from Project construction and from the increase in traffic volumes along the widened roadway. The document also fails to recognize the threat to public safety the Project poses, the visual impacts caused by widening and enclosing with concrete walls a scenic corridor, and the Project's clear impacts on San Juan Creek and its watershed. The DEIR should have identified a range of alternatives capable of eliminating or at least minimizing these Project impacts.

Here the DEIR preparers simply ignore CEQA's clear requirements by failing to offer even one substantive alternative. As the DEIR itself admits,

"Build Alternatives 1 and 2 are the same with the exception of the removal of the sidewalk along the north side of SR-74 between Calle Entradero and via Cordova and the number of retaining walls." DEIR at 27 (emphasis added); *id* at 83 ("[T]he Build Alternatives differ only with respect to impact on landscape features and the provision of a sidewalk on the north side. There is no difference as far as traffic characteristics are concerned, and the variations are simply addressed here as Build Alternatives.") The 2008 Traffic Study confirms that the two "alternatives" are virtually identical from an operational standpoint: "[i]t should be noted that for traffic analysis purposes, there is no difference between the two Build Alternatives since the lane configurations are the same for each." 2008 Traffic Study at 1-2.

The DEIR's failure to analyze a reasonable range of alternatives is particularly frustrating inasmuch as this firm's letter on the MND and the Brohard Report identified an alternative that would achieve the Project's objectives while minimizing its environmental impacts. The Brohard Report recommended a reduced alternative providing only two through travel lanes along with intersection improvements. We again direct Caltrans to the Brohard Report (*see* Appendix A) and request that that this alternative be carefully evaluated in the revised DEIR.

Nor can we find any logical explanation as to why the DEIR did not consider an alternative such as the provision of bus service along the SR-74 corridor. The DEIR acknowledges that there is a need for a multi-modal transportation corridor to connect Riverside County to SR -241 and I-5. DEIR at 29. Yet rather than consider the obvious -- regular bus service along this corridor to serve commuters – the DEIR suggests that since no infrastructure exists, a multi-modal alternative would be infeasible. Although the DEIR provides no clarification of this statement, it appears that the DEIR preparers may be referring to the lack of a light- or heavy-rail track along this corridor. Clearly, given the SR-74 corridor's purpose of providing interregional access between the employment centers of south Orange County and the residential centers of Riverside County, Caltrans could work with the Orange County Transportation Authority or the Riverside Transit Agency to evaluate the feasibility of providing fixed route bus service or community based shuttles along SR-74. 34

Under CEQA, an agency may not approve a proposed project if a feasible alternative exists that would meet the project's objectives and would diminish or avoid its significant environmental impacts. Pub. Res. Code § 21002; *Kings County Farm Bureau*, 221 Cal. App. 3d at 731. Given the large number of significant environmental impacts the Project will have, the consideration of alternatives is critical and will not be complete until decision makers and the public are presented with a rigorous, good-faith assessment of options for improving travel along the SR-74 corridor.

4. The DEIR Must Be Recirculated

Given the foregoing deficiencies, the DEIR must be revised and recirculated. The present DEIR cannot properly form the basis of a final EIR. CEQA and the CEQA Guidelines describe the circumstances which require recirculation of a draft EIR or circulation of a supplemental draft EIR. Such circumstances include adding significant new information to the EIR after public notice is given of the availability of the DEIR but before circulation, and where the DEIR is so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. CEQA Guidelines § 15088.5. "Significant new information" includes the identification of new significant impacts, a substantial increase in the severity of identified significant impacts, and introduction of new mitigation measures that could reduce impacts below a level of significance. *Id.* 34

Here, in order to cure the numerous defects described above, the revised DEIR must necessarily include substantial new information that triggers CEQA's recirculation request. Failure to recirculate the revised DEIR would thus violate CEQA.

5. Conclusion

As set forth above, the SR-74 DEIR suffers from numerous deficiencies, many of which would independently render it inadequate under CEQA. Taken as a whole, the deficiencies of the DEIR necessitate extensive revision of the document and recirculation for public comment. Joan Irvine Smith and Save Ortega respectfully request that Caltrans take no further action until a legally adequate DEIR is prepared and recirculated. 35

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP
Laurel L. Impett (by WK)
Lita King

Laurel L. Impett, AICP, Urban Planner
Winter King

List of Appendices:

Appendix A: September 6, 2007 letter from Shute, Mihaly & Weinberger, including attachments

Appendix B: Memorandum from Cindy McKim to Chair and Commissioners, September 24-25, 2008.

Appendix C: I-5/SR-74 Interchange Improvement Project DEIR/EA, attached as Appendix C.

Appendix D: Surface Transportation Policy Partnership *APA Calls for Good Planning and Safe Growth to Reduce Pedestrian Fatalities.*

Appendix E: Mean Streets 2004

Appendix F: California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective* (excerpts).

Appendix G: CEQA & Climate Change, California Air Pollution Control Officers Association

Appendix H: Traffic Noise Reduction in Europe

cc: (without attachments)
Mayor Mark Nielson, City of San Juan Capistrano
Joan Irvine Smith
Lennie Decaro, Save Ortega

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MND Comment Letter Appendix A of Feb 13, 2009 letter

September 6, 2007

VIA FEDERAL EXPRESS

Department of Transportation, Environmental Planning
Smita Deshpande, Environmental Branch Chief
Attn: Iffat Qamar
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Re: Mitigated Negative Declaration for Proposed Widening of SR-74 (Ortega Highway) in City of San Juan Capistrano

Dear Mr. Qamar,

This firm represents Joan Irvine Smith on matters relating to the proposed widening of State Route 74 (Ortega Highway) from Calle Entradero in the City of San Juan Capistrano to the City/County of Orange border ("Project"). Mrs. Smith, a resident of San Juan Capistrano who owns a farm, The Oaks, along that portion of the Ortega Highway to be widened, is concerned about the Project's impacts on her community. The purpose of this letter is to provide comments on the July 2007 Initial Study/Mitigated Negative Declaration ("MND"), which has been circulated for public consideration and comment.

We transmit this letter on behalf of Mrs. Smith to express our legal opinion that (1) the MND for the proposed Project fails to comply with the requirements of the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, § 15000 et seq. ("Guidelines") and (2) your agency must prepare an environmental impact report ("EIR") before proceeding with the Project. We prepared these comments in conjunction with Terrell Watt, AICP, an urban planning consultant; Tom Brohard and Associates, a licensed Professional Civil Engineer and Professional Traffic Engineer in California; Greg Gilbert, of Autumn Wind Associates, an air quality expert; Hugh Saurenman, of

ATS Consulting, a noise expert; and Jared Ikeda, a land use planner and licensed Landscape Architect. After reviewing the MND, these consultants all reached the conclusion that the Project will have potentially significant, unmitigated impacts. The reports prepared by Mr. Brohard and Mr. Gilbert are attached hereto as Exhibits A and B. The conclusions of Mr. Ikeda and Mr. Saurenman have been incorporated into the text of this comment letter.

It is our legal opinion that the MND does not provide adequate environmental review under CEQA. Despite the Project's potentially significant and unmitigated impacts to aesthetics, traffic, noise, growth-inducement, air quality, water quality and other environmental resources, the Department of Transportation ("Caltrans") proposes to approve the Project without first preparing an EIR. Many of the so-called mitigation measures proposed in the MND are nothing more than general assertions that something will be done in the future about the Project's significant environmental impacts. Such deferred analysis and mitigation are simply inadequate under CEQA. As discussed below, Caltrans cannot legally approve this Project until it prepares an EIR to analyze the Project's potentially significant environmental impacts.

I. LEGAL STANDARD

It is well settled that CEQA establishes a "low threshold" for initial preparation of an EIR, especially in the face of conflicting assertions concerning the possible effects of a proposed project. The Pocket Protectors v. City of Sacramento, 124 Cal.App.4th 903, 928 (2005). An EIR is required whenever substantial evidence in the administrative record supports a "fair argument" that significant impacts may occur, even if other substantial evidence supports the opposite conclusion. Guidelines §§15064(a)(1), (f)(1). An impact need not be momentous or of a long enduring nature; the word "significant" "covers a spectrum ranging from 'not trivial' through 'appreciable' to 'important' and even 'momentous.'" No Oil, Inc. v. City of Los Angeles, 13 Cal.3d 68, 83 n. 16 (1974). The fair argument test thus reflects a "low threshold requirement for initial preparation of an EIR" and expresses "a preference for resolving doubts in favor of environmental review." Stanislaus Audubon Society, Inc. v. County of Stanislaus, 33 Cal.App.4th 144, 151 (1995).

Further, where the agency fails to study an entire area of environmental impacts, deficiencies in the record "enlarge the scope of fair argument by lending a logical plausibility to a wider range of inferences." Sundstrom v. County of Mendocino, 202 Cal.App.3d 296, 311 (1988). In marginal cases, where it is not clear whether there is substantial evidence that a project may have a significant impact and there is a disagreement among experts over the significance of the effect on the environment, the agency "shall treat the effect as significant" and prepare an EIR. Guidelines § 15064(g);

City of Carmel-By-The-Sea v. Board of Supervisors, 183 Cal.App.3d 229, 245 (1986). Given this standard, an EIR is required for this Project.[1]

II. THE MND'S DESCRIPTION OF THE PROJECT IS INADEQUATE.

"An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus, 27 Cal.App.4th 713, 730 (1994), quoting County of Inyo v. City of Los Angeles, 71 Cal.App.3d 185, 193 (1977). As a result, courts have found that, even if an EIR is adequate in all other respects, the use of a "truncated project concept" violates CEQA and mandates the conclusion that the lead agency did not proceed in a manner required by law. San Joaquin Raptor, 27 Cal.App.4th at 730. Furthermore, "[a]n accurate project description is necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." Id. (citation omitted). Thus, an inaccurate or incomplete project description renders the analysis of significant environmental impacts inherently unreliable.

A. Omitted Information

The MND's description of the Project fails to describe numerous, essential aspects of the Project that have the potential to result in significant impacts. This omitted information includes, but is not limited to:

- Location of the Project staging areas. The MND states only: "There would be no staging areas within the Project Limits. The entire construction of SR-74 (both City and County portions) would occur at the same time with the County being lead. The staging areas for the entire widening would be coordinated within the County limits. This is discussed further in the Cumulative Impacts section." MND at 1-9. No additional information is provided on this subject in the Cumulative Impacts section.
- Specific location and description of property to be acquired in fee and/or for temporary construction easements.
- Amount of cut and fill (in cubic yards) associated with the Project.
- Location of spoils and soil importation sites, and haul routes.
- Number of truck trips associated with all grading and other construction-related activities.
- Description of construction-related activities (including timeline, location, number of construction employees, types of equipment, etc.).

[1] Although it is our unwavering legal opinion that Caltrans must prepare an EIR for this Project, if Caltrans decides to rely on the MND, but modify the Project or adopt additional mitigation measures, Caltrans must, at the very least, recirculate the MND for further public review and comment. Guidelines § 15073.5.

- Description of additional lighting and landscaping proposed along the highway if any.

Without this information about the Project, the public and decision-makers will not be able to balance the Project's benefits against its environmental cost and evaluate feasible alternatives and mitigation measures. An adequate project description, including the information listed above, must be the basis for any revised environmental document.

B. Inaccurate and Misleading Information

Furthermore, the simulations of the completed project included in the Visual Impact Assessment and visual impacts section of the MND are inaccurate and misleading. As Tom Brohard notes in his letter, attached hereto as Exhibit A, Figure 22 on page 2-55 of the MND distorts the size of the proposed eastbound traffic lanes between Via Cristal and Via Errecarte. In particular, the eastbound outside travel lane appears only slightly wider than the eastbound bicycle lane, which is inaccurate. The simulation also fails to show the westbound bicycle lane. Figure 26 on page 2-58 and Figures 27 and 28 on page 2-59 of the MND similarly distort the proposed additional lanes. Figure 22 on page 2-55 misrepresents the height of the sound wall proposed as mitigation. According to page 2-115 of the MND, the proposed sound wall is 14 feet high, yet the simulation in Figure 22 shows the wall as shorter than the pedestrian walking near it. All of these distortions tend to understate the aesthetic impacts of the Project. As a result, the MND's conclusion that the Project's aesthetic impacts will be insignificant is unsupported.

In short, the MND's inadequate, incomplete, and, indeed, incorrect project description plainly frustrates the core goals of CEQA: to provide a vehicle for intelligent public participation and to provide an adequate environmental impact analysis. See County of Inyo, 71 Cal.App.3d at 197.

III. THE MND'S DESCRIPTION OF THE PROJECT SETTING IS INADEQUATE.

CEQA requires that an initial study must contain "an identification of the environmental setting." Guidelines § 15063(d)(2). Here, however, the MND's description of the Project setting omits essential information and presents the reader with an inaccurate description of the existing setting. As such the MND fails to meet CEQA's requirements.

A. Omitted Information

In order for the public and decision-makers to be able to fully understand the environmental impacts of this Project, more information about the Project setting is needed. Such information includes, but is not limited to:

- A detailed description of land uses in the Project area.
- A description of the speed limits along the Ortega Highway and average speeds of motorists traveling along the relevant portion of that road.
- Data on current average daily vehicle miles traveled on the Ortega Highway.
- A list of cumulative projects, including major construction projects, that will be carried out in the area during the period when the Project will be under construction.
- Information on the jobs-housing balance in Orange and Riverside Counties.
- Data showing the percentage of traffic on the Ortega Highway attributable to commuters, recreational travelers, trucks, and other types of travelers.
- A detailed description of any and all sensitive receptors (including schools, medical facilities, nursing homes, daycares, etc.) in the Project area.
- The specific location and type of the 110 trees to be removed and whether they currently or historically provide nesting sites for birds.
- Any other relevant regional and local setting information necessary to evaluate project and cumulative impacts

B. Inconsistent and Inaccurate Information

The information that is provided in the MND to describe the Project setting is inconsistent and inaccurate. For example, according to the Land Use section of the MND, "The project area is characterized primarily by residential land uses. Areas of non-residential land uses are dispersed throughout and are buffered by areas of open space. Throughout the project area, future developments are mainly residential and businesses." MND at 2-3. The Community Character section tells a different story, noting: "In the project area, the primary land uses are residential, open space, and agricultural." MND at 2-22. Confusing matters further, the MND also lists a number of public and private schools in the area and mentions the location of "Tanaka Farms," a produce stand and local attraction, along the highway. MND at 2-144, 2-53, 2-54, 2-56. Omitted completely from this description is our client's horse farm, The Oaks, located on the very stretch of highway to be widened. Finally, the Noise Technical Impact Analysis ("Noise Analysis") notes that "single-family residences and agricultural properties such as orange groves, nursery, horse ranch properties, and other agricultural properties are located along the south side of Ortega Highway within the project limits." Noise Analysis at 20. Without a coherent, consistent description of the environmental setting of

the Project, the public and decision-makers will be unable to gauge the significance of the Project's environmental impacts.

In addition, the photographs presented in the MND's visual impacts analysis are inaccurate and misleading. As noted by Tom Brohard in his letter, attached hereto as Exhibit A, Figure 11 on page 2-50 of the MND purports to be a photograph of "Existing Conditions" looking westbound at the west end of the proposed project. The photograph clearly shows three through travel lanes in both the eastbound and the westbound directions on SR-74/Ortega Highway. However, aerial photography available at Google Earth shows only two through traffic lanes in each direction. Therefore, the photograph in Figure 11 does not depict existing conditions on SR-74/Ortega Highway at the west end of the proposed project.

An adequate and accurate description of the Project setting, including the information listed above, must be the basis for any revised environmental document.

IV. CALTRANS MUST PREPARE AN EIR THAT ANLYZES THE POTENTIALLY SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT.

An agency must prepare an EIR for a proposed project whenever substantial evidence in the administrative record supports a "fair argument" that the project may have significant impacts on the environment. Guidelines §§ 15064(a)(1), (f)(1). A fair argument clearly can be made that the Project, which will convert a tree-lined, two-lane road through a semi-rural neighborhood into a four-lane, high-speed thoroughfare, will have potentially significant impacts on aesthetics, noise, traffic, growth-inducement, and air quality. Furthermore, the Project will add to cumulatively significant environmental impacts resulting from a number of past, present, and future projects in the region. For all of these reasons, as discussed below, an EIR is required.

A. The Project Will Have Potentially Significant Noise Impacts.

As the MND recognizes, widening the Ortega Highway from two to four lanes to allow more traffic at higher velocities will, without question, increase noise levels throughout the Project area. The MND identifies locations all along the stretch of highway to be widened where the long-term noise impacts associated with the Project will be significant. However, the limited mitigation measures (two sound walls along a portion of the southern side of the highway) will do nothing to reduce the impacts at a majority of these locations. Thus, an EIR must be prepared to analyze these significant noise impacts.

The threshold of significance for noise impacts used by the MND appears to be "when the future noise level with the project results in a substantial increase in

noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the Noise Abatement Criteria (NAC)." MND at 2-102. Approaching the NAC is defined as "coming within 1dBA of the NAC." Id. At page 2-107, the MND asserts that the NAC in the Project area is 67 dBA. According to this standard, the Project will have significant noise impacts if it causes the dBA level to increase to or above 66 dBA.

Applying this threshold of significance, the Technical Noise Impact Analysis ("Noise Analysis") concludes that "implementation of the proposed project would result in potential short-term noise impacts during construction and long-term noise impacts from use of the completed project." Noise Analysis at 2. Of the 57 receptor locations modeled in the Noise Analysis, 29 locations (some on the north side of the road, some on the south side) would experience significant noise impacts from the Project. Id. Yet the MND only proposes to construct two sound walls, both of which would be located on the south side of the highway: Sound Wall # 2 (from Via Cordova to Via Cristal) and Sound Wall #3 (from Via Cristal to Via Errecarte). See MND at 2-115 and 2-116. As the Noise Analysis recognizes, these sound walls would only mitigate the noise impacts at ten of the 29 impacted locations. The sound walls will provide no mitigation for those locations on the north side of the highway where potentially significant noise impacts will occur. Moreover, as the MND recognizes, these locations on the north side may actually experience further noise increases due to sound reflecting off the sound walls on the south side of the highway. MND at 2-115. Finally, numerous locations on the south side of the highway will experience significant, unmitigated noise impacts as well: the MND does not propose to construct a sound wall to reduce the significant noise impacts at the location of receptors 11, 13, 14, 16 K-3, 17, 17B, 18, 21M, or 21N. See Noise Analysis, Appendix A (showing location of receptors and possible sound walls). These potentially significant impacts demand review and analysis in an EIR.[2]

The Noise Analysis and the MND also fail to include any evaluation of potential noise impacts to "commercial and agricultural land uses" in the neighborhood of the Project. For example, the Oaks Farm, a horse ranch owned and operated by Mrs. Smith, is located directly adjacent to the proposed Project. No sound wall is proposed to mitigate the significant noise impacts to the Oaks Farm. Moreover, two aspects of the Project will result in even greater impacts to the Oaks Farm than the MND suggests: (1) the construction of a retaining wall on the opposite side of the Highway will produce additional, reflected noise; and (2) the removal of trees and foliage currently separating

[2] The MND appears to dismiss any mitigation for these significant impacts because it is too expensive. That fact, even if true, does not support the conclusion that the Project's noise impacts will be insignificant, but rather indicates that the significant impacts will not be mitigated because the mitigation is infeasible. As a result, these significant, unavoidable impacts must be analyzed in an EIR.

the Oaks Farm from the Highway will remove a naturally existing noise barrier. Neither of these impacts was analyzed in the MND. The Oaks Farm is a particularly sensitive receptor for noise because it is used, in large part, to raise and train horses, which have won numerous prizes in equestrian events. In fact, if the buffering trees and foliage are removed from the Oaks Farm, horse corrals, stalls, and pens will be directly exposed to the new sidewalk and widened highway. There are also a number of families with small children who reside on the Oaks Farm property. These potentially significant noise impacts have not been analyzed or mitigated in the MND.

Finally, the MND unlawfully defers the selection of the type of sound wall to be used until after Project approval, and omits any analysis of construction-related noise.[3] This lack of analysis is yet another fatal flaw in the MND's noise impacts discussion.

B. The Project as Proposed Will Have Potentially Significant and Unavoidable Aesthetic Impacts.

Under CEQA, it is the state's policy to "[t]ake all action necessary to provide the people of this state with . . . enjoyment of aesthetic, natural, scenic, and historic environmental qualities." Pub. Res. Code § 21001(b) (emphasis added). Thus, courts have recognized that aesthetic issues "are properly studied in an EIR to assess the impacts of a project." The Pocket Protectors, 124 Cal.App.4th at 937 (overturning a mitigated negative declaration and requiring an EIR where proposed project potentially affected street-level aesthetics).

The accepted approach to analyzing visual and aesthetic impacts is as follows:

a. Describe the criteria for significance thresholds.
b. Characterize the existing conditions of the project site and the surrounding area by photograph and description, and select key viewpoints within the area, including scenic corridors and landscapes.

[3] At an open house hosted by Caltrans in July, 2007, the public was shown representations of the Project and the area to be affected by it. According to these representations, it appears that Caltrans may be considering placing a staging area for the Project on the Oaks Farm. If this is true, Caltrans must analyze and propose mitigation for the potentially significant noise impacts associated with locating heavy construction equipment adjacent to sensitive receptors, such as the horses and families at the Oaks Farm. Moreover, Caltrans must analyze and propose mitigation for the loss of any additional trees or foliage due to the establishment of the staging area.

c. Use photomontages or visual simulations, to illustrate the change in character of the project site before and after project implementation.
d. Identify feasible mitigation measures and alternatives to reduce or eliminate significant impacts.
e. Where mitigation measures are proposed, use the simulations to illustrate the change in character before and after project mitigation measures are imposed (e.g., landscaping at various stages of growth, setbacks, clustering, reduced scale and height, building color modification).

Using this approach, it is clear from the simulations contained in the MND and the Visual Impact Assessment that the Project will have significant, unavoidable aesthetic impacts. Because these impacts will not be reduced to a less-than-significant level by the mitigation measures proposed, an EIR must be prepared.

1. Aesthetic Impacts Will Be Potentially Significant and Unavoidable.

The Project proposes to take a two-lane, tree-lined stretch of a scenic corridor passing through suburban and semi-rural neighborhoods and convert it into a four-lane thoroughfare, walled in on one or both sides by retaining walls and sound walls, with cars traveling upwards of 65 miles per hour. In numerous places, the MND acknowledges that the Project would have significant, adverse impacts on the aesthetic resources of the Project area:

- "The negative visual impacts include the visible utility lines; removal of trees and vegetation; and installation of retaining walls and sound walls necessary to widen the roadway." Visual Impact Assessment at 3.
- "After construction, SR-74 would feel less like a residential community drive and more of a thoroughfare." MND at 2-48.
- "As depicted in the visual simulation (Figure 12), most of the existing streetscape would be taken out on the northern side to accommodate the new widening. This includes the meandering sidewalk, the existing trees and lawn, as well as any existing ornamental landscaping." Id.
- "The visual impacts of the retaining and the sound walls on both the motorists and the residential viewers would be negative." Id. at 2-53.
- "Due to the removal of the mature trees on the north side and the addition of a sound wall on the south side, the views of the overhead utility lines and the disturbed landscape would contribute to a negative visual impact at [the location of Assessment Point #3]." Id. at 2-55.
- "The overall visual quality at [Assessment Point #5 will have] been negatively impacted." MND at 2-63.

One particularly significant and unavoidable visual impact caused by the Project is the removal of approximately 110 trees along this 0.9 mile stretch of road. MND at 1-16, 2-63, 2-64. Instead of being surrounded by these trees, drivers traveling along the widened highway will be hemmed in by a sound wall to the south and a retaining wall to the north. MND at 2-63, 2-64. Worse yet, as the MND admits, Caltrans guidelines prohibit the planting of trees within 30 feet of travel lanes for which the posted speed is 35 mph or greater. MND at 1-16. Therefore, the shade, beauty and rural ambience created by these 110 trees will be lost forever. Caltrans must analyze these potentially significant aesthetic impacts in an EIR.

2. Proposed Mitigation Is Inadequate to Reduce Impacts to Level of Insignificance.

The Visual Impact Assessment recognizes that "the entire project need[s] appropriate mitigation development and implementation to reduce any negative impacts." Visual Impact Assessment at 45. However, the mitigation measures actually proposed do very little to mask the dramatic, negative change in scenery along the Ortega Highway. Moreover, the MND defers the selection and design of most of the mitigation measures until after Project approval. Thus, the conclusion in the MND that the proposed mitigation will reduce the adverse impacts to insignificance (MND at 2-63; Visual Impact Assessment at 46) is unsupported by any evidence or analysis.

The only measures proposed to mitigate the Project's admittedly significant aesthetic impacts are: (1) designing the retaining walls and sound walls to blend in with the surroundings; (2) planting shrubs, vines, and small trees (i.e., trees with trunks that will be no larger than 4 inches in diameter when the tree is mature) in front of the retaining walls and sound walls; (3) undergrounding utilities; and (4) planting trees in other parts of the city. MND at 2-63, 2-64.[4]

These proposed mitigation measures simply do not and cannot reduce to insignificance the admittedly severe aesthetic impacts caused by the widening Project. When a lead agency relies on mitigation measures to find that project impacts will be reduced to a level of insignificance, there must be substantial evidence in the record demonstrating that the measures are feasible and will be effective. Sacramento Old City Assn. v. City Council of Sacramento, 229 Cal.App.3d 1011, 1027 (1991); Kings County Farm Bureau v. City of Hanford, 221 Cal.App.3d 692, 726-29 (1990). There is no such evidence in the record for this Project. The post-construction simulations included in the

[4] The Visual Impact Assessment also proposes terracing the retaining walls and landscaping the terracing to mitigate the aesthetic impacts of the Project. Visual Impacts Assessment at 46. The MND omits any reference to this mitigation measure, without analyzing whether it is feasible.

Visual Impact Assessment and MND incorporate the mitigation measures listed above. A comparison of the before and after shots shows that, even with shrubs, small trees, and Plexiglas sound walls, the impacts remain significant. What was once a tree-lined, two-way road will become a walled-in, four-lane thoroughfare through a concrete canyon.

The MND also improperly defers the selection of the actual mitigation measures until after Project approval. The Visual Impacts Assessment recommends that "an aesthetic committee comprised of community leaders, City officials, and Caltrans landscape architects can best determine how to mitigate the disturbed areas." Visual Impacts Assessment at 45. The MND leaves open the question of whether any trees will be planted along the highway, how many, and where, as well as the type of sound wall and retaining wall that will be used. See Visual Impact Assessment at 5 ("The determination of the final design of the retaining walls is at a later date."); MND at 1-14 ("There are four types of retaining walls under consideration, all of which are designed to meet Caltrans Division of Structure requirements . . . During the design phase the wall type will be finalized."). Similarly, the MND leaves the final landscaping plans open until after Project approval. MND at 1-16 ("This proposed landscaping, with input from the City, would be designed to blend with the natural environment."). This deferral is in direct conflict with the requirements of CEQA and the Guidelines. Sundstrom, 202 Cal.App.3d at 306. Moreover, because it defers the development of these mitigation measures, the MND lacks any evidence to support its conclusion that the measures will reduce the Project impacts to a level of insignificance.

Finally, the simulations included in the MND understate the remaining visual impacts after mitigation. For example, the simulations of the Project from Visual Assessment Points 2 and 3 show only what the Project would look like if the Plexiglas sound wall model is used. See MND at 2-53, 2-55. However, as the MND recognizes, the sound wall could also be constructed out of "aesthetically treated concrete," MND at 2-63, or could be opaque "Sound Fighter" walls, MND at 1-14. Only one simulation (Figure 26) shows what appears to be a treated concrete sound wall, and none shows the visual impact of opaque sound walls. In addition, as Tom Brohard notes in his letter, attached hereto as Exhibit A, Figures 22, 26, 27, and 28 misrepresent—and, indeed, understate—the visual impacts of the road widening itself by showing the proposed new lanes to be narrower than they will be. Figure 12, which purports to simulate the view from Visual Assessment point #1 after Project construction, shows an open rail fence and gravel path alongside the highway. These features seem to improve the aesthetic quality of the road, but are not incorporated as part of the Project. An accurate representation of the proposed Project would almost certainly show an even greater aesthetic impact than the simulations represent. Therefore, Caltrans must prepare an EIR to analyze the Project's potentially significant aesthetic impacts.

3. The Methodology Used in the MND Understates the Significant Aesthetic Impact of the Project.

To characterize the visual and aesthetic impacts of the proposed Project, the Visual Impacts Assessment and MND used the methodology adopted in the FHWA Publication FHWA-HI-054. This methodology attempts to establish a scientific basis for characterizing the severity of aesthetic impacts, but, in doing so, resorts to speaking about the aesthetic impacts in only the most general and abstract way. For example, although the photo simulations of the view from Visual Assessment Point # 3 clearly show a significant, adverse impact as a result of the removal of the meandering sidewalk, ornamental landscaping, and mature street trees and the construction of a four meter high sound wall (see Figure 22), the Assessment does not state that the change represents a significant impact. Rather, it concludes that "the perceptual quality factors and sensitivity to change factors after construction are of moderate/low quality and have a negative visual effect." Visual Impacts Assessment at 31. This conclusion, replete with euphemistic jargon, provides no guidance as to whether these impacts are significant under CEQA. Nor does the MND attempt to explain the connection between the Assessment's conclusions and any threshold of significance.

The MND's application of the FHWA methodology further dilutes the obvious adverse impacts of the proposed Project by noting that the Project will not obstruct any "landforms" or "water features." See Visual Impacts Assessment at 17, 23, 29, 35, and 41. The inquiry into whether a proposed project will block such features is clearly a generic question meant only to be applied when landforms or water features actually exist in view of the project site. Here, there are no landforms or water features to be seen. Yet, by including this question in the aesthetic analysis of the Project and concluding that the Project will not obstruct these (non-existent) features, the MND makes the Project impacts appear to be less significant than they really are.

Finally, the MND omits any discussion of why only five visual assessment points were selected, and whether these five points show the most significant visual impacts caused by the Project. Adequate environmental review must include such an explanation, and must support the selection of a limited number of assessment points with substantial evidence. The MND does not do so. Moreover, assessing the existing and projected views from only five visual assessment points fails to capture the sense of driving or walking the entire stretch of road. Additional photos of the existing aesthetic resources in the Project area, attached as Exhibit C, better demonstrate just how scenic this road is.

4. The MND Fails to Present Sufficient Information about Potentially Significant Aesthetic Impacts.

In addition to the flaws described above, the MND fails to present the following information and analysis, all of which is essential to adequate review of the Project's aesthetic impacts: (1) an analysis of the Project's impacts to the public view from the equestrian trail running along the north of the highway; (2) whether there will be any new lighting along the highway, which could have significant aesthetic impacts to motorists and residents.

All of the reasons described above establish a fair argument that the proposed Project will have potentially significant aesthetic impacts. Therefore, Caltrans must analyze these impacts in an EIR.

C. The Project Will Have Significant Traffic Impacts.

As detailed in the attached letter from Tom Brohard, a Licensed Civil Engineer and Licensed Traffic Engineer in California, the Project will have potentially significant transportation and circulation impacts that were not analyzed or disclosed in the MND. Mr. Brohard's letter is attached hereto as Exhibit A.

In sum, Mr. Brohard concluded that the traffic analysis supporting the MND is severely flawed. Contrary to the unsubstantiated conclusion drawn in the MND, widening the highway from two to four lanes will create significant, adverse impacts on traffic turning onto or crossing the highway from the side streets. Brohard Letter at 4. The suggested mitigation for this impact—allowing traffic to turn right onto the highway, cut across two lanes of traffic, then make a U-turn—is infeasible because the widening will not create sufficient room to perform a U-turn. Id. at 5. Mr. Brohard also identified numerous errors in the Traffic analysis that underlies the conclusions in the MND. For example:

- The Traffic Study did not conduct traffic counts at all affected intersections, the traffic counts relied upon are outdated, and the traffic count inputs contain significant errors. Id. at 3.
- The analysis omitted any discussion of the impacts of increased speeds (including potential increases in collisions with other cars, pedestrians, equestrians, and bicyclists). Id. at 6.
- The MND failed completely to analyze the adverse impacts to pedestrians, equestrians, and bicyclists associated with removing the existing sidewalk, placing

> a bicycle lane alongside traffic moving at speeds at or above 60 mph, and leaving all intersections unsignalized. Id. at 7.[5]

In addition, after noting that no meaningful alternatives to the Project have been analyzed in the MND, Mr. Brohard describes and develops an alternative that would increase capacity without creating dangerous conditions and would allow Caltrans to maintain much of the rural ambience of the Ortega Highway. Id. at 10. This analysis presents a fair argument that the Project will have potentially significant traffic impacts. These impacts must be analyzed in an EIR.

D. The Project Will Have Potentially Significant Air Quality Impacts.

As detailed in the attached letter from Greg Gilbert, the MND fails to adequately analyze and propose mitigation for the Project's potentially significant air quality impacts. Mr. Gilbert's letter is attached hereto as Exhibit B.

After reviewing the MND and accompanying Air Quality Assessment, Mr. Gilbert concludes that these documents omit essential information and analysis and therefore are inadequate under CEQA. In particular, the MND fails to analyze the Project's construction-related impacts, including the impacts associated with diesel emissions from construction equipment. Such analysis is not only feasible, but is commonly performed in CEQA documents, and a number of methods and models exist to assist Caltrans in performing that analysis for this Project. Diesel particulate matter ("DPM"), a toxic air contaminant and known carcinogen, poses a potentially significant risk to nearby residents and other sensitive receptors.

Because the construction-related air quality impacts are potentially significant, Caltrans must propose and analyze adequate mitigation measures to reduce these impacts. Again, the MND fails to conduct such analysis, and instead relies on generic, inadequate, and unenforceable measures to mitigate these potentially significant impacts. Finally, as will be discussed in more detail below, the MND fails to adequately analyze the Project's contribution to global warming, and associated environmental impacts. Mr. Gilbert's analysis presents a fair argument that the Project will have potentially significant air quality impacts, and therefore Caltrans must analyze these impacts in an EIR.

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[5] Indeed, the MND's conclusion that signals are not warranted at the affected intersections is inconsistent with its conclusion that traffic demand is high enough to make the expansion necessary.

E. The Project Will Have Potentially Significant Water Quality Impacts.

The MND's treatment of the Project's water quality impacts fails to provide the public and decision-makers with essential information about the Project and then defers the development of all mitigation measures until after Project approval. This lack of analysis and deferral of mitigation renders the MND inadequate. Moreover, from the scant information provided, it appears the Project may have significant water quality impacts, and therefore Caltrans must analyze those impacts in an EIR.

According to the MND, construction of the Project would require the disturbance of approximately 4.54 acres of soil. MND at 2-79. The completed Project would create 2.3 acres of new impervious surface. Id. Stormwater run-off from the Project area discharges into nearby San Juan Creek. MND at 2-77.

The MND goes on to identify the following potentially significant Project impacts: the average runoff coefficient for the Project Limits would increase from 0.87 to 0.88; erosion and siltation may temporarily increase during construction, entering the San Juan Creek Watershed; dewatering may be necessary and, if it is, may result in the addition of certain pollutants to San Juan Creek; the increase in traffic on the highway may result in an increase in the amount of vehicle-related pollutants discharged into the watershed; the change in the drainage system would direct more runoff into constructed drainages and would increase streamflow. MND at 2-75 – 80. These facts raise serious concerns about the Project's impacts to the water quality of groundwater in the region as well as San Juan Creek, which already has poor surface water quality and is designated as impaired for bacteriological indicators. MND at 2-77.

Instead of providing any facts or analysis to show that these impacts will be reduced to insignificance, the MND provides only unsupported conclusions. For example, the MND concludes that any increase in the amount of motor vehicle pollutants would not "substantially affect surface water quality provided that temporary and/or permanent mitigation measures are incorporated in to the project plans." MND at 2-80. This "analysis" fails to inform the reader about: (a) what type of vehicle-related pollutants would be increased and by how much; (b) what mitigation measures are proposed; and (c) how those as-yet-undefined mitigation measures would reduce the potentially significant impacts. The MND also opines that "[t]he amount of pollutants created from traffic congestion during peak periods may decrease due to the relief in current traffic congestion that the proposed project is expected to provide." Id. (emphasis added). This statement, however, is pure speculation; there is no data or analysis accompanying it.

Another glaring omission appears in the MND's treatment of the potential impacts of "dewatering." As a preliminary matter, the MND does not describe what this process is or when it is used, making it impossible for the reader to determine the

likelihood that dewatering will be necessary for this Project. According to the MND, the water quality impacts of discharging water extracted through the dewatering process are potentially significant:

> Extracted groundwater may contain pollutants which may be a result of the decomposition of organic materials (e.g., hydrogen sulfide); leaking underground storage tanks and fuel lines; surface spills; sewage; past use of liquid waste impoundments; or the presence of nutrients (phosphorous and nitrogen compounds).

MND at 2-80. Moreover, as the MND indicates, Caltrans could have determined whether dewatering will be required for the Project by taking soil boring samples within the proposed Project Limits. Id. However, this testing was not done as part of the analysis for the MND. Deferring this analysis clearly violates the core purpose of CEQA: to identify the environmental impacts of a project before approving it. San Joaquin Raptor Rescue Center v. County of Merced, 149 Cal.App.4th 645, 684-85 (2007).

Digging itself deeper into a CEQA hole, the MND then defers the development of any mitigation for these potentially significant impacts, stating only that, "[i]f dewatering is required, the project shall fully conform to the requirements of the San Diego RWQCB." MND at 2-82. The MND contains no description of these requirements, much less any analysis whether they would or could reduce the potentially significant water quality impacts to a level of insignificance. Such information and analysis is essential to adequate environmental review.

The MND also fails to support the conclusion that the increase in impervious surfaces, and the accompanying diversion of runoff into constructed drainages, will have an insignificant impact on surface water quality and ground water quantity. The additional volume and velocity of run-off that would enter the San Juan Creek from constructed drainages (rather than from pervious areas of natural drainage) could result in increased erosion in the Creek. The MND recognizes that the increased flow will also result in a decrease in the amount of water available to recharge the groundwater basin. MND at 2-90. This decrease is potentially significant because two water districts are actively pumping groundwater for supplemental domestic use in the area. MND at 2-78.

The only rationale offered as to why these impacts will not be significant is that "the increased area of impervious surface is extremely small in comparison to the local watershed." Id. However, by that reasoning, the impacts of a project five times as large as this one would still be considered insignificant, given the size of the watershed (176 acres). Obscuring the impacts further, the MND does not inform the reader of how many acres within the watershed have already been covered with impervious surface. As numerous studies have concluded, the creation of impervious surfaces can have

significant, adverse impacts on the health of streams. See Andrew Wheeler, et al., Impacts of New Highways and Subsequent Landscape Urbanization on Stream Habitat and Biota (2005), attached hereto as Exhibit D. An appropriate threshold of significance would be the creation of one or more acres of impervious surface. This threshold coincides with the State Water Resources Control Board requirement that Caltrans obtain a Statewide NPDES Storm Water Permit whenever a project will create more than one acre of impervious surface. MND at 2-76.

Caltrans must analyze these potentially significant impacts in an EIR. This analysis must provide additional information necessary to determining the impacts of adding 2.3 acres of impervious surface at this location. For example, what additional quantity of run-off will be diverted into the impervious "constructed" drainages? Will the velocity of the run-off increase? Where does the drainage enter the San Juan Creek? Is the streambed lined or natural? Will the diversion of water from natural channels to constructed drainages have any impacts on aquatic habitats (wetlands, springs, and seeps) in the Project area and beyond?

This analysis must also provide more information about the mitigation measures proposed (e.g., the type of stormwater treatment measures, the secondary environmental impacts, if any, etc.) and must demonstrate that they will actually reduce the potentially significant impacts to a level of insignificance. The MND, to the contrary, simply requires compliance with existing regulations. These regulations, however, are designed to reduce pollution from stormwater run-off to the "maximum extent practicable." They do not ensure that the impacts will be reduced to a level of insignificance. For example, a stormwater treatment measure necessary to reduce impacts to a level of insignificance may not be practicable, and thus may not be required under the regulations the MND relies upon. This fact is recognized in the Program EIR for the 2004 Southern California Association of Governments Regional Transportation Plan ("RTP EIR"), which concludes that, even if such measures as drainage channels, vegetated buffers, SWPPPs and revegetation are incorporated into transportation projects, their impacts to local surface water would remain significant. Exhibit F, Excerpts of RTP EIR, at 3.12-22 – 27; see also 2006 OCTA Long Range Transportation Plan Final PEIR ("Long Range Plan EIR") at 4.7-20 – 21 (concluding that road widening and construction projects could result in residual erosion and sedimentation impacts that remain significant even if the lead agency complies with water quality requirements, uses infiltration and detention devices, and implements sediment control plans).[6]

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[6] Additionally, the MND relies extensively on the use of Best Management Practices, or "BMPs," to reduce the Project's water quality impacts. However, all BMPs are not created equal. See Exhibit G, describing cutting edge stormwater treatment measures. The revised environmental document must analyze specific BMPs in order to determine whether they would actually reduce the Project's water quality impacts to a less-than-significant level.

In short, this MND fails to provide any support for its conclusion that the Project's impacts on water quality will be less than significant. To the contrary, there is a fair argument that the Project's water quality impacts will be potentially significant. Therefore, an EIR must be prepared to analyze these impacts.

F. The Project Will Have Potentially Significant Growth-Inducing Impacts.

CEQA requires that an environmental document include a "detailed statement" setting forth the growth-inducing impacts of the proposed project. See Public Resources Code § 21100(b)(5); City of Antioch v. City Council of Pittsburg, 187 Cal.App.3d 1325, 1337 (1986) (invalidating negative declaration that failed to consider growth-inducing impacts). The statement must "[d]iscuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." CEQA Guidelines § 15126.2(d). It must also discuss how a project may "encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively" or "remove obstacles to population growth." Id.

Rather than setting forth a "detailed statement" of growth-inducing impacts as required under CEQA, the MND dismisses the growth inducing potential of the Project with unsupported, conclusory statements. See, e.g, MND at 2-19 ("The proposed SR-74 widening from Calle Entradero east to the City of San Juan Capistrano/County border would not have any growth-inducing effect in the immediate area because the adjacent land is built out with and/or entitled for suburban, mostly single-family residential uses."); MND at 2-21 ("The No Build and Build Alternatives are not expected to cause growth-inducing impacts. Therefore, measures for avoidance, minimization, or mitigation are not proposed."). These conclusions are based on two assumptions: (1) that the region to be served by the Ortega Highway is already either developed or entitled to development; and (2) that the Project would only provide enough capacity to serve existing traffic and traffic anticipated as a result of the Rancho Mission Viejo ("RMV") development. The first assumption is flatly contradicted by other facts in the MND; the second assumption does not support the conclusion that the Project is non-growth inducing.

As the MND recognizes, the area to the east in unincorporated Orange County and Riverside County is largely undeveloped. See MND at 2-8 (Orange County General Plan designates land uses along SR-74 as Open Space); 2-17 (land to the east of the Project in unincorporated Orange County is primarily undeveloped); 2-18 (large amounts of undeveloped land in Riverside County). Moreover, lower housing costs in Riverside County have led to a population boom in that area that is projected to continue over the next twenty years. MND at 2-17. The Ortega Highway is currently used by

commuters traveling between Riverside and southern Orange Counties. MND at 2-20; see also MND at 2-34 ("SR-74 is part of the State Freeway and Expressway system. It provides interregional access between the employment centers of south Orange County and the residential centers of Riverside County."). By widening the Ortega Highway, and increasing its capacity,[7] the Project will remove one of the primary barriers to growth in eastern Orange County and Riverside County: inadequate traffic capacity. Moreover, according to the MND, this Project is just the first step in a larger plan to widen the entire length of SR-74 from I-5 east to the Orange County/Riverside County border. MND at 2-18; MND at 2-20.[8] Such a project would clearly promote further development in Riverside County. Thus, even if this Project's individual growth-inducing impacts are determined to be insignificant, its impacts are cumulatively considerable when taken in the context of this larger project. These potentially significant impacts must be analyzed in an EIR.

The MND also reasons that the Project is not growth-inducing because it will provide only just enough capacity to serve existing and entitled development in the area. This rationale is flawed because it uses the wrong baseline for analysis. Although the Rancho Mission Viejo ("RMV") project has been approved, it has not been constructed. This road widening Project actually makes the RMV development practically feasible and more valuable by reducing congestion on a major commuter route to the RMV area, thereby facilitating (i.e., inducing) the development there. Moreover, in the months and years between the approval and construction of this Project and the completion of the RMV development, the increased capacity of the highway would likely encourage and facilitate additional growth in the area.

Because the Project will have potentially significant growth-inducing impacts, Caltrans must prepare an EIR for the Project.

G. By Exacerbating the Current Jobs-Housing Imbalance in the Region, the Project Will Have Potentially Significant Environmental Impacts.

Under CEQA, any environmental review must analyze the proposed project's potential impacts related to population, housing and jobs. See CEQA

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[7] The MND acknowledges that capacity will increase. Table 2.1.4-1, Mainline LOS Summary, shows major increases in Peak Hour Facility Capacity over existing with the Build Alternative. These same increases in Facility Capacity simply do not occur under the No Build option.

[8] It is actually unclear whether this larger widening project will transpire. The Orange County Transportation Authority ("OCTA") apparently no longer supports the widening of SR-74 due to high costs and the significant, adverse environmental impacts of such a project. See OCTA Major Investment Study Update, attached hereto as Exhibit H.

Guidelines, Appendix G § XII. Although the MND is silent on these issues, it appears that the Project will likely create the need for scores if not hundreds of new employees, who, in turn, will place an increased demand on the local housing market. The increase in employment and consequent demand for additional housing are considered to be "economic and social effects" under CEQA, and therefore may not, by themselves, constitute a significant environmental impact. CEQA Guidelines § 15131. However, where these impacts directly lead to significant, physical environmental impacts, they must be considered in an EIR. CEQA Guidelines §§ 15131, 15064(f) and 15382.

The MND ignores the environmental impacts resulting from a serious imbalance between the location of jobs (in Orange County) and the location of affordable housing (in Riverside County). The MND notes that many people have moved from Orange County and Los Angeles County to Riverside County to take advantage of the lower housing costs there. MND at 2-17. In fact, according to the Riverside County Integrated Project, an entity comprised of local agencies and governments as well as constituents in Riverside County:

> Currently, Western Riverside County has approximately 0.25 jobs per resident. By comparison, Orange County has approximately 0.48 jobs per resident. Current demographic forecasts approved by the Southern California Association of Governments (SCAG) indicate that Riverside County will add approximately 0.39 jobs per additional resident. Orange County is projected to add 1.3 additional jobs per additional resident (1998 Regional Transportation Plan, Southern California Association of Governments) These ratios are being adjusted downward in the 2001 update of the Regional Transportation Plan, but will likely be in the same general range.

Riverside County Integrated Project, Purpose and Need Statement for the Riverside Integrated Project at 7 (2000) (http://www.rcip.org/pdf_files/transportation/P&NBanBeauTem120400.pdf), attached hereto as Exhibit T.

Construction of the Project would create jobs in San Juan Capistrano, thus creating a demand for additional housing for the workers. By facilitating the commute from Riverside County to the coast, the Project will also exacerbate the jobs-housing imbalance in the region, and create additional housing demand in eastern Orange County and Riverside County. These impacts were not addressed in the MND. Because they are potentially significant, these impacts must be addressed in the EIR.

The Project area in particular is a magnet for workers. The area served by the widening includes high end homes (which rely on low cost services such as housekeepers, nannies and gardeners) as well as recreational destinations (which also rely on low cost service workforces (e.g. restaurants and other hospitality uses such as

hotels)). These workers will likely not be able to afford housing in the San Juan Capistrano area. The MND fails to provide any data on this jobs-housing relationship.

The result of this jobs-housing imbalance is that total commute times—and total VMT—will increase. This increase, in turn, will result in greater air pollution, increased greenhouse gas emissions (discussed more below), and thus an increased contribution to the global warming crisis. Thus, individually and cumulatively, the Project could have significant air quality, growth inducing, and climate change impacts due to its exacerbation of the existing jobs-housing imbalance. These potentially significant impacts were completely overlooked in the MND. Because there is a fair argument that these impacts will be significant, Caltrans must analyze them in an EIR.

H. The Additional Traffic Induced by the Project Will Have Potentially Significant Environmental Impacts.

Transportation Planners have long been aware that the State cannot build its way out of traffic congestion. That is why there is growing interest in smart land use patterns that increase density, improve jobs-housing balance and allow development with a mix of uses to increase walkable, transit-friendly alternatives to the single occupancy vehicle commuter. Recent studies have demonstrated the link between highway expansion and increased vehicle miles traveled:

> The preponderance of empirical evidence to date suggests that induced effects [of road projects] are substantial. A widely cited study by Hansen and Huang (1997), based on 18 years of data from 14 metropolitan areas, found every 10 percent increase in lanes miles was associated with a 9 percent increase in vehicle miles traveled (VMT) four years after road expansion, controlling for other factors. Another study of 70 U.S. metropolitan areas over a 15-year time period concluded that areas investing heavily in road capacity fared no better in easing traffic congestion than areas that did not (Surface Transportation Policy Project, 1998). Based on a meta-analysis of more than 100 road expansion projects in the United Kingdom, Goodwin (1996) found that proportional savings in travel time were matched by proportional increases in traffic on almost a one to one basis, a finding that prompted the U.K. Government to jettison its longstanding policy, "predict and provide", of responding to traffic-growth forecasts by building more motorways.

Robert Cervero, Road Expansion, Urban Growth, and Induced Travel: A Path Analysis, at 1 (Dept. of City and Regional Planning, Institute of Urban and Regional Development, UCB, July 2001), attached hereto as Exhibit K. The Surface Transportation Policy

Project, [9] cites a growing body of research that widening highways is only a temporary solution at best to the complex problems of traffic congestion. In the long run, new and wider highways actually create additional traffic above and beyond what can be attributed to population increases and economic growth. This phenomenon is referred to as "induced traffic." According to the Surface Transportation Policy Project website, 100% of additional VMT in Los Angeles County is attributable to "induced traffic"; 72.6% of additional VMT in San Diego County is attributable to it. See Surface Transportation Policy Project California, http://www.transact.org/Ca/congestion2.htm, attached hereto as Exhibit L.

These studies indicate that highway-widening projects, such as the proposed Project, actually induce additional traffic—they do not simply "accommodate" existing or predicted traffic. The MND fails to calculate the amount of additional traffic the Project will induce, and fails to discuss any of the potentially significant impacts related to this induced traffic. These impacts include, but are not limited to, increased air pollution, increased traffic congestion, and increased growth in the undeveloped portions of Orange and Riverside Counties. The potential for increased vehicle emissions also creates additional climate change impacts. Caltrans must analyze these impacts along with possible mitigation in an EIR.

I. The MND's Analysis of the Project's Contribution to Climate Change Is Inadequate.

There is no longer any question that global warming will result in significant environmental impacts in California. The California Climate Action Team's 2006 Report to Governor Schwarzenegger details the science behind, and the environmental impacts of, global warming. Portions of that report are attached hereto as Exhibit I. The Climate Action Team report makes clear that the release of greenhouse gases ("GHGs") into the atmosphere leads to global warming, which in turn leads to myriad environmental impacts. As stated in AB 32, the California Global Warming Solutions Act:

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[9] The Surface Transportation Policy Project is a diverse, nationwide coalition working to ensure safer communities and smarter transportation choices that enhance the economy, improve public health, promote social equity, and protect the environment. STPP's California field offices provide assistance to local transportation agencies, elected officials and citizen groups in order to help stakeholders take advantage of the new opportunities available under the federal transportation bill to link transportation to land use, housing, social equity, livable communities and smart growth. STPP California is helping to build regional and statewide coalitions, conduct research and analysis, and identify funding sources for innovative transportation projects and programs throughout the state.

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

Because global warming significantly impacts the environment, lead agencies must consider their projects' individual and cumulative contributions to this impact in their CEQA analyses.

Despite the severity of the threat posed by climate change, the MND provides only a superficial analysis of the Project's contribution to the problem. Without any analytical or factual support, the MND arrives at two conclusions: (1) it is not technically feasible to calculate a project's individual contribution to the cumulatively significant climate change impact; and (2) the Project will reduce emissions of carbon dioxide (one of the GHGs responsible for global warming) by improving the level of service within the Project area. Neither conclusion is correct. Therefore, an EIR must be prepared to analyze the Project's potentially significant contribution to global warming.

1. A Methodology Is Available to Calculate a Project's Contribution to Global Warming

Contrary to the MND's conclusion, it is possible to determine a project's contribution to global warming. The data essential to such quantification is readily available, including the increased number of vehicle miles traveled ("VMTs") on account of the Project, the amount of carbon dioxide and other GHGs emitted from vehicles per VMT, etc. Construction-related GHG emissions (including emissions resulting from construction of the project itself, as well as from producing the materials needed for the construction) may also be calculated. A more detailed description of the methodology for calculating a project's GHG emissions can be found in Mr. Gilbert's letter, attached hereto as Exhibit B. The fact that no federal, state or regional regulatory agency has created a computer model or formula for this calculation does not excuse a lead agency from analyzing its project's environmental impacts.

Establishing a standard of significance for a project's individual and cumulative contribution to global warming is similarly feasible. While choosing and applying a standard of significance are the lead agency's responsibility, we suggest that AB 32, the California Global Warming Solutions Act, may provide some guidance. This new law requires that California's GHG emissions be reduced to 1990 levels by 2020. A

reasonable standard of significance would determine that a project has a significant impact if its emissions would obstruct achievement of that goal. Because AB 32 requires a statewide reduction in emissions, any project that adds GHGs to the atmosphere without providing for at least a corresponding reduction in GHG emissions will have a potentially significant impact. This approach is in line with the Legislature's clearly stated direction that California must reduce its carbon emissions. Moreover, the finding of significance leads to the most important part of climate change analysis under CEQA—mitigation (discussed further below).

2. This Project's Contribution to Global Warming Will Be Cumulatively Considerable.

Here, the MND has concluded that the Project would reduce carbon dioxide emissions by improving the traffic flow in the Project area. This conclusion is incorrect. First, as discussed in Mr. Brohard's letter, attached hereto as Exhibit A, the Project would actually decrease the Level of Service on side streets. Second, according to the MND's own discussion, "the highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph." MND at 2-98 (emphasis added). By widening the highway to four lanes, the Project would enable vehicles to travel at speeds over 55 mph, and thus may actually increase the carbon dioxide emissions of these vehicles. Third, the MND fails to consider the increased GHG emissions caused by the construction of the Project. Fourth, as described above in Section IV(H), a growing body of literature shows that widening highways does not simply accommodate or re-route pre-existing traffic volumes, but induces additional vehicle traffic. See Exhibits J-Q. Thus, widening this stretch of the Ortega Highway will likely increase the total number of VMTs, and an increase in VMTs is directly correlated to an increase in GHG emissions.

For all of these reasons, the Project may contribute in a cumulatively considerable way to the significant impacts of global warming. Caltrans must prepare an EIR to analyze these potentially significant impacts. The EIR must, at the very least, inventory the GHG emissions (1) attributable to increased VMTs and traffic conditions, (2) generated through the Project's energy consumption, and (3) attributable to the manufacturing and lifecycle of the materials used for the construction Project. This inventory must break out its estimates of GHG emissions by source to facilitate the design of appropriate mitigation measures. Finally, the EIR must analyze all the emissions of all types of greenhouse gases, not just carbon dioxide. Other gases that contribute to climate change include, but are not limited to, methane (CH4), Nitrous Oxide (N2O), and hydrofluorocarbons (HFCs). See Exhibit I at 11-12.

If the Project will result in increased GHG emissions (which, we have argued above, it will), the EIR must also propose and analyze feasible mitigation measures to reduce this significant impact. Such measures include transit measures,

which will reduce VMTs, and measures to increase the Project's energy efficiency. Sample measures for reducing a project's contributions to climate change are presented in the Climate Action Team Report. *See* Exhibit I at 47-63.

If these emission-reduction measures are insufficient to reduce the Project's climate change impacts to a less than significant level, then a revised analysis must identify and analyze mitigation that reduces the net effects of the Project's own emissions. Planting trees may be one such measure. Trees sequester carbon; planting sufficient acreage could counterbalance some of the Project's emissions. Another option would be offsetting the Project's emissions, either through contributing to the financing of sustainable energy projects or through the purchase of carbon credits. These programs are increasingly common and thus raise no issue of infeasibility. For example, one agency, Alameda County ("AC") Transit, installed a 621-kilowatt solar electric system at their facilities in Hayward and Oakland in order to offset the greenhouse gas emissions from their hydrogen production facility. See PRNewswire, SunPower, MMA Renewable Ventures Dedicate 621-Kilowatt SunPower Solar Electric System at AC Transit (Aug. 2, 2007), attached hereto as Exhibit R.

In sum, because of the Project's potentially significant growth-inducing and traffic-inducing impacts, its contribution to global warming may be cumulatively considerable. Caltrans must therefore analyze these potentially significant impacts in an EIR.

J. The Project's Contribution to Significant Cumulative Impacts Is Considerable.

CEQA unequivocally requires lead agencies to disclose and analyze a project's "cumulative impacts," defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Guidelines § 15355. These impacts may result from a number of separate projects, and occur when "results from the incremental impact of the project [are] added to other closely related past, present, and reasonably foreseeable probable future projects," even if each project contributes only "individually minor" environmental effects. Guidelines §§ 15355(a)-(b). A lead agency must prepare an EIR if a project's possible impacts, though "individually limited," prove "cumulatively considerable." CEQA § 21083(b); Guidelines § 15064(h)(1).

Extensive case authority highlights the importance of a thorough cumulative impacts analysis. In San Bernadino Valley Audubon Society v. Metropolitan Water District of Southern California, 71 Cal.App.4th 382, 386, 399 (1999), for example, the court invalidated a negative declaration and required an EIR be prepared for the adoption of a habitat conservation plan and natural community conservation plan. The court specifically held that the negative declaration's "summary discussion of cumulative

impacts is inadequate," and that "it is at least potentially possible that there will be incremental impacts. . . that will have a cumulative effect." See also Kings County Farm Bureau, 221 Cal.App.3d at 729 (EIR's treatment of cumulative impacts on water resources was inadequate where the document contained "no list of the projects considered, no information regarding their expected impacts on groundwater resources and no analysis of the cumulative impacts").

In contravention of the above authorities, the MND provides only a cursory discussion of the Project's cumulative impacts. This anemic discussion is inadequate under CEQA for a number of reasons.

First, the MND only identifies projects in or immediately adjacent to San Juan Capistrano as cumulative development and road projects. The Ortega Highway serves much of eastern Orange County and continues on to Riverside County. As the Project background section notes, "commuters who travel from Riverside County to southern Orange County commonly use SR-74." MND at 1-2. Thus, any analysis of cumulative impacts must consider the effects of past, present and reasonably foreseeable future development in eastern Orange County and Riverside County.

Second, the MND must do more than just list past, present, and future development projects; it must analyze if or how the proposed Project, together with these other area projects, will cumulatively impact the environment. The MND circulated by Caltrans omits any such analysis.

Third, the MND explicitly refuses to consider the Project's potential cumulative impacts to a number of resources (including land use, growth, population and housing, farmland, and air quality) because the Project by itself will not have a significant impact on these resources. This reasoning turns the purpose of the cumulative impacts analysis on its head. As noted above, the whole point of the cumulative impacts analysis is to identify impacts that are insignificant when viewed individually, but are significant when viewed in connection with other development in the area. See Guidelines §§15355(a)-(b). Thus, even if the Project's individual impacts to growth or air quality are insignificant (a proposition we dispute), the Project's impacts could be cumulatively significant. Environmental review for this Project must address these potentially significant cumulative impacts.

Fourth, the MND omits any discussion of potential cumulative impacts associated with the simultaneous construction of the Project and the County's widening of the Ortega Highway. According to the MND, these two projects would be constructed at the same time. MND at 1-9. Construction impacts, including impacts to air quality, noise, and traffic, are potentially significant when considered cumulatively.

Some of the analysis that is missing from the MND can be found in other environmental documents, each of which concludes that the cumulative impacts of road improvement projects in the region are significant. The EIRs prepared in conjunction with the Long Range Plan and the RTP provide substantial evidence that, when considered cumulatively, road improvements in the region (including the Project) will have significant adverse impacts on at least the following resources: air quality, growth, water quality, aesthetics, and population and housing. See Exhibits E and F.[10]

Because the Project's contribution to a variety of cumulative impacts is considerable, Caltrans must prepare an EIR and consider whether any mitigation measures could reduce this significant impact. According to Guidelines § 15130(a)(3), a project's cumulatively considerable impact may be rendered "less than cumulatively considerable" if the project is required to implement or fund its fair share of a mitigation measure designed to alleviate the cumulative impact. One possible mitigation measure would be for Caltrans to implement the guidelines developed by the WRCOG-OCCOG Interregional Partnership, an ongoing collaborative between the Orange County Council of Governments ("OCCG") and the Western Riverside Council of Governments ("WRCOG") with the primary goal of fostering more sustainable land use patterns, providing appropriate employment closer to where people live, and locating more affordable housing closer to jobs. Another possible mitigation measure would be for Caltrans to participate in state and local planning efforts to balance jobs and housing respectively in Orange and Riverside counties, thereby reducing the need for increased road capacity to accommodate commuters.[11] See Exhibits S and T.

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[10] These conclusions also contradict the MND's unsupported predictions that standard mitigation measures, such as the implementation of a SWPPP or compliance with standard air pollution control measures, will reduce the Project's impacts to a less than significant level. See, e.g., Exhibit F at 3.7-30-31, 3.12-27 (noting that impacts to water quality in streams and other water resources would remain significant even with implementation of BMPs, SWPPS, etc.); Exhibit E at ES-4 (listing short-term construction-related emissions as potentially significant and unavoidable).

[11] Caltrans regularly participates in regional planning by providing modeling for alternative growth scenarios and financial support for planning studies. Among their recent reports is the California Regional Progress Report, 2007, completed by the California Center for Regional Leadership in partnership with Caltrans and CALGOG. The report refers to the SCAG integrated growth strategy, which, among other matters, targets achieving a better balance of jobs and housing in each County to reduce the commute demand. See www.scag.ca.gov The report concludes that, with skyrocketing Vehicle Miles Traveled, focus needs to be on more efficient land use and transit. Id. at 53.

In order to address these potentially significant cumulative impacts, Caltrans must prepare an EIR for the Project.

V. CONCLUSION.

For the reasons set forth above, Mrs. Smith requests that Caltrans defer action on the Ortega Highway widening project until an EIR is prepared that fully complies with CEQA.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Winter King

Terrell Watt (by WK)

Terrell Watt

Enclosures:

Exhibit A – Letter from Tom Brohard to Rachel Hooper re Traffic Impacts of Proposed Project
Exhibit B – Comments from Greg Gilbert re Caltrans Air Quality Impacts and Discussion Within Environmental Review Documents
Exhibit C – CD with Photos of Ortega Highway
Exhibit D – Andrew Wheeler, et al., Impacts of New Highways and Subsequent Landscape Urbanization on Stream Habitat and Biota (2005)
Exhibit E – Excerpts of 2006 OCTA Long-Range Transportation Plan Final Program EIR
Exhibit F – Excerpts of 2004 Draft SCAQ Regional Transportation Plan Program EIR
Exhibit G – News Release, Stormwater Pollution Management Company Grows into Full-Service Firm (Aug. 22, 2007)
Exhibit H – OCTA Major Investment Study Update (Fall 2005)
Exhibit I – California EPA, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Mar. 2006)
Exhibit J – Robert Cervero, Transport and Land Use: Key Issues in Metropolitan Planning and Smart Growth
Exhibit K – Robert Cervero, Road Expansion, Urban Growth, and Induced Travel: A Path Analysis (July 2001)
Exhibit L – Surface Transportation Policy Project, Traffic Congestion: Build It and They'll Come

Exhibit M –Mark Hansen and Yuanlin Huang, Road Supply and Traffic in California Urban Areas (1996)

Exhibit N – Mark Hansen, et al., Freeway Expansion and Land Development: An Empirical Analysis of Transportation Corridors (Jan. 1998)

Exhibit O – Marlon Boarnet, New Highways & Economic Growth: Rethinking the Link (Fall 1995)

Exhibit P – Lewis Fulton, et al., A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region

Exhibit Q – Marlon Boarnet, et al., New Highways, Induced Travel, and Urban Growth Patterns: A "Before and After" Test (Sept. 2002)

Exhibit R – PRNewswire, SunPower, MMA Renewable Ventures Dedicate 621-Kilowatt SunPower Solar Electric System at AC Transit (Aug. 2, 2007)

Exhibit S – Excerpts from WRCOG-OCCOG Interregional Partnership, Jobs-Housing Balance Project (May 14, 2003)

Exhibit T – Purpose and Need Statement for the Riverside County Integrated Project, Banning/Beaumont to Temecula Corridor, Winchester to Temecula Study Area (Dec. 20, 2000)

Exhibit U – Hugh Saurenman, PhD, PE, Curriculum Vitae

Exhibit V – Jared Ikeda, Land Use Planner and Licensed Landscape Architect, Curriculum Vitae

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Tom Brohard and Associates

August 28, 2007

Ms. Rachel Hooper, Attorney at Law
Shute, Mihaly & Weinberger, LLP
396 Hayes Street
San Francisco, California 94102

Exhibit A

SUBJECT: Review of Initial Study for State Route 74/Lower Ortega Highway Widening in the City of San Juan Capistrano – Traffic Comments

Dear Ms. Hooper:

At your request, I have reviewed the July 2007 Initial Study with Proposed Mitigated Negative Declaration for State Route 74 Lower Ortega Highway Widening in the City of San Juan Capistrano prepared by the State of California Department of Transportation (Caltrans). The November 2, 2006 Traffic Study and the June 27, 2007 Supplemental Traffic Study (Supplement) prepared by Austin-Foust Associates have also been reviewed.

Since receiving a Bachelor of Science in Engineering from Duke University in Durham, North Carolina in 1969, I have gained over 36 years of professional engineering experience. I am licensed as a Professional Civil Engineer both in California and Hawaii and as a Professional Traffic Engineer in California. I formed Tom Brohard and Associates in 2000 and now serve as the City Traffic Engineer for the City of Indio and as Consulting Transportation Engineer for the City of Big Bear Lake, City of San Fernando, and for the County of Riverside. I have extensive experience in traffic engineering and transportation planning. During my career in both the public and private sectors, I have reviewed numerous environmental documents and traffic studies for various projects. Several recent assignments are highlighted in the enclosed resume.

Pages A-11 and A-12 of the Initial Study for the State Route 74 Lower Ortega Highway Widening, included as Appendix A, indicate "No Impact" with a very brief explanation in response to each of the Transportation/Traffic questions. It is not possible to reach these conclusions based upon the data and information presented in the July 2007 Initial Study and the supporting traffic studies. To the contrary, further detailed study and evaluation are necessary to accurately quantify and properly mitigate the traffic impacts of the proposed project.

The November 2006 Traffic Study focuses on conditions in the unincorporated County area outside the City of San Juan Capistrano, and it does not include a proper, thorough evaluation of the proposed project in the City. The June 2007 Supplemental Traffic Study is more directed to the project within the City but it focuses on the Level of Service of the mainline and conditions at only three of the intersections. The Supplement relies upon 2003 traffic volumes that were projected to 2005 (rather than to 2007) at three intersections. It fails to evaluate conditions at Calle Entradero and at Via Errecarte, two existing intersections in

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the City on the south side of SR-74/Ortega Highway as well as at Steeplechase Drive, Palm Hill Drive and at Toyon Drive, three existing intersections in the City on the north side of SR-74/Ortega Highway within the proposed project limits. While the analysis of the three intersections indicates a minor reduction in side street delays, each of the intersections with SR-74/Ortega Highway will continue to operate at Level of Service "F" in 2030 after completion of the widening. Level of Service "F" is unacceptable as it fails to achieve operating standards used by the City of San Juan Capistrano and by Caltrans. In an effort to downplay this, the Supplement and the Initial Study suggest that side street motorists turn right and then make a U-turn at the next intersection instead of trying to make a left turn. In addition to the additional circuitous travel that would result, the widened roadway is too narrow to accommodate U-turns at the next intersection in a single maneuver, thereby making the suggested "mitigation" infeasible.

The Supplement does not address the impacts of higher travel speeds along a widened SR-74/Ortega Highway on traffic safety. The Initial Study fails to adequately address, analyze, or evaluate project impacts on pedestrians, equestrians, and bicyclists. The Supplement does not provide technical evaluations of measures recommended in the Initial Study such as the removal of existing sidewalks along the north side, marking of a pedestrian crosswalk across SR-74/Ortega Highway, and installation of narrow bicycle lanes on both sides of the widened roadway.

The Initial Study contains photographs of roadways that do not resemble existing conditions in the project area as well as visualizations that do not accurately depict the proposed project for the public. The Initial Study fails to consider, develop or analyze any meaningful alternatives to the proposed project as required by the California Environmental Quality Act, CEQA. A potential alternative to the full widening to provide four through lanes on SR-74/Ortega Highway is suggested for further consideration at the end of this letter.

The following describes each of the various deficiencies in the Initial Study and the Supplemental Traffic Study in more detail:

1) <u>2003 Traffic Counts Were Used And Intersections Have Been Omitted</u> – Page 2-33 of the Initial Study states "Traffic counts were taken for three of the five unsignalized intersections within the Project Limits: Via Cordova, Via Cristal, and Avenida Siega. The traffic counts were taken in late 2003 and were projected to Year 2005 for the traffic study analysis. Via Errecarte and Calle Entradero were not included in this analysis since these two intersections have similar characteristics and volumes as the aforementioned three selected intersections."

   There are several flaws associated with this methodology as described in the Initial Study. First, traffic counts at the three intersections were conducted

nearly four years ago and do not represent traffic volumes in 2007. Second, these three counts "were projected to 2005 for the traffic study analysis", for only two years rather than four years, and do not represent traffic volumes in 2007. Third, no traffic counts were made at two of the five intersections along the south side of SR-74/Ortega Highway at Calle Entradero and Via Errecarte. Fourth, no traffic counts were made at three of the six intersections along the north side of SR-74/Ortega Highway, namely Steeplechase Drive, Palm Hill Drive, and Strawberry Lane. Finally, no evidence is presented to support the conclusion that the SR-74/Ortega Highway intersections at Calle Entradero/Steeplechase Drive as well as at Via Errecarte "have similar characteristics and volumes..."

The Appendix to the Supplement contains capacity calculations for the AM and PM peak hours for SR-74/Ortega Highway at Via Cordova/Hunt Club Drive, at Via Cristal, and at Avenida Siega. As copies of the AM and PM peak hour traffic counts made in 2003 at these intersections were not included within the Appendix, it is not possible to verify the projection to 2005 or to verify if the traffic volumes were input correctly into the capacity calculations.

It is critically important for the public to be able to compare and review the traffic volume inputs to the capacity calculations to identify obvious errors. In my review of the capacity calculations for the PM peak hour conditions for 2030 No Project and for 2030 With Project at SR-74/Ortega Highway at Avenida Siega, it was found that 223 northbound left turns (rather than 23 northbound left turns) were erroneously used in both of these capacity calculations. This error significantly distorts the delay that will be experienced at this intersection by northbound left turning vehicles in both 2030 scenarios.

2) <u>Intersections Will Operate at LOS "F" After Widening</u> – Page 2-33 of the Initial Study states "Within the Project Limits, there are no existing signalized intersections and none are proposed. Therefore, the unsignalized intersections in the project area are being analyzed to ensure that they would operate at an acceptable level of service under the year 2030 scenario." This information is critical to whether the Project will result in significant impacts to pedestrian safety as well as roadway function.

   Page 2-40 of the Initial Study states "Although delays to intersection movements are less under the Build Alternative, delays to minor street left turn movements attempting to access the SR-74 still exceed the threshold of acceptable seconds in delay, which would result in LOS F. At intersections within the Project Limits, the mainline traffic will operate at an acceptable level of service. However, the traffic exiting the minor street and attempting to turn left into westbound SR-74 would incur long delays due to lack of gaps in the through traffic."

With a few minor exceptions for "hot spots" as noted in the December 14, 1999 Circulation Element of the General Plan, the City of San Juan Capistrano has adopted Level of Service "D" or better as the acceptable Level of Service at intersections in the City. As shown in Appendix A to the Supplement, Caltrans strives to maintain Level of Service "C/D" or better for their facilities.

At side-street STOP controlled intersections the Level of Service is calculated for each movement and not for the intersection as a whole. At the intersections along SR-74/Ortega Highway, the Level of Service must be reported for the movement with the highest delay. Level of Service "F" occurs when the average delay per vehicle exceeds 50 seconds.

The highest delay of any movement occurs for left turns entering SR-74/Ortega Highway from the side street controlled by the STOP sign. As shown in Table 2 in the Supplement, the delay for the left turn movement from the side street at each of the three intersections studied on SR-74/Ortega Highway exceeds 200 seconds in 2030 without the project or with widening to four lanes. The three intersections studied must be reported as Level of Service "F" since the average delay per vehicle exceeds 200 seconds, more than four times the Level of Service "F" threshold of 50 seconds.

While the other intersections along SR-74/Ortega Highway were not evaluated in the Supplement, it can certainly be assumed that left turns from the side streets will also experience similar delays, resulting in Level of Service "F" conditions at the other intersections as well. Unless alternatives to the proposed project are developed and implemented, all intersections in the project area along SR-74/Ortega Highway will fail to meet the City and State Level of Service standards in 2030 after completion of the widening project. This substantial reduction in Level of Service for these intersections is a potentially significant Project impact.

3) <u>Right Turn/U-Turn Alternative to Left Turns From Side Streets Is Infeasible</u> – Page 2-40 of the Initial Study states "However, the traffic exiting minor street and attempting to turn left onto westbound SR-74 would incur long delays due to lack of gaps in the through traffic. However, in order to avoid long traffic delays, the project is providing eastbound left turn lanes at the unsignalized intersections to allow vehicles to turn right onto eastbound SR-74 and complete a U-turn at the next available intersection." As discussed below, providing left turn lanes and allowing U-turns at intersections is infeasible and should not be considered as a measure to alleviate the significant side street delays.

The Initial Study has considered only left turns from side streets south of SR-74/Ortega Highway in this discussion. Motorists attempting to turn left from

the six streets along the north side of the roadway within the project limits will experience similar levels of excessive delay. The impacts associated with left turns at these six intersections have not been discussed or analyzed.

Page 2-39 of the Initial Study indicates the roadway widening project will provide two 12 foot wide through lanes in each direction, a 12 foot wide painted median with left turn lanes, and 5 foot wide paved shoulders on both sides. A vehicle making a U-turn would have a maximum width of 41 feet available for this maneuver including the left turn lane, the two opposing through lanes, and the shoulder. To complete a U-turn in one continuous movement without encroaching into the side street or other through lanes on the main highway, the outside radius of the U-turning vehicle is limited to 20.5 feet, one half of the available width of 41 feet.

A Policy on Geometric Design of Highways and Streets 2004 published by the American Association of State Highway and Transportation Officials (AASHTO) is the accepted design standard for roadways throughout the United States. This publication includes "design vehicles" with representative weight, dimensions, and operating characteristics that are used to establish highway designs to accommodate vehicles in the various classes. The passenger vehicle class includes cars of all sizes, sport/utility vehicles, minivans, vans, and pick up trucks. To make a U-turn in one continuous movement, the path of the outside front wheel of the passenger car design vehicle requires a radius of 24 feet (48 feet across) and the front overhang at the outside front wheel requires a radius of 25.5 feet (51 feet across).

Only 41 feet is available for U-turns without encroaching into the side street or other through traffic lanes on SR-74/Ortega Highway. A U-turn can not be made in one continuous movement by the passenger car design vehicle on SR-74/Ortega Highway. U-turning vehicles encroaching into the side street will create conflicts with pedestrian crossings of the side street and with vehicles attempting to turn left or right from the side street at the same time. Under these conditions, some motorists would be likely to turn left in to the side street, travel down the side street and turn around using a residential driveway. Certainly, this would further increase delays in travel times for such motorists and would likely be objectionable to some side street residents.

Additional circuitous travel would be created by turning right from the side street, merging across two through lanes moving at 60 MPH in peak hours, decelerating in a left turn lane at the next available intersection, attempting the U-turn after waiting for an acceptable gap in the opposing 60 MPH traffic in two lanes, and returning to the original side street intersection. Such maneuvers would also require considerable driving skill and would likely consume more time than simply turning left originally.

According to Table 2 in the Supplement, right turn movements from the side streets after the widening in 2030 will experience AM and PM peak hour delays ranging from 17 seconds (Level of Service "C") to delays of over 200 seconds (Level of Service "F"). Revising the analysis by reassigning some of the left turn volumes as right turns from the side streets would likely result in Level of Service "F" conditions for all right turn movements as well.

4) Higher Travel Speeds On SR-74/Ortega Highway Were Not Analyzed – The Initial Study and the Supplement do not discuss the impacts associated with higher speeds that will result after the widening of SR-74/Ortega Highway on traffic safety.

   The description of the environmental background in the Initial Study is inadequate because it does not indicate the current speed limit. Vehicle speed measurements have not been provided for existing conditions along SR-74/Ortega Highway in either the Initial Study or the Supplement.

   Figure 14 on Page 2-52 shows a "Speed Limit 45" sign posted on the south side of SR-74/Ortega Highway. With this posted speed limit and with the existing Level of Service, operating speeds between 40 and 45 MPH are occurring under existing conditions. In discussing operating conditions after the widening, Page 2-40 of the Initial Study states "There would be no delays or minimal delays and the operating speeds would be 60 MPH during the AM and PM peak hours."

   Operating speeds will increase by 15 to 20 MPH after the widening of SR-74/Ortega Highway. However, the Initial Study and the Supplement do not address any of the potentially significant adverse impacts on traffic safety associated with the significant increase in vehicle speeds including the increase in severity of vehicle collisions at higher speeds or the impacts upon pedestrians, equestrians, and bicyclists.

5) Impacts to Pedestrians, Equestrians, and Bicyclists Were Not Analyzed – Appendix C contains Agency Correspondence related to the proposed project. In her June 6, 2006 letter to Caltrans (Pages C-38 through C-41 of the Initial Study), the City's Planning Director summarized the results of the City Council/Planning Commission joint public workshop held on May 30, 2006. While the City provided input to Caltrans, the Initial Study and the Supplement do not properly or adequately analyze components of the project relating to pedestrians, equestrians, and bicyclists as follows:

   a) Removal of Existing Sidewalk on North Side – Page 2-31 of the Initial Study states "The project would necessitate the removal of 1,056 feet of sidewalk on the north side of SR-74 from Calle Entradero to Via Cordova. This would not constitute a negative impact on community cohesion from

a pedestrian movement perspective due to its limited usage as per the study conducted in early 2000... The pedestrian count also did not warrant the need to keep the existing sidewalk on the north side."

The pedestrian study conducted over seven years ago was not included in the Initial Study to provide an opportunity for the public to review this document. Current counts of pedestrians along SR-74/Ortega Highway have not been provided in the Initial Study or in the Supplement. Pedestrian demand along SR-74/Ortega Highway to reach school bus or future public transit bus stops has not been quantified or evaluated.

According to Page 2-40 of the Initial Study, vehicles on SR-74/Ortega Highway will operate at 60 MPH during both peak hours after completion of the widening project. While there are no "warrants" for sidewalks, it is desirable to provide a sidewalk along the north side of SR-74/Ortega Highway with the high vehicle speeds. The impacts to pedestrian mobility and pedestrian safety caused by removal of the existing sidewalk along the north side of SR-74/Ortega Highway must be evaluated.

b) Pedestrian Crossings of SR-74/Ortega Highway – Page 2-31 of the Initial Study states "The pedestrian study and field observation indicated an extremely low demand to warrant a signal light as a means of providing a safe crossing... During the project design, the optimal location for pedestrian crosswalk would be determined. This would facilitate access to the existing sidewalk on the south side of the street."

The pedestrian study conducted over seven years ago was not included in the Initial Study to provide an opportunity for the public to review this document. Current counts of pedestrians crossing SR-74/Ortega Highway have not been provided in the Initial Study or in the Supplement. Pedestrian demand to cross SR-74/Ortega Highway to reach school bus or future public transit bus stops has not been quantified or evaluated.

According to Page 2-40 of the Initial Study, vehicles on SR-74/Ortega Highway will operate at 60 MPH during both peak hours after completion of the widening project. If the "warrants" for traffic signals for pedestrian crossings of SR-74/Ortega Highway are not met, then other suitable means must be provided to enable safe pedestrian crossings. Painting of a crosswalk across SR-74/Ortega Highway as suggested on Page 2-40 of the Initial Study without adding protection provided by a traffic signal contradicts the conclusions reached in several pedestrian safety studies conducted in Southern California over the last 40 years, one of which I authored for the City of Long Beach. In the review of nearly 3,500 pedestrian accidents over 10 years in Long Beach, marked crosswalks at uncontrolled intersections (those not controlled by traffic signals or STOP

signs) experienced 7.5 times more pedestrian accidents than unmarked crosswalks at uncontrolled intersections. This finding confirmed the City's policy to not install marked crosswalks at uncontrolled locations.

Page 2-40 of the Initial Study states "In early 2000, the Department conducted a study in the vicinity of the Via Cordova/Hunt Club Drive intersection to identify the need for a pedestrian crossing." If this is the same study referenced earlier in the Initial Study, then it appears there have been no evaluations made of pedestrian crossings of SR-74/Ortega Highway at any other intersections within the project limits.

c) Equestrian Crossings of SR-74/Ortega Highway – In her June 6, 2006 letter to Caltrans, the City's Planning Director stated "The City Council and Planning Commission indicated that at least one signalized intersection and pedestrian/equestrian crossing is needed in this area... The City needs an equestrian crossing of Ortega Highway to connect trail systems north and south of the highway. The City is currently evaluating the feasibility of using the La Novia signal to accommodate an equestrian crossing. However, the City wants to retain the future option to establish an equestrian crossing at Errecarte or Via Cristal."

The Initial Study does not address existing or planned recreational trails along SR-74/Ortega Highway. In the discussion regarding elimination of the existing sidewalk on the north side between Steeplechase Drive and Hunt Club Drive, Page 1-12 of the Initial Study indicates there is an equestrian trail along the north side of the roadway. Figure PR-1 on Page 9 of the Parks and Recreation Element of the City's December 14, 1999 General Plan shows this facility as an existing recreational trail for hiking, equestrians, and mountain bikes. Figure PR-1 also identifies the future extension of this recreational trail along the north side of SR-74/Ortega Highway easterly to Shade Tree Lane/Avenida Siega. The Initial Study must address the City's planned trail extension so the widened roadway does not conflict with this recreational facility.

The Initial Study does not address equestrian crossings of SR-74/Ortega Highway. With horses housed on the adjacent properties along the north side as well as on the south side at Avenida Siega, equestrian crossings of SR-74/Ortega Highway are foreseeable. This was confirmed by the City in the letter to Caltrans stating "The City needs an equestrian crossing of Ortega Highway to connect trail systems north and south of the highway." Provisions for safe equestrian crossings of SR-74/Ortega Highway must be evaluated and appropriate facilities must be included within the project.

d) Bicycle Facilities on SR-74/Ortega Highway – Page 2-38 of the Initial Study states "Currently, there are no bike lanes within the Project Limits.

However, the proposed project would provide a new Class II bicycle facility in the shoulder area. This would enhance multi-modalism and student access to the high school." Page 1-12 of the Initial Study states "Class II bicycle facilities are planned and would be provided on each side of the roadway as part of the 5 foot wide paved shoulders throughout the Project Limits."

From review of the aerial and ground level photographs in the Initial Study, there are no bicycles lanes on SR-74/Ortega Highway west of the proposed project. Figure PR-1 on Page 9 of the Parks and Recreation Element of the City's December 14, 1999 General Plan does not show any existing or planned bicycle lanes on any portion of SR-74/Ortega Highway.

Accepted traffic engineering practice indicates bicycle lanes should have logical points of beginning and ending, and new bicycle facilities should connect with existing bicycle facilities. The bicycle lanes proposed by Caltrans on SR-74/Ortega Highway from Calle Entradero to the City Boundary do not meet these criteria and their implementation would conflict with the City's Parks and Recreation Element of the General Plan.

The 5 foot width of the proposed bicycle lanes barely meets the minimum width required in the Highway Design Manual published by Caltrans. Providing only the minimum bicycle lane width immediately adjacent to 12 foot wide travel lanes on a roadway with vehicles traveling 60 MPH during peak hours will compromise safety of the bicyclists. The possible increase in accident frequency due to incompatible uses on the highway (i.e., bicycles in close proximity to motor vehicles traveling at high speeds) is a potentially significant Project impact. Use of these bicycle lanes by students who will be attending San Juan Hills High School (opening in September 2007 near the end of San Juan Creek Road off La Pata Avenue according to Page 2-28 of the Initial Study) should not be encouraged. The Initial Study must reevaluate the proposed bicycle lanes in more detail so as to not compromise bicycle safety.

The 5 foot width proposed for the paved shoulders in the project does not meet the minimum 8 foot shoulder width required in the Highway Design Manual published by Caltrans. A design exception from Caltrans Headquarters in Sacramento is required to construct substandard paved shoulders that are only 5 feet wide as recommended in the Initial Study.

6) Initial Study Photographs and Visualizations Are Inaccurate – The Initial Study contains photographs of roadways that do not resemble existing conditions in the project area as well as visualizations that do not accurately display the proposed project to the public as follows:

a) Existing Conditions Westbound at West End – Figure 11 on Page 2-50 of the Initial Study provides a photograph of "Existing Conditions" looking westbound at the west end of the proposed project. The photograph clearly shows three through travel lanes in both the eastbound and the westbound directions on SR-74/Ortega Highway. Aerial photography available at Google Earth show only two through traffic lanes in each direction. The photograph in Figure 11 does not depict existing conditions on SR-74/Ortega Highway at the west end of the proposed project.

b) View Simulation Eastbound East of Via Cristal – Figure 22 on Page 2-55 of the Initial Study offers a visual simulation between Via Cristal and Via Errecarte for eastbound traffic after completion of the widening. The traffic lanes shown in the simulation are distorted, particularly the eastbound outside travel lane which appears only slightly wider than the eastbound bicycle lane. The simulation also fails to show the westbound bicycle lane. This simulation does not properly depict future conditions on SR-74/Ortega Highway east of Via Cristal after completion of the project.

c) View Simulation Eastbound West of Via Errecarte – Figure 26 on Page 2-58 of the Initial Study offers a visual simulation west of Via Errecarte for eastbound traffic after completion of the widening. The traffic lanes shown in the simulation are distorted and each appears narrower than the eastbound bicycle lane. The simulation also fails to show the westbound bicycle lane. This simulation does not properly depict future conditions on SR-74/Ortega Highway west of Via Errecarte after the widening project.

d) View Simulations Eastbound West of Via Errecarte – Figures 27 and 28 on Page 2-59 of the Initial Study offer visual simulations west of Via Errecarte for eastbound traffic after completion of the widening. The traffic lanes shown in the simulation are distorted and each appears narrower than the eastbound bicycle lane. The painted median in both figures is shown as white in color, contrary to traffic engineering standards requiring yellow to separate opposing traffic. These simulations also fail to show the westbound bicycle lane. These simulations do not properly depict future conditions on SR-74/Ortega Highway west of Via Errecarte after completion of the proposed project.

7) Alternatives to Full Widening Have Not Been Developed or Analyzed - The Initial Study fails to consider, develop or analyze any meaningful alternatives to the proposed widening of SR-74/Ortega Highway to provide four through lanes. Only two scenarios have been discussed in the Initial Study – no project and the full widening. Many issues raised in the correspondence regarding the proposed project in Appendix C have not been addressed. These include the failure to assess conditions on other alternative parallel routes if SR-74/Ortega Highway is not widened ("why should this facility carry

additional traffic through the City?") as well as installation of a traffic signal to facilitate pedestrian crossings and vehicle access to SR-74/Ortega Highway.

As discussed in this letter, the proposed project does not achieve the Level of Service operating standards adopted by the City and Caltrans. Rather, operating conditions for side street traffic movements will still be at Level of Service "F" after the roadway is widened to four through lanes. The "right turn/U-turn at the next street" alternative to side street left turns is infeasible.

As a reasonable alternative to the proposed widening to four through lanes on SR-74/Ortega Highway, a reduced alternative providing only two through travel lanes for the majority of the length should be considered and analyzed. Future traffic volume forecasts should be constrained on SR-74/Ortega Highway to those that can be accommodated at Level of Service "D", with the additional traffic demand diverted to other alternate routes and analyzed at critical intersections along those routes. Providing standard lane widths and shoulders will enable a higher lane capacity of 2,100 vehicles to be used, eliminating the 15 percent capacity reduction used in the Supplement for the current roadway. Providing a reduced cross section including one 12 foot wide through travel lane with a standard 8 foot wide shoulder in each direction separated by a 10 foot wide raised median requires only 50 feet between the outside curbs rather than the 70 feet planned in the full widening. A raised median would provide an opportunity for landscaping beautification while physically separating opposing high speed traffic and controlling side street access. The reduced width would enable sidewalk to be installed along the north side, could eliminate the proposed retaining walls, and would preserve many of the large trees while providing acceptable emergency access.

This alternative would require SR-74/Ortega Highway to be widened to four through lanes in the vicinity of a traffic signal installed near the middle of the project. The installation of left turn and right turn lanes at the signalized intersection would provide sufficient width on SR-74/Ortega Highway to accommodate eastbound and westbound U-turns. With all streets connecting internally within the residential area south of SR-74/Ortega Highway, all vehicles exiting this area and traveling west could easily access a centralized traffic signal. With all left turns from the side streets south of SR-74/Ortega Highway diverted to the traffic signal, the "warrants" for signalization would be exceeded. All other side streets on the south side would be restricted to only right turns in and out. Streets on the north side east of the centralized traffic signal would also be restricted to only right turns in and out, but vehicles exiting these streets would be able to turn right and then U-turn with the protection provided by the centralized traffic signal at the wider intersection.

With this alternative, pedestrian crossings of SR-74/Ortega Highway would be safely facilitated at the centralized traffic signal, and pedestrian crossings at

other locations would be prohibited. The City's proposed recreational trail extension on the north side of SR-74/Ortega Highway together with a tunnel under the roadway near the City boundary could be implemented to facilitate safe equestrian crossings. Bicycle lanes should not be installed on SR-74/Ortega Highway within the 8 foot wide shoulders.

The July 2007 Initial Study with Proposed Mitigated Negative Declaration for State Route 74 Lower Ortega Highway Widening in the City of San Juan Capistrano prepared by the State of California Department of Transportation is severely flawed. Several components of the proposed project do not meet the minimum requirements specified by Caltrans in their own documents or those published by the American Association of State Highway and Transportation Officials. The many errors, omissions, and conflicts, together with the overall inadequate analyses as identified in this letter, will require a significant amount of additional study to address and resolve. The various components of the alternative suggested for consideration in this letter should be evaluated as part of the additional analysis that is necessary to comply with the California Environmental Quality Act. In sum, a revised environmental document must be prepared for the proposed project.

If you should have any questions regarding these findings, please contact me at your convenience.

Respectfully submitted,

Tom Brohard and Associates

Tom Brohard, PE
Principal

Enclosure

Tom Brohard, PE

Licenses:	1975 / Professional Engineer / California – Civil, No. 24577 1977 / Professional Engineer / California – Traffic, No. 724 2006 / Professional Engineer / Hawaii – Civil, No. 12321
Education:	BSE / Civil Engineering / Duke University / 1969
Experience:	36 Years
Memberships:	Institute of Transportation Engineers – Fellow, Life Orange County Traffic Engineers Council - Chair 1979-1980 American Public Works Association - Member

Tom is a recognized expert in the field of traffic engineering and transportation planning. His background also includes responsibility for leading and managing the delivery of various contract services to numerous cities in Southern California.

Tom has extensive experience in providing transportation planning and traffic engineering services to public agencies. Since May 2005, he has served Indio as City Traffic Engineer three days per week. He also provides "on call" Consulting Traffic and Transportation Engineer services to the Cities of Big Bear Lake and San Fernando as well as to Riverside County. In addition to conducting traffic engineering investigations for Los Angeles County from 1972 to 1978, he has previously served as City Traffic Engineer in these communities:

- Bellflower ..... 1997 - 1998
- Bell Gardens ..... 1982 - 1995
- Huntington Beach ..... 1998 - 2004
- Lawndale ..... 1973 - 1978
- Los Alamitos ..... 1981 - 1982
- Oceanside ..... 1981 - 1982
- Paramount ..... 1982 - 1988
- Rancho Palos Verdes ..... 1973 - 1978
- Rolling Hills ..... 1973 - 1978, 1985 - 1993
- Rolling Hills Estates ..... 1973 - 1978, 1984 - 1991
- San Marcos 1981
- Santa Ana ..... 1978 - 1981
- Westlake Village ..... 1983 - 1994

During these assignments, Tom has supervised City staff and directed other consultants including traffic engineers and transportation planners, traffic signal and street lighting personnel, and signing, striping, and marking crews. He has secured over $5 million in grant funding for various improvements. He has managed and directed many traffic and transportation studies and projects. While serving these communities, he has personally conducted investigations of hundreds of citizen requests for various traffic control devices. Tom has also successfully presented numerous engineering reports at City Council, Planning Commission, and Traffic Commission meetings in these and other municipalities.

Since forming Tom Brohard and Associates in 2000, Tom has also reviewed many traffic impact reports and environmental documents for various development projects. He has provided expert witness services and also prepared traffic studies for public agencies and private sector clients. Some of these significant accomplishments during the last five years include the following:

- Prepared critique of the traffic impacts identified in the Addendum to the Program EIR and Transportation Analysis for the Davidon Homes Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (1/2007)

- Prepared critique of the traffic and circulation impacts identified in the Monterey County 2006 General Plan Final EIR for Mark R. Wolfe & Associates (12/2006)

- Provided expert witness evaluation of traffic and circulation impacts identified in the EIS, Traffic Impact Report, and Updates for the Turtle Bay Resort Expansion Project on the North Shore of Oahu for Alston Hunt Floyd & Ing (9/2006 to 11/2006)

- Prepared trip generation study for a bank and separate drive through bank facility in Century City in the City of Los Angeles for Tract No. 7260 Association (11/2006)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR and Traffic Impact Study for the Rio Vista Riverwalk Project in the City of Rio Vista for Adams Broadwell Joseph & Cardozo (11/2006)

- Prepared critique of traffic and parking impacts identified in the Traffic Impact Analysis for the Providence Medical Center Expansion Project in the City of Los Angeles for Weinberg, Roger & Rosenfeld (11/2006)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Impact Analysis for the Chula Vista Bayfront Master Plan (Gaylord Resort Project) in the City of Chula Vista for Adams Broadwell Joseph & Cardozo (10/2006 to 11/2006)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Impact Study for the Antioch Wal-Mart Expansion Project in the City of Antioch for Mark R. Wolfe & Associates (6/2006 to 8/2006); prepared rebuttal to responses to comments in the Final EIR (9/2006 to 10/2006)

- Prepared critique of traffic and parking impacts identified in the Draft EIR and various supporting technical studies for the Solana Beach Train Station Mixed Use Project in the City of Solana Beach for area residents (6/2006 to 9/2006)

- Prepared critique of the traffic and circulation impacts identified in the Revised Partial Draft EIR and the Traffic Study for the Gregory Canyon Landfill Project in San Diego County (7/2006 to 8/2006)

- Prepared critique of the traffic and circulation impacts identified in the Conditional Use Permit Application for Altamont Motorsports Park in Alameda County for Mark R. Wolfe & Associates (6/2006)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR for the Delano Marketplace Project in the City of Delano for Mark R. Wolfe & Associates (5/2006)

- Prepared response to Initial Study/Notice of Preparation of a Draft EIR for 483 condominiums proposed in three high rise towers in Century City in the City of Los Angeles for Tract No. 7260 Association (6/2005); prepared critique of the Draft EIR for the 10131 Constellation Boulevard Project proposed by JMB (12/2005 to 1/2006); reviewed responses to comments in the Final EIR (5/2006)

- Conducted study which developed traffic engineering measures as well as potential enforcement and legislative actions to deter excessive speeding on Stunt Road adjacent to Calabasas in Los Angeles County for area residents (9/2005 to 4/2006)

- Prepared critique of the Draft EIR and Traffic Impact Analysis for the Rancho Santa Fe Elementary School Project in San Diego County for Coast Law Group (9/2005); prepared rebuttal to responses to comments in the Final EIR (2/2006 to 3/2006)

- Prepared critique of the traffic, circulation, and parking impacts identified in the Traffic Impact Analysis for Los Angeles Unified School District Valley Elementary School #8 in the City of San Fernando (1/2006)

- Prepared critique of the traffic impacts identified in the Focused EIR and Traffic Impact Analysis for the Temecula Regional Hospital Project in the City of Temecula for Adams Broadwell Joseph & Cardozo (10/2005); prepared rebuttal to responses to comments in the Final EIR (1/2006)

- Prepared critiques of the traffic impacts identified in the Draft EIR and in the Revised Draft EIR for the Central Larkspur Specific Plan in the City of Larkspur and prepared responses to comments in the Final EIR for Shute, Mihaly, & Weinberger (7/2002 to 8/2002, 12/2003 to 2/2004, 1/2005 to 3/2005, and 12/2005 to 1/2006)

- Conducted Traffic Impact Analyses for the Sacred Heart Church and School Master Plan in the City of Palm Desert including presentations to community residents and testimony at Public Hearings before the City Council (3/2005 to 12/2005)

- Prepared critique of traffic impacts identified in the Final EIR and Traffic Study for the Preserve at San Marcos Project in Santa Barbara County for the San Marcos Foothill Coalition (10/2005 to 11/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Borden Ranch Surface Mining Project in Sacramento County for Weinberg, Roger & Rosenfeld (11/2005)

- Prepared critiques of the Mitigated Negative Declaration and Traffic Impact Analysis and of these documents as revised for the Providence Center Specific Plan in the City of Fullerton for Shute, Mihaly, & Weinberger (6/2005 to 7/2005; 11/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Blue Rock Quarry Expansion near the Town of Forestville in Sonoma County for Weinberg, Roger & Rosenfeld (10/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Study for the Oak to Ninth Project in the City of Oakland for Mark R. Wolfe & Associates (9/2005 to 10/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the East Cypress Corridor Specific Plan Project adjacent to the City of Oakley in Contra Costa County for Adams Broadwell Joseph & Cardozo (9/2005 to 10/2005)

- Prepared critique of the Mitigated Negative Declaration for the Providence Medical Center Expansion Project in the City of Los Angeles for Shute, Mihaly, & Weinberger (9/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the University District Specific Plan Project adjacent to the City of Rohnert Park in Sonoma County for Mark R. Wolfe & Associates (9/2005)

- Prepared preliminary critique of the traffic impacts identified in the Draft Subsequent EIR for the Mare Island Specific Plan Project in the City of Vallejo for Adams Broadwell Joseph & Cardozo (9/2005)

- Prepared critique of the traffic portions of the Revised EIR and the traffic study of the Deer Creek Park 2 Project in the County of Nevada for Shute, Mihaly, & Weinberger and the City of Nevada City (8/2005 to 9/2005)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR and traffic study for the Prewett Ranch Project in the City of Brentwood for Adams Broadwell Joseph & Cardozo (7/2005)

- Prepared critique of the traffic and circulation sections of the Draft Subsequent EIR of the County of Ventura Focused General Plan Update and prepared rebuttal to responses for Shute, Mihaly, & Weinberger and the Community of Somis (12/2004 to 1/2005; 6/2005)

- Prepared critique of the traffic and parking impacts identified in the Draft EIR and Traffic Impact Analysis for the Long Beach Memorial Medical Center Expansion in the City of Long Beach for Weinberg, Roger & Rosenfeld (2/2005 to 5/2005)

- Prepared critique of the Draft EIR and traffic study for the Villages at Fairfield Project in the City of Fairfield for Adams Broadwell Joseph & Cardozo (4/2005 to 5/2005)

- Prepared critique of the traffic, circulation, and parking impacts identified in the Traffic Impact Analysis for Los Angeles Unified School District Valley High School #5 in the City of San Fernando (4/2005)

- Prepared critique of the transportation, circulation, and parking impacts identified in the Draft EIR and the Final EIR for the Wood Street Project in the City of Oakland for the East Bay Community Law Center (3/2005)

- Conducted City wide engineering and traffic surveys confirming enforceable speed limits on 31 street segments for the City of San Fernando (1/2005 to 3/2005)

- Checked plans for traffic signal installations and modifications as well as signing and striping revisions for various projects for Engineering Resources of Southern California and the Cities of Hemet and Palm Springs (12/2003 to 3/2005)

- Prepared critique of the Initial Study and traffic study prepared for the Hidden Canyon (Greenfield) Quarry Use Permit and Reclamation Plan in Monterey County for Weinberg, Roger & Rosenfeld (2/2005)

- Prepared critiques of the traffic impacts identified in the Los Angeles International Airport Master Plan Draft EIS/EIR for Alternatives A, B, and C and in the Supplement Draft EIS/EIR for Alternative D, prepared responses to comments in the Final EIS/EIR, and reviewed Addendum #3 for Shute, Mihaly, & Weinberger and the City of El Segundo (2/2001 to 7/2001, 7/2003 to 10/2003, 11/2004, and 12/2004)

- Prepared critique of the Traffic Study for the 450-460 North Palm Drive Senior Housing Residential Project in the City of Beverly Hills for Luna & Glushon (11/2004)

- Prepared critique of the Draft EIR and traffic study and provided testimony at a public hearing regarding the West Los Angeles College Facilities Master Plan in Los Angeles County for Culver Crest Neighborhood Association (10/2004 to 12/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis as well as subsequent rebuttal to responses to these comments in the Final EIR for The Ranch Plan in the County of Orange for the Endangered Habitats League (6/2004 to 7/2004 and 10/2004)

- Prepared preliminary critique of the Draft EIR and traffic study for the Chandler Ranch Specific Plan Project in the City of Paso Robles for Adams Broadwell Joseph & Cardozo (9/2004)

- Prepared critique of the Draft EIR and traffic report associated with the Magnolia Park Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (9/2004)

- Prepared critique of the traffic impacts identified in the Recirculated Draft EIR and traffic study for the McKean Road Sports Complex in Santa Clara County for Shute, Mihaly, & Weinberger (9/2004)

- Prepared critique of the Environmental Assessment for Robie Ranch Reclamation Project in Calaveras County for Weinberg, Roger & Rosenfeld (9/2004)

- Provided expert assistance to residents in the City of La Mirada during settlement negotiations regarding litigation involving the Big T Residential Development Project in the City of Buena Park (6/2004 to 9/2004)

- Prepared critique of the traffic impacts identified in the Recirculated Draft EIR and the associated traffic study for the Lake Jennings Ralph's Shopping Center in San Diego County for SOFAR and Shute, Mihaly, & Weinberger (8/2004)

- Reviewed Traffic Impact Study prepared for the San Fernando Corridors Specific Plan for the City of San Fernando (7/2004 to 8/2004)

- Prepared critique of the Negative Declaration for the Brisbane Recycling Project in the City of Brisbane for Weinberg, Roger & Rosenfeld (6/2004)

- Reviewed various alternative alignments for the extension of Lexington Drive from Cerritos Avenue to Katella Avenue, a proposed secondary highway, for the City of Los Alamitos; provided expert assistance to the City of Los Alamitos during settlement negotiations regarding litigation of the proposed Cottonwood Christian Center Project in the City of Cypress (4/2004 to 6/2004)

- Prepared critique of the Draft EIR and the associated traffic impact study for the Jaxon Enterprises Mine and Reclamation Expansion Project in the County of Merced for Weinberg, Roger & Rosenfeld (5/2004)

- Prepared critique of the Environmental Secondary Study for the Santa Fe Parcel 6 Mixed Use Project in the City of San Diego for Adams Broadwell Joseph & Cardozo (4/2004 to 5/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis for the for the San Mateo Rail Corridor Plan & Bay Meadows Specific Plan Amendment in the City of San Mateo for Adams Broadwell Joseph & Cardozo (3/2004 to 5/2004)

- Reviewed the Edinger Corridor Specific Plan Traffic Analysis for the proposed redevelopment and intensification of adjacent land uses for the City of Huntington Beach (12/2003, 4/2004, and 5/2004)

- Conducted the Traffic Impact Study of the San Fernando Regional Pool Facility Project and the associated street improvements for the City of San Fernando (3/2004 to 4/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated traffic study for the Pixar Headquarters Expansion in the City of Emeryville for Shute, Mihaly, & Weinberger (3/2004 to 4/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis for the Lower Lagoon Valley Specific Plan in the City of Vacaville for Adams Broadwell Joseph & Cardozo (3/2004 to 4/2004)

- Conducted the Traffic Study of Two Parking Alternatives for the City of San Dimas to provide on street parking to complement potential retail/residential development on the east side of San Dimas Avenue north of Arrow Highway (12/2003 to 4/2004)

- Prepared trip generation calculations for various retail and "Big Box" stores in conjunction with a March 2004 ballot measure in Contra Costa County for Mark R. Wolfe & Associates (1/2004 to 2/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated transportation impact analysis for the S&S Farms and Hancock Property Residential Development Plan in the City of Brentwood for Adams Broadwell Joseph & Cardozo (2/2004)

- Prepared critiques of the traffic impacts identified in the Mitigated Negative Declarations as well as subsequent rebuttal to responses to these comments for the Bayfront Live Work Project in the City of Hercules for Adams Broadwell Joseph & Cardozo (4/2003, 10/2003, and 2/2004)

- Conducted the City Wide Traffic Calming Study of Residential Streets in the City of San Fernando including development of traffic calming guidelines and specific recommendations addressing over 70 "Hot Spots" throughout the City including monthly presentations at Transportation & Safety Commission meetings and a presentation of the Final Report to the City Council (5/2003 to 1/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated transportation analysis for the Cottonwood Christian Center in the City of Cypress for the City of Los Alamitos (1/2004)

- Prepared critique of the Recirculated Draft EIR and the associated transportation analysis for the Sand Creek Specific Plan in the City of Antioch for Adams Broadwell Joseph & Cardozo (1/2004)

- Prepared critique of the Initial Study and the associated traffic impact studies for the West Dublin Transit Village in the City of Dublin for Adams Broadwell Joseph & Cardozo (11/2003 to 1/2004)

- Prepared critiques of the Initial Study and the Recirculated Initial Study/General Plan Amendment and Rezoning for the Jack Parker Trucking Site in the City of San Pablo for Adams Broadwell Joseph & Cardozo (9/2003 and 11/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and rebuttal to responses to comments in the Final EIR for the proposed Wal-Mart in the City of Fremont for Mark R. Wolfe & Associates (7/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses in the Final EIR, and testimony at a public hearing regarding the Alpine Village Shopping Center in San Diego County for Shute, Mihaly, & Weinberger (6/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses in the Final EIR, testimony at public hearings, and assistance during settlement negotiations regarding the 2000 Avenue of the Stars Project in Century City in the City of Los Angeles for Tract No. 7260 Association (9/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Glen Loma Ranch Project in the City of Gilroy for Adams Broadwell Joseph & Cardozo (9/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Ryder Homes Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (9/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Ravenswood Residential Project in Contra Costa County for Adams Broadwell Joseph & Cardozo (8/2003 to 9/2003)

- Prepared critique of the traffic impacts identified in the Draft Subsequent EIR for the proposed Boronda Crossing Commercial Project in the City of Salinas for Mark R. Wolfe & Associates (8/2002 to 9/2003)

- Prepared four grant applications to Caltrans for $1,115,000 of Hazard Elimination Safety funding to modify traffic signals and to upgrade regulatory, warning, and street name signs in the City of Santa Ana (3/2003 to 8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Bluerock Business Center Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Clark Road Residential Project in the City of Richmond for Adams Broadwell Joseph & Cardozo (8/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Sky Ranch Residential Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (7/2003 to 8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Cal Poly Student Housing North Project in the City of San Luis Obispo for Adams Broadwell Joseph & Cardozo (7/2003)

- Prepared critique of the traffic impacts identified in the Final EIR for the Lake Jennings Ralph's Shopping Center in San Diego County for SOFAR and Shute, Mihaly, & Weinberger (3/2003 to 7/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Cypress Grove Residential Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (6/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the McKean Road Sports Complex in Santa Clara County for Shute, Mihaly, & Weinberger (5/2003)

- Prepared grant application to Caltrans for $448,000 of Safe Route to School funding to upgrade all school signs at 68 public and private schools in the City of Santa Ana (3/2003 to 5/2003)

- Prepared critique of the traffic impacts identified in the Traffic Impact Analysis for the Blossom Valley Middle School for the Dunbar Lane Task Force in San Diego County (4/2003 to 5/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Bettencourt Ranch Aggregate Mining Project in Merced County for Weinberg, Roger & Rosenfeld (4/2003)

- Conducted a complete review of the General Plan Circulation Element for the City of Huntington Beach including comparisons to the Orange County Transportation Authority's Master Plan of Arterial Streets and drafted a Request for Proposal to update the City's Circulation Element (8/2002 to 4/2003)

- Prepared critique of the traffic impacts identified in the Traffic Impact Analysis for the proposed Wal-Mart in the City of Gilroy for Mark R. Wolfe & Associates (2/2003 to 3/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Waterfront/Downtown Mixed Use Project in the City of Vallejo for Adams Broadwell Joseph & Cardozo (2/2003)

- Provided expert witness evaluation of the traffic impacts caused by simultaneous construction of various Alameda Corridor Transportation Authority projects for Sullivan, Workman, & Dee (12/2002 to 2/2003)

- Conducted 12 training sessions in Urban Street Design Fundamentals for the Engineering Department staff in the City of Torrance (4/2001 to 4/2002 and 10/2002 to 12/2002)

- Prepared critique of the traffic impacts identified in the Transportation Impact Study for the Western Research Campus in the City of Richmond in Contra Costa County for Adams Broadwell Joseph & Cardozo (11/2002)

- Evaluated Conditions of Approval for the proposed intersection of Mulholland Highway and Hazel Nut Court in Los Angeles County and provided testimony to the Board of Supervisors for Seminole Springs Mobile Home Park (11/2002)

- Reviewed the Traffic Impact Analysis prepared for the Pacific City Project for the City of Huntington Beach (9/2002)

- Prepared critique of the traffic impacts identified in the Draft EIR for North Yorba Linda Estates in the City of Yorba Linda for Shute, Mihaly, and Weinberger (9/2002)

- Conducted the Hacienda Road Traffic Calming Study and presented the final report at locally televised meetings of the Traffic Committee and the City Council in the City of La Habra Heights (10/2001 to 9/2002)

- Prepared critique of the traffic impacts identified in Initial Studies with Traffic Impact Analyses for three residential subdivisions in the City of Pittsburg for Adams Broadwell Joseph & Cardozo (8/2002)

- Conducted the City Wide Traffic Safety Study and presented the final report at meetings of the Traffic Committee and the City Council in the City of Rolling Hills Estates (4/2001 to 5/2002)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses, and testimony at a public hearing regarding extensions of Corona and Valley View Avenues in the City of Norco for C. Robert Ferguson (1/2002 to 4/2002)

- Prepared critique of the traffic impacts identified in the Draft Initial Study and Environmental Assessment, rebuttal to responses, and testimony at public hearings before the Ventura County Board of Supervisors regarding intersection improvements proposed by Caltrans at State Route 118/State Route 34 in Ventura County for the Community of Somis (12/2000 to 10/2001)

Tom Brohard, PE

Licenses:	1975 / Professional Engineer / California – Civil, No. 24577 1977 / Professional Engineer / California – Traffic, No. 724 2006 / Professional Engineer / Hawaii – Civil, No. 12321
Education:	BSE / Civil Engineering / Duke University / 1969
Experience:	36 Years
Memberships:	Institute of Transportation Engineers – Fellow, Life Orange County Traffic Engineers Council - Chair 1979-1980 American Public Works Association - Member

Tom is a recognized expert in the field of traffic engineering and transportation planning. His background also includes responsibility for leading and managing the delivery of various contract services to numerous cities in Southern California.

Tom has extensive experience in providing transportation planning and traffic engineering services to public agencies. Since May 2005, he has served Indio as City Traffic Engineer three days per week. He also provides "on call" Consulting Traffic and Transportation Engineer services to the Cities of Big Bear Lake and San Fernando as well as to Riverside County. In addition to conducting traffic engineering investigations for Los Angeles County from 1972 to 1978, he has previously served as City Traffic Engineer in these communities:

- Bellflower ..... 1997 - 1998
- Bell Gardens ..... 1982 - 1995
- Huntington Beach ..... 1998 - 2004
- Lawndale ..... 1973 - 1978
- Los Alamitos ..... 1981 - 1982
- Oceanside ..... 1981 - 1982
- Paramount ..... 1982 - 1988
- Rancho Palos Verdes ..... 1973 - 1978
- Rolling Hills ..... 1973 - 1978, 1985 - 1993
- Rolling Hills Estates ..... 1973 - 1978, 1984 - 1991
- San Marcos 1981
- Santa Ana ..... 1978 - 1981
- Westlake Village ..... 1983 - 1994

During these assignments, Tom has supervised City staff and directed other consultants including traffic engineers and transportation planners, traffic signal and street lighting personnel, and signing, striping, and marking crews. He has secured over $5 million in grant funding for various improvements. He has managed and directed many traffic and transportation studies and projects. While serving these communities, he has personally conducted investigations of hundreds of citizen requests for various traffic control devices. Tom has also successfully presented numerous engineering reports at City Council, Planning Commission, and Traffic Commission meetings in these and other municipalities.

Since forming Tom Brohard and Associates in 2000, Tom has also reviewed many traffic impact reports and environmental documents for various development projects. He has provided expert witness services and also prepared traffic studies for public agencies and private sector clients. Some of these significant accomplishments during the last five years include the following:

- Prepared critique of the traffic impacts identified in the Addendum to the Program EIR and Transportation Analysis for the Davidon Homes Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (1/2007)

- Prepared critique of the traffic and circulation impacts identified in the Monterey County 2006 General Plan Final EIR for Mark R. Wolfe & Associates (12/2006)

- Provided expert witness evaluation of traffic and circulation impacts identified in the EIS, Traffic Impact Report, and Updates for the Turtle Bay Resort Expansion Project on the North Shore of Oahu for Alston Hunt Floyd & Ing (9/2006 to 11/2006)

- Prepared trip generation study for a bank and separate drive through bank facility in Century City in the City of Los Angeles for Tract No. 7260 Association (11/2006)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR and Traffic Impact Study for the Rio Vista Riverwalk Project in the City of Rio Vista for Adams Broadwell Joseph & Cardozo (11/2006)

- Prepared critique of traffic and parking impacts identified in the Traffic Impact Analysis for the Providence Medical Center Expansion Project in the City of Los Angeles for Weinberg, Roger & Rosenfeld (11/2006)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Impact Analysis for the Chula Vista Bayfront Master Plan (Gaylord Resort Project) in the City of Chula Vista for Adams Broadwell Joseph & Cardozo (10/2006 to 11/2006)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Impact Study for the Antioch Wal-Mart Expansion Project in the City of Antioch for Mark R. Wolfe & Associates (6/2006 to 8/2006); prepared rebuttal to responses to comments in the Final EIR (9/2006 to 10/2006)

- Prepared critique of traffic and parking impacts identified in the Draft EIR and various supporting technical studies for the Solana Beach Train Station Mixed Use Project in the City of Solana Beach for area residents (6/2006 to 9/2006)

- Prepared critique of the traffic and circulation impacts identified in the Revised Partial Draft EIR and the Traffic Study for the Gregory Canyon Landfill Project in San Diego County (7/2006 to 8/2006)

- Prepared critique of the traffic and circulation impacts identified in the Conditional Use Permit Application for Altamont Motorsports Park in Alameda County for Mark R. Wolfe & Associates (6/2006)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR for the Delano Marketplace Project in the City of Delano for Mark R. Wolfe & Associates (5/2006)

- Prepared response to Initial Study/Notice of Preparation of a Draft EIR for 483 condominiums proposed in three high rise towers in Century City in the City of Los Angeles for Tract No. 7260 Association (6/2005); prepared critique of the Draft EIR for the 10131 Constellation Boulevard Project proposed by JMB (12/2005 to 1/2006); reviewed responses to comments in the Final EIR (5/2006)

- Conducted study which developed traffic engineering measures as well as potential enforcement and legislative actions to deter excessive speeding on Stunt Road adjacent to Calabasas in Los Angeles County for area residents (9/2005 to 4/2006)

- Prepared critique of the Draft EIR and Traffic Impact Analysis for the Rancho Santa Fe Elementary School Project in San Diego County for Coast Law Group (9/2005); prepared rebuttal to responses to comments in the Final EIR (2/2006 to 3/2006)

- Prepared critique of the traffic, circulation, and parking impacts identified in the Traffic Impact Analysis for Los Angeles Unified School District Valley Elementary School #8 in the City of San Fernando (1/2006)

- Prepared critique of the traffic impacts identified in the Focused EIR and Traffic Impact Analysis for the Temecula Regional Hospital Project in the City of Temecula for Adams Broadwell Joseph & Cardozo (10/2005); prepared rebuttal to responses to comments in the Final EIR (1/2006)

- Prepared critiques of the traffic impacts identified in the Draft EIR and in the Revised Draft EIR for the Central Larkspur Specific Plan in the City of Larkspur and prepared responses to comments in the Final EIR for Shute, Mihaly, & Weinberger (7/2002 to 8/2002, 12/2003 to 2/2004, 1/2005 to 3/2005, and 12/2005 to 1/2006)

- Conducted Traffic Impact Analyses for the Sacred Heart Church and School Master Plan in the City of Palm Desert including presentations to community residents and testimony at Public Hearings before the City Council (3/2005 to 12/2005)

- Prepared critique of traffic impacts identified in the Final EIR and Traffic Study for the Preserve at San Marcos Project in Santa Barbara County for the San Marcos Foothill Coalition (10/2005 to 11/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Borden Ranch Surface Mining Project in Sacramento County for Weinberg, Roger & Rosenfeld (11/2005)

- Prepared critiques of the Mitigated Negative Declaration and Traffic Impact Analysis and of these documents as revised for the Providence Center Specific Plan in the City of Fullerton for Shute, Mihaly, & Weinberger (6/2005 to 7/2005; 11/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Blue Rock Quarry Expansion near the Town of Forestville in Sonoma County for Weinberg, Roger & Rosenfeld (10/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR and Traffic Study for the Oak to Ninth Project in the City of Oakland for Mark R. Wolfe & Associates (9/2005 to 10/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the East Cypress Corridor Specific Plan Project adjacent to the City of Oakley in Contra Costa County for Adams Broadwell Joseph & Cardozo (9/2005 to 10/2005)

- Prepared critique of the Mitigated Negative Declaration for the Providence Medical Center Expansion Project in the City of Los Angeles for Shute, Mihaly, & Weinberger (9/2005)

- Prepared critique of the traffic impacts identified in the Draft EIR for the University District Specific Plan Project adjacent to the City of Rohnert Park in Sonoma County for Mark R. Wolfe & Associates (9/2005)

- Prepared preliminary critique of the traffic impacts identified in the Draft Subsequent EIR for the Mare Island Specific Plan Project in the City of Vallejo for Adams Broadwell Joseph & Cardozo (9/2005)

- Prepared critique of the traffic portions of the Revised EIR and the traffic study of the Deer Creek Park 2 Project in the County of Nevada for Shute, Mihaly, & Weinberger and the City of Nevada City (8/2005 to 9/2005)

- Prepared preliminary critique of the traffic impacts identified in the Draft EIR and traffic study for the Prewett Ranch Project in the City of Brentwood for Adams Broadwell Joseph & Cardozo (7/2005)

- Prepared critique of the traffic and circulation sections of the Draft Subsequent EIR of the County of Ventura Focused General Plan Update and prepared rebuttal to responses for Shute, Mihaly, & Weinberger and the Community of Somis (12/2004 to 1/2005; 6/2005)

- Prepared critique of the traffic and parking impacts identified in the Draft EIR and Traffic Impact Analysis for the Long Beach Memorial Medical Center Expansion in the City of Long Beach for Weinberg, Roger & Rosenfeld (2/2005 to 5/2005)

- Prepared critique of the Draft EIR and traffic study for the Villages at Fairfield Project in the City of Fairfield for Adams Broadwell Joseph & Cardozo (4/2005 to 5/2005)

- Prepared critique of the traffic, circulation, and parking impacts identified in the Traffic Impact Analysis for Los Angeles Unified School District Valley High School #5 in the City of San Fernando (4/2005)

- Prepared critique of the transportation, circulation, and parking impacts identified in the Draft EIR and the Final EIR for the Wood Street Project in the City of Oakland for the East Bay Community Law Center (3/2005)

- Conducted City wide engineering and traffic surveys confirming enforceable speed limits on 31 street segments for the City of San Fernando (1/2005 to 3/2005)

- Checked plans for traffic signal installations and modifications as well as signing and striping revisions for various projects for Engineering Resources of Southern California and the Cities of Hemet and Palm Springs (12/2003 to 3/2005)

- Prepared critique of the Initial Study and traffic study prepared for the Hidden Canyon (Greenfield) Quarry Use Permit and Reclamation Plan in Monterey County for Weinberg, Roger & Rosenfeld (2/2005)

- Prepared critiques of the traffic impacts identified in the Los Angeles International Airport Master Plan Draft EIS/EIR for Alternatives A, B, and C and in the Supplement Draft EIS/EIR for Alternative D, prepared responses to comments in the Final EIS/EIR, and reviewed Addendum #3 for Shute, Mihaly, & Weinberger and the City of El Segundo (2/2001 to 7/2001, 7/2003 to 10/2003, 11/2004, and 12/2004)

- Prepared critique of the Traffic Study for the 450-460 North Palm Drive Senior Housing Residential Project in the City of Beverly Hills for Luna & Glushon (11/2004)

- Prepared critique of the Draft EIR and traffic study and provided testimony at a public hearing regarding the West Los Angeles College Facilities Master Plan in Los Angeles County for Culver Crest Neighborhood Association (10/2004 to 12/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis as well as subsequent rebuttal to responses to these comments in the Final EIR for The Ranch Plan in the County of Orange for the Endangered Habitats League (6/2004 to 7/2004 and 10/2004)

- Prepared preliminary critique of the Draft EIR and traffic study for the Chandler Ranch Specific Plan Project in the City of Paso Robles for Adams Broadwell Joseph & Cardozo (9/2004)

- Prepared critique of the Draft EIR and traffic report associated with the Magnolia Park Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (9/2004)

- Prepared critique of the traffic impacts identified in the Recirculated Draft EIR and traffic study for the McKean Road Sports Complex in Santa Clara County for Shute, Mihaly, & Weinberger (9/2004)

- Prepared critique of the Environmental Assessment for Robie Ranch Reclamation Project in Calaveras County for Weinberg, Roger & Rosenfeld (9/2004)

- Provided expert assistance to residents in the City of La Mirada during settlement negotiations regarding litigation involving the Big T Residential Development Project in the City of Buena Park (6/2004 to 9/2004)

- Prepared critique of the traffic impacts identified in the Recirculated Draft EIR and the associated traffic study for the Lake Jennings Ralph's Shopping Center in San Diego County for SOFAR and Shute, Mihaly, & Weinberger (8/2004)

- Reviewed Traffic Impact Study prepared for the San Fernando Corridors Specific Plan for the City of San Fernando (7/2004 to 8/2004)

- Prepared critique of the Negative Declaration for the Brisbane Recycling Project in the City of Brisbane for Weinberg, Roger & Rosenfeld (6/2004)

- Reviewed various alternative alignments for the extension of Lexington Drive from Cerritos Avenue to Katella Avenue, a proposed secondary highway, for the City of Los Alamitos; provided expert assistance to the City of Los Alamitos during settlement negotiations regarding litigation of the proposed Cottonwood Christian Center Project in the City of Cypress (4/2004 to 6/2004)

- Prepared critique of the Draft EIR and the associated traffic impact study for the Jaxon Enterprises Mine and Reclamation Expansion Project in the County of Merced for Weinberg, Roger & Rosenfeld (5/2004)

- Prepared critique of the Environmental Secondary Study for the Santa Fe Parcel 6 Mixed Use Project in the City of San Diego for Adams Broadwell Joseph & Cardozo (4/2004 to 5/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis for the for the San Mateo Rail Corridor Plan & Bay Meadows Specific Plan Amendment in the City of San Mateo for Adams Broadwell Joseph & Cardozo (3/2004 to 5/2004)

- Reviewed the Edinger Corridor Specific Plan Traffic Analysis for the proposed redevelopment and intensification of adjacent land uses for the City of Huntington Beach (12/2003, 4/2004, and 5/2004)

- Conducted the Traffic Impact Study of the San Fernando Regional Pool Facility Project and the associated street improvements for the City of San Fernando (3/2004 to 4/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated traffic study for the Pixar Headquarters Expansion in the City of Emeryville for Shute, Mihaly, & Weinberger (3/2004 to 4/2004)

- Prepared critique of the Draft EIR and the associated traffic impact analysis for the Lower Lagoon Valley Specific Plan in the City of Vacaville for Adams Broadwell Joseph & Cardozo (3/2004 to 4/2004)

- Conducted the Traffic Study of Two Parking Alternatives for the City of San Dimas to provide on street parking to complement potential retail/residential development on the east side of San Dimas Avenue north of Arrow Highway (12/2003 to 4/2004)

- Prepared trip generation calculations for various retail and "Big Box" stores in conjunction with a March 2004 ballot measure in Contra Costa County for Mark R. Wolfe & Associates (1/2004 to 2/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated transportation impact analysis for the S&S Farms and Hancock Property Residential Development Plan in the City of Brentwood for Adams Broadwell Joseph & Cardozo (2/2004)

- Prepared critiques of the traffic impacts identified in the Mitigated Negative Declarations as well as subsequent rebuttal to responses to these comments for the Bayfront Live Work Project in the City of Hercules for Adams Broadwell Joseph & Cardozo (4/2003, 10/2003, and 2/2004)

- Conducted the City Wide Traffic Calming Study of Residential Streets in the City of San Fernando including development of traffic calming guidelines and specific recommendations addressing over 70 "Hot Spots" throughout the City including monthly presentations at Transportation & Safety Commission meetings and a presentation of the Final Report to the City Council (5/2003 to 1/2004)

- Prepared critique of the Initial Study/Mitigated Negative Declaration and the associated transportation analysis for the Cottonwood Christian Center in the City of Cypress for the City of Los Alamitos (1/2004)

- Prepared critique of the Recirculated Draft EIR and the associated transportation analysis for the Sand Creek Specific Plan in the City of Antioch for Adams Broadwell Joseph & Cardozo (1/2004)

- Prepared critique of the Initial Study and the associated traffic impact studies for the West Dublin Transit Village in the City of Dublin for Adams Broadwell Joseph & Cardozo (11/2003 to 1/2004)

- Prepared critiques of the Initial Study and the Recirculated Initial Study/General Plan Amendment and Rezoning for the Jack Parker Trucking Site in the City of San Pablo for Adams Broadwell Joseph & Cardozo (9/2003 and 11/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and rebuttal to responses to comments in the Final EIR for the proposed Wal-Mart in the City of Fremont for Mark R. Wolfe & Associates (7/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses in the Final EIR, and testimony at a public hearing regarding the Alpine Village Shopping Center in San Diego County for Shute, Mihaly, & Weinberger (6/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses in the Final EIR, testimony at public hearings, and assistance during settlement negotiations regarding the 2000 Avenue of the Stars Project in Century City in the City of Los Angeles for Tract No. 7260 Association (9/2002 to 10/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Glen Loma Ranch Project in the City of Gilroy for Adams Broadwell Joseph & Cardozo (9/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Ryder Homes Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (9/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Ravenswood Residential Project in Contra Costa County for Adams Broadwell Joseph & Cardozo (8/2003 to 9/2003)

- Prepared critique of the traffic impacts identified in the Draft Subsequent EIR for the proposed Boronda Crossing Commercial Project in the City of Salinas for Mark R. Wolfe & Associates (8/2002 to 9/2003)

- Prepared four grant applications to Caltrans for $1,115,000 of Hazard Elimination Safety funding to modify traffic signals and to upgrade regulatory, warning, and street name signs in the City of Santa Ana (3/2003 to 8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Bluerock Business Center Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Clark Road Residential Project in the City of Richmond for Adams Broadwell Joseph & Cardozo (8/2003)

- Prepared critique of the traffic impacts identified in the Initial Study and the Traffic Impact Analysis for the Sky Ranch Residential Project in the City of Antioch for Adams Broadwell Joseph & Cardozo (7/2003 to 8/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Cal Poly Student Housing North Project in the City of San Luis Obispo for Adams Broadwell Joseph & Cardozo (7/2003)

- Prepared critique of the traffic impacts identified in the Final EIR for the Lake Jennings Ralph's Shopping Center in San Diego County for SOFAR and Shute, Mihaly, & Weinberger (3/2003 to 7/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Cypress Grove Residential Project in the City of Oakley for Adams Broadwell Joseph & Cardozo (6/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the McKean Road Sports Complex in Santa Clara County for Shute, Mihaly, & Weinberger (5/2003)

- Prepared grant application to Caltrans for $448,000 of Safe Route to School funding to upgrade all school signs at 68 public and private schools in the City of Santa Ana (3/2003 to 5/2003)

- Prepared critique of the traffic impacts identified in the Traffic Impact Analysis for the Blossom Valley Middle School for the Dunbar Lane Task Force in San Diego County (4/2003 to 5/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR and the Traffic Impact Analysis for the Bettencourt Ranch Aggregate Mining Project in Merced County for Weinberg, Roger & Rosenfeld (4/2003)

- Conducted a complete review of the General Plan Circulation Element for the City of Huntington Beach including comparisons to the Orange County Transportation Authority's Master Plan of Arterial Streets and drafted a Request for Proposal to update the City's Circulation Element (8/2002 to 4/2003)

- Prepared critique of the traffic impacts identified in the Traffic Impact Analysis for the proposed Wal-Mart in the City of Gilroy for Mark R. Wolfe & Associates (2/2003 to 3/2003)

- Prepared critique of the traffic impacts identified in the Draft EIR for the Waterfront/Downtown Mixed Use Project in the City of Vallejo for Adams Broadwell Joseph & Cardozo (2/2003)

- Provided expert witness evaluation of the traffic impacts caused by simultaneous construction of various Alameda Corridor Transportation Authority projects for Sullivan, Workman, & Dee (12/2002 to 2/2003)

- Conducted 12 training sessions in Urban Street Design Fundamentals for the Engineering Department staff in the City of Torrance (4/2001 to 4/2002 and 10/2002 to 12/2002)

- Prepared critique of the traffic impacts identified in the Transportation Impact Study for the Western Research Campus in the City of Richmond in Contra Costa County for Adams Broadwell Joseph & Cardozo (11/2002)

- Evaluated Conditions of Approval for the proposed intersection of Mulholland Highway and Hazel Nut Court in Los Angeles County and provided testimony to the Board of Supervisors for Seminole Springs Mobile Home Park (11/2002)

- Reviewed the Traffic Impact Analysis prepared for the Pacific City Project for the City of Huntington Beach (9/2002)

- Prepared critique of the traffic impacts identified in the Draft EIR for North Yorba Linda Estates in the City of Yorba Linda for Shute, Mihaly, and Weinberger (9/2002)

- Conducted the Hacienda Road Traffic Calming Study and presented the final report at locally televised meetings of the Traffic Committee and the City Council in the City of La Habra Heights (10/2001 to 9/2002)

- Prepared critique of the traffic impacts identified in Initial Studies with Traffic Impact Analyses for three residential subdivisions in the City of Pittsburg for Adams Broadwell Joseph & Cardozo (8/2002)

- Conducted the City Wide Traffic Safety Study and presented the final report at meetings of the Traffic Committee and the City Council in the City of Rolling Hills Estates (4/2001 to 5/2002)

- Prepared critique of the traffic impacts identified in the Draft EIR, rebuttal to responses, and testimony at a public hearing regarding extensions of Corona and Valley View Avenues in the City of Norco for C. Robert Ferguson (1/2002 to 4/2002)

- Prepared critique of the traffic impacts identified in the Draft Initial Study and Environmental Assessment, rebuttal to responses, and testimony at public hearings before the Ventura County Board of Supervisors regarding intersection improvements proposed by Caltrans at State Route 118/State Route 34 in Ventura County for the Community of Somis (12/2000 to 10/2001)

Exhibit B

Comments Regarding Caltrans Air Quality Impacts and Discussion Within Environmental Review Documents

Ortega Highway Lane Widening Project
City of San Juan Capistrano,
Orange County, CA

August 31, 2007

Autumn Wind Associates, Inc.
Newcastle, CA

Comments below are submitted by Greg Gilbert, Autumn Wind Associates, Inc. in response to air quality analysis and information within environmental analysis documents for the proposed Mitigated Negative Declaration (MND) and Initial Study, issued by the California Department of Transportation (Caltrans) in July, 2007 for the State Route 74 Lower Ortega Highway Widening project (EA086900).

I. Introduction

As proposed, the State Route 74 Lower Ortega Highway ("Ortega Highway" or "Ortega") widening project will construct and add two new lanes, with various additional improvements, to approximately .9 miles of existing highway primarily within the city limits of San Juan Capistrano. Five intersections within that area would be modified or widened, sound walls and retaining walls would be added, new sidewalks would be added, and utilities would be modified as necessary to permit new lanes. Long-term, operational and cumulatively-significant emissions will increase, particularly since increased roadway capacity will permit greater numbers of vehicles to daily commute to jobs in Orange County from Riverside County while disproportionately affecting residents and citizens along the widening project area. Construction emissions are expected to occur over the eighteen-month development duration, projected in the MND for the period between 2008 and 2011.

Ortega environmental review documents largely fail to 1) quantitatively estimate project-related construction or operational emissions; 2) use or discuss CEQA thresholds against which to characterize criteria pollutants, diesel particulate emissions (DPM) impacts to sensitive receptors or local-regional air quality, or global warming; 3) review and select all reasonable, feasible mitigations to reduce impacts whenever possible; and 4) establish how insignificance was determined for operational and cumulative impacts and provide the rationale for failing to characterize construction emissions as either significant or insignificant. No air quality emission estimates or modeling were undertaken by the Lead Agency. Most of Air Quality Assessment is dedicated to evaluating impacts pertaining to transportation conformity. While transportation conformity analysis is a pre-requisite for FHWA and DOT funding, local and regional air impacts were inadequately reviewed since the conformity process involves only a minimal

portion of project-related emission impact analysis. The Lead Agency's approach to estimating Ortega's impacts solely through the prism of conformity with SCAG's transportation planning criteria *only* ensures that its incremental operational emission impacts have been studied and determined not to compromise SCAG's and FHWA's air quality-related objectives---but without ensuring that CEQA's interest in local or regional air impacts have been adequately reviewed. Reliance solely or nearly so on conformity impacts within the MND and Air Quality Assessment fail to provide the effective identification, estimation, and mitigation of construction and operational emission impacts envisioned by CEQA for the Ortega Highway project.

II. The MND Fails to Provide Sufficient Detail about Construction-Related Emissions.

At Ortega Highway Air Quality Assessment Section 5.1, pg 20, Caltrans states "Construction activities associated with the project are temporary and would last the duration of the Project construction", followed by "Short-term impacts to air quality would occur during minor grading/trenching, new pavement construction, and lane restriping." However, although construction emissions from certain types of equipment are described as "additional sources" of exhaust emissions and odors, the MND fails to provide detailed information with the type and numbers of equipment necessary to estimate and explain their significance of their air emissions impacts. No detailed information on construction phases or task activities to build components of the overall project is provided in the MND, despite cursory mention of extensive lengths and heights of retaining- and sound-walls that will be built along Ortega Highway. This lack of air quality input information prevents the Lead Agency and the public from performing comprehensive criteria pollutant emissions estimation and modeling. Moreover, the construction of sidewalks, new lanes, utility placements, and sound- and retaining-walls will require large amounts of diesel equipment activity to move soils, dig trenches, provide concrete for foundations and walls, provide paving, etc. Each phase and sub-phase of construction will produce discrete yet quantifiable emissions. As described below, emissions attributable to construction phases and sub-phases are routinely and readily modeled using URBEMIS or other means. For example, cut-and-fill soil yardages are commonly provided in projects involving substantial soil movement; emissions of vehicles involved with cut-and-fill activities are

routinely modeled as a sub-phase of construction in the URBEMIS land use emissions model. Similarly, soil transport can produce significant emissions, and these may be separately modeled with URBEMIS. No mention is made of the details of these phases or sub-phases, however, and their quantifiable emissions are unilaterally ignored in the Air Quality portion of the MND.

Simply declaring that project emissions are insignificant, without providing any specific and substantive data or discussion, fails to provide the level of analysis required to fully inform local residents and decisionmakers of the type and significance of the project's potential impacts. The failure to provide detailed project-related emissions information is particularly relevant because: (1) the South Coast air basin is consistently ranked as having the worst air quality in the country, has failed to attain air quality standards for decades; (2) construction equipment emits proportionally higher levels of toxic diesel particulate matter (DPM) due to their relatively recent regulation (1996); (3) diesel emissions produce roughly 71% of the total cancer risk in the basin[1]; and (4) project emissions will contribute incrementally to consistently poor local and regional air quality.

III. The MND Fails to Provide an Estimate of the Project's Construction or Operational Emissions Despite Readily Available and Commonly Used Methods and Models.

CEQA project review requires accurate identification and estimation of the project's significant emissions impacts, particularly to residents close to (and in some cases at less than one hundred feet from) the lane widening project. While Ortega's Air Quality Assessment at pg. 1 states that "standard construction practices" will be applied, it never states whether construction emissions will be significant either before or after their application. CEQA requires that the project's predictable impacts be evaluated for their individual and cumulative significance, yet no estimation of either construction or operational emissions was attempted by the Lead Agency. In fact, emissions estimation methods and models are readily available and routinely applied to

[1] South Coast Air Quality Management District. MATES-II Study, March 2000; http://www.aqmd.gov/matesiidf/matestoc.htm

other grading and paving projects in California's many air basins, and are recommended by SCAQMD (and other air districts around the State) for use by the Lead Agency.

A number of methods are routinely used to estimate project emissions. The URBEMIS land use emissions model recommended for use by SCAQMD, for example, provides a construction grading estimation module that permits use of default equipment profiles and activities, or to input project-specific equipment types and activities. URBEMIS is recommended by the California Air Resources Board (CARB) and SCAQMD to estimate emissions impacts involving offroad and onroad construction equipment emissions. Other methods are similarly available; the Road Building Emissions estimation model developed and routinely used by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and other air agencies is internet-accessible and permits focused emissions estimates developed specifically for road-building activities such as those envisioned for the Ortega Highway project. Many air district CEQA guidance documents contain long-hand methods to calculate construction emissions, including those of MBUAPCD, BAAQMD, and SMAQMD. The MND fails to mention URBEMIS, the Road Building Emissions model, or any other methods to calculate project emissions. Neither does the Lead Agency mention or even acknowledge relevant construction emissions estimation information from the Orange County Transportation Authority ("OCTA") as its guidance pertains to Ortega. OCTA EIR guidance is particularly pertinent to Ortega since OCTA is responsible for ensuring environmental impact consistency for road projects in Orange County, including the Ortega Highway widening project.

According to the OCTA Long-Range Transportation Plan EIR,[2] which analyzed the environmental impacts of a variety of road improvement projects (including the Ortega Highway widening) at a programmatic level, environmental analysis of construction-related emissions involves the following:

> "Construction emissions are based on the type and magnitude of development that would be accommodated under the project, the timeline for construction, the mix of construction equipment required to build the project, and emission factors from the SCAQMD CEQA

[2] Orange County Transportation Authority (OCTA), Orange County Transportation Authority 2006 Long-Range Transportation Plan, Final Program Environmental Impact Report, Vol. I. July 2006; pg. 4.1-23

> Air Quality Handbook and EPA's AP-42. Emissions of NOX, VOC, and PM10 generated would be based on the number and type of operating vehicles and the number of hours of operation. Fugitive emissions would be based on the amount of soil disturbed, type of soil, duration, type of activity (grading, excavation, etc.), haul trips, and other factors."

Without discussion or explanation, the MND ignores this methodology and instead provides nothing more than the mention of a generic few types of construction equipment, an eighteen month construction schedule, SCAQMD Rule 403, and unspecified Caltrans construction practices. The mix of onroad and offroad construction equipment is not provided, no emission factors are discussed or utilized, no attempt is made to estimate PM10, fugitive dust, criteria pollutants, or diesel particulate matter (as a toxic air contaminant causing risk to residents in their homes and children and others at parks proximate to the project). Similarly, haul trips, cut-and-fill volumes, and other phased and sub-phased construction activities, each with potentially significant emissions, are never evaluated in the project air quality documents. All of these components add incrementally to construction-related emission impacts, are routinely modeled or estimated for emissions impacts in other projects as recommended by air agency (SCAQMD) guidance, and were ignored altogether in the MND. Construction emission components for equipment and tasks (e.g. scraper activity, excavation for new sound walls and retaining walls, excavation for drainage improvements, compactor emissions, paver emissions, etc., etc.) must be identified and evaluated for quantities of criteria and toxic diesel particulate matter (DPM) emissions in revised CEQA documentation and then recirculated for public review and comment.

IV. The MND Failed to Analyze the Potentially Significant Health Impacts Associated with Emissions of Diesel Particulate Matter During Grading and Paving.

Grading and paving emissions are significant impacts requiring specific, detailed emissions quantification because: (1) nearly all construction equipment is diesel-powered; (2) diesel particulate matter (DPM) was declared a toxic air contaminant ("TAC") by the California Air Resources Board in 1998[3]; and (3) construction emissions can cause highly significant localized and regional emission impacts. Diesel emissions are extremely relevant to localized and regional air quality attainment strategies, particularly since they emit comparatively higher levels of NOx;

[3] California Air Resources Board (CARB), Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Staff Report, June 1998.

along with DPM. NOx is formative of ozone, and the South Coast air basin continues to struggle after fifty years with the country's worst ozone-polluted air. Similarly, DPM is responsible for 70% of the potential health risks from TACs in the South Coast Air Basin.[4] Without quantification or even basic estimation of the construction-related DPM emissions, the MND's conclusions (i.e., that project emissions are insignificant and will not "cause or contribute to" the failure to attain air quality standards, and will not interfere with SCAQMD strategies to overcome the long history and health effects of the basin's worst air quality in the country) are unsupported. In fact, Caltrans (as the Lead Agency) may only determine whether Ortega's emission impacts will be significant after rigorous analysis, with provision of substantive information and evidence justifying their conclusions. (*Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, (1990).) Environmental review documents for Ortega clearly show that the Lead Agency has failed these requirements by a wide margin. Without detail or substantive analysis the Lead Agency's conclusions of air impact insignificance found at page 1 of Ortega Highway MND (Air Quality Assessment) cannot be substantiated.

V. The MND Fails to Support the Conclusion that Proposed Mitigation Measures Will Reduce Construction-Related Air Quality Impacts to Insignificance.

Page 1 of the **Introduction** of Ortega's Air Quality Assessment includes the following statement:

> "Standard Construction Practices would be required for construction activities (i.e. SCAQMD Rule 403 and Caltrans Standard Specifications for Construction). As there are no significant Project or cumulative air quality impacts associated with the proposed Project, no mitigations are required for operational conditions."

This statement is unsupported by data or analysis. The Lead Agency has jumped to the unfounded conclusion that the benefits of Rule 403 and Caltrans standard specifications (which are not described) will automatically reduce the project's impacts to insignificance.

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[4] SCAQMD, Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-II, March 2000.

As a preliminary matter, it is impossible to ascertain without quantified emission estimates how significant the project's construction-related air quality impacts will be. Without such estimates, the Lead Agency cannot show that it has identified and then ranked impacts by their level of significance, nor can it then evaluate mitigations for effectiveness, because discrete reductions are meaningless without an established comparative base. Measures in the Ortega MND and Initial Study have been selected without discussion of their effectiveness. Without meaningful comparison of their levels of effectiveness there is no support for the MND's conclusion that these mitigation measures will provide adequate protection to local residents from diesel particulate matter (DPM) and fugitive dust impacts since dozens of diesel construction vehicles will be operating daily and in close proximity to residences. Quantified emissions estimates also provide a scale against which more elaborate, expensive, or difficult-to-implement mitigations can be considered for their feasibility to the project. In many areas, feasible and highly effective construction mitigation measures require percentage-based emission reductions for construction equipment operating at the project site for an aggregated total of more than forty hours---this ensures real, quantifiable, surplus emission reductions are created to reduce a project's air impact significance. Given that the Ortega project area suffers from the worst air quality in the country, it is critical that the Lead Agency explain why these and other effective measures are not required of project contractors—especially since they are routinely used in air basins with less polluted air quality. Without emissions estimates and the foundation of defined significance thresholds against which to compare those estimates, the Lead Agency's determinations at Air Quality Assessment (pg. 1) are completely without support.

The Lead Agency also failed to analyze or propose feasible mitigations for the potentially significant construction impacts, including those (such as diesel particulate filters on project-serving diesel construction vehicles) noted in FHWA guidance referenced in the Air Quality Assessment. The Lead Agency incorrectly assumes that the commitment to fugitive dust control at Ortega Highway with proposed partial compliance (see subsequent comment) with SCAQMD Rule 403, along with mere mention of a few benign construction equipment mitigation options (see Air Quality Assessment, pg. 29), will reduce the project's air quality impacts to insignificance. Without quantitative estimates and use of CEQA thresholds, however, the Lead Agency's choice of the bare minimum of mitigation options *only* for construction impacts cannot

be expected to reduce project impacts to insignificance. In fact, nowhere in the Air Quality Assessment does the Lead Agency provide 1) quantitative thresholds for evaluating short- or long-term emission impacts, 2) quantitative analysis or estimates for Ortega's construction or operational criteria and DPM emissions, 3) effective comparison of the proposed project's emissions, which were not quantified or estimated, with current conditions as required by CEQA Guidelines § 15126.2(a), or 4) a conclusion as to whether, with use of SCAQMD Rule 403 and a few innocuous Caltrans requirements, the construction-related emissions will be significant *or* insignificant. Without either project-specific estimates of criteria pollutant and toxic air contaminant (TAC) emissions or any analysis of the proposed mitigation measures, the MND contains no evidence to support its conclusion that there are "no Project or cumulative air quality impacts" (Air Quality Assessment, pg. 1) to result from the Ortega Highway project after mitigation. In the case of Ortega's construction emissions particularly, emission impacts are virtually certain to be significant because no substantive, productive, percentage-based emission mitigations have been proposed, despite the fact that they are routinely applied to similar paving and grading projects in air basins with less-polluted air quality to reduce their impacts below CEQA thresholds.

VI. RELIANCE ON PRIOR CONFORMITY DETERMINATION IS MISPLACED.

The Lead Agency suggests that, because the project was studied for its environmental impacts within the widely-regional transportation conformity review process, it would automatically not cause locally or regionally significant emissions impacts at the project area. (See Section 5.2 Regional Analysis, pg. 20, Air Quality Assessment) This logic is incorrect, however, because conformity impacts from the project are only a small portion of the spectrum of potential air quality impacts that will occur at Ortega Highway and to nearby residents. Specific operational emissions quantities—not estimated by the Lead Agency--- are estimable using a number of methods or models (including URBEMIS), and should have been quantified and made available to the public by the Lead Agency since they are critical to understanding the severity and significance of project-related air quality impacts to residents at the project and in the surrounding community.

The MND's reliance on the conformity determination also conflicts with CEQA's primary interest in evaluating local and regional impacts with use of quantity-based emissions thresholds (e.g. lbs/day) and up-to-date emission estimation methods. The MND failed to prepare any detailed, site-specific estimates of emissions and impacts despite substantial evidence (project size, proximity of residents, duration) of potentially significant impacts. Using *only* conformity guidelines as CEQA thresholds, in combination with the Lead Agency's failure to provide any site-specific quantitative emission estimates for both construction and operational emission impacts, denies the public and local decision-makers access to critical project impact information.

VII. MND Fails to Provide or Use Emissions Impact Significance Criteria.

Ortega Highway environmental review documents fail to provide required discussion of significance thresholds "the agency uses in the determination of the significance of environmental effects" (CEQA § 15064.7 – Thresholds of Significance). CEQA provides wide latitude to the Lead Agency in the formulation of air quality thresholds for the evaluation of a project's emissions-related significance, yet Ortega's documents fail to provide or discuss CEQA emissions thresholds of significance chosen by Caltrans, and never mentions South Coast Air Quality Management District (SCAQMD) CEQA thresholds recommended for use on projects within the South Coast air basin. The lack of significance thresholds, and particularly quantitative thresholds, reflects a serious deficiency since without them estimated emissions from the project's construction and operations cannot be gauged for their environmental significance under CEQA.

CEQA encourages and anticipates the use of significance thresholds by the Lead Agency, defining them as "an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant"[5]. The lack of thresholds applied to the Ortega Highway project review is a serious matter; particularly since SCAQMD thresholds are recommended for

[5] 14 Cal. Code Regs. ("CEQA Guidelines") § 15064.7 (a).

use on projects such as Ortega and have been routinely used by Lead Agencies to evaluate CEQA project impacts within the South Coast air basin for many years. SCAQMD thresholds of significance date to at least 1993, reflecting at that year discrete thresholds of 75 lb/day for ROG, 100 lb/day for NOx, 150 lb/day for PM10, and 550 lb/day for CO. (SCAQMD 4/93,[6] p. 6-4.) Despite ready availability and routine use of SCAQMD CEQA guidance or thresholds to evaluate operational and construction impacts on other projects throughout the air basin, Ortega's Air Quality Assessment's Table of Contents fails to reflect use in the document of thresholds of significance, nor is there any mention in the body of the Assessment of either Caltrans or SCAQMD thresholds applied to the evaluation of locally- or regionally-significant emissions. SCAQMD has designed and issued readily available CEQA guidance with locally significant project thresholds, specifically for the evaluation of short-term construction project impacts and regional thresholds for assessing the potential significance of the project's long-term operational emissions. In Ortega's environmental review documents the Lead Agency admits (at Air Quality Assessment pg. 20 "Short-Term Impacts") that the project will produce emissions from a variety of construction equipment across the duration of the project (eighteen months), but has failed altogether to use or discuss any thresholds against which emissions can be placed in that time period and beyond, and then considered for their significance.

VIII. The MND Failed to Analyze SCAQMD Localized Significance Thresholds (LST).

Ortega's CEQA documents fail to discuss or evaluate the project using SCAQMD's established Localized Significance Thresholds (LST). LST's were specifically developed by SCAQMD to assist the Lead Agency in assessing significance of emissions impacts at the most local level. LSTs are for construction emission impacts, and include thresholds for oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM10). LST quantitative values represent the maximum quantity of emissions from a project not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard; quantitative values were developed for ambient concentrations per pollutant by source receptor area and distance to the nearest sensitive receptor. Use of LST's is not required

[6] South Coast Air Quality Management District, CEQA Air Quality Handbook, April 1993.

but is strongly recommended by SCAQMD, and they represent a scientifically-based, accepted method for evaluating project-related emission concentrations of criteria pollutants from projects such as the Ortega Highway widening project. LST's are routinely used in CEQA project reviews for projects within the South Coast air basin, and apply to projects of five acres or less. Since the project consists of at least two new lanes with additional work to existing lanes (due to expected collateral work for construction-related repairs and new overlays over all four lanes), and a length of approximately one mile, the total disturbance area is likely close to five acres, and the LST methodology should be used to evaluate criteria pollutant concentrations. San Juan Capistrano is contained within Sensitive Receptor Area #21 in the LST Look-Up Table. To have adequately assessed the significance of Ortega Highway widening emissions, quantified emission estimates should have been compared to SCAQMD LSTs. The Lead Agency's failure to use or discuss SCAQMD LSTs or, for that matter, any CEQA significance thresholds, indicates that the conclusions drawn by the Lead Agency are unsupported by any evidence.

IX. The MND Failed to Analyze Reasonable, Feasible Mitigations.

Reasonable, feasible mitigation measures routinely employed in CEQA reviews for projects in less-polluted California air basins to reduce construction emission impacts should have been considered and discussed in the Lead Agency's Ortega Highway environmental documents. SMAQMD[7], other air districts (e.g. SJVUAPCD, PCAPCD, FRAQMD, etc.) and Lead Agencies routinely apply mitigations to construction vehicles subject to CEQA review, requiring project-specific fleet-averaged NOx and PM10 emission reductions of 20% – 45%. Given their common usage in similar projects, it is clear these measures are feasible and effective. The MND provides no evidence to the contrary. Offroad construction equipment is nearly all diesel-powered, and offroad diesel engine emission rates are significant due to high-horsepower engines (in such equipment as scrapers, excavators, large bulldozers that will be used at Ortega), high duty factors, and substantially higher emission rates (in comparison to onroad diesel emission rates). Diesel emissions contain criteria pollutants and diesel particulate matter is a CARB-declared toxic air contaminant with no known safe exposure level. Grading and paving practices and the types of heavy-duty diesel construction equipment routinely used for road

[7] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, 2004. Page C-6.

building projects are generally consistent across California's urban and exurban areas. Therefore, percentage-based emission mitigations applied to equipment at a Caltrans lane-widening project in Sacramento or San Joaquin valley, for example, are likely to be just as effective and no less feasible for mitigating emissions at the Ortega Highway widening project.

At Public Resources Code, § 21002, CEQA requires that all feasible mitigation to reduce or avoid a project's significant environmental impacts must be adopted prior to project approval. Conversely, CEQA requires that the rejection of mitigations for a particular project must be based on substantial evidence of infeasibility (Guidelines § 15091(a)(3)). The MND fails to consider substantive, effective construction mitigation to reduce project-specific mobile source emissions, including those used routinely in other air basins at grading-and-paving projects reviewed under CEQA. The MND also fails to explain why they were rejected by the Lead Agency. Until those measures are thoroughly considered for Ortega, the Lead Agency's conclusions remain unsupported and the MND is inadequate.

X. Lead Agency's Purported "Lack of Authority" to Impose Mitigations Conflicts With CEQA.

At pg. 26 of the Air Quality Assessment, FHWA interim guidance ("*Interim Guidance on Air Toxics Analysis in NEPA Documents*") is quoted regarding suggested methods to mitigate construction-related diesel particulate matter emissions. Item (2) at pg 27 reflects "Technological Adjustments and retrofits, such as particulate matter traps, oxidation catalysts;" yet the Lead Agency then rejects this item (and all other FHWA mitigations) for Ortega by stating that it has no authority to require contractors to employ such devices on project-related equipment. At Air Quality Assessment pg. 27, Caltrans incorrectly disclaims responsibility under CEQA to impose certain, effective construction mitigation with this statement:

> "However, it should be noted that with the current absence of any statewide or local regulation, Caltrans does not have the legal authority to require construction contractors to undertake any of these measures."

This statement is in reference to FHWA mitigation guidance that lists, among other measures, the use of diesel particulate filters on federally-funded projects to reduce construction emissions. Caltrans statement noted above is, however, patently incorrect. As the project's Lead Agency, Caltrans has both the authority *and the duty* to ensure that all reasonable, feasible mitigations, including those routinely employed to reduce diesel construction emissions in at least two other air basins, are effectively evaluated and imposed, as deemed appropriate. CEQA guidance issued by a number of air districts (e.g. MBUAPCD, SMAQMD, SJVUAPCD, BAAQMD) contain more productive mitigation methods for construction and operational emission reductions than those presented in Ortega's review documents, and the absence of a request for highly effective, technology-based mitigations from the local air district cannot be used to rationalize the Lead Agency's rejection of its essential duties under CEQA to consider and then use all reasonable, feasible mitigations—and particularly those that have been demonstrated on similar projects to be both reasonable and feasible. The MND omits any discussion of the CEQA guidance issued by the SCAQMD, in the evaluation of Ortega's potential impacts.

The Lead Agency's incorrect dismissal of responsibility is also contradicted by its past practice: SMAQMD percentage-based construction equipment emission reduction mitigations were required and applied to the State Route 16 widening project with listing by Caltrans (as the Lead Agency) and with the knowledge and acceptance of FHWA. (See Sacramento State Clearinghouse # 99072075 - 08/17/99. MND; State Route 16 Gap Closure Project.) Based on significant evidence of reasonable, feasible construction and operational mitigation measures employed elsewhere and in at least one other instance by Caltrans to a road-widening project involving construction emission impacts, Ortega documents must be revised and then recirculated for public review.

XI. Lead Agency Fails to Analyze and Propose RTP Mitigation Applicable to Ortega Construction Equipment.

The Lead Agency's rejection of FHWA-listed mitigation at pg. 27 is contradicted by the analysis in SCAG's 2004 Regional Transportation Plan (RTP). The RTP overlays individual transportation improvement projects, including the Ortega Highway widening project.

Mitigations to reduce project-related impacts are found within the RTP's Executive Summary document.[8] There, at pg. ES-18, "Impact 3.4-4, Short-Term Localized Impacts" from road-building construction projects is followed by mitigation MM 3.4-4: "Construction equipment **shall be equipped with diesel particulate traps** (emphasis added)." The regional transportation planning authority (SCAG) included MM3.4-4 only after careful consideration of air quality impacts to the South Coast air basin from projects such as Ortega Highway. The MND contains no discussion of why Caltrans rejected this mitigation measure for the Ortega project.

XII. Conformity Review Cannot Substitute for Local and Regional Impact Review.

At pg. 20 of Ortega's Air Quality Assessment operational air emission impacts are not independently discussed or estimated, but rather are subsumed into the Lead Agency's consideration of "Regional Impacts." Regional impacts, however, are discussed solely in context to federal requirements governing transportation conformity and certain regional transportation plan documents that overlie a number of counties (including Orange County and the Ortega project). Ortega's environmental review must, under the transportation conformity perspective, consider only whether its onroad operational emission impacts will jeopardize broadly-regional transportation plan objectives and conformity findings without regard to whether those same emissions could cause significant local impacts. Local and regional air quality impacts will occur from with the Ortega Highway widening project, yet the Lead Agency's exclusive focus on evaluating air impacts *only* as they would affect transportation conformity misses them altogether. Use of conformity significance criteria cannot substitute for estimation of the full spectrum of project emissions that will affect local and regional air and environmental resources.

CEQA review for Ortega should have quantified and evaluated short-term construction emission impacts caused by onroad and offroad construction equipment, and operational (long-term) emissions and impacts generated by the project's potential increases in mobile source (vehicle) operation. In routine practice, projects undergoing CEQA review will estimate and evaluate emissions from three distinct, separate levels where operational and construction emission impacts occur: the first involves estimation of emissions and review of related impacts to local

[8] South Coast Association of Governments, Programmatic Environmental Impact Report, Regional Transportation Plan, 2004; pg. ES-1.

citizens and environmental resources nearest the project; the second involves identification and review of potential impacts to regional air resources and relevance to air agency criteria pollutant "attainment" objectives (most importantly for State Implementation Plan, or SIP, objectives at the air basin level) as required to be consistent with CEQA Guidelines Appendix G); and, the third reflects review of the project's potential to impact the relatively narrowly-defined transportation conformity findings that reflect federal concerns for only a limited number of criteria air pollutants within a broadly regional transportation planning area. Substitution of analysis at one level cannot substitute for impact review at another. For example, a project reviewed under CEQA may have very localized effects to a number of citizens closest to the area identified for extensive cut-and-fill activities—these could generate high levels of diesel emissions affecting sensitive receptors (residents) within a few hundred feet for the eighteen months of project construction, yet such impacts would never be captured under transportation conformity review. Similarly, conformity analysis in OCTA or SCAG documentation cannot provide the level of detail at the Ortega project that would protect against, say, DPM onroad vehicle emission impacts to a number of residents who will end up nearer and immediately downwind of increased levels heavy duty onroad diesel trucks. By contrast, while those emissions would represent an impact to a number of residents worthy of identification in the project's CEQA review process, those same emissions would be too limited to threaten SCAQMD's basin-wide attainment strategies and objectives. Thus at the immediately-local level they would reflect significance, while at the more regional level they would not. Importantly, Ortega's Air Quality Assessment discusses the project's long-term operational emission impacts solely in context to their relevance to transportation conformity impacts, and fails to satisfy CEQA objectives in identifying and mitigating locally- and regionally-significant emission impacts. Without mobile source emissions estimates and discussion that satisfy local, regional, and conformity review criteria under CEQA, Ortega's environmental review is incomplete.

XIII. Project-Specific Toxic Diesel Particulate Matter *Will Be* Emitted.

At pg 26 of the Air Quality Assessment, the Lead Agency states that "there may possibly be diesel toxics emissions from the construction of a project… ." Construction vehicles are almost exclusively diesel powered. Diesel particulate matter (DPM) was declared a toxic air

contaminant by CARB in 1998.[9] Offroad construction diesel vehicles and engines emit DPM, even when equipped with expensive diesel particulate filters. Construction vehicles emit relatively higher levels of all important emissions, including DPM, and typically reflect high horsepower and high duty factor levels. Many older pieces of unregulated (with uncontrolled emissions) construction equipment still operate routinely in the offroad inventory. (See: CARB OFFROAD2007 model for SCAQMD basin equipment inventories, ages, and other important emissions-related data.) Very few construction vehicles have installed diesel particulate filters. Given these facts, it is a certainty that construction of the project will result in diesel toxics emissions.

XIV. The MND Fails to Provide Important DPM-Related Information.

The MND fails to provide important information on sensitive receptors near the project. Residences along the construction route and children at parks within 500 feet of the project are examples of sensitive receptors to be exposed to DPM from the increase in construction and operational vehicles. The Air Quality Assessment, at pg. 12, states only that "The majority of the sensitive receptors along the Proposed Project Study Area are residential and institutional uses." What is an "institutional" use? Does that phrase include a school, a convalescent hospital, or medical facilities? Where are these uses located in relation to the project? Are they downwind under prevailing wind patterns? How close are the closest residences? What specific measures are considered by the Lead Agency to ensure that DPM emissions from the dozens of heavy-duty diesel construction vehicles along the project area won't cause significant yet preventable impacts to residences closest to the highway? Types of sensitive receptors, their proximity, and other pertinent factors affecting their exposure to DPM should have been identified in Ortega's documentation, yet neither the environmental setting section nor the air quality discussions provide substantive information necessary to ensure that DPM emissions have been adequately reviewed. The Lead Agency's provision of only vague and general statements regarding sensitive receptors and DPM fails to provide the level of analysis and impact review detail required by CEQA. Without such consideration, related environmental

[9] California Air Resources Board (CARB), Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Staff Report, June 1998.

impacts have been ineffectively characterized for Ortega. Because these impacts may be significant, the Lead Agency must supply this information in an EIR.

Additionally, at chapter one, Ortega's MND gives several references to truck traffic currently on Ortega Highway. Expanding the highway from two lanes to four lanes, however, will cause increased truck traffic along this route, yet no mention is found in the Air Quality Assessment that increased traffic and related DPM emissions have been considered for impacts to "residential and institutional" sensitive receptors. Since sensitive receptors at "institutional uses, residences," and parks, schools, and any other land uses along the route will be subject to increased exposure to DPM, substantive consideration of the potential increase in toxics-related health risks as a result of increased diesel truck traffic should have been provided.

Despite the Lead Agency's failure in this regard, SCAQMD land use guidance reflects a CEQA threshold for TAC impacts of ten incremental cancer risks per million people. No discussion of SCAQMD TAC-related guidance is found in Ortega's documentation, nor is there any evaluation of increased health risks that could exceed the air district's threshold. Without review of this matter, the Lead Agency cannot provide any assurance that increased cancer risks to residents and children from Ortega's widening will remain below the threshold. This reflects a major shortfall in Ortega's environmental impact review.

XV. DPM and Related Health Risks to Sensitive Receptors Were Inadequately Reviewed.

The Lead Agency has failed to provide substantial evidence that it gave adequate consideration to increased health risks that will result from DPM emitted by construction equipment and operational diesels along the Ortega Highway project area. Even incrementally-increased risk from DPM at Ortega must be considered significant, since background TAC levels in the South Coast are already among the highest in the country and reflect an increased cancer risk of roughly 1700 in a million. Other CEQA-reviewed projects have provided thorough review of DPM-related impacts, including screening and modeling to determine the extent of increased cancer and non-cancer health risks. (See, for example Greenbriar Development Project DEIR,

Volume II, Appendix F-Health Risk Assessment, SCH # 20060062144, July 2006, where roadway emissions were modeled for increased health risks to proposed residences.)

Additionally, the California State Office of Environmental Health Hazard Assessment (OEHHA) has assigned a chronic reference exposure level (REL) of 5 $\mu g/m^3$. This provides a threshold for diesel toxic risk against which to evaluate diesel impacts at Ortega. Emission factors for construction equipment are collected and published by the California Air Resources Board (CARB). No mention is made by the Lead Agency of the chronic exposure level threshold, or, for that matter, any other health risk-related threshold. Further, dispersion models (ISCST3, AERMOD, etc.) are available to model dispersion of emissions and calculate concentrations at specified receptor locations---particularly relevant to Ortega's CEQA review since residences lie within 100' of Ortega Highway construction zone. In addition to CARB and OEHHA guidance that should have been reviewed by the Lead Agency for Ortega's DPM and toxics health risks, SCAQMD provides guidance entitled "Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis." (See http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html) SCAQMD specifically recommends that projects with diesel-powered mobile sources use their guidance to evaluate, screen and, as appropriate, utilize dispersion modeling to quantify potential cancer risks from DPM emissions. With these tools readily available and routinely used to Lead Agencies throughout the South Coast air basin and other California air basins, Ortega's DPM and toxics-related risks must be re-evaluated by the Lead Agency and discussed thoroughly in the project's CEQA documentation.

XVI. The MND Mischaracterizes the Availability of DPM-Related Scientific Knowledge.

Ortega's environmental documents incorrectly characterize potential impacts of DPM on sensitive receptors during project construction. At pg. 26 of the Air Quality Assessment the Lead Agency states "While there may possibly be diesel toxics emissions from the construction of a transportation project, the current scientific knowledge on diesel toxics is simply inadequate for conducting any meaningful quantitative assessment." This is incorrect for a number of reasons. First, CARB, OEHHA, SCAQMD and other air and health agencies have issued

extensive guidance on when and how to characterize TAC and DPM impacts. Secondly, the Lead Agency admits that toxic DPM may be emitted with Ortega's construction, yet has opted to ignore those impacts by performing no health risk screening or modeling and issuing no prohibitions against diesel use. Without a prohibition, Ortega's construction will emit toxic DPM emissions, yet due to the Lead Agency's failure to evaluate those emissions their significance—or insignificance—has not been established. In fact, construction of two additional lanes along Ortega Highway, along with retaining walls, sound walls, relocation of utilities, etc., will require extensive use of heavy-duty equipment including scrapers, graders, excavators, compactors, pavers, rollers, and other equipment types—leading to substantial quantities of diesel-related emissions over the eighteen-month project life. Crane trucks, concrete delivery (transit mix) trucks, asphalt deliver trucks, and other types of diesel-powered heavy-duty vendor trucks will also produce diesel emissions at the project area for the duration of the project. Water truck emissions will also occur, since water is required for the dust-suppression mitigation measure at page D-5 of Appendix D - Mitigation Summary. Drainage improvements noted at pg. 1-13 of Chapter 1 are a part of the project—these will also produce DPM emissions from trenchers, backhoes, excavators, and other types of equipment. At pg. 1-13, Chapter 1, 700 feet of the roadway east of Avenida Siega is identified for widening with construction of a fill slope for five retaining walls on the north side of SR-74. The cut and fill operation along this section would require earth-moving equipment such as backhoes, bulldozers, and haul trucks. All of these pieces of equipment are virtually certain to be diesel-powered, and would consequently emit considerable diesel particulate matter near the sensitive residential uses adjacent to the project. Thus, these impacts are potentially significant. While CEQA does not require exhaustive analysis, each of those types of equipment should have been discussed with emissions estimates prepared from readily anticipated tasks, with equipment and activity levels taken from bids or completed project equipment lists, or, preferably, from actual equipment inventory bid information requested by the Lead Agency and supplied by contractors for Ortega work. Equipment numbers and activity levels would permit the quantification of construction emissions using URBEMIS, CARB's OFFROAD2007 model information for the South Coast Air Basin, or other estimation tools.

For screening purposes, we evaluated Ortega using the SMAQMD Roadway Construction Emission Model[10], without accounting for or including equipment necessary for utility improvements, sound walls, or retaining walls. (Equipment for these activities must be estimated separately.) Using unmodified and simplistic inputs, the model projects that the following pieces of equipment at a minimum would be used daily for listed phases:

Grading/Excavation Phase	1 excavator 1 grader 1 loader 1 scraper
Drainage Phase	1 compactor 1 grader 1 scraper 1 trencher
Paving Phase	1 paver 1 roller

The listed number and type of equipment are substantial but not comprehensive, since other vehicles (such as water trucks, bulldozers, backhoes, etc) will be required for the project. Nearly all will be diesel powered, and aggregated diesel emissions are likely to be significant, especially to nearby residents. The Lead Agency must estimate the quantities of criteria and DPM emissions expected of these types of equipment. The Lead Agency's assertion that there is "insufficient knowledge" to perform such an analysis is contradicted by routine estimation of construction-related emissions on other projects involving road-widening or road-building around California. Data and modeling tools exist to conduct such analysis are available and commonly employed in CEQA reviews. These should have been used by the Lead Agency to estimate Ortega's criteria and DPM-related emissions, with estimates then compared against established air agency CEQA thresholds of significance--with particular attention to potential impacts to sensitive receptors the Lead Agency admits are nearby. Estimation methods and models are readily available to Caltrans to estimate equipment activities, numbers, and emissions. The failure to discuss and provide significance determinations of these potentially significant impacts renders the Lead Agency's CEQA review for Ortega incomplete.

[10] Sacramento Metropolitan Air Quality Management District, Road Construction Emissions Model, v5.2,

XVII. Lead Agency Appears to Confuse Air Quality Impacts with Mitigations.

Air quality impacts listed as AQ 1 through AQ5, pg. 29 of the Air Quality Assessment are not impacts at all but, rather, appear to be designed to provide the appearance of effective mitigation measures. In fact, aside from compliance with SCAQMD Rule 403 (which is required regardless of its listing by Caltrans in Ortega's environmental assessment), they will do little or nothing to reduce Ortega's construction emission impacts. Without explanation, Ortega Highway's environmental documents refer to these as items as impacts, although they are clearly written in such a way as to show that they are intended to reduce the project's emission impacts. Any revised CEQA document must clarify this ambiguity.

As a practical matter, measures AQ1 through AQ5 will not reduce diesel equipment emissions from the project. As written, they are innocuous measures without requirements to ensure implementation, consistency, or enforceability--and thus no real and sustained emission benefits can be expected. Without specific requirements and components that will provide real, quantifiable, surplus emission reductions, items AQ1 – AQ5 are simply feel-good measures without substance. As an example of their lack of substance and enforceability, Caltrans obligates the City of San Juan Capistrano's City Engineer to routinely inspect and be responsible for construction vehicles and their emissions levels—see item AQ2 at pg. 29. This item should (but fails to) produce or reference the written agreement between Caltrans and the City for this obligation, since it is a critical component to ensure sustained implementation over the eighteen-month construction period. It is also highly improbable that the City Engineer has mechanic- or smog-related certifications needed to effectively evaluate the engines and fueling systems of dozens of different, unique types of construction equipment engines to ensure emissions compliance. Given these facts, it is unlikely that items AQ1-AQ5 will actually be enforced. And without additional, enforceable mitigation measures, the air quality impacts of the project will be potentially significant.

XVIII. Air Quality Mitigation "Items" Are Unenforceable and Inconsistent With Established SCAQMD Regulations, and Project Lacks Mitigation, Monitoring, and Reporting Plan (MMRP).

At pg. 20 of the Air Quality Assessment, **Short Term Impacts** states:

> "In order to fully minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with the state-mandated emission control devices pursuant to state emission regulations and standard construction practices."

However, Ortega's environmental documents provide no information regarding how those actions will be implemented at Ortega Highway, and thus it is possible that this requirement will not be enforced, and its benefits will not occur. To be enforceable, details of this or any other method discussed in the Air Quality Assessment must be written into a Mitigation, Monitoring and Reporting Plan (MMRP); without such, the Lead Agency cannot provide the level of assurance necessary to satisfy CEQA mitigation objectives. Moreover, this mitigation measure does nothing to address the possibility that some construction vehicles undergo modifications to obtain more power output (but with greater emissions).

Further, the notion that construction vehicles "would be required" to be equipped with state-required emission controls contradicts Caltrans' claim at pg. 27 that it lacks authority to impose *any* such requirements on contractors. Substantively, requiring compliance with state laws already in effect to give the appearance of real, additional emission mitigation is inappropriate and disingenuous, since vehicles or engines that violate state-required emission control requirements cannot legally be used anywhere at any time in the state. Without requiring discussion of feasible mitigations (such as those used routinely in other air basins to reduce types of construction equipment emissions by specified percentages), and providing the appearance of emission reductions that would occur without the project anyway, the language at pg. 20 trivializes CEQA's essential interest in effective, real, meaningful mitigations.

At pg 29 of the Air Quality Assessment, item AQ-1 appears to be offered to reduce construction-related fugitive dust emissions, citing compliance requirements of SCAQMD Rule 403 and ending with:

> "Visible dust beyond the property line emanating from the project shall be prevented to the maximum extent feasible."

However, the use of the term "maximum extent feasible" is in conflict with SCAQMD Rule 403(d)(1)(A):

> *No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that: (A) the dust remains visible in the atmosphere beyond the property line of the emission source.*

Rule 403 indicates that any fugitive dust emissions beyond the property line will be a significant impact. Therefore, the adoption of a mitigation measure that allows any dust beyond property lines fails to reduce this impact to a less-than-significant level.

The Lead Agency must comply with Rule 403 in its entirety, ensuring that no fugitive emissions migrate beyond the project work areas and especially to nearby residences. Rule 403, as written, will not allow the Lead Agency to later defend fugitive dust emission impacts on the basis of a claim that they (or their contractors) had controlled dust emissions to what *they believed* was the "maximum extent feasible" since no standards or guidelines exist to define the extent or limitations of the term. Further, while Caltrans has the responsibility under CEQA to ensure compliance with Rule 403 for all activities during the project's construction, Rule 403 is enforced by SCAQMD staff. How will Caltrans respond to public complaints of dust or other pollutants emitted at Ortega? Will they automatically refer all complaints to SCAQMD for investigation and enforcement? How will air quality-related enforcement occur at Ortega?

In AQ-1, the Lead Agency states that "Compliance with this measure shall be subject to periodic site inspections by the City." Requiring the City to enforce provisions of this or any other measure to reduce the environmental impacts of the project must be written into an MMRP for the project to ensure consistency with CEQA, along with provision in the MND and Initial Study

documents of written proof that the City accepts responsibility and liability for enforcement of this or any other item in the Ortega Highway project documents, and for any failures to prevent fugitive dust emissions leaving the project site in violation of Rule 403. Lastly, the Lead Agency attempts to re-define the limitation against fugitive dust transport offsite found in SCAQMD Rule 403, setting the stage for confusion at the City (as the enforcement agency for AQ-1) and with impacted residents once complaints arise. As written AQ-1 lacks consistency, accuracy, enforceability, and contradicts a local air agency rule which will take precedence over the Lead Agency's mistaken interpretation of how much offsite dust migration is acceptable. It must be re-written and recirculated for public review.

XIX. Environmental Review Documents Fail to Consider Feasible Mitigations.

Ortega Highway environmental documents fail to discuss feasible construction mitigation options routinely employed for CEQA projects reviewed at other California locations. Air agencies (SMAQMD, SJVUAPCD, PCAPCD, and others) routinely utilize a variety of mitigation measures to ensure that real, quantifiable, surplus emission reductions are achieved. These best-available mitigations have been demonstrated in broad practice as reasonable and feasible, and Ortega's CEQA documents must provide meaningful discussion and evaluation of them. For example, the mitigation measures below are from the Placer County Air Quality Management District (PCAPCD):

1. The applicant shall submit to the District and receive District approval of a Construction Emission / Dust Control Plan at least two workdays prior to groundbreaking.
2. Construction equipment exhaust emissions shall not exceed District Rule 202 Visible Emission limitations.
3. The prime contractor shall submit to the District a comprehensive list reflecting:

   - Each piece of off-road construction (especially grading) equipment, 50 horsepower of greater, to be used on the project 40 or more *total* hours
   - Each off-road equipment's make, model, year, horsepower, and, if known, emission rating.
   - An updated inventory list shall be submitted each month for the duration of the project, except that it is not be required when construction activity ceases for more than a 30-day period

- The project representative shall provide to the District the anticipated construction timeline, including start date, name and phone number of the project manager and on-site foreman, at least 48 hours prior to construction startup.

4. An enforcement plan shall be established to evaluate on a weekly basis project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180 - 2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations (VEE), shall evaluate project related off-road and heavy-duty on-road equipment emissions for compliance with this requirement on a once-weekly basis, with detailed results mailed, faxed, or emailed to the District within 48 hours of completion. Operators of vehicles and equipment found to exceed opacity limits will be notified by the Coordinator immediately and the equipment must be repaired within 72 hours. Information on VEE-failed vehicles will be provided in the next scheduled written report to the District.
5. The project shall provide a plan for approval by the District demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve **a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB offroad construction fleet average.** The District should be contacted for average fleet emission data. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. Contractors can access the Sacramento Metropolitan Air Quality Management District's web site to determine if their off-road fleet meets the requirements listed in this measure. See http://www.airquality.org/ceqa/Construction_Mitigation_Calculator.xls Results of this evaluation must be presented to the District in the plan.
6. No open burning is allowed during site development. Vegetative material shall be treated by other legal means, including chipping, shredding, or delivery to permitted waste-to-energy facilities.
7. Diesel-powered equipment shall not be allowed to idle more than five minutes consecutively.
8. Water to suppress fugitive dust emissions shall be applied onsite and at access roads as necessary during grading and construction activities by onsite trucks or other means to prevent violation of District Rule 228 – Fugitive Dust Apply. Controls must be adequate to control dust onsite and to prevent offsite dust migration.
9. If the project site is in an area known to contain naturally occurring asbestos (NOA), the applicant must comply with requirements, conditions, and restrictions of the California Air Resources Board's Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, And Surface Mining Operations. An implementation plan to comply with the ATCM shall be developed and approved during the environmental review process, with submittal of the plan to the District (as required by the ATCM) prior to completion of the review process.
10. Grading shall be suspended when fugitive dust emissions exceed District Rule 228 Fugitive Dust limits.

11. Approved chemical soil stabilizers may be applied to unpaved roads, employee/equipment parking areas, or other onsite locations to control fugitive dust emissions.
12. Offsite migration of silt or other earthen materials leading to fugitive dust emissions shall not be allowed, especially to public thoroughfares.
13. Wheel washers, equipment washing, or trackout traps shall be used to limit trackout of site material.
14. The applicant shall ensure that grading and earth-moving contractors shall not operate pre-1996 heavy-duty diesel equipment on forecasted Spare The Air Days.
15. Speeds on all unpaved surfaces must not exceed 15 miles per hour.
16. Ultra-Low Sulfur Diesel is encouraged for use in all offroad and stationary construction equipment.
17. Low emission portable engine-powered equipment, such as air compressors and gensets, shall be used when available.
18. Grid-supplied electrical power must be used in lieu of power-generating portable equipment whenever available in the project area.
19. A native tree-planting program to offset the loss of existing trees at the construction site is strongly encouraged.
20. Whenever possible site operations affecting traffic should be adjusted to occur during off-peak driving hours.
21. Employ construction activity management techniques, such as extending the construction period outside the ozone season of May through October; reducing the number of pieces used simultaneously; increasing the distance between emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak hours.
22. A traffic plan to minimize traffic flow interference from construction activities is to be employed as necessary. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.
23. Obstruction of through-traffic lanes must be minimized during construction or grading.
24. Ridesharing for construction employees is strongly encouraged.

PCAPCD's requirement for percentage-based NOx and PM10 reductions from project-serving construction equipment is also routinely imposed by the Sacramento Metro Air Quality Management District (SMAQMD). The San Joaquin Valley Unified Air Pollution Control District's (SJVUAPCD) Rule 9510 requires reductions of construction emissions; compliance with this rule is often considered to provide critical mitigation for significant construction emissions. The Lead Agency must consider Rule 9510's construction emissions-reducing measures for potential use at Ortega, along with the measures shown above. While it may then choose to reject any or all, it may do so only after providing substantial proof of their infeasibility.

XX. The MND Fails to Adequately Review and Mitigate Project-Related Global Warming Emissions.

Ortega's environmental review documents fail to include thorough discussion, analysis or mitigation for the project and cumulative project contribution to global warming impacts. While the Air Quality Assessment contains a general discussion of global warming, it incorrectly determines that review of Ortega's global warming impacts, analysis, or mitigation is unnecessary because "modeling and gauging the impacts associated with an increase in GHG emissions levels, including carbon dioxide, at the project level is not currently possible. No federal, state or regional regulatory agency has provided methodology or criteria for GHG emission and climate change impact analysis." (MND-IS, pg. 2-100). These conclusions are in error; the technical planning and scientific tools to assess global warming impact and feasible mitigation already exist.

A report by the Association of Environmental Professionals (AEP) includes the following recognition of the importance of climate change:

> *"In California, global climate change is a growing concern that must be addressed in CEQA documents."*[11]

The Report includes a recommended approach for assessing a project's contribution to global climate change. The approach is based on two key components: first, provide an inventory of greenhouse gas emissions; and second, include mitigation strategies identified in the California Climate Action Team (CCAT) Report. The CCAT mitigation was developed to provide sufficient greenhouse gas reductions necessary to meet the Governor's greenhouse gas reduction targets (targets are discussed further below).

The first component of the AEP recommended approach is providing an inventory of greenhouse gases associated with the project. The project-specific inventory can be quantified based on existing emissions models. Specifically, CARB has released the EMFAC 2007 emissions model to quantify on-road vehicle emissions; this model is used extensively for a broad range of

[11] See Association of Environmental Professionals, White Paper on Global Climate Change, page 2.

applications by a wide variety of agencies, and produces estimates of vehicle-related CO2 emissions. Because the Ortega project will produce offroad construction vehicle emissions and estimation methods readily exist to estimate their CO2 fraction using the URBEMIS model or other means, CEQA's primary interest in comprehensively estimating a project's environmental impacts dictates that those greenhouse gas emissions must be quantified, discussed, and mitigated using all reasonable, feasible means. Operational CO2 emissions derived from URBEMIS modeling have, in a number of CEQA analyses, been multiplied by 100 as an analogue to predict a project's lifetime CO2 increment. The Lead Agency's rejection of any responsibility to estimate impacts, and denial that estimation methods are available (MND-IS pg. 2-100), is therefore unsupported by any evidence.

In addition to EMFAC, CARB has produced the OFFROAD 2007 model to quantify emissions from off-road vehicles, including construction equipment. In order to satisfy CEQA's essential interest, EMFAC 2007 and OFFROAD 2007 models each be used to quantify the inventory of CO2 emissions from onroad and offroad vehicle use during both the short-term construction and long-term operational phases of the project.

The second component of the AEP-recommended global warming emissions approach stresses inclusion of mitigation strategies identified in the CCAT Report. According to AEP, the mitigation strategies in the CCAT Report "are the most appropriate to use at this time because the report 'proposes a path to achieve the Governor's targets that will build on voluntary actions of California businesses, local government, and community actions, and State incentive and regulatory programs.'[12] While the Ortega project involves road and road-related improvements, the CCAT mitigation measures noted below must be thoroughly evaluated for mitigation:

- Vehicle trip reduction strategies (paid parking, parking cash-out);
- Providing multi-modal transportation options;
- Increasing energy efficiency beyond Title 24 requirements;
- Increasing recycling; and

[12] AEP White Paper on Global Climate Change, p. 10.

- Incorporating green building technology.

In the opinion of AEP, if a project complies with applicable measures noted above, the project could be considered to have a less than significant cumulative impact to global climate change.[13] Without these mitigation measures, the project is considered to contribute significantly to global climate change, an environmental process relevant to CEQA.

The Ortega MND-IS as currently drafted fails to incorporate feasible climate change mitigation and fails any attempt to estimate its impact to climate change. Ortega's widening will cause cumulative emissions increases, resulting from the growth-inducing effects permitted by easing commuter access to jobs-rich Orange County from inland communities. There has long been a serious jobs-housing imbalance between Orange County and Riverside County, and it is predicted to worsen.[14] Currently, Western Riverside County has approximately 0.25 jobs per resident and, by comparison, Orange County has approximately 0.48 jobs per resident. Current demographic forecasts approved by the Southern California Association of Governments (SCAG) indicate that Riverside County will add approximately 0.39 jobs per additional resident while Orange County is projected to add 1.3 additional jobs per additional resident (1998 Regional Transportation Plan, Southern California Association of Governments). However, these ratios were to be adjusted downward in the 2001 update of the Regional Transportation Plan but were, nonetheless, expected to be in the same general range. Given the information above, Orange County will reflect a growth rate in jobs about four times that of inland communities to the east, and thus Ortega's widening can be expected to exacerbate the worsening jobs-housing balance trend by making for an easier commute. Additionally, easing access to inland areas by Ortega's widening can be expected to worsen emission impacts indirectly based on induced growth in those areas. Homes are significantly more affordable in the less populated areas to the east of Orange County, and thus Ortega's widening will exacerbate the tendency to increase commute lengths, with their attendant increases in emissions impacts, by continuing the long-established southern California trend toward sprawling

[13] Ibid, p. 2
[14] Riverside County Integrated Project, CETAP--Purpose and Need Statement (Banning/Beaumont to Temecula Corridor, (Winchester to Temecula Study Area); December 20, 2000; pg. 7.
(See http://www.rcip.org/pdf_files/transportation/P&NBanBeauTem120400.PDF)

developments accessed by ever-expanding roadways. Ortega's environmental documents fail to discuss the current jobs-housing imbalance in the region or how Ortega's widening will worsen this imbalance. The MND also ignores the emission impacts that will result from the sprawling growth encouraged by the project's improved access to Orange County jobs.

The State of California has acknowledged the environmental impacts of greenhouse gas emissions on climate change. According to Governor Schwarzenegger's June 1, 2005 Executive Order, global warming, left unchecked, will accelerate coastal erosion, degrade air quality, increase wildfires, reduce water supplies, and intensify heat waves, all concerns to the City of Los Angeles, its environs, and its citizens. (See California Climate Change Center, Our Changing Climate: Assessing the Risk to California; Executive Order S-3-05.) The Governor's Executive Order established the following greenhouse gas reduction targets:

- By 2010, Reduce to 2000 Emission Levels
- By 2020, Reduce to 1990 Emission Levels
- By 2050, Reduce to 80 percent Below 1990 Levels

If these targets are not achieved, the State of California and its resource agencies believe California will suffer serious and significant degradation of its natural environment, causing widespread environmental damage along with disproportionate harm to those with low incomes and those living in the already congested South Coast air basin. Nothing in Ortega's treatment of CO2 emissions demonstrates leadership by the Lead Agency (Caltrans) in characterizing and reducing global warming impacts, and this approach is both inconsistent and contradictory to actions taken by the Governor's office and the State's Attorney General's office in the last twelve months.

Increasingly over the last one to two years, the State's former and current Attorneys General have urged Lead Agencies to include analysis of global warming impacts in their environmental documents because *it is a requirement of CEQA.*[15] The basis for requiring an environmental

[15] The State's Attorney General, Jerry Brown has been urging jurisdictions to address global warming impacts in their CEQA documents. In a suit filed in April 2007, in San Bernardino County Superior Court, Atty. Gen. Jerry

review to disclose and analyze this impact is essential CEQA--the California Environmental Quality Act requires government agencies to disclose and analyze all of a project's potentially significant environmental impacts and to make every reasonable effort to avoid, diminish, or mitigate those harmful effects. CEQA defines significant impacts broadly and inclusively and its definition includes not only the direct environmental consequences of implementing the project, but any indirect effects that may follow from the project's direct physical environmental consequences. (CEQA Guidelines section 15064(d)(2).)

Ortega's MND-IS fails to address this essential interest with respect to the treatment of CO2 emissions that it will generate for decades to come. The generalized discussion of global warming issues in the Air Quality Impact Report, having nothing to say about Ortega in particular, cannot excuse the Caltrans as the Lead Agency from estimating, analyzing, and mitigating GHG impacts of this Project. At minimum, a revised MND must be drafted to correct these omissions and then re-circulated to allow public review of the following:

1. A revised regional setting discussion which includes background information on global warming and climate change, State, regional and local targets and the status of any regional inventory;
2. An inventory of the greenhouse gas emissions (i.e. carbon dioxide, methane, nitrous oxide) generated by the project;
3. Discussion and incorporation of all feasible mitigation as identified by CCAT.

Brown's office contends that the General Plan update approved last month by county supervisors violated the California Environmental Quality Act by not fully evaluating and addressing foreseeable effects on global temperatures, air quality and natural resources.

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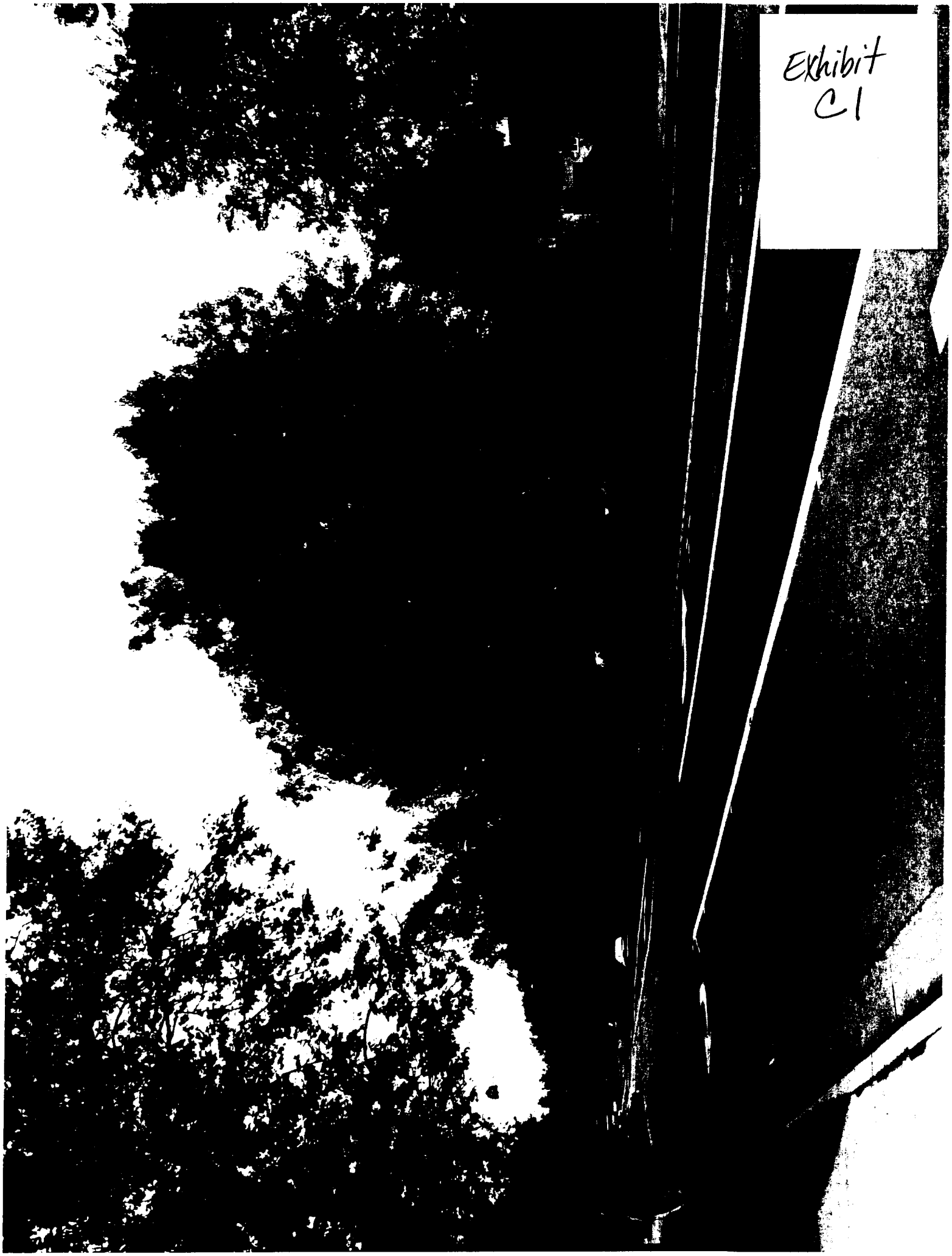
STATEMENT OF QUALIFICATIONS

Education
University of California, Santa Barbara; B.A., Env. Studies, 1982
Graduate and Professional Studies in Law, Planning, Emissions Modeling

Professional History
Greg Gilbert has consulted on air quality land use planning and mobile source issues and projects to private and public clients since forming Autumn Wind Associates in 2001. Previously, he was marketing director for a specialty emissions catalyst manufacturer. Between 1990 and 2000 Mr. Gilbert worked in two California air agencies, most recently as project manager in the Mobile Source Division of the Sacramento Metropolitan Air Quality Management District. While at the SMAQMD, Mr. Gilbert was responsible for implementing the District's heavy-duty vehicle low-emission incentive program that would later serve as a model for creation of the statewide Moyer Program. Air agency experience included evaluating land use-related air quality emission impacts and control strategies, developing CEQA mitigations and updating CEQA guidance, and creation of the first in-lieu air quality CEQA mitigation fee program.

Since leaving the SMAQMD he has provided consulting expertise to air agencies, provided input for revisions to the URBEMIS model, conducted research on construction practices and equipment emissions, and assisted with development of air district CEQA land use guidance documents and mitigation strategies. Mr. Gilbert reviews CEQA project-specific environmental documentation and provides written comments for a wide range of public-, private-, and environmental-sector clients.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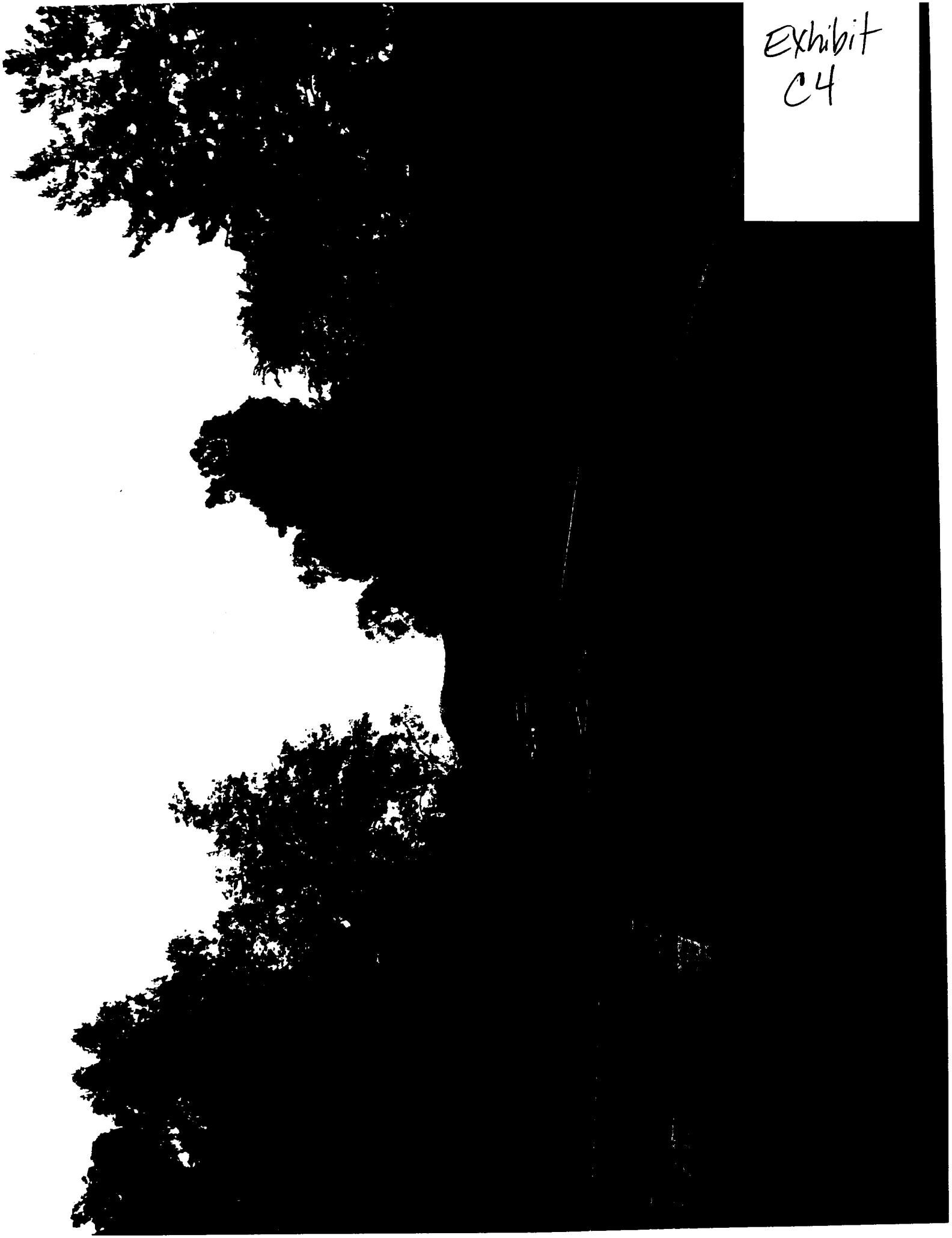

Exhibit D

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Impacts of New Highways and Subsequent Landscape Urbanization on Stream Habitat and Biota

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New highways are pervasive, pernicious threats to stream ecosystems because of their short- and long-term physical, chemical, and biological impacts. Unfortunately, standard environmental impact statements (EISs) and environmental assessments (EAs) focus narrowly on the initial direct impacts of construction and ignore other long-term indirect impacts. More thorough consideration of highway impacts, and, ultimately, better land use decisions may be facilitated by conceptualizing highway development in three stages: initial highway construction, highway presence, and eventual landscape urbanization. Highway construction is characterized by localized physical disturbances, which generally subside through time. In contrast, highway presence and landscape urbanization are characterized by physical and chemical impacts that are temporally persistent. Although the impacts of highway presence and landscape urbanization are of similar natures, the impacts are of a greater magnitude and more widespread in the urbanization phase. Our review reveals that the landscape urbanization stage is clearly the greatest threat to stream habitat and biota, as stream ecosystems are sensitive to even low levels (<10%) of watershed urban development. Although highway construction is ongoing, pervasive, and has severe biological consequences, we found few published investigations of its impacts on streams. Researchers know little about the occurrence, loading rates, and biotic responses to specific contaminants in highway runoff. Also needed is a detailed understanding of how highway crossings, especially culverts, affect fish populations via constraints on movement and how highway networks alter natural regimes (e.g., streamflow, temperature). Urbanization research topics that may yield especially useful results include a) the relative importance and biological effects of specific components of urban development—e.g., commercial or residential; b) the scenarios under which impacts are reversible; and c) the efficacy of mitigation measures—e.g., stormwater retention or treatment and forested buffers.

Keywords road, urbanization, motorway, macroinvertebrate, fish, urban

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Introduction

Due to their large surface area, high traffic volume, and potential to induce urban development, the construction of large (≥ four-lane) paved roads (herein defined as highways), are often detrimental to local ecosystems. Stream ecosystems are particularly sensitive to the construction of new highways due to characteristics of the fluvial environment and biota. Downstream transport of water and sediment spreads chemical and fine sediment pollution, causing the ecological impacts of highways to extend farther in aquatic than in terrestrial environments (Forman and Alexander, 1998). Aquatic fauna often have a more difficult time avoiding spreading impacts than terrestrial fauna because their movements are generally confined to the narrow linear geometry of the stream channel. In addition, highways and urban development alter the hydraulic connection of streams to their watersheds, fundamentally altering processes, which control channel geomorphology, form habitat, and ultimately contribute to biotic integrity (Wang et al., 2001; 2003).

Angermeier et al. (2004) conceptualized the extent and nature of highway impacts on streams in three consecutive stages: initial highway construction, highway presence, and eventual landscape urbanization (Table 1). Because this framework reflects the spatial and temporal dimensions of impacts, it is useful for organizing, describing, and evaluating the environmental concerns of new highways. The initial phase, highway construction, includes all the short-term impacts from the construction process. These impacts are generally physical, temporary (i.e., subside through time), and local. The second phase, highway presence, encompasses secondary impacts that are chronically generated from the physical presence of the highway including chemical pollutants from automobile traffic and stream channel alterations. These chemical and physical impacts are regional and occur as long as the highway exists. Finally, landscape urbanization includes the impacts from general economic development and results in a variety of chemical and physical impacts that are widespread and chronic. Previous reviews have focused on single phases of highway impacts (Atkinson and Cairns, 1992; Little and Mayer, 1993; Forman and Alexander, 1998; Trombulak and Frissell, 2000; Forman and Deblinger, 2000; Paul and Meyer, 2001) but not clearly described or considered the inherent connectivity of the nature and scales of the impacts.

Table 1

Conceptual framework for primary physico-chemical impacts of highway construction. The scale and nature of primary environmental impacts change from the direct effects of highway construction to the secondary and indirect effects associated with the presence of a highway and urban development. These may be viewed as a gradient of changing concerns and impacts through time. All physico-chemical impacts have important consequences for stream biota but the degree of peer-reviewed investigation differs among stages

	Developmental stage		
Impact characteristics	Highway construction	Highway presence	Urbanization
Temporal extent	Temporary	Chronic	Chronic
Spatial extent	Local	Regional	Regional
Primary nature	Physical	Physical and chemical	Physical and chemical
Degree of investigation	Low	Moderate	High

The predictable effects of the three consecutive stages of new highway construction are seldom considered simultaneously in environmental assessments. The National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and various state environmental laws (CEQ, 1997) require state and federal transportation agencies to consider the significance of anticipated impacts in environmental assessments (EAs) or prepare environmental impact statements (EISs) when significant impacts are anticipated. However, these assessments generally focus almost exclusively on short-term, localized impacts and ignore the long-term secondary and cumulative impacts (Spaling and Smit, 1993; McCold and Holman, 1995; Burris and Canter, 1997; Cooper and Canter, 1997; Angermeier et al., 2004) that are often primary concerns of the government agencies and civilian stakeholders reviewing these documents (e.g., NCWRC and NCDPR, 2002). Although European countries more rigorously apply ecological principles to transportation projects than the United States (Forman and Alexander, 1998), inadequate assessment of cumulative effects is a global problem (Cooper and Sheate, 2002).

Evaluations of the thoroughness of EISs and EAs are often limited due to a lack of published summaries of the impacts that may be expected from proposed projects. For example, evaluations of EISs and EAs have searched for the assessments for key words or concepts rather than assessing how meaningful and thoroughly probable impacts were considered (e.g., Burris and Canter, 1997; Cooper and Canter, 1997). A new review of the extent and nature of impacts from new highways that considers the stages and changing impacts identified by Angermeier et al. (2004) will assist reviewers of EISs and EAs in explicitly linking the successive stages, a step often ignored in assessment-proposed highway projects. Our review summarizes investigations that will help environmental and fisheries scientists consider potential impacts of proposed highway projects over multiple dimensions, but are often unavailable in field offices, and spread widely across academic disciplines. In addition EISs, EAs, and previous reviews often make assertions based on unpublished government reports which suffer the general inadequacies of "grey" literature (Collette, 1990). In contrast, we rely almost exclusively on published, peer-reviewed studies.

The purpose of this article is to review the impacts of new highways through undeveloped land. Although not the focus of this review, much of the information presented may be relevant to more common highway improvements, such as lane additions and surface upgrades. We focus on studies conducted in the United States, but some relevant international research is included to supplement sparsely researched topics. Following our conceptual framework (Table 1), we synthesize the scientific knowledge on physical, chemical, and biological responses of streams during 1) highway construction, 2) highway presence, and 3) watershed urbanization. The ultimate goals of this review are to provide information that will: 1) improve the ability of transportation planners to prepare more through, meaningful, and science-based EISs and EAs, and 2) spur research in subject areas where rigorous studies are lacking but information is needed for comprehensive impact assessment of new highways.

Highway Construction

Highway construction can be highly destructive to stream habitat and biota. Impacts on streams are primarily acute, local, and physical in nature (Table 1). Highway construction primarily degrades stream habitat locally but some of these impacts may transport downstream. In contrast to impacts of highway presence and landscape urbanization, many construction impacts may be temporary and streams can recover if not recurrently disturbed. In this section, we review literature assessing these acute impacts (e.g., sedimentation). Other

impacts initiated during construction but posing long-term threats, such as channelization and culverts, are considered in the Highway Presence section.

Highway Construction and Physical Habitat

As with any earth-moving activity, the greatest threat of highway construction to streams is fine sediment pollution, which can cause a variety of problems for resident biota, including direct mortality, reduced reproductive success, and a reduction in the food base (reviewed in Waters, 1995). Fine sediment pollution originates as bare soil erodes into streams, usually after exposure to precipitation or flowing water. Streams impacted by highway construction accumulate (Clarke and Scruton, 1997) and transport (Weber and Reed, 1976) many times more sediment than undisturbed streams. Although a variety of erosion control procedures are available and often legally required, they are seldom evaluated for their effectiveness (but see Grace (1999), Benik et al. (2003a, 2003b)) and have a risk of failure seldom considered in published investigations or environmental impact statements. A Pennsylvania study found that, even in the presence of sediment control techniques, streams impacted by highway construction carried 5 to 12 times more fine sediment than a control stream (Weber and Reed, 1976). The suspended solids load of a Ontario stream increased from an average of 2.8 mg/l to 352.0 mg/l during the initial "clearing phase" and peaked at 1,390 mg/l during highway construction (Barton, 1977). In addition, Barton (1977) observed a 10-fold increase in fine sediment deposition following a highway construction channelization project but stream sediment loads approached preconstruction levels near the completion of the construction. Increases in suspended sediment are detectable for long distances (kms) downstream of construction sites (Wellman et al., 2000). These sediments deposit in downstream pools, riffles, and impoundments (Duck, 1985; Brookes, 1986).

Highway construction can result in a variety of other seldom studied physical habitat degradations by encroaching onto floodplains and damaging riparian areas. Heavy equipment accessing the stream may incidentally damage (Hubbard et al., 1993) or purposely remove (Stout and Coburn, 1989) riparian vegetation during highway construction. Riparian vegetation is a critical component of stream watersheds and performs many important functions for streams (see Urbanization section). Streams near highways are often channelized and the initial effect of heavy equipment modifying the stream channel may alter the dynamic equilibrium of streams and result in rapid channel reorganization, all of which can lead to additional sedimentation and erosion downstream.

Highway Construction and Stream Chemistry

We found no studies documenting chemical impacts of highway construction on streams. However, the use of heavy machinery in and around streams likely causes some chemical pollution. In addition, many highway construction materials are highly toxic to aquatic biota. For example, industrial waste materials and byproducts such as shredded tires, ashes, mining wastes, municipal sludge, and wood wastes may be used in highway construction (Eldin, 2002). These materials release heavy metals and hydrocarbons which are toxic to water fleas *Daphnia magna* and algae *Selenastrum capricornutum* (Eldin, 2002). The toxicity of these materials may be reduced when in contact with soil, and during typical construction these toxins are unlikely to reach detrimental levels in streams. Nevertheless, the proximity of toxic materials to streams increases the chances of accidental spills and releases.

Biological Effects of Highway Construction

The impact of highway construction on stream fishes and macroinvertebrates is rarely studied. Similar to other anthropogenic landscape changes, highway construction is difficult to research for several reasons. Highway construction consists of many individual impacts that occur concurrently; thus, specific causal mechanisms are difficult to establish. An additional obstacle to research is that construction timeframes are often unpredictable, and construction often takes longer than the tenure of a typical graduate student. In addition, highway construction presents statistical and study design difficulties; for example, treatments are difficult to replicate and meaningful controls difficult to establish.

We found only a few studies investigating the effects of highway construction on stream fishes and macroinvertebrates. However, fine sediment pollution occurs from a variety of anthropogenic sources and is widely studied outside the context of highway construction. The effect of fine sediments on stream biota has been recognized for decades (Ellis, 1936) and is the subject of many previous reviews (Chutter, 1969; Bruton, 1985; Ryan, 1991; Waters 1995; Wood and Armitage, 1997; Henley et al., 2000). Therefore, in addition to studies that directly focus on highway construction, this section includes more general investigations of the effect of fine sediment on stream biota.

Fine sediment pollution from highway construction can immediately alter macroinvertebrate and fish communities (Barton, 1977). Reductions in the abundance and diversity of macroinvertebrates may depend on the timing and duration of construction impacts (Cline et al., 1982). Stout and Coburn (1989) found an absence of macroinvertebrate shredders in pools below highway construction. Fine sediment from highway construction may result in reduced macroinvertebrate diversity and density (Lenat et al., 1981). Highway construction can immediately reduce the overall abundance of stream fishes by over 50% (Whitney and Bailey, 1959; Barton, 1977). Taylor and Roff (1986) reported that the abundance of bottom-feeding fishes is initially reduced, but recovers after fine sediment deposition rates decline. Fish and invertebrate communities begin recovering after the fine sediment loads are reduced and deposits wash downstream, but full recovery may require years (Taylor and Roff, 1986).

Fine sediment pollution degrades stream biotic communities through a variety of mechanisms. Stream periphyton and macrophytes are abraded, suffocated, and shaded by fine sediment (Waters, 1995). Fine sediment loads impact macroinvertebrates by inducing catastrophic drift (Culp et al., 1986), damaging individual's respiratory structures (Lemly, 1982), and reducing habitat by clogging interstitial spaces in streambeds (Lenat et al., 1981). Fine sediment can also clog the gills of fishes and reduce the quality of their habitats for feeding by impairing visibility and reducing prey abundance (Bruton, 1985). It is possible that construction interferes with a variety of feeding strategies; Berkman and Rabeni (1987) found that fine sediment deposition reduced populations of both insectivorous and herbivorous fishes. In addition, fine sediment suspended in the water can lower reproductive success of fishes (Burkhead and Jelks, 2001). For example, egg survival of some species depends on substrate that is permeable to water flow (Kondou et al., 2001).

Highway Presence

Although highway construction can be highly detrimental to stream habitat and biota, construction sites are sparse compared to the land covered and increasingly affected by existing highways. Currently in the United States, there are 6.3 million km of public roads, 60% of which are paved with a surface area of about 50,000 km^2 (Eldin, 2002). At present,

20% of the United States' land area is directly affected by road presence (Forman, 2000), and 50% is within 382 m of a road (Ritters and Wickham, 2003). In contrast to the localized, temporary effects of highway construction, the extensive effects of highway presence are persistently generated by highways with direct hydraulic connections to streams (Table 1).

Highways and Physical Habitat

Although pulses of highway runoff can substantially affect stream channels, we found no studies of its impact on physical stream habitat. However, many investigators have examined the impacts of logging roads (see Gucinski et al., 2001). Although unpaved forest roads are not the subject of this review and differ from paved highways in many aspects, they are similar in that their impervious surfaces collect stormwater and route runoff into streams. Collecting and routing runoff to streams causes logging roads to increase the magnitude and frequency of stream flooding (King and Tennyson, 1984; Jones and Grant, 1996). These runoff changes are also characteristic of urban areas and cause a variety of physical changes to stream channels, such as channel widening and downcutting (see Urbanization section). However, because paved roads are only minor components of the total impervious surfaces of an urban watershed, the presence of a single highway in a watershed likely results in less changes to flow regimes and, ultimately, less severe changes to physical stream habitat than urban development.

Streams near highways are often channelized during construction. However, unlike many construction impacts such as fine sediment pollution, this modification has continual long-term consequences for physical stream habitat. Channelization increases channel slope, reduces base flows, increases peak flows, alters substrate composition, and severs floodplain links (Hubbard et al., 1993). Overall, channelization reduces the habitat diversity characteristic of natural streams by replacing coarse substrates with finer substrates, reducing depth and velocity heterogeneity, creating more laminar flows, removing cover, and eliminating natural pool-riffle sequences (Peters and Alvord, 1964; Narf, 1985).

If engineered properly, bridges may cause minimal impacts on the physical stream channel; however, through channelization or poor construction practices, bridges can destabilize stream channels. Although culverts are generally more detrimental to stream habitat and biota, they are often installed as a cheaper alternative to spanning structures. The presence of cluverts destabilizes stream channels by interrupting the downstream transport of woody debris, sediment, substrate, and water. Although few quantitative studies of the impact of culverts on physical stream habitat are available, Gubernick et al. (2003) provided a qualitative overview. Unlike dynamic natural stream channels, culverts are rigid and unaccommodating to changes in channel morphology. In addition, the stream channel is often widened above the culvert, reducing current velocities and forming a sediment trap. Although downstream sediment flow is reduced above the culvert, it continues or accelerates below the culvert causing channel downcutting and resulting in an elevation drop, even if initial construction put the pipe at stream level. Typically, culverts are sized to accommodate rare flood flows but are too small to allow passage of woody debris. Accumulations of woody debris near the inlet can starve downstream areas of this important component of stream habitat (see Urbanization section) and may plug the culvert, causing failure of road fill during floods and increasing the risk of catastrophic debris torrents.

Highways and Stream Chemistry

Highway surfaces collect a variety of chemical pollutants from automobile traffic and are disproportionate contributors to overall pollutant loads. For example, public highways

cover 8% of Rhode Island, but produce 16% of the state's oil and grease pollution, and 77% of the state's zinc pollution (Hoffman *et al.*, 1985). These pollutants are mobilized by runoff water and transported to streams where they accumulate in sediments and biota and spread downstream, resulting in chronic and widespread effects. This runoff represents an important, but relatively unstudied, component of stream pollution (Wu et al., 1998).

Traffic residue adds a variety of metals to highway runoff, including iron, zinc, lead, cadmium, nickel, copper, and chromium. Tires contain up to 1% zinc by weight (Hedley and Lockley, 1975) and are a significant source of zinc in the environment (Davis et al., 2001). Brake pad dust contributes copper (Davis et al., 2001). These metals accumulate in roadside dust (Leharne et al., 1992), soil (Goldsmith et al., 1976; Garcia-Miragaya et al., 1981), and stream sediments (Van Hassel et al., 1979; Maltby et al., 1995b). The concentrations of metals in stream sediments are positively related to the volume of traffic (Van Hassel et al., 1980; Callender and Rice, 2000) and accumulate in proportion to the length of highway drained (Maltby et al., 1995b), suggesting that pollution will be most severe when large highways are drained by small streams.

Highway surfaces also accumulate petroleum from automobile traffic. Motor oil accumulates from crankcase drippings, washes off the highway surface, and accumulates in stream sediments (Hoffman et al., 1985). Until the Clean Air Act of 1970 phased out leaded gasoline, lead was the most widespread metal pollutant from automobile traffic. Unleaded gasoline permits the use of catalytic converters, which convert gaseous exhaust pollutants such as carbon monoxide, nitrous oxides, and hydrocarbons to less toxic chemicals such as carbon dioxide, nitrogen, and water. The chemical reactions are catalyzed in automobile exhaust systems by platinum group elements (PGEs), including platinum, palladium, and rhodium, which are emitted on highway surfaces during operation. Since the introduction of catalytic converters, PGEs have become a new and relatively unstudied metal pollutant of stream sediments (Rauch and Morrison, 1999). In addition, iridium, rubidium, and osmium are common impurities in PGE catalysts and may also be deposited on highways (Rauch et al., 2004). Concentrations of PGEs in roadside soils are related to traffic volume and are increasing to such a degree that their recovery (i.e., mining roadside soil) may become economically viable (Ely et al., 2001).

In areas that undergo winter weather, deicing salt is another widespread, but little studied, chemical pollutant of streams. Deicing salt is spread on highways in anticipation of and during snow and ice accumulation, from where it washes directly into streams or is stored in the soil. A study in Pennsylvania found 20- to 30-fold increases in a stream's conductivity during winter thaws (Koryak et al., 2001). Although concentrations harmful to fish are considered rare (Transportation Research Board, 1991), few studies have addressed the effects of these "shock loads" of salt on stream biota. Koryak et al. (2001) observed only pollution-tolerant macroinvertebrates and stressed fish communities in areas receiving shock loads of deicing salt. Furthermore, deicing salt may be contaminated by metals and nutrients. Phosphorous, lead, and zinc were found in highway deicing salt and anti-skid sand in Minnesota (Oberts, 1986) and iron, nickel, lead, zinc, chromium, and cyanide in deicing salt in England (Hedley and Lockley, 1975). Road salt that does not run off directly into streams may still cause chronic problems through slow release into adjacent soils; chlorine ions from road salt have a soil residence time of at least 2 years (Mason et al., 1999).

Another concern associated with the presence of a highway is the inevitability of toxic chemical spills. In 1982, hazardous materials made up more than 25% of all domestic freight shipments (List and Abkowitz, 1986). Almost all types of hazardous wastes and 62% of all hazardous materials (by weight) are moved by truck (Abkowitz et al., 1989; Atkinson and Cairns, 1992). Unfortunately, accidental releases during shipping are not infrequent.

Between 1990 and 1994 an average of 10,000 accidents per year were reported, releasing 2,445 kl of hazardous materials annually on U.S. highways (USEPA, 1996).

Biological Effects of Highways

Highways have many detrimental effects on stream biota. Toxic chemical spills often occur from truck accidents, and can cause fish kills extending downstream for great distances (kms). Stream crossings may be especially vulnerable to spills because bridge surfaces encourage automobile accidents because during winter weather conditions by icing more frequently than terrestrial paved surfaces. Furthermore, the inherent vicinity of bridge accidents to streams increases that risk that spilled chemicals may enter streams before containment. Accidental spills are particularly devastating for isolated populations of rare species with limited potential for movement and recolonization, such as freshwater mussels. Although there are many documented cases of such acute effects (USEPA, 1996), we found no studies describing chronic changes in macroinvertebrate or fish communities resulting from repeated toxic spills. Studies examining streams after catastrophic toxic spills have documented eventual recovery and recolonization from adjacent areas (Ensign et al.,1997; Meade, 2004), emphasizing the importance of well-connected habitats to increase resilience of stream biota to the effects of highway presence. Thus, stream reaches that are isolated by culverts, dams, or natural barriers may be particularly vulnerable to spills.

Macroinvertebrates and fishes near highways may have elevated metal concentrations in body tissues. Levels of lead and zinc in fishes and aquatic macroinvertebrates may be locally related to the amount of traffic at upstream highway crossings (Van Hassel et al., 1980) and regionally related to highway densities across large areas (Stemberger and Chen, 1998). Fish species accumulate metals from highway runoff at differential rates (Ney and Van Hassel, 1983). Aquatic macroinvertebrates may absorb platinum from stream sediments (Rauch and Morrison, 1999). The accumulation of toxic chemicals in animal tissue likely results in widespread impacts that spread to terrestrial communities, particularly animals that feed exclusively on aquatic species (e.g., many members of the avian order Ciconiiformes).

Many components of highway runoff such as metals and petroleum are suspected toxicants to aquatic organisms. Although few studies have addressed the toxicity of highway runoff, the sediment from contaminated streams is considered more toxic than the water. Although a variety of potential toxicants, including hydrocarbons, copper, and zinc are found in highway runoff, polycyclic aromatic hydrocarbons (PAHs) in stream sediments may be responsible for the majority of macroinvertebrate toxicity (Maltby et al., 1995a). Boxall and Maltby (1997) confirmed that three specific PAHs, pyrene, fluoranthene, and phenanthrene, were major sediment toxicants for *Gammarus pulex* and accounted for >30% of the toxicity of runoff-contaminated sediments.

Comparisons of macroinvertebrate communities above and below highway crossings are rare but indicate that reductions in diversity and pollution-sensitive species below highway crossing are most pronounced where small streams receive runoff from large sections of highways (Maltby et al., 1995b). These patterns may reflect greater hydrocarbon pollution in sediments below road crossings. Reductions in pollution-sensitive shredders may result in slower leaf litter breakdown (Maltby et al., 1995b), altering stream productivity, nutrient cycling, and food webs.

In addition to chemical effects, highways also impact biota through physical changes to the stream channel. Channelization can have numerous effects on the physical structure and natural environmental regimes of stream systems; these dynamics provide a mosaic of habitats to support resident organisms (Stanford et al., 1996; Poff et al., 1997; Poole, 2002).

Moyle (1976) compared channelized and unchannelized sections of a California stream and found the biomass of fish and invertebrates in channelized locations was less than one-third of that in unchannelized locations. He also found differences in fish and macroinvertebrate species composition between channelized and unchannelized areas. Channelization may reduce the recruitment and production of fishes by eliminating nursery habitat. For example, removal of gradually sloping streambanks increases the area of unsuitable habitat with velocities greater than the swimming speeds of age–0 fishes (Copp, 1991, 1997; Scheidegger and Bain, 1995; Mann and Bass, 1997; Mérigoux and Ponton, 1999; Meng and Matern, 2001).

Culverts are a feature of highway presence that can have a variety of negative impacts on stream biota. Culverts provide poor internal habitat due to low-bottom complexity and uniformly high-flow velocities inside culverts provide poor habitat (Slawski and Ehlinger, 1998), but most importantly, they are notorious fish movement barriers. The effects of highway crossings on stream fish movement depend on the swimming speed and behavior of individual species (Toepfer et al., 1999). Fish passage is obstructed by high current velocities and shallow depths inside culverts, as well as vertical drops at the culvert outflow (Baker and Votapka, 1990). In addition, concrete box culverts may develop internal gravel bars (Wellman et al., 2000) that impede fish movement. Warren and Pardew (1998) found that overall fish movement was an order of magnitude lower through culverts than through other crossing types or natural channels in small, warmwater Arkansas streams. Culverts throughout a tributary network can reduce production of species that require spawning migrations, such as coho salmon *Oncorhynchus kisutch*, by preventing adults from reaching spawning habitat (Beechie et al., 1994). Barriers can isolate populations, resulting in reduced genetic diversity and increased probability of extinction due to demographic instability and impeded recolonization. Most investigations of fish movement barriers have focused on economically important fishes with known migration patterns; for example, Belford and Gould (1989) determined combinations of water velocity and culvert length that prevented passage by brook trout *Salvelinus fontinalis*, rainbow trout *Oncorhynchus mykiss*, and brown trout *Salmo trutta*. However, entire fish communities are vulnerable to highway crossing movement barriers (Jackson, 2003) and the importance of movement and movement barriers to nongame fishes and fish communities is poorly understood. In one of the few published studies for a nongame species, Schaefer et al. (2003) found that a variety of culvert types significantly decreased the probability of movement of the federally threatened leopard darter *Percina pantherina* between habitat patches. Although culverts present a variety of obstacles to fish movement, engineers designing passable culverts may narrowly focus on the effects of singular parameters such as vertical outflow drop distance or current velocity (e.g., Rowland et al., 2003) and not consider the cumulative effects of multiple passage inhibiting features.

Urbanization

Urbanization is difficult to define, as the meaning of "urban" varies across disciplines (Paul and Meyer, 2001). We modify the definition by Kemp and Spotila (1997) and define urbanization as development in a watershed, such as building construction, that changes land use typical of rural areas (e.g., farming, grazing) to uses more typical of residential and industrial areas (e.g., retail, suburban residential areas, plants and factories). This definition describes the general process of watershed-altering development that is characteristic of the urban landscape and the focus of this review.

The construction of new highways is the "quintessential public sector investment" by which government attempts to encourage economic growth in rural areas (Chandra and Thompson, 2000). At the state level, new highways are ineffective at increasing economic activity (Evans and Karras, 1994; Holtz-Eakin, 1994; Dalenberg and Partridge, 1997), but they effectively redistribute economic activities among locales. New highways reduce traditional rural economic activities of nearby counties such as agriculture, but enhance and concentrate urban economic activities such as manufacturing and retail in the county the highway intersects (Rephann and Isserman, 1994; Chandra and Thompson, 2000). The construction of new highways also increases the price of agricultural land (Shi et al., 1997), thereby encouraging development. Shifting the economic productivity from rural to urban activities promotes urbanization, at least in the county the highway passes through, as reduced travel time to cities encourages establishment of commerce in previously undeveloped areas. Although final decisions for urban development are made by local governments, new highways clearly and purposely provide impetus for urban development.

Much of our understanding of the relation between new highways and urban development is based on patterns observed at interstate highway exits. Key characteristics of interstate exits related to the rate and nature of urban development in North Carolina include traffic volume of the interstate and crossroad, location, and population of nearby communities, distances to urban centers, degree of preexisting development, and distance to the next interchange (Hartgen et al., 1992). A later study concluded that these relationships were consistent for interstate exits nationally (Hartgen and Kim, 1998). Hartgen et al. (1992) described the general requirements, stages, and potential paths of interchange development, and all potential paths predict that interstate construction leads to the conversion of forested and agricultural areas to commercial or residential development. Improvements to existing highways, such as lane additions, also increase development activity along the highway corridor (Cervero, 2003).

Other studies have documented land use change induced by the presence of nearby highways. Although these studies do not address the construction of new highways, they provide insight into the relationship between a new highway and landscape urbanization at points other than exits. Bradshaw and Muller (1998) forecasted the conversion of farmland to urban areas in California, describing highways between cities as "magnets for decentralized growth." In the southern Appalachian Mountains, areas close to highways were more likely to experience development (Wear and Bolstad, 1998).

Although the relation between the construction of a new highway and urban development is intuitive, predictable, and often a declared political goal, few investigators have examined this connection. Indeed, this connection is a contentious issue for transportation planners. The position that new highways do not result in urban development, although apparently ubiquitous among transportation planners, is not well-supported by published studies and our literature review failed to produce any peer-reviewed examples refuting a positive relation between highway construction and urban development (but see Hartgen (2003a, 2003b)).

A stream's physical habitat and chemical environment are largely products of its watershed. Thus, as a watershed urbanizes, changes occur in stream habitat, water chemistry, and ultimately biota. Similar to the presence of a hydraulically connected highway, urban development continually affects streams and causes extensive and chronic impacts (Table 1), but at greater magnitudes. Runoff from urban areas contains all the chemical pollutants from automobile traffic as well as those from urban sources. In addition, urbanization drastically alters how a watershed produces stream flow, resulting in many changes in physical habitat.

Urbanization and Physical Habitat

Undeveloped watersheds are characterized by land surfaces that are pervious to precipitation. Rain falling in undeveloped watersheds infiltrates the soil and reaches streams slowly as subsurface flow. The urban landscape, however, is characterized by rooftops, asphalt, compacted soils, and other highly impervious surfaces (Schueler, 1994, 1995). These impervious surfaces with direct hydraulic connections to streams (Schueler, 1994; Wang et al., 2001, 2003), capture precipitation and route it quickly into storm sewers and gutters and, ultimately, into streams (Hollis, 1975). Similarly, precipitation falling on impervious surfaces without direct hydraulic connections to streams may reach streams quickly as overland flow (Horton, 1945; Leopold, 1973). Thus, urbanization fundamentally alters the delivery of water to streams (Booth, 1991).

These changes in precipitation delivery alter stream flow regimes. As a watershed urbanizes, peak flow volume from precipitation events increase (Hollis, 1975; Beard and Chang, 1979; Neller, 1988; Booth, 1990; Clark and Wilcock, 2000; Rose and Peters, 2001), thereby increasing the frequency of bankfull flows (Leopold, 1973; Hollis, 1975; Arnold et al., 1982; Moscrip and Montgomery, 1997). Even low levels of paving increase the magnitude of frequent floods (recurrence interval $\leq$ 1 year); for example, paving 20% of the watershed can increase the peak discharge of the mean annual flood by an order of magnitude (Hollis, 1975). Thus, discharge rates that previously occurred once every 2 years may double in frequency following watershed development (Booth, 1991). Ten-year floods may occur 2.5 to 10 times more frequently following watershed urbanization (Moscrip and Montgomery, 1997). In addition, precipitation events that produced no increase in stream flow prior to urbanization may generate substantial flooding following watershed urbanization (Booth, 1991).

These changes in flood frequency and magnitude result in a variety of changes to physical features of streams. Bankfull and greater flows cut and form stream channels and adjust channel capacity such that bankfull conditions occur on an average of once every 1 to 2 years (Wolman and Miller, 1960; Leopold, 1973). The increased frequency of bankfull flows following urbanization causes a stream to increase its channel capacity by eroding its banks, downcutting its channel, or both (Hammer, 1972; Leopold, 1973; Arnold et al., 1982; Allen and Narramore, 1985; Booth, 1990, 1991; Gregory et al., 1992; Pizzuto et al., 2000). Thus, urban streams are wider and deeper than unaffected channels.

Impervious surfaces increase peak flow at the expense of base flow. Base flows result from subsurface flow and groundwater that steadily contributes to streams between precipitation events. Because impervious surfaces prevent precipitation from infiltrating below the surface, urban streams are characterized by low base flows (Simmons and Reynolds, 1982; Wang et al., 2001, 2003). Low flows combined with the effects of channel enlargement, results in urban streams that feature oversized stream channels with little water between runoff events.

Streams in urbanized watersheds enlarge their channels by eroding their banks. Bank erosion as well as runoff from urban construction activities adds fine sediment to the receiving stream (Waters, 1995; Trimble, 1997). Typically, fine sediment is a minor component of pristine streams. For example, a stream flowing through a completely forested watershed receives about 11.3–33.8 metric tons per ha of sediment annually; in contrast, an urbanizing watershed may receive more than 226,000 metric tons per ha annually (Wolman, 1967; Wolman and Schick, 1967). This dramatic increase in fine sediment can devastate, and ultimately, extirpate stream biota (see Highway Construction section). Channel enlargement

may be balanced by rapid loading of fine sediment during the initial phases of urbanization. For example, Wolman (1967) hypothesized that high sediment loads from the construction phases of urbanization could temporarily clog and constrict stream channels, a phenomenon later observed by Leopold (1973).

When the extent of urbanization in a watershed stabilizes, stream channel enlargement may cease, and the channel banks may restablize. In addition, as the rate of urban development declines, fine-sediment loading may be greatly reduced as construction site soils are stabilized via revegetation or pavement, and prior deposits may be removed by scouring during subsequent flooding (Wolman, 1967; Clark and Wilcock, 2000; Finkenbine et al., 2000). However, the process of bank erosion, downcutting, and channel adjustment may continue for several decades, and some streams never stabilize (Henshaw and Booth, 2000).

Urbanization typically results in loss of streamside (riparian) vegetation as areas near streams are cleared. The degree of riparian disturbance varies with type of urban land use. For example, Thibault (1997) found the land used for transportation, schools, and industry had more intact riparian areas than residential, commercial, and recreational land. Riparian vegetation is a critical component of the watershed (reviewed by Karr and Schlosser, 1978; Gregory et al., 1991; Naiman and Décamps, 1997; Pusey and Arthington, 2003) and, although they cover a small percentage of the watershed, riparian areas are disproportionately important for stream health. Intact riparian areas absorb and filter out metals, fine sediment, and nutrients from overland runoff (Castelle et al., 1994) and generally mitigate the physical and chemical effects of urbanization (May et al., 1997). Riparian vegetation stabilizes streambanks and reduces bank erosion (Whipple et al., 1981; Beeson and Doyle, 1995; Finkenbine et al., 2000), and helps moderate urban stream temperatures (LeBlanc et al., 1997).

Riparian vegetation contributes leaves, wood, and other organic debris to streams. The biota of small ($\leq$ fourth-order) streams, such as those generally associated with urban areas (Heaney and Huber, 1984), depend on leaves and organic inputs as their energy base (Vannote et al., 1980; Hawkins and Sedell, 1981). Large woody debris is an important component of stream channels because it stabilizes stream banks (Keller and Swanson, 1979; Booth, 1991; Gregory et al., 1991; Finkenbine et al., 2000), creates pools (Keller and Swanson, 1979; Larson et al., 2001), and provides habitat for macroinvertebrates (Benke et al., 1985) and fishes (Angermeier and Karr, 1984; Flebbe and Dolloff, 1995). In urban areas, recruitment of woody debris declines as development removes floodplain trees and instream abundance is typically reduced by intentional debris removal (Larson et al., 2001).

Stream water temperature is a major determinant of the distribution and abundance of aquatic biota and is primarily regulated at two spatial scales, the riparian and the watershed. Riparian vegetation shelters streams from warming by absorbing or reflecting sunlight before it reaches the water. Thus, loss of riparian vegetation contributes to the warming of urban streams (Barton et al., 1985; LeBlanc et al., 1997). At the watershed scale, impervious surfaces, especially parking lots, collect and heat runoff water before it reaches streams. For example, Van Buren et al. (2000) developed a computer model to predict runoff temperature and observed that a parking lot produced runoff 5.9°C warmer than summer rainfall. The maximum daily water temperature in Wisconsin and Minnesota streams increase by 0.25°C with every 1% increase in the impervious area of the watershed (Wang et al., 2003). In addition to increases in average water temperature, urban streams exhibit increased temporal variability (Moglen et al., 2004).

Urbanization and Water Chemistry

Urban runoff contains a variety of chemical pollutants including petroleum, metals, and nutrients. Rivers and streams receive the majority of urban runoff (84%) (Heaney and Huber, 1984) and chemical pollutants are often stored in stream sediments. House et al. (1993) reviewed the constituents and impacts of urban runoff on receiving waters.

Oil and grease enter urban runoff from a variety of sources including deliberate dumping, automobile engine emissions, and chemical spills; however, the majority originates from automobile crankcase drippings (Hoffman et al., 1982). Parking lots accumulate oil and grease deposited by parked vehicles and become the primary land use source of oil and grease in urban runoff. Stenstrom et al. (1984) observed concentrations of oil and grease up to 15 mg/l in parking lot runoff. Automotive sources of metals in urban runoff include zinc from tire wear (Hedley and Lockley, 1975) and motor oil (Davis et al., 2001), platinum from catalytic converter emissions (Rauch and Morrison, 1999), and lead from motor oil (Davis et al., 2001).

In addition to automotive sources, urban runoff accumulates metals from a variety of other sources. For example, iron originates from the corrosion of steel (Characklis and Wiesner, 1997), zinc from the corrosion of galvanized metals (Hedley and Lockley, 1975), roofing, and painted wood (Davis et al., 2001), and lead from brick and painted surfaces (Davis et al., 2001). Other metals in urban runoff include chromium and nickel (Klein et al., 1974; Helsel et al., 1979; Rhoads and Cahill, 1999). Metals from urban runoff accumulate in stream sediments (Garie and McIntosh, 1986; Rauch and Morrison, 1999), where concentrations are related to both population and traffic densities (Callender and Rice, 2000).

Urban runoff is high in nutrients such as nitrogen and phosphorous that can result in detrimental algal blooms and decreased dissolved oxygen levels. Nutrient levels in streams are typically predictable from land use (e.g., Herlihy et al., 1998). For example, the risk of nutrient pollution increases as nonforest land cover reaches 10% of the watershed (Wickham et al., 2000). Historically, nutrient pollution has been associated with agricultural land use, but urban land often produces greater nutrient loading. For example, concentrations of total phosphorous and total nitrogen in urban streams were 2 to 10 times higher than agricultural and forested streams in Missouri (Smart et al., 1985). Other studies have reported higher concentrations of nitrogen and phosphorous in urban streams than in agricultural and forested streams (Osborne and Wiley, 1988; Wahl et al., 1997).

Biological Impacts of Urbanization

Altered and impaired biotic communities are characteristic of urban streams. Urban macroinvertebrate communities have reduced taxa richness (Garie and McIntosh, 1986; Jones and Clark, 1987; Kemp and Spotila, 1997), reduced density (Garie and McIntosh, 1986), lower index of biotic integrity (IBI) scores (Steedman, 1988; Kennen, 1999), lower functional diversity (Pedersen and Perkins, 1986), and lower taxonomic diversity (Pratt et al., 1981; Shutes, 1984; Pedersen and Perkins, 1986). In an extensive survey of New Jersey streams, Kennen (1999) found that locations with severe macroinvertebrate community impairment were most commonly downstream from urban areas. Urbanization reduced taxa-diversity and richness by reducing the density of pollution intolerant taxonomic orders (Ephemeroptera, Coleoptera, Megaloptera, and Plecoptera) and increasing the density of pollution tolerant Diptera in Virginia streams (Jones and Clark, 1987). Macroinvertebrate diversity may decline progressively as streams flow through urban areas (Pratt et al., 1981).

Macroinvertebrate diversity was reduced to taxa-tolerant of physical disturbances in an urban Washington stream (Pedersen and Perkins, 1986).

Fish communities are similarly impaired by urbanization. Urban stream fish communities have lower overall abundance (Weaver and Garman, 1994; Albaneese and Matlack, 1998; Wang et al., 2000, 2003), diversity (Tramer and Rogers, 1973; Klein, 1979; Scott et al., 1986; Weaver and Garman, 1994; Onorato et al., 2000; Wang et al., 2000), IBI scores (Schleiger, 2000; Wang et al., 2003), taxa richness (Weaver and Garman, 1994; Albanese and Matlack, 1998; Schleiger, 2000; Wang et al., 2000), darter species richness (Weaver and Garman, 1994; Albanese and Matlack, 1998; Schleiger, 2000), and darter abundance (Kemp and Spotila, 1997; Onorato et al., 2000), and are dominated by pollution tolerant species (Wichert, 1994, 1995; Kemp and Spotila, 1997; Albanese and Matlack, 1998; Wang et al., 2003). Lead content in fish tissue is higher in urban areas (Stemberger and Chen, 1998). Furthermore, the proximity of urban streams to humans increases the risk of nonnative species introduction and establishment.

Although many studies describe the alteration of stream macroinvertebrate and fish communities by urbanization, the mechanisms linking specific urban impacts to specific community responses are largely unknown. Since multiple chemical and physical impacts of urbanization occur simultaneously, it is difficult to determine how specific environmental stresses affect biotic communities. However, changes in physical habitat likely impacts biotic communities more than changes in water chemistry. For example, fish and macroinvertebrate communities become impaired at the onset of urbanization (Klein, 1979), when physical changes are more prevalent than water chemistry changes. Most water chemistry changes are not detectable until urban land cover exceeds 40% of a watershed (May et al., 1997).

Threshold Effect of Urbanization

In the last 100 years, the field of stream ecology has expanded its spatial focus from small habitat patches to entire watersheds (Miranda and Raborn, 2000). Consistent with this paradigm shift and advances in geographic information systems and remote sensing, recent studies have addressed how different spatial configurations of urbanization affect stream communities. For example, investigators have documented relations between percent urban land cover (ULC) (Steedman, 1988), percent impervious area (Klein, 1979; Booth and Jackson, 1997; Wang et al., 2000), percent impervious area with direct connections to streams (Booth and Jackson, 1997; Wang *et al.*, 2001, 2003), and biotic parameters. These studies overwhelmingly conclude that very low levels (8–10%) of ULC (or surrogate measures) result in highly altered fish and macroinvertebrate communities. Even after this low level of development, successful restoration of these communities back into preurban conditions may be near impossible, as this small change could result in a shift into a new, less desirable, stable state that is difficult to reverse (Mayer and Rietkerk, 2004).

Initial watershed urbanization following the construction of a new highway is more damaging to stream ecosystems than later, more extensive, development. In macroinvertebrate and fish communities, pollution- and stress-tolerant species rapidly replace intolerant species as ULC approaches 10%. After ULC exceeds 10%, further increases result in little or no fish community changes (Schueler, 1994; Booth and Jackson, 1997; Wang et al., 1997, 2000, 2001). For perspective, 10% ULC is characteristic of areas typically considered "suburban" rather than "urban" (Wang et al., 2000). Although agriculture can have similar effects, streams may support relatively healthy fish communities until agricultural

land cover exceeds 80% of the watershed (Wang et al., 1997). Because fish communities in currently undeveloped or agricultural watersheds are likely to be severely degraded by the onset of urbanization (Wang et al., 2000), protection against urbanization impacts should focus on watersheds where urbanization has not yet begun (May et al., 1997). In the context of highway impacts, this means that the greatest damage to stream health is inflicted by building new highways through undeveloped watersheds, which, ultimately, become subject to urban sprawl.

Conclusions

The short-term environmental consideration of transportation projects in EISs and EAs focuses on the initial construction impacts. However, the most serious threats to stream ecosystems are the long-term secondary effects of a highway's presence in the watershed and the cumulative effects of urban development. For example, the biotic integrity of streams in undeveloped (primarily forested or agricultural watersheds) is substantially degraded by the onset of urbanization, thus, streams in undeveloped watersheds are more sensitive to the construction of new highways than streams in urban watersheds. Because many aquatic impacts from the existence of the highway and urban development are long-term considerations, the narrow, short term focus of EISs and EAs provides inadequate protection for stream ecosystems. As new highways continue to diminish the percentage of the landscape that is unaffected by roads, expanding the spectrum of environmental impacts considered for highway projects is increasingly important.

Highway construction and highway presence impose a variety of impacts on stream habitat and biota. Urban development results from the construction of new highways and is clearly the most pernicious threat, as stream habitat and biota are sensitive to even low levels (<10%) of development in a watershed. Watershed urbanization is a predictable indirect or secondary effect of the construction of new highways and NEPA, the CEQ, and various state environmental laws require consideration of indirect and cumulative effects in EISs and similar documents (CEQ, 1997). Although secondary and cumulative impacts are often important considerations of environmental agencies that comment on such assessments (e.g., NCWRC and NCDPR, 2002), landscape urban development resulting from the construction of new highways is generally ignored by the transportation agencies preparing the assessments. The importance of considering the impacts of landscape urban development during initial planning is amplified because this is the final opportunity to consider all effects cumulatively. Landscape urbanization ultimately results from the "tyranny of small decisions" (Odum, 1982) on many individual projects, the cumulative impacts of which are overlooked by the Clean Water Act section 404 permitting process (Stein and Ambrose, 2001), as well as other regulatory mechanisms.

Given the severity and extent of highway impacts on stream biota, we were impressed by the paucity of peer-reviewed literature on many aspects of those impacts. We believe the lack of published studies demonstrates a failure of both management agencies and academic researchers to address a severe and politically thorny environmental issue. Well-designed descriptive studies, in addition to conceptual or theoretical investigations, could contribute substantially to how society views and manages highway impacts. We urge scientists, managers, and policymakers to cooperate more closely to generate comprehensive knowledge about how highways affect ecosystem operation, make that knowledge available to the public (e.g., in EISs and EAs), and apply that knowledge to policy decisions regarding development of sustainable transportation systems.

Although highway construction is ongoing, pervasive, and has severe biological consequences, we found few published investigations of its impacts on streams. We encourage environmental and fisheries scientists to pay closer attention to the effects of new highway construction or highway improvements on streams. Carefully designed, comparative investigations could contribute substantially to our understanding of the differential impacts of various construction techniques, as well as the efficacy and risk of failure of various mitigation practices.

There are many unexploited opportunities to investigate the impacts of highway presence on stream biota. Researchers know little about the occurrence, loading rates, and biotic responses to specific contaminants in highway runoff. Understanding the dynamics and roles of specific pollutants could facilitate more effective mitigation. Future investigation should address the relative importance of chronic pollution, such as metals accumulated in stream sediments, versus acute impacts such as pulses of petroleum and deicing salt. Additional research is also needed to understand how highway crossings, especially culverts, affect fish populations via constraints on movement and how highway networks alter flow regimes of watersheds.

Impairment of stream biotic communities due to urbanization is severe and widely studied. However, opportunities still exist for relatively simple descriptive investigations. For example, we are impressed but the paucity of studies addressing stream thermal pollution from urban runoff and reduced riparian areas. In addition, techniques for minimizing impact or restoring biotic integrity are poorly developed. Research topics that may yield especially useful results include a) the relative importance and biological effects of specific components of urban development: e.g., highway, commercial, or residential, b) the scenarios under which impacts are reversible, and c) the efficacy of mitigation measures: e.g., stormwater retention or treatment and forested buffers. Finally, comprehensive risk analyses that incorporate both social and biotic components are badly needed to examine potential for catastrophic events during all phases of new highway impacts. Risks include mitigation failures and catastrophic spills during the highway construction, presence, and urbanization phases. Depending on the nature of the biotic community (e.g., is it isolated, is the stream small, does it contain sessile species), it may be more or less vulnerable to these kinds of events. Without a spatially explicit, rigorous risk analysis framework, managers cannot properly weigh the risks and benefits of road projects proposed in their areas and have no scientific basis for proposing alternatives that may be less damaging to stream ecosystems.

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FINAL July 2006

Exhibit E

Orange County Transportation Authority 2006 Long-Range Transportation Plan Final Program Environmental Impact Report

VOLUME I : FINAL EIR

OCTA

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2.0 PROJECT DESCRIPTION

2.1 BACKGROUND AND LOCATION

Orange County consists of approximately 798 square miles encompassing 34 cities and unincorporated areas with a total population of 3,094,461 (Figure 2.1). It is the second-largest county within California and is the fifth-largest county within the United States.[1] Population growth within Orange County is expected to rise by approximately 15 percent between 2005 and 2030, from 3.09 to 3.55 million people.[2] This increase in population will result in new vehicular and transit trips and will place additional demands on existing roadways, transit, and rail facilities within Orange County.

The Orange County Transportation Authority (OCTA) plans, funds, delivers, and operates a wide range of transportation projects and services within Orange County. OCTA is comprised of six affiliated agencies:

- Local Transportation Authority administers the Measure M (local half-cent transportation sales tax) Traffic Improvement and Growth Management program
- Orange County Transit District delivers Countywide bus services
- Consolidated Transportation Service Agency provides specialized transit for seniors and persons with disabilities
- Service Authority for Freeway Emergencies implements the County's freeway call box program
- Service Authority for Abandoned Vehicles provides for the removal of abandoned vehicles from Orange County streets and freeways
- Congestion Management Agency ensures compliance with mobility goals established in State and federal law

OCTA is part of a network of local, regional, State, and federal agencies, each playing a role in transportation planning.

OCTA is responsible for preparing the Long Range Transportation Plan (LRTP) and a Transportation Investment Plan to facilitate the renewal of Measure M. The LRTP, which is updated every four years, provides a visionary blueprint for transportation improvements in Orange County and includes recommendations from local jurisdictions, business and community leaders, County residents, and transportation planning professionals. The LRTP is a multimodal strategy that includes freeway, arterial, transit, and nonmotorized improvements to Orange County's transportation network to accommodate project transportation demands within Orange County for the next 25 years.

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1 Orange County Community Indicators Project, Orange County 2005 Community Indicators, Orange County, California.

2 Ibid.

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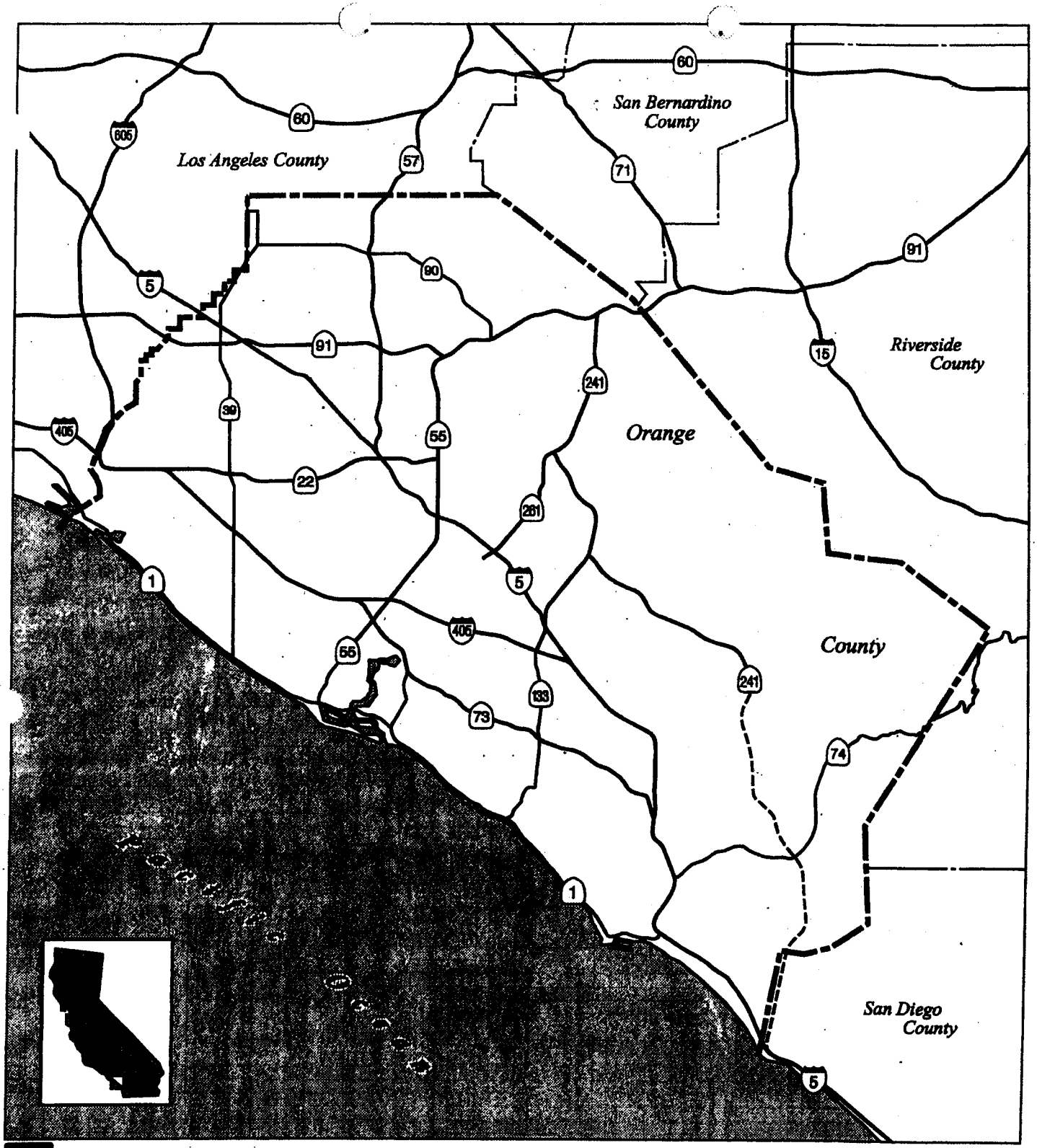

FIGURE 2.1

LEGEND

Project Location

Proposed Extension

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2006 OCTA Long Range Transportation Plan PEIR

Project Location

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The LRTP, last updated in 2002, is included within the Regional Transportation Plan (RTP), the California Transportation Plan (CTP), and the Federal Transportation Improvement Program (FTIP). The RTP for the Southern California region, which includes Orange County, is prepared by the Southern California Association of Governments (SCAG) as the federally designated Metropolitan Planning Organization (MPO). The RTP consists of policies, programs, and a list of specific projects needed to meet long-range transportation needs for the five-county SCAG region. The RTP is updated every four years and must be financially constrained as well as analyzed to ensure conformity with air quality regulations. The most recent RTP was adopted in April 2004.

SCAG also prepares the region's capital programming document, the Regional Transportation Improvement Program (RTIP), in coordination and cooperation with transit operators, transportation planning agencies, local agencies, and the public. To qualify for State funding, projects and programs must be consistent with and included in SCAG's 20-year RTP and in SCAG's adopted RTIP.

At the State level, the State Department of Transportation (Caltrans) prepares the long-range CTP and the shorter range programming document, the State Transportation Improvement Program (STIP). Projects seeking State funding must be included in the STIP in order to be funded.

Current federal legislation and funding programs require every region to produce a 20-year plan to guide transportation investments. The FTIP incorporates local and State Capital Improvement Programs (CIPs) into a single, comprehensive, nationwide funding blueprint. The FTIP identifies specific projects that will be funded in each of the seven years under consideration and the source of those funds. In order to be included in the FTIP, projects must be included in a regional transportation plan as well as the region's CIP such as Orange County's LRTP.

2.2 PURPOSE OF THE LRTP

The LRTP provides the planning foundation for transportation improvements throughout the County over the next 25 years to maintain and improve service levels on the transportation network as the population continues to grow within the County. As described in Section 2.1, the LRTP is updated every four years and forms the basis of the transportation network considered by federal, State, and local transportation planning and funding agencies and local land use planning agencies such as the County of Orange and local cities. The proposed LRTP includes improvements to the transportation networks such as new and widened freeways, tollways, and roadways; new and enhanced transit facilities; new regional bikeway improvements; and new environmental programs. The LRTP is a dynamic document that reflects OCTA and the local agencies version of what transportation improvements are needed to address existing and forecast traffic demand. The list of projects described later in the chapter outline the anticipated improvements; however, these projects are revisited every four years when the plan is reviewed, the need for projects is reassessed, and the availability of funding sources is evaluated. The LRTP also includes those projects that are listed in the Transportation Investment Plan, which has been prepared to facilitate the renewal of Measure M.

2.3 PROJECT OBJECTIVES

The goals of the LRTP include improving mobility, protecting transportation resources, and enhancing the quality of life in the County. Each goal and corresponding objectives are described below:

- **Improve mobility** by
  - Offering safe and reliable transportation choices;
  - Providing an accessible transportation network;
  - Minimizing increases in congestion; and
  - Developing an integrated transportation network.
- **Protect transportation resources** by
  - Using the existing transportation network efficiently;
  - Maintaining infrastructure;
  - Promoting cost-effective and multimodal solutions; and
  - Exploring creative solutions.
- **Enhance the quality of life** by
  - Promoting coordinated planning;
  - Minimizing community impacts;
  - Supporting economic growth;
  - Protecting the environment; and
  - Improve access to regionally significant transportation hubs.

2.4 PROJECT CHARACTERISTICS

The LRTP is made up of four components: freeways, roadways, transit, and environmental programs. Each of these components is described below. The LRTP includes significant transportation improvements that would partially address future congestion and mobility needs but would require supplemental local funding from a voter-approved renewal of Orange County's Measure M half-cent transportation sales tax beyond its current expiration in 2011 in addition to the traditional annual revenues from State and federal transportation funding. The Proposed Plan, referred to as the "Balanced Plan" in the LRTP, includes improvements to the existing freeways, tollways, roadways, and transit (bus and rail) systems beyond the projects that are currently funded (No Project/Baseline Alternative) as well as an environmental program aimed at offsetting the water quality impacts of existing and proposed transportation facilities. The Proposed Plan includes improvements listed in the Transportation Investment Plan for the renewal of Measure M. The tables displayed in this chapter include all projects that are added by the Proposed Plan as well as the projects that are part of the Constrained Alternative.

Freeways

Approximately one-half of all miles traveled by vehicles in Orange County occur on the freeways. Orange County's freeway system provides a major transportation link internal to the County and carries the majority of the area's regional trips including travel between Orange County and other areas of Southern California.

The existing freeways have developed into a mature network that has significantly expanded over the past 20 years. This expansion, from a total of 944 lane miles in 1986 to 1,354 lane miles in 2005 (a 43 percent increase), was critically needed to catch the system up with population and employment growth that occurred over the previous 30 years. Of these improvements, 246 lane miles of carpool facilities were constructed. Beyond current needs, the projections for 2030 indicate that vehicle miles will increase faster than population and employment, mostly due to longer trips or commutes. In short, freeway capacity must grow to meet future freeway travel demand.

Orange County's freeway network is largely built out in terms of available right-of-way, making it a challenge to increase freeway capacity. Consequently, the future program of freeway projects must focus on balancing improvements throughout the County, optimizing the existing system and minimizing right-of-way impacts.

The following strategies were considered in developing the freeway component of the LRTP:

- Expand freeway capacity within existing right-of-way to the extent possible to accommodate the projected approximately 30 percent growth in travel
- Fix chokepoints or operational constraints that prevent the existing freeway system from attaining its designed capacity
- Complete the carpool/transitway system to maximize the person-carrying capacity of the freeways
- Balance improvements throughout the freeway network so that traffic is smoothed Countywide for a consistently acceptable level of freeway travel
- Continue to work with neighboring counties on intercounty travel solutions
- Reduce incident- or construction-related traffic congestion by continuing to provide freeway service patrol on Orange County freeways

The freeway components of the Proposed Plan are described below in Table 2.A. Additionally, Table 2.A includes the Project numbers identified in the renewed Measure M Transportation Investment Plan for the renewal of Measure M.

Roadways

The Master Plan of Arterial Highways (MPAH) is Orange County's plan for a network of roadways that meets regional traffic needs. It was initially created in 1956 and has been updated regularly since. Similar to the freeway system, the planned network of roadways is mostly built (about 85 percent),

Table 2.A: Proposed Plan Freeway Projects

Freeway	Project	Transportation Investment Plan (Measure M) Project Designation
Interstate 5 (I-5)	• Interchange improvements at Barranca Parkway, Alicia Parkway, Culver Drive, Oso Parkway, Camino Capistrano, and Avenida Pico	
	• *Interchange improvements at existing interchanges (Avenida Pico, Avery Parkway, Ortega Highway, La Paz Road, and El Toro Road)*	D
	• Add one general purpose lane in each direction from SR-57 to SR-91	
	• *Add one HOV lane in each direction from Avenida Pico to SR-1*	C
	• *Add one HOV lane in each direction between SR-55 and SR-57*	A
	• *Add one general purpose lane in each direction from SR-73 to El Toro Road*	C
	• *Add one general purpose lane in each direction from SR-133 to SR-55 and improve the Jamboree Road interchange*	B
	• *Improve I-5/SR-55 Interchange*	A
	• Construct Stonehill Drive southbound ramps	
	• Construct Marguerite Parkway interchange	
Interstate 405 (I-405)	• Add one HOV lane in each direction between SR-22 to I-605	
	• Add auxiliary lanes from Euclid Avenue to Magnolia Avenue and replace bridges	
	• *Add southbound auxiliary lane from SR-133 to Irvine Center Drive*	L
	• *Add northbound auxiliary lane from Jeffrey Road to Culver Drive*	L
	• *Add one general purpose lane in each direction from I-5 to SR-55*	L
	• *Add one general purpose lane in each direction from SR-73 to I-605*	K

Table 2.A: Proposed Plan Freeway Projects (continued)

Freeway	Project	Transportation Investment Plan (Measure M) Project Designation
	• *Add second northbound truck lane from Lake Forest Drive to Irvine Center Drive*	L
	• Construct Bear Street HOV drop ramp	
	• Construct Von Karmen HOV drop ramp	
	• Construct I-405/SR-73 HOV connector	
	• Construct I-405/I-605 HOV connector	
Interstate 605 (I-605)	• *Improve Katella Avenue interchange*	M
State Route 22 (SR-22)	• Construct I-405/SR-22 HOV connector	
	• *Upgrade Harbor Boulevard, Euclid Avenue, and Brookhurst Avenue, bridge structures and local street crossings*	E
State Route 55 (SR-55)	• *Add one general purpose lane in each direction from I-5 to SR-22*	F
	• *Add one general purpose lane in each direction and implement operational improvements to minimize chokepoints from I-405 to I-5*	F
	• Construct Alton Parkway overcrossing and HOV drop ramps	
	• *Improve access to SR-55 between SR-91 and SR-22*	F
State Route 57 (SR-57)	• *Add one general purpose northbound lane from Orangewood Avenue to Lambert Road*	G
	• Construct Cerritos Avenue HOV drop ramps	
	• *Construct northbound truck lane from Lambert Road to Tonner Canyon Road*	G
	• *Improve Lambert Road Interchange*	G

Table 2.A: Proposed Plan Freeway Projects (continued)

Freeway	Project	Transportation Investment Plan (Measure M) Project Designation
State Route 91 (SR-91)	• *Add one westbound general purpose lane from I-5 to SR-57*	H
	• *Add one eastbound general purpose lane from SR-57 to SR-55*	I
	• *Add one westbound general purpose lane from SR-55 to Tustin Avenue*	I
	• *Add one general purpose lane in each direction from SR-55 to SR-241*	J
	• Add one eastbound general purpose lane from SR-241 to SR-71	
	• *Improve SR-91/SR-55 interchange*	I
	• *Improve Lakeview interchange*	I
	• *Construct new Fairmont interchange north of SR-91*	J
	• *Construct one HOT lane between SR-241 and SR-71 in each direction*	J
	• *Construct HOT lane connectors between SR-91 and SR-241*	J
	• *Add a new HOT lane in each direction and convert existing HOV lanes between Orange County/Riverside County border and I-15 to HOT lanes (new four-lane HOT facility)*	J
State Route 73 (SR-73)	• *Complete Glenwood interchange*	
Other Freeway and Toll Roads	• Maintain and operate freeways using State and federal funds	
	• Toll Roads: accelerated capacity for carpools/transit on SR-133, SR-241/261; HOV lanes free on all toll roads except 91 express lanes, SR-73, and SR-241 south of SR-133	
	• Fix future major chokepoints	
	• *Continue freeway service patrol*	N

Note: This table includes all projects that are part of the Proposed Plan as well as projects that are part of the Constrained Alternative. The projects in italics indicate projects added by this alternative beyond those in the Constrained Alternative.

which is not surprising since the County is considered generally "built-out" from a land development perspective with limited exceptions such as the eastern portions of the Cities of Anaheim and Orange, northern Irvine, and the remainder of Rancho Mission Viejo.

As with freeway travel, demand on the street network is expected to increase significantly over the next 25 years. Even with the completion of the MPAH, greater capacity on the street system will be needed.

In order to develop the street improvements to be implemented over the next 25 years, the following strategies were considered by OCTA:

- Continue to invest in maintenance to ensure that streets remain in good condition, last longer, and are less expensive to maintain over time
- Expand street capacity within existing right-of-way to the extent possible, including completing the MPAH
- Maximize use of the existing street system, employing technology wherever possible to improve operations such as Countywide signal coordination

The roadway components of the Proposed Plan and the Transportation Investment Plan for the renewal of Measure M are described in Table 2.B. The arterial street improvements shown for this alternative are those needed to fully complete the Master Plan of Arterial Highways (MPAH) as currently defined (January 2006). However, the MPAH is a dynamic process and is continually reviewed, in cooperation with local land use agencies, to insure that it reflects both the transportation and land use needs of the time. Some of the improvements to the MPAH shown for this alternative will be the subject of future study and could be revised or eliminated over the timeframe of the Long Range Transportation Plan. This alternative assumes that the MPAH will be completed consistent with the current definition of the MPAH by 2030.

Transit

The current transit system includes an extensive network of local bus routes that provide service to most residential and employment areas of the County and several express bus routes and a well-developed commuter rail (Metrolink and Amtrak) service that together provide for longer distance travel within the County and to neighboring counties. Demand for local bus service has increased steadily over the past 30 years, reaching the current level of 67.5 million riders (2004). And in just over 10 years since service began, the number of Orange County riders on the Metrolink commuter rail has increased from less than 145,000 passengers in 1993/1994 to over 3,000,000 passengers in 2003/2004.

Local bus service is greater in the northern and central County, which is more densely developed, has lower median incomes, and has more households without an automobile, as well as a more consistent grid pattern of roadways that lend to an efficient bus-routing pattern. In addition to traditional local bus service, OCTA provides a shared-ride service (ACCESS) for people unable to use the regular bus service due to a disability.

Table 2.B: LRTP Roadway Projects

	Project	Transportation Investment Plan (Measure M) Project Designation
Flexible Local Funding Program	• *Fair-share program for local and residential street maintenance and transportation needs*	Q
Expand Street Capacity	• *Construct grade separations at high-volume streets along BNSF rail corridor* • *Arterial street capacity improvements/complete Master Plan of Arterial Highways*	O O
Interjurisdictional Traffic Signal Synchronization	• *Synchronize traffic signals across jurisdictions and Smart Streets*	P
Continuation of Existing Funded Programs for Local Streets	• Gas tax street and road programs for maintenance and improvements • Complete existing Measure M programs through 2011	

Note: This table includes all projects that are part of the Proposed Plan as well as projects that are part of the Constrained Alternative. The projects in italics indicate projects added by this alternative beyond those in the Constrained Alternative.

Orange County's Express Buses combine use of the freeway system and limited stops to provide commuters with faster service over longer distances. There are currently nine Express Bus routes in place using I-5, I-405, SR-91, and SR-57 to connect major employment centers and park-and-ride lots.

Commuter rail includes both Metrolink and Amtrak. Metrolink has three routes through Orange County. There are 10 stations in Orange County that feed these lines, with one more to be added in 2006. Amtrak service through Orange County from San Diego to Los Angeles, complements Metrolink, although Amtrak trains do not stop at every Orange County station. Also, OCTA provides shuttle service timed with commuter rail schedules to carry passengers from the train stations to their places of work in the morning and back to the stations in the evening. There are currently 13 shuttles in operation, known as Stationlink.

There are several trends that will affect the demand for transit in the future. Most significant are the anticipated increases in population and employment (24 percent and 27 percent, respectively). This growth will drive demand for increased transit services. It is noteworthy that the number of Orange County residents 55 years and older is projected to increase by 59 percent between 2005 and 2030. While this segment of the population is not necessarily transit-dependent as a whole, it is likely that many in the elderly population will require greater, specialized transit.

The proposed LRTP is built on the following strategies for meeting future transit needs:

- Accommodate Orange County's growing and aging population
- Increase local bus service on corridors and in zones with the highest transit demand
- Expand local bus service into areas outside of the urbanized core
- Attract a greater number of bus and commuter rail riders that are not transit-dependent (have an automobile, but choose transit)
- Increase speed, reliability, and frequency of commuter rail service through improved infrastructure (e.g., adding rail track, building new strategically located stations, adding more daily trains and reverse service, and increasing connections between communities and Metrolink)
- Increase parking supply at Metrolink stations

The transit components of the Proposed Plan and the Transportation Investment Plan for the renewal of Measure M are described in Table 2.C.

Environmental Programs

The LRTP establishes a program for evaluating and mitigating water quality impacts associated with existing and proposed transportation facilities. This program will augment existing urban runoff treatment and mitigation that would be a part of all individual projects. The goal is to enhance and possibly consolidate individual project mitigations and deliver a coordinated high-quality urban runoff program, known as Project X in the Transportation Investment Plan.

Table 2.C: LRTP Transit Projects

Transit	Project
Local Bus	• Expand Countywide bus services • *Provide high-capacity transit extensions to Metrolink; establish new competitive funding program for local jurisdictions to implement transit connections to Metrolink* • *Deploy community-based shuttles* • *Expand choices for seniors/disabled* • *Implement Safe Stops Program*
Bus Rapid Transit (BRT)	• BRT Program on additional arterials (candidate lines include Beach Boulevard, La Palma Avenue, Katella Avenue, Chapman Avenue, and Edinger Avenue)
Express Bus	• Expand express bus service on freeways
Metrolink	• *Expand high-frequency Metrolink service and extend service to Los Angeles and Riverside Counties*
Intermodal Centers	• *Develop intermodal centers linked to high-speed rail: Anaheim Regional Transportatio Intermodal Center (ARTIC)*
Railroad Grade Separations	• *Construct grade separations at select locations (candidate projects include State College Boulevard, Sand Canyon Avenue, Grand Avenue, Santa Ana Boulevard, Ball Road, 17th Street, Redhill Avenue).*

Note: This table includes all projects that are part of the Proposed Plan as well as projects that are part of the Constrained Alternative. The projects i projects added by this alternative beyond those in the Constrained Alternative.

OCTA's commitment to reducing tailpipe emissions and promoting cleaner air is reflected throughout the LRTP, the Proposed Plan, and the existing Measure M program, even though it is not described as a single unified environmental program. The LRTP strategies to reduce emissions include:

- The majority of available funding, 38 percent of the Proposed Plan (note: the OCTA-operated bus system is funded from guaranteed non-Measure M sources), is devoted to transit projects and programs designed to reduce the total vehicle miles traveled (VMT).
- Increasing bus transit service by 50 percent, more than a doubling of rail service, and including a new program for community-generated transit
- Requiring cities to participate in a regional signal synchronization program to qualify for local street funding
- Making pedestrian, bicycles, and other nonmotorized transportation eligible for city Measure M funding
- Operating Metrolink service that stops every 30 minutes in Orange County by 2009 and increasing performance after that
- Educating city leaders and stakeholders on transit-friendly land use designs and including such design considerations in competitions for local funding competitions
- Establishing a new $30 million Go Local program to design and operate local transit connections from Metrolink into local communities and $1 billion to expand this program under the Proposed Plan
- Launching Bus Rapid Transit (BRT)
- Expanding express bus service
- Developing a freeway program that focuses on completion of the most extensive carpool network in the State
- Improving the efficiency of street and freeway design to reduce congested hot spots and the resulting tailpipe emissions

OCTA operational initiatives include:

- Expediting a purchase program for 250 compressed natural gas (CNG) buses and a commitment by the Board to convert all vehicles to clean fuels
- Operating a Prius hybrid fleet for all field personnel needs
- Providing free bus fare programs for Cal State University, Fullerton, and the University of California, Irvine
- Replacing old maintenance yards with energy-efficient facilities
- Expanding rideshare programs and discounts for employees, students, and seniors

2.5 PROPOSED PLAN AND LRTP PEIR ALTERNATIVES

The Proposed Plan (Balanced Alternative), which includes all of the elements summarized above, contains transportation/urban-form strategies that encourage growth, increased jobs/housing balance, and centers-based development where feasible in all parts of the region. The Proposed Plan is evaluated in Section 4.0 of this PEIR.

The following alternatives are evaluated separately in the Chapter 5.0, Alternatives, of this PEIR.

The No Project (Baseline) Alternative includes only those programmed transportation projects that have funding programmed in the RTIP. These reasonably foreseeable projects fulfill the definition of the mandated CEQA No Project Alternative.

The Constrained Alternative is a set of projects and services that can be carried out within Orange County's traditional revenue sources for transportation improvements. It assumes that the current Measure M one-half-cent sales tax will not be renewed in 2011.

The Balanced Alternative II includes all of the elements from the Proposed Plan with the exception of the High Occupancy Toll (HOT) projects proposed along SR-91 and SR-241.

The Unconstrained Alternative is the highest level of investment in the transportation system and includes projects and services that could be implemented to meet Orange County's travel demand if funding was not an issue.

2.6 RENEWED MEASURE M TRANSPORTATION INVESTMENT PLAN

On November 6, 1990, Orange County voters approved Measure M, a half-cent local transportation sales tax for 20 years. All of the major projects approved by the voters are underway or completed. Funds that are distributed to local cities and the County of Orange to maintain and improve local streets and roads, along with transit fare reductions for seniors and persons with disabilities, will continue until Measure M ends in 2011, to respond to existing and future transportation needs, OCTA developed a renewed Measure M Transportation Investment Plan for consideration by the voters of Orange County. The Investment Plan was developed in consultation and coordination with the County of Orange, local cities, and other stakeholders throughout the County. Funding of the Transportation Investment Plan would be achieved through renewal of the Measure M program for an additional 30 years. The Investment Plan is an $11.8 billion program for improvements to freeways, streets, and roads, public transit, and establishment of an environmental cleanup program. Improvements identified in the Transportation Investment Plan are identified in Tables 2.A, 2.B, and 2.C.

2.7 INTENDED USES OF THE PEIR

OCTA will use this PEIR as part of its review and approval of the LRTP. In addition, this PEIR will serve as the CEQA document for the Transportation Investment Plan for the proposed reauthorization of Measure M. Measure M is a 20-year program of transportation improvements approved by the voters of Orange County in 1990 that is funded by a half-cent sales tax. Measure M allocates the sales

tax revenues to specific Orange County transportation improvement projects in three major areas: freeways, roadways, and transit. The current program ends in 2011. The proposed reauthorization of Measure M forms the basis for the Proposed Plan (LRTP Balanced Plan). The projects contained in the proposed Measure M renewal are consistent with the projects added by the Proposed Plan over the Constrained Alternative (which assumes that Measure M is not reauthorized). Approval of the Final Transportation Investment Plan for the Measure M reauthorization would occur following certification of the Final PEIR and approval of the LRTP by the OCTA Board of Directors. The Final Transportation Investment Plan would be forwarded to the Orange County Board of Supervisors for their approval to place the Transportation Investment Plan on a future ballot for consideration by Orange County voters.

The lead agencies for individual projects analyzed in this PEIR are required to prepare project-level CEQA documents. The lead agencies for individual projects may use this PEIR as the basis of their regional and cumulative analysis. Moreover, it is the intent of OCTA that member agencies and others may consider using the information contained within this PEIR in order to "tier" subsequent environmental documentation of individual projects in the region. Information from this document may also be incorporated into future County Congestion Management Programs and associated environmental documents, as applicable.

The LRTP is intended to meet the changing socioeconomic, transportation infrastructure, financial, technological, and environmental conditions of the region. Individual projects are preliminarily identified in the LRTP; however, this PEIR is programmatic in nature and does not specifically analyze these projects. Project-level analyses will be prepared by implementing agencies on a project-by-project basis. Project-specific planning and implementation undertaken by each implementing agency will depend on a number of issues, including policies, programs, and projects adopted at the local level; restrictions on federal, State, and local transportation funds; the results of feasibility studies for particular corridors; and further environmental review of proposed projects.

2.8 RESPONSIBLE AND TRUSTEE AGENCIES

Under Sections 15050 and 15367 of the CEQA Guidelines, OCTA is the designated Lead Agency and has principal authority and jurisdiction over approval of the LRTP. Responsible Agencies are those agencies that have jurisdiction or authority over one or more aspects associated with the development of a proposed project. Trustee Agencies are State Agencies that have jurisdiction by law over natural resources affected by a proposed project that are held in trust for the people of the State of California. The potential Responsible and Trustee Agencies applicable to the proposed project that have been identified at this time and the required permits, approvals, or their associated responsibilities are identified in Table 2.D below.

Table 2.D: Potential Responsible and Trustee Agencies

Agency	Potential Permit/Approval/Responsibility/Trust
Federal Highway Administration	Modifications to the interstate system
Federal Transit Administration	Modifications to commuter rail and railroad crossings
California Department of Transportation	Modifications to interstate and State highways and railroad crossings
Transportation Corridor Agencies	Modifications to tollway system
Southern California Regional Rail Authority	Modifications to the commuter rail system
County of Orange	Modification to State Highways and local arterials; Approval of Measure M Renewed Transportation Investment Plan for placement on a ballot for consideration by County voters
Local Cities	Modifications to State highways and local arterials
South Coast Air Quality Management District	Conformance with local Air Quality Management Plan
California Air Resources Board	Conformance with State Implementation Plan

ENVIRONMENTAL IMPACTS

Table ES.1 located at the end of this Executive Summary summarizes the potential environmental impacts of the Proposed Plan, mitigation measures, and any remaining unavoidable adverse impacts identified in the PEIR.

In accordance with Section 15128 of the CEQA Guidelines, the following topics were deemed to have less than significant impacts and are not discussed separately in the PEIR:

- Agricultural Resources
- Mineral Resources
- Recreation Resources

The improvements identified in the Proposed Plan are located within urban areas and/or adjacent to existing facilities and would not likely result in effects to mineral resources. Impacts to agricultural and recreational resources are discussed in Chapter 4.8, Land Use.

For each potentially significant impact, at least one mitigation measure has been proposed to reduce the significance of the environmental impact. These mitigation measures would reduce the extent of the impact to below a level of significance for some environmental impacts, except for the following:

- Short-term construction-related emissions that exceed the SCAQMD thresholds
- Short-term construction-related health risks associated with diesel exhaust
- Loss of special-interest species and sensitive natural communities
- Displacement of riparian habitat, federally protected wetlands, and waters of the U.S.
- Wildlife movement, habitat fragmentation, and increased roadkill
- Cumulative impacts to special interest species, sensitive natural communities, riparian habitat, federally protected wetlands, waters of the U.S., wildlife movement, and migratory birds
- Direct or indirect effects to historic, archaeological, and paleontological resources
- Disturbance of archaeological human remains
- Cumulative effects to historic, archaeological, and paleontological resources and archaeological human remains
- Damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landslides due to seismic events
- Long-term erosion and slope failure
- Cumulative geologic and soil impacts in localized areas such as near Alquist-Priolo Earthquake Fault Zones and locations within Seismic Hazards Mapping Zones
- Water quality impacts during operation of projects
- Water quality impacts caused by erosion and siltation

- Cumulative hydrology and water quality impacts
- Community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan
- Cumulative community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan
- Long-term noise levels adjacent to the Proposed Plan transportation improvements in excess of local noise standards or substantially increased over ambient levels
- Long-term vibration impacts adjacent to expanded rail lines
- Short-term construction noise levels in excess of local standards during construction
- Short-term vibration levels in excess of the annoyance threshold during construction
- Cumulative noise and vibration noise levels that could exceed noise standards or vibration thresholds
- Disruption or division of existing communities by separating community facilities, restricting community access, and eliminating community amenities
- Cumulative impacts to growth patterns through acceleration of approved development by: (1) providing additional capacity on existing and planned transportation facilities, and (2) acquiring existing residences and businesses along existing facilities
- Visual impacts to important scenic resources and State-designated Scenic Highways
- Effects to community visual quality as seen from public vantage points
- Cumulative visual impacts to scenic resources, State-designated Scenic Highways, and visual character

The number of workers in Orange County has topped 1.5 million, nearly double that of 1980 and more than San Diego, Sacramento, and Santa Clara Counties. The economy has shifted from manufacturing to service and financial hubs ranging from higher paying technical and professional jobs to lower paying retail and tourism industry jobs. Employees are working in mega job centers and multiple downtowns rather than one central business district.

Metrolink is the regional rail system serving the County and includes commuter and other passenger services. There are currently 40 Metrolink trains operating on three routes in the County serving 10 Metrolink stations and 87.2 miles of routes. The Orange County Line provides service between Oceanside in northern San Diego County and Union Station in Los Angeles County. The Inland Empire-Orange Line provides service between San Bernardino, Riverside, and Orange County as far south as Irvine. The 91 Line operates between Riverside, Orange, and Los Angeles Counties.

In 2002, there were approximately 905 existing miles of designated bicycle paths, lanes, and routes, with an additional 712 miles proposed to be built in the future. These bikeways provide an alternative mode of transportation for commuters as well as a recreational resource for residents of Orange County.

OCTA has created a transportation analysis model (OCTAM 3.2) that uses the demographic projections above and a baseline transportation network to assess how Orange County's growth will affect the transportation system. The model calculates that people in Orange County made over 13 million trips in 2000. It projects that by 2030, this number will increase to almost 16 million. Most of these trips (79 percent) will be internal to Orange County, meaning they both start and end within the County's borders.

The model also projects how many miles will be traveled by vehicles (as opposed to all trips); average speeds on the County's arterials (local streets and roads) and freeways; and how many transit trips (on bus or rail) will be made. By 2030, vehicle miles traveled are expected to increase by 38.5 percent, while speeds on arterials in the morning peak hours will drop by 32 percent and freeway speeds in the morning peak hours will drop by 31 percent.

Transit trips are projected to increase by 26 percent, and, due to declining arterial speeds, transit trip time will double as well.

3.2 GEOLOGY/TOPOGRAPHY

Orange County is situated within the Peninsular Ranges of Southern California. The dominant topographic feature of the study area is Santa Ana Mountains, which are a collection of northwest/southeast-oriented rock formations that generally are within Cleveland National Forest and create a geologic division between Riverside and Orange Counties. The study area lies in the coastal plain southwest of Santa Ana Mountains. The peak elevation in Orange County is 5,687 feet above sea level (asl) at Santiago Peak.

Orange County is located in a highly seismic area. Active faults that traverse the Orange County region include the El Modeno Peralta Hills Fault, the Elsinore Fault Zone, the Los Alamitos Fault, and the Newport-Inglewood Fault Zone. Significant earthquake hazards exist in the region. Injury to people and damage to structures during earthquakes can be caused by actual surface rupture along an

- Projected long-term emissions of criteria pollutants are considered significant if they are greater than the current emission levels.
- Projected long-term emissions of toxic air contaminants are considered significant if they are equal to or greater than current emission levels.
- Projected short-term regional emissions (construction) are considered to be significant if they exceed the following thresholds of significance for individual construction projects established by the SCAQMD:
  - Carbon monoxide — 24.75 tons per quarter
  - Reactive organic compounds — 2.5 tons per quarter
  - Nitrogen oxides — 2.5 tons per quarter
  - Sulfur oxides — 6.75 tons per quarter
  - Particulates (≤10 microns) — 6.75 tons per quarter
- Localized impacts on sensitive receptors (short-term and long-term) were compared to the significance threshold values presented in the SCAQMD CEQA Air Quality Handbook, Chapter 10, Air Toxics. The SCAQMD guidelines for operation permit processing consider the following types of projects significant:
  - Any project involving the emission or threatened emission of a carcinogenic or toxic air contaminant identified in District Rule 1401 that exceeds the maximum individual cancer risk of one in one million, or 10 in one million if the project is constructed with the best available control technology for toxics (T-BACT) using the procedures in SCAQMD Rule 1401.
- Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. The local air quality management plans demonstrate attainment with the NAAQS and consider emissions from all sources (stationary, mobile and area sources) in their attainment demonstrations. A project that has not been accommodated in the mobile source emissions budget will have a significant cumulative impact unless emissions are offset.

4.1.5 IMPACTS AND MITIGATION

Analysis of the potential air quality impacts of the Proposed Plan was performed for regional emissions. This analysis of air quality impacts includes a comparison of the expected future conditions both with and without the Proposed Plan. The analysis also addresses local area concentrations of TACs. Cumulative impacts are also assessed.

4.1.5.1 Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the Proposed Plan on air quality.

Air Pollution Modeling. Regional mobile source emissions are based on an analytical process that involves a computer-simulated forecast of emissions from the Proposed Plan in 2030. Federal conformity regulations require emissions to be based on the latest planning assumptions, which include the latest vehicle data (fleet, age, activity) and latest socioeconomic data. OCTA is required to use updated emission budgets for all relevant criteria pollutants for each federal nonattainment area.

Mobile source emissions are a product of mobile source emission factors and vehicle activity data. The mobile source emission factors are based on the latest version of the ARB mobile source emissions inventory model, EMFAC2002 (version 2.2, April 23, 2003). The emission factors accommodate certain performance assumptions, including projected fuel efficiency in 2030, future emissions control technologies, and mobility assumptions (e.g., vehicle speed and idling). Vehicle miles traveled (VMT) and speed profiles are predicted by the Orange County Transportation Analysis Model 3.2 (OCTAM 3.2). Appendix B contains the summary tables of criteria pollutants emissions modeled by OCTA for the Proposed Plan.

Projected vehicle emissions expected from the OCTA network in 2030 under the Proposed Plan were compared with those estimated for current conditions and the future 2030 Baseline conditions. Cumulative impacts were assessed by comparing projected vehicle emissions in 2030 to the emission budgets established in the local AQMP.

A qualitative analysis of short-term impacts was performed. These impacts result from construction activities that include construction equipment emissions, dust from grading and earthmoving operations, and emissions from workers' vehicles traveling to and from construction sites.

Sensitive Receptors. Certain population groups are especially sensitive to air pollution and should be given special consideration when evaluating air quality impacts from projects. These population groups include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. As defined in the SCAQMD CEQA Air Quality Handbook (1993), a sensitive receptor to air quality is defined as any of the following land use categories: (1) long-term health care facilities; (2) rehabilitation centers; (3) convalescent centers; (4) retirement homes; (5) residences; (6) schools; (7) parks and playgrounds; (8) child care centers; and (9) athletic fields.

4.1.5.2 Less Than Significant Impacts

Local Carbon Monoxide Hotspots. Local air quality is most affected by CO emissions from motor vehicles. CO is typically the pollutant of greatest concern because it is created in abundance by motor vehicles and it does not readily disperse into the air. Because CO does not readily disperse, areas of vehicle congestion can create "pockets" of high CO concentration called "hot spots." These pockets have the potential to exceed the State one-hour standard of 20 ppm and/or the eight-hour standard of 9.0 ppm.

While CO transport is limited, it does disperse with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, hospital patients, etc). Typically, high

CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, modeling is recommended to determine a project's effect on local CO levels. Based on CO modeling at air quality monitoring stations maintained by SCAQMD throughout the OCTA region, CO levels are consistently below both State and federal AAQS. Additionally, it is anticipated that CO emissions in future years will decrease with technological advancement. Therefore, it is anticipated that the project would have a less than significant impact on localized CO concentrations, and no mitigation measures would be required.

Long-Term (Operational) Regional Impacts. Direct, long-term impacts were assessed and are described in terms of vehicles miles traveled. The Proposed Plan highway and arterial projects would increase the capacity of the existing transportation network. Most of the highway capacity improvements include widening existing highways to provide more lanes, reducing delays and congestion. Only a few new highway links are identified in the Proposed Plan. Public transit improvements would include improved bus rapid transit and improved commuter rail services. However, single-passenger highway travel will continue to provide the backbone of the transportation network in the future, despite the increase in projected transit ridership.

Criteria Pollutant Emissions Analysis. To assess the effectiveness of the improvements proposed in the Proposed Plan, estimated air emissions for 2030 with the Proposed Plan were compared with the existing conditions and the No Project (Baseline) Alternative, also set in 2030.

As shown in Table 4.1.5, projected VMT is expected to increase by 39 percent on highways and arterials throughout Orange County for the No Project (Baseline) Alternative compared to existing conditions, primarily due to projected population and employment growth. At the same time, the daily vehicle hours traveled (VHT) will increase by 85 percent, indicating much slower travel due to increased congestion. Implementing the planned improvements in the Proposed Plan would result in an additional 2 percent increase in VMT over the No Project (Baseline) Alternative, but this would largely be due to the reduced congestion, as indicated by the 13 percent reduction in VHT.

Table 4.1.5: VMT and VHT Comparisons (in thousands of miles per day and thousands of hours per day)

Scenarios	VMT	VHT
Existing Conditions (2000)	60,570	1,508
No Project (Baseline) (2030)	84,057	2,792
Proposed Plan (2030)	85,662	2,438

Source: OCTA.

Table 4.1.6 summarizes air pollutant emissions from transportation activities within Orange County. Although the VMT is estimated to increase substantially between existing conditions and the No Project (Baseline) Alternative (39 percent) in 2030, the emissions of ROG, NO_X, CO, and SO_X would decrease. Although, this reduction is primarily associated with improved emission controls on vehicles and better fuels, there would be some benefit derived from construction of the funded

projects included in the No Project (Baseline) Alternative. However, the County would experience elevated emissions of PM_{10}, both from exhaust and fugitive sources. Vehicle exhaust emissions of PM_{10} are expected to increase by 6 percent, primarily because the focus of emission controls is on ozone precursors and greenhouse gases at the expense of PM_{10}. However, the bigger increase (31 percent) of PM_{10} emissions is from re-entrained dust generated primarily from tire and brake wear on paved roads. This is a function of the vehicle miles traveled and is directly related to substantial growth in VMT.

Table 4.1.6: Existing and Future Emissions (tons per day)

Scenarios	ROG	NO_X	CO	Exhaust PM_{10}	Tire & Brake Wear PM_{10}	SO_X
Existing Condition (2000)	49	92	464	1.8	1.6	0.84
No Project (Baseline) (2030)	16	19	112	1.9	2.1	0.48
Difference	-33	-73	-352	0.1	0.5	-0.36
% Change	**-67%**	**-79%**	**-76%**	**6%**	**31%**	**-43%**
No Project (Baseline) (2030)	16	19	112	1.9	2.1	0.48
Proposed Plan (2030)	16	19	111	1.8	2.2	0.47
Difference	0	0	-1	-0.1	0.1	-0.01
% Change	**0%**	**0%**	**-1%**	**-5%**	**4.5%**	**-2.1%**

Source: OCTA; EMFAC2002, OCTAM 3.2.

When compared to the No Project (Baseline) Alternative, the Proposed Plan is expected to result in reduced emissions of air pollutants due to improved traffic flow, resulting in more efficient vehicle operation. However, Table 4.1.6 shows that the 2 percent increase in VMT balanced with improved efficiencies results in no difference in emissions between the No Project (Baseline) Alternative and the Proposed Plan for NO_X and decreases in ROG, CO, exhaust PM_{10}, and SO_X. The increase in emissions of fugitive PM_{10} (tire and break wear) is due to the increase in VMT.

The AQMP has proposed Transportation Control Measure (TCM) project categories to achieve short-term emissions reductions and include the following measures:

- High Occupancy Vehicle (HOV) Measures: New HOV lanes, HOV bypasses and connectors, interchanges, High Occupancy Toll (HOT) Lanes
- Transit and System Management Measures: Transit, Intermodal Transfer Facilities, Nonmotorized Transportation Mode Facilities
- Information-based Transportation Strategies: Marketing for Rideshare and other services, Intelligent Transportation Systems, Telecommuting Programs and Real-time rail, transit or freeway information systems

The Proposed Plan has been prepared to facilitate implementation of the transportation control measures outlined in the AQMP. The Proposed Plan incorporates both the capital and noncapital improvements recommended by the AQMP.

Toxic Air Contaminant (TAC) Emissions. TACs include airborne substances other than the criteria pollutants that are known to cause cancer or otherwise harm human health. TAC emissions are also regulated by the SCAQMD. Much of the effort toward controlling TACs has concentrated on point source emissions from businesses handling hazardous materials. However, mobile sources are responsible for approximately half of the total lifetime cancer risk attributed to air toxics.[1]

The EPA has designated the following 21 chemicals as mobile-source air toxics emitted by motor vehicles, locomotives, aircraft, and various types of nonroad equipment: 1,3-butadiene, acetaldehyde, acrolein, arsenic compounds, benzene, chromium compounds, diesel particulate matter (DPM) plus diesel exhaust organic gases, dioxin/furans, ethylbenzene, formaldehyde, lead compounds, manganese compounds, mercury compounds, MTBE (methyl tertiary butyl ether), naphthalene, n-hexane, nickel compounds, POM (polycyclic organic matter), styrene, toluene and xylene. Since ROG emissions from mobile sources generally capture the majority of the volatile organic TAC contribution from the transportation network, ROG emissions are a good indicator of the volatile organic portion of mobile source TACs. As shown in Table 4.1.6 and discussed previously, ROG emissions are expected to decrease from existing conditions under the Proposed Plan and therefore, the impact of the Plan on the volatile organic portion of TACs would be considered beneficial.

In 1998, the California EPA identified the particulate portion of diesel exhaust as a TAC. Recent studies conducted by the SCAQMD have attributed 70 percent of the potential health risks from TACs in the SCAB to the particulate portion of diesel emissions,[2] also referred to as diesel particulate matter (DPM). Since PM_{10} emissions from heavy-duty vehicles (diesel-fueled) generally capture the DPM contribution from the transportation network, these PM_{10} emissions are a reasonable indicator of the DPM portion of the mobile source TACs.

Table 4.1.7 summarizes PM_{10} emissions from heavy trucks. Heavy-duty truck PM_{10} exhaust emissions include most of the diesel-related TAC emissions. As shown in the table, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels, primarily due to improved emission controls and better fuels. The emissions projections do not include newly proposed measures under consideration by ARB, which would be expected to further reduce diesel particulate emissions. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the Proposed Plan would have a beneficial impact with respect to regional TAC emissions.

Table 4.1.7: Heavy-Duty Truck Emissions

Scenario	Emissions (tons per day)
Existing Conditions (2000)	0.77
2030 No Project (Baseline) (2030)	0.30
2030 Proposed Plan (2030)	0.30

Source: OCTA; EMFAC2002, OCTAM 3.2.

1 United States Environmental Protection Agency. Control of Emissions of Hazardous Air Pollutants from Mobile Sources. Federal Register, 66:17234-17237, March 29, 2001.

2 SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin*, MATES-II, March 2000.

Localized Health Impacts. The SCAQMD conducted a study in 1987 to assess air toxics levels in the Basin. That study, called the Multiple Air Toxics Exposure Study (MATES I), integrated measured ambient concentrations, population distribution, and health risk data for individual chemical species to estimate regional inhalation exposure, risk, and number of potential excess cancer cases. Of the 20 TACs studied and the state of knowledge of potential risk of individual compounds at that time, benzene emissions and hexavalent chromium had the greatest potential impact on the Basin's population. The estimated Basin risk level was around 600 in 1 million. Given the state of knowledge of TACs, it was expected that this number would be much higher. In addition, the MATES I study indicated that mobile sources were significant contributors to the overall risk levels.

A second study, MATES II, conducted in 1998 and 1999, examined the potential risk of over 30 known TACs, including diesel particulates. The MATES II results indicate that the Basin cancer risk is approximately 1,400 in 1 million when diesel emissions are considered. (The Basin risk is approximately 400 to 600 in 1 million, excluding diesel emissions.) The MATES II results also indicate that higher risk levels are seen in the more industrialized areas of the Basin (specifically the southcentral portion of Los Angeles County; at freeway interchanges; areas near airports; and industrial areas in Orange, Riverside, and San Bernardino Counties). In addition, MATES II indicates that risk levels tend to be higher during the fall and winter months, when the meteorological conditions are more stagnant.

The areas near roadways that typically register elevated concentrations of air toxics are known as "hot spots." Exposure to such "hot spots" may lead to adverse health effects. The proximity to roadways is an important factor in assessing exposure. Typically, concentrations drop off dramatically (around 90 percent) after the first 0.25 mile from the roadway.

Currently, there is a wide range of variability of concentrations throughout Orange County. The highest pollutant concentrations are found along major transportation corridors. In 2030, with implementation of the Proposed Plan, cancer risk levels would be substantially lower than cancer risk in 2000, primarily as a result of improvements in motor vehicle exhaust controls but also due to improved traffic flow.

Climate Change. As described in Section 4.1.2.5, neither CEQA nor the CEQA Guidelines mention or provide any methodology for analysis of "greenhouse gases," including CO_2, nor do they provide any significance thresholds. However, the air quality model used to predict emissions rates of the criteria pollutants (EMFAC 2002) is capable of modeling the emissions of CO_2, and OCTA analyzed CO_2 emissions resulting from the Proposed Plan. Even though the total VMT increase, the Proposed Plan results in a reduction in CO_2 emissions and would represent an improvement over the No Project Alternative as shown in Table 4.1.8. The improvement in operations compared to the No Project Alternative, particularly higher speed and reduced hours traveled (VHT), has a beneficial impact on CO_2 emissions due to improved traffic flow, resulting in more efficient vehicle operation, which is consistent with the results for the analysis of the other criteria pollutants. The Proposed Plan would result in a positive effect on reduction of CO_2 levels and would not require mitigation.

Table 4.1.8: Future CO_2 Emissions (tons per day)

Scenarios	CO_2
No Project (Baseline) (2030)	50
Proposed Plan (2030)	49
Difference	-1
% Change	-2%

4.1.5.3 Potentially Significant Impacts

Impact 4.1-1: Short-Term (Construction) Regional Impacts. The Proposed Plan would involve substantial construction to implement the proposed project. The construction activities would create short-term temporary air emissions from the following activities: (1) demolition; (2) site preparation operations (grading/excavation); (3) fuel combustion from the operation of construction equipment; (4) delivery and hauling of construction materials and supplies to and from the site; (5) the use of asphalt or other oil-based substances during the final construction phases; and (6) travel by construction workers to and from the site. Construction emissions are based on the type and magnitude of development that would be accommodated under the project, the timeline for construction, the mix of construction equipment required to build the project, and emission factors from the SCAQMD CEQA Air Quality Handbook and EPA's AP-42. Emissions of NO_X, VOC, and PM_{10} generated would be based on the number and type of operating vehicles and the number of hours of operation. Fugitive emissions would be based on the amount of soil disturbed, type of soil, duration, type of activity (grading, excavation, etc.), haul trips, and other factors.

Most improvements in transit and system management (signal synchronization, striping, etc.) do not involve construction and are not expected to generate substantial short-term impacts. However, a large number of the projects in the Proposed Plan would involve extensive construction or reconstruction. It is very likely that some of these projects would be under concurrent construction throughout the region. Short-term impacts generated from implementation of the Proposed Plan are expected to be significant.

Construction activities associated with transportation facilities of any medium- to large-scale highways or arterials would be expected to individually generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Handbook. This would create a potentially significant short-term impact. These impacts would occur in localized areas, depending on the construction site locations. Individual projects would be required to implement mitigation measures to reduce construction emissions.

Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed at the project level analysis.

Mitigation Measure

4.1-A Prior to approval of individual projects, the Lead Agency shall evaluate potential short-term air quality impacts as part of the project's environmental review. This review shall identify the existing air quality condition, evaluate potential project impacts, and identify appropriate

measures to be implemented during construction. These measures include compliance with SCAQMD Rule 403. The following additional air quality mitigation measures should be considered as part of the project-level environmental review:

- Revegetate exposed earth surfaces following construction.
- Apply water or dust suppressants to exposed earth surfaces to control emissions.
- Cessation of all excavating and grading activities during second stage smog alerts and periods of high winds.
- Cover all trucks hauling dirt, sand, soil, or other loose materials off-site or wetted or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer).
- Treat the surface of all construction roads that have high traffic volumes with base material or decomposed granite, or pavement or otherwise stabilizing technique.
- Clean public streets at frequent intervals or at least three times a week if visible soil material has been carried onto adjacent public roads.
- Visually inspect of construction equipment prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.
- Apply water or non-toxic soil stabilizers as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and other unpaved surfaces.
- Maintain traffic speeds on all unpaved surfaces below 25 mph.
- Implement all feasible energy-saving measures, such as the use of low sulfur or other alternative fuels in construction equipment, utilizing electricity from power poles rather than temporary diesel power generators and/or gasoline power generators.
- Schedule all deliveries related to construction activities that affect traffic flow to occur during off-peak hours (e.g., 10:00 a.m. and 3:00 p.m.) and coordinate them to achieve consolidated truck trips. When the movement of construction materials and/or equipment impacts traffic flow, temporary traffic control shall be provided to improve traffic flow (e.g., flag person).

Level of Significance after Mitigation

After implementation of Mitigation Measure 4.1-A, activities related to construction of an individual project within the Proposed Plan could continue to exceed emission thresholds for regional NO_X, CO, PM_{10}, SO_X, and ROG, resulting in residual significant short-term construction air quality impacts.

Impact 4.1-2: Short-Term Localized Impacts. Construction vehicles are sources of carcinogenic pollutants and are also responsible for diesel exhaust.

Due to the concentrated use of heavy-duty diesel powered equipment and possible health impacts to the general public living near sections of freeway that would be affected by the Proposed Plan, it is expected that the cancer risk resulting from construction activities for any individual freeway project

could exceed the acceptable threshold of one in a million at locations close to freeways. This is the case for the maximum one-year cancer risk, which reflects the temporary nature of construction. When this same risk is spread over a 70-year lifetime (in accordance with health risk assessment procedures), risk levels are much lower, approaching the threshold of one in a million. Overall, this impact would be considered potentially significant.

Mitigation Measure

4.1-B Prior to project approval, for all major individual freeway projects, the Lead Agency shall evaluate short-term TAC/health risks as part of the project's environmental review. The evaluation shall assess the exposure of sensitive receptors near each project to TACs and determine the resulting health risks. Measures shall be considered, such as equipping construction equipment with diesel particulate traps and the use of low-sulfur or other alternative fuels in construction equipment to mitigate potential impacts.

Level of Significance after Mitigation

After implementation of Mitigation Measure 4.1B, the residual short-term health risks associated with individual construction projects included within the Proposed Plan could exceed the threshold and would remain significant air quality impacts.

4.1.6 CUMULATIVE IMPACTS

CEQA requires that projects be consistent with the AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decisionmakers of the environmental efforts of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals contained in the AQMP. Only new or amended General Plan elements, Specific Plans, and major projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local General Plans. Projects that are consistent with the local General Plan are considered consistent with the air quality-related Regional Plan.

If growth projections included in the AQMP are not exceeded, a project generally would be considered to be consistent with the AQMP if it incorporates emissions reduction measures included in the AQMP. Because motor vehicles are the largest source of air emissions in the area, consistency can be assessed by reviewing these emissions with respect to those from the project. The Proposed Plan would result in 85,662,000 VMT in 2030. Based on a 2000 VMT of 60,570,000, this represents an increase of approximately 41.8 percent, or approximately 1.7 percent per year. The baseline socioeconomic forecasts included in Table 2-4 of the AQMP show an increase of 53 percent over a period of 23 years, or about 2.31 percent per year. As such, vehicle growth projected under the Proposed Plan is less than that forecast under the AQMP, and the project is therefore consistent with the AQMP.

SCAQMD's CEQA Handbook guidance calls for consistency with the forecast used in the federally approved AQMP. A key principle in the CEQA Air Quality Handbook is that a project is

accommodated by and consistent with the AQMP to the extent that it fits within the regional socio-economic and transportation forecasts assumed in the AQMP. The AQMP is based on projections from local general plans, which are incorporated into the SCAG regional growth forecasts that form the foundation for the adopted Regional Transportation Plan (RTP). Similarly, the Proposed Plan is consistent with local general plans and growth forecasts incorporated into the RTP by SCAG.

Due to projected growth, increases in regional vehicle travel will result in significant air quality impacts. However, the Proposed Plan is consistent with local general plans, the AQMP, and other regional planning strategies to reduce the number of trips and the length of trips in the region and to improve the balance between jobs and housing at the subregional level. This, in turn, will reduce the future VMT and associated air pollutants. Therefore, the Proposed Plan is considered consistent with the AQMP and RTP.

In conjunction with future urban development within Orange County, the Proposed Plan would have a neutral effect on air quality and its contribution to cumulative air quality, impacts is considered less than significant.

4.1.7 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

There are no significant unavoidable adverse long-term air quality impacts identified. The Proposed Plan will have a neutral effect on regional air quality while providing for a 2.1 percent increase in VMT.

Construction of individual projects identified in the Proposed Plan could result in the following short-term impacts:

- Short-term construction-related emissions that exceed the SCAQMD thresholds
- Short-term construction-related health risks associated with diesel exhaust

Local Regulations

Resource Management Plans. Resource Management Plans (RMPs) are planning documents that identify conservation goals, strategies, and objectives for management of open space lands. Examples of RMPs within Orange County include the Santa Ana River Canyon Habitat Management Plan, the Land Management Plan for the CNF, and the Lower Brush Canyon Habitat Management Plan. RMPs are being prepared as part of ongoing conservation efforts on public lands or are developed, in conjunction with, development proposals.

4.2.3 THRESHOLDS OF SIGNIFICANCE

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (CEQA § 21068). Significance criteria used in this analysis are based on Appendix G of the CEQA guidelines. The proposed Plan would have a significant impact on biological resources if implementation were to:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS
- Substantially and adversely affect federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

4.2.4 IMPACTS AND MITIGATION

Implementation of the Proposed Plan has the potential to affect biological resources. Both short-term construction-related impacts and long-term or permanent impacts potentially would occur as a result of implementation of the Proposed Plan. Below are descriptions of the types of impacts foreseeable from new transportation projects and programs in the Proposed Plan.

Impacts to biological resources resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, location of sensitive resources within the vicinity of the project, and the ability to avoid impacts to such resources.

The following discussion presents a regional evaluation of potential impacts of Proposed Plan projects to biological resources. However, it should be noted that significant impacts and appropriate mitigation measures would need to be identified and assessed on a project-by-project basis. All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Proposed Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. OCTA shall be provided with documentation of compliance with mitigation measures through OCTA's monitoring efforts, including the Intergovernmental Review Process.

4.2.4.1 Less Than Significant Impacts

Central/Coastal Subregion of the NCCP. The Central/Coastal NCCP/HCP and related ITP anticipated transportation projects in the MPAH and General Plans for participating cities and the County of Orange would be implemented to accommodate growth within the County. Participating land owners were authorized specific amounts of take of CSS and covered species under the ITP in return for commitments from the participating landowners to comply with the provisions in the NCCP/HCP, including implementation of an adaptive management program for impacts to CSS and related species.

The projects in the Proposed Plan consist primarily of improvements to existing facilities, such as road widening, lane additions, and improvements to intersections and interchanges. No new major facilities or corridors are proposed within the Central/Coastal NCCP Reserve Areas that were not anticipated at the time of the ITP or that represent a significant diversion from the intent of the NCCP/HCP. At the time of implementation of specific projects identified in the Proposed Plan, signatories to the NCCP/HCP would evaluate the specific project for consistency with the goals of the NCCP/HCP and would mitigate for potential impacts to CSS and related species using mitigation measures and an adaptive management program for the take that was authorized under the NCCP/HCP. If a signatory to the NCCP/HCP has already used up all of its allotted take under the ITP, an amendment to the HCP may be required. It is not anticipated that any amendments to the NCCP/HCP would be required in order to implement the Proposed Plan. Because the projects identified in the Proposed Plan are consistent with the NCCP/HCP and signatories will comply with the provisions of the NCCP/HCP for implementation of specific projects, potential impacts to the Central/Coastal NCCP/HCP are considered less than significant.

Southern Subregion of the NCCP. The eastern portion of Orange County is within the proposed Southern Subregion of the NCCP Program (Southern Subregion NCCP). This subregion encompasses 91,000 acres, with 57,000 acres of natural habitat including CSS, chaparral, grassland, riparian, and oak woodlands. State-listed species covered by the Program include least Bell's vireo, southwestern willow flycatcher, and thread-leaved brodiaea. The Draft HCP for the Southern Subregion NCCP is currently being developed. Potential effects to covered species by authorized development and transportation projects within the southern subregion will be addressed and mitigated through the proposed Southern Subregion NCCP/HCP. Therefore, potential impacts to biological resources in the Southern Subregion NCCP/HCP would be considered less than significant.

4.2.4.2 Potentially Significant Impacts

Impact 4.2-1: Surface disturbance could directly affect the threatened, endangered, and/or special-interest species and sensitive natural communities outside of the designated NCCP/HCP areas. Projects in the Proposed Plan include widening and extension of freeways and arterials and modifications to existing interchanges. Additionally, public transit projects may include new stations or upgrades to existing stations. In general, potentially significant impacts would occur for projects proposing new facilities in previously undisturbed areas (i.e., new facilities, goods movement roadway facilities, rail corridors, rail stations, flyovers, interchanges). Construction and operation of projects within the Proposed Plan could potentially significantly impact biological resources in the vicinity of these new system projects.

Direct impacts to special-interest species and sensitive natural communities could occur due to loss of individuals and loss of habitat. Possible indirect effects to threatened, endangered, and/or special-interest species and sensitive natural communities include habitat fragmentation and decreased habitat values caused by disturbances due to noise, lighting, and introduction of invasive species, both during construction and operation of the project.

The severity of impacts would vary based on the specific locations of surface impacts, which have not been determined at this time. Due to the programmatic nature of the Proposed Plan and because no site-specific field studies have been performed to determine the presence of suitable habitat, none of the species identified in the database search (Appendix C) can be excluded from consideration at this time. Potential impacts to special-interest species and sensitive natural communities have been identified to the extent possible at this level of analysis.

The literature review identified 29 species designated as State or federally listed as threatened or endangered and 16 sensitive natural communities that could be impacted by implementation of transportation improvements or programs identified in the Proposed Plan.

Future project-specific CEQA documents would identify project-related effects to biological resources in terms of a "road effect zone." The road effect zone includes all potential effects of roads on surrounding habitat, including direct loss of habitat, changes in surrounding noise and light levels, changes in habitat type due to introduction of nonnative species, changes in drainage, and runoff patterns and likelihood of roadkill for surrounding wildlife. The road zone effect would be quantified (to the extent possible). Effects that cannot be quantified would be described qualitatively. During environmental review of projects in the Proposed Plan, comprehensive biological field studies will be required to assess the site-specific characteristics for each proposed facility and will further determine potential presence and impacts to special-interest species and sensitive natural communities. Project-specific field studies will also consider impacts to special-interest species and sensitive natural communities that may be present that do not appear on any database searches. Because this is a long-range plan implemented over 30 years, database searches for special-interest species and sensitive natural communities should be updated for each project facility, taking into account changes of status and possible migration of a species to new areas.

At a programmatic level, implementation of the projects within the Proposed Plan would potentially result in significant impacts to threatened, endangered, and/or special-interest species and sensitive natural communities due to direct impacts to species, loss of habitat, decreased habitat value caused by increased noise, lighting, and introduction of invasive species. Projects with the most likelihood to

affect special-interest species and sensitive natural communities are expansions of roadways through or adjacent to previously undeveloped areas.

Mitigation Measure

Mitigation measures to avoid or minimize potential impacts to biological resources are described below.

4.2-A **Special-Interest Species and Sensitive Natural Communities.** During the planning process and environmental review for individual projects in the Proposed Plan, the Lead Agency for the project shall conduct comprehensive biological resources assessment to evaluate and mitigate direct and indirect impacts to sensitive natural communities and special-interest species. The assessment would include consideration of avoidance or redesign to minimize impacts through project design. Additionally, mitigation measures shall be identified to mitigate remaining impacts to these resources. In addition, the Lead Agency for each project shall incorporate locally collected, plant community appropriate native plant species in the landscape plant palette in areas of temporary disturbance and in landscaped areas, where feasible, particularly where such areas are adjacent to open-space wildlands. The types of mitigation to be considered for each project are discussed below.

Compensation for Loss of Habitat. A mitigation plan identifying specific measures to compensate for permanent habitat loss due to project implementation shall be developed. The mitigation plan will consider in-kind habitat acquisition, habitat enhancement and long-term monitoring, or participation in regional conservation programs such as the Central/Coastal NCCP/HCP and the Southern Subregion NCCP.

Construction Minimization Measures. Implement measures during construction, such as:

- When possible, vegetation removal and loud construction activities (greater than 60 dBA) will be scheduled outside of the breeding season for special-interest animal species known to occur in the area
- Night time lighting shall be directed away from areas known to support special-interest animal species
- Field surveys will be conducted immediately prior to vegetation removal. If special-interest species are found to be present, then construction should be delayed in that area until breeding activity is completed or the species can be relocated.
- During construction, sensitive habitat areas should be clearly marked and monitored by qualified biologists
- Construction crews will be educated regarding the sensitive nature of the work area and the importance of avoiding disturbance of sensitive habitat areas.

Invasive Species. Prior to approval of individual Proposed Plan projects, the lead agency for that project shall ensure that project landscaping complies with applicable guidelines and requirements regarding plant materials. Measures shall be taken during construction to reduce the transport of invasive species into and out of construction sites.

Level of Significance after Mitigation

Although many impacts to sensitive natural communities and special-interest species can be mitigated or avoided, there would potentially be some projects where residual impacts would remain. These residual impacts are considered significant.

Impact 4.2-2: Displacement of riparian habitat, protected wetlands, and federal and State jurisdictional waters. Projects in the Proposed Plan would involve widening and extension of freeways and arterials and modifications to existing interchanges. Public transit projects may include new stations or upgrades to existing stations. These projects may require construction or modifications within water courses and drainage channels that support riparian habitat, wetlands, and jurisdictional waters. Potential direct impacts to riparian habitat, wetlands, and jurisdictional waters by individual projects in the Proposed Plan may occur due to temporary disturbance during construction, permanent disturbance, or loss due to discharge of fill material. Indirect impacts may occur due to contamination by nonpoint source pollutants, alteration of hydrologic regime, increased erosion, and siltation caused by vegetation removal. Figure 4.7.3 (in Section 4.7, Hydrology and Water Resources) illustrates the 100-year floodplain within Orange County and areas where wetlands are likely to occur. Impacts to vernal pools may also occur as a result of proposed road widening and alterations. The potential impact to riparian habitat, federally protected wetlands, and jurisdictional waters of the U.S. is considered significant.

Mitigation Measure

Project-specific mitigation to avoid and reduce impacts to riparian habitat, federally protected wetlands, and jurisdictional waters of the U.S. shall be determined during the environmental review and planning for each project. Conceptual mitigation measures are described below.

4.2-B Riparian habitat, federally protected wetlands, and jurisdictional waters of the U.S. During the planning process and environmental review for individual projects in the proposed plan, the Lead Agency for the project shall conduct a wetlands and jurisdictional waters determination and assessment of direct and indirect impacts to waters of the U.S. The assessment would include consideration of avoidance or redesign to minimize impacts through project design. Additionally, mitigation measures shall be identified to mitigate the remaining impacts to these resources. Types of mitigation to be considered for each project include the following.

Avoidance and Minimization during Design. Measures should be taken to limit temporary disturbance to minimum areas necessary for construction. The project design should carefully consider the placement of haul roads, storage yards, and staging areas with respect to

jurisdictional waters and associated habitats. Culverts, drainage systems, and bridges should be designed to avoid increasing or decreasing peak flow, to maintain hydrologic continuity within drainage systems, and to avoid permanent diversion of natural flows.

Compensation for Loss of Riparian Habitat. Develop a Habitat Mitigation and Monitoring Plan (HMMP) that ensures no net loss of riparian habitat value or acreage. The HMMP will include compensation for permanent disturbance or loss by providing alternate or substitute resources, construction minimization measures, and identify a success criterion for percent cover of native wetland vegetation, an establishment period for the replacement habitat, as well as regular maintenance and monitoring activities to ensure the success of the mitigation plan.

Regulatory Permitting. Mitigation may require the following permits from the respective resource agencies: (1) Section 404 Permit, Corps; (2) Section 401 Water Quality Certification, RWQCB; (3) Section 1602 Streambed Alteration Agreement, CDFG, and (4) authorization for impacts to endangered species either through provisions in an NCCP/HCP, SAMP HCP, or through formal Section 7 consultation between USFWS and the Corps. These permits will require, at a minimum, the preparation of a mitigation plan and the provisions for the protection of special-interest species as described above. The proposed project will comply with all terms and conditions set forth in the permits issued by the resource agencies.

Level of Significance after Mitigation

Although many impacts to riparian habitat, federally protected wetlands, and waters of the U.S. can be mitigated or avoided, there would potentially be some projects where residual impacts would remain. These residual impacts are considered significant.

Impact 4.2-3. Limit wildlife movement and habitat linkage values by severing, constricting, or increasing fragmentation of linkages that could contribute to increased incidence of roadkill. The projects in the Proposed Plan consist primarily of improvements to existing facilities, such as road widening, lane additions, and improvements to intersections and interchanges. No new major facilities or corridors are proposed that would create habitat fragmentation by traversing large intact habitat blocks. However, road widening and extensions and interchange improvements could interfere with habitat linkage values by severing, constricting, or increasing fragmentation of linkages. Because the projects are primarily within existing roadways, their potential to fragment large habitat blocks or increase roadkill is smaller than a new roadway. This impact is considered potentially significant.

Mitigation Measure

Mitigation to avoid impacts to wildlife movement is described below.

4.2-C **Wildlife Movement and Roadkill.** During the planning process and environmental review for individual projects in the Proposed Plan, the lead agency for the project shall conduct site-

specific analyses of opportunities to preserve or improve habitat linkages with areas on and off site. Types of mitigation to be considered for each project include:

- Provide wildlife crossings/access at locations useful and appropriate for species anticipated to use the area
- Wildlife fencing shall be utilized where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads

Level of Significance after Mitigation

Although many impacts to wildlife movement can be mitigated or avoided, there would potentially be some projects where residual impacts would remain. These residual impacts are considered significant.

Impact 4.2-4. Migratory birds may be affected by removing or disturbing active nests during construction activities. The MBTA prohibits actions that will result in "take" of migratory birds, their eggs, feathers, or nests. "Take" is defined in the MBTA as any means or any manner to hunt, pursue, wound, kill, possess, or transport any migratory bird, nest, egg, or part thereof. Migratory birds, as defined in the MBTA, are also protected under Section 3513 of the California Fish and Game Code. In addition, Section 3503 of the California Fish and Game Code prohibits the take, possession, or needless destruction of the nest or eggs of any bird, except as otherwise provided by the California Fish and Game Code or other regulation. Impacts to migratory birds would result if removal of trees, shrubs, or other habitat would disrupt actively nesting migratory birds. If not mitigated, the potential impact would be significant.

Mitigation Measure

Impacts to actively nesting migratory birds can be avoided by scheduling construction outside the likely bird nesting season or by biological monitoring during construction, as described in Mitigation Measure 4.2-D below.

4.2-D **Migratory Birds.** To the extent feasible and practical, vegetation removal shall be conducted outside the active nesting season for migratory birds anticipated to be present in the study area. If vegetation clearing must be scheduled during the acting nesting season for migratory birds, a qualified biologist will conduct surveys for active bird nesting no more than 10 days prior to any clearing of vegetation. The location of any active migratory bird nests will be mapped by the biologist. All construction activities in close proximity to active nests shall be delayed or otherwise modified as necessary to prevent nest failure caused by construction activities.

Level of Significance after Mitigation

Incorporation of Mitigation Measure 4.2-D into construction of all projects identified in the Proposed Plan would reduce impacts to migratory birds to less than significant levels.

Impact 4.2-5. Local Plans and Policies: Projects in the Proposed Plan have the potential to conflict with local plans and policies, including local tree ordinances. Many cities have tree protection ordinances for trees planted in public lands and parks that require permits and a one-to-one replacement ratio for removal of trees. Compliance with such ordinances will mitigate any potential impacts related to conflicts with local tree ordinances. Other potential impacts to local plans and policies are addressed in Section 4.9, Land Use and Planning.

Mitigation Measure

Impacts to local plans and policies can be avoided by review and compliance with local tree protection ordinances and other local policies as described in Mitigation Measure 4.2-E below.

4.2-E **Compliance with Local Tree Protection Ordinances.** Prior to environmental approval of projects identified in the Proposed Plan, the lead agency shall evaluate potential conflicts and ensure compliance with all local tree protection ordinances, general plans, and other local policies.

Level of Significance after Mitigation

Incorporation of Mitigation Measure 4.2-E into the construction of all projects identified in the Proposed Plan would reduce impacts to local plans and policies to less than significant levels.

4.2.5 CUMULATIVE IMPACTS

A cumulative impact consists of an impact that is created as a result of the combination of the Proposed Plan with other reasonably foreseeable development within Orange County causing similar impacts. The cumulative impact area for biological resources would be Orange County. The individual projects within the Proposed Plan that affect natural areas have the potential to create significant impacts to special-interest species, sensitive natural communities, riparian habitat, federally protected wetlands, waters of the U.S., wildlife movement, and migratory birds. These impacts would be created by disturbing native habitat, altering hydrologic resources, removal of trees, and segmentation of large habitat blocks. Projects along existing highway facilities would likely have less impact of biological resources than new projects on previously undisturbed land. Future development within Orange County has the potential to also result in similar significant impacts to these resources. Mitigation for such impacts due to development is likely to include comprehensive biological field studies, avoidance and minimization of impacts during design, compensation for habitat loss, precautionary measures to be implemented during construction, and measures to avoid the spread of invasive species. Implementation of Mitigation Measures 4.2.A–4.2.E would reduce potential biological impacts to less than significant levels. However, not all individual projects impacts can be completely avoided or mitigated, and residual impacts are likely to remain. Therefore, the Proposed Plan's contribution to future impacts to biological resources is considered cumulatively significant.

4.2.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The following significant unavoidable adverse impacts to biological resources have been identified:

- Loss of special-interest species and sensitive natural communities
- Displacement of riparian habitat, federally protected wetlands, and waters of the U.S.
- Wildlife movement, habitat fragmentation, and increased roadkill
- Cumulative impacts to special interest species, sensitive natural communities, riparian habitat, federally protected wetlands, waters of the U.S., wildlife movement, and migratory birds

protection of people and structures from risks associated with these hazards. Ordinances can include those addressing unreinforced masonry construction, erosion, or grading.

4.4.3 THRESHOLDS OF SIGNIFICANCE

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (CEQA § 21068). Significance thresholds have been identified based on Appendix G of the CEQA Guidelines. The Proposed Plan would have a significant impact related to geology and soils if implementation were to:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving; rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault, strong seismic ground shaking, and seismic-related ground failure, including liquefaction or landslides
- Result in substantial soil erosion or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater

4.4.4 IMPACTS AND MITIGATION

Projects to be implemented by the Proposed Plan would be affected by local geology and soils. Both short-term construction-related impacts and long-term or permanent impacts potentially would occur as a result of implementation of the Proposed Plan. Below are descriptions of the types of direct impacts foreseeable from transportation projects and programs identified in the Proposed Plan.

In general, potentially significant impacts would occur as a result of projects proposing new systems and structures (i.e., new facilities, goods movement roadway facilities, rail corridors, grade separations, interchanges). Construction and operation of projects proposed within the Proposed Plan potentially would significantly impact geology and soils in the vicinities of these new system projects.

Many of the proposed public transit projects would involve service alterations on existing streets, highways, and rail lines only. Other proposed public transit projects would involve the possible construction of new rail lines. Some public transit projects may include new stations or upgrades to existing stations. Impacts related to geology and soils resulting from these proposed projects would depend on several factors, such as the type of project proposed for the given area, location of the project, and local soils.

4.4.4.1 Less Than Significant Impacts

Seismically induced tsunami and seiche waves. A seiche is oscillation of water in a lake, bay, or other enclosed body of water as a result of seismic disturbances. A tsunami is an ocean wave caused by an earthquake or volcano eruption under water. The Orange County coastline is shielded to the west by the Channel Islands and to the north by Point Conception from most sources of tsunamis.[1] The Proposed Plan does not propose any new infrastructure or expansion of existing facilities adjacent to enclosed water bodies subject to seiche. This impact is considered less than significant, and no mitigation is required.

4.4.4.2 Potentially Significant Impacts

Impact 4.4-1: Seismic events can damage transportation infrastructure through surface rupture, ground shaking, liquefaction, and landslides. The entire Orange County region is susceptible to impacts from regional seismic activity. Numerous active faults are known to exist in the region that could potentially generate seismic events capable of significantly affecting existing and proposed transportation facilities. As such, new or expanded transportation facilities and programs would be exposed to both direct and indirect effects of earthquakes. Potential effects from surface rupture and severe ground shaking could cause catastrophic damage to transportation infrastructure, particularly overpasses and underground structures. The Proposed Plan includes highway, arterial, and public transit projects throughout the Orange County region. The highway and arterial projects mostly include widening existing highways and constructing new interchanges. All the existing highways and rail lines in the Orange County region are subject to seismic or geologic influences to some degree. Many proposed projects would be located within or across identified Alquist-Priolo Earthquake Fault Zones; SR-91 and SR-57 may be affected by the Elsinore Fault Zone; and the Newport-Inglewood Fault Zone may impact SR-55 and possibly Pacific Coast Highway. These highways are located directly over faults that are susceptible to surface rupture. The entire County would be susceptible to severe ground shaking and earth movement from active faults. Projects could also be located on soils prone to liquefaction or in landslide-prone areas. The potential for projects to be significantly affected by liquefaction would be higher in areas exhibiting shallow groundwater levels and unconsolidated soils such as fill material, some alluvial soils, and coastal sands. Potential impacts to property and public safety from seismic activity could potentially be significant.

Mitigation Measure

Mitigation for impacts related to seismic shaking and unstable soils include using current earthquake-resistant design standards for new structures, retrofitting existing structures, and comprehensive geotechnical site investigation during design and construction.

4.4-A As part of environmental review and approval of individual projects and programs, the Lead Agency shall evaluate project geologic and seismic conditions and potential impacts. As part of this evaluation, projects shall be reviewed for compliance with Caltrans, County, and City code requirements for seismic ground shaking, as appropriate. The design of projects shall

[1] County of Orange General Plan, Safety Element, 2003.

consider seismicity of the site, soil response at the site, and dynamic characteristics of the structure, in compliance with the appropriate California Building Code standards for construction in or near fault zones. Projects located within or across Alquist-Priolo Zones Earthquake Fault Zones must comply with design requirements provided in Special Publication 117, published by the CGS13, as well as relevant local, regional, State, and federal design criteria for construction in seismic areas. Appropriate mitigation measures shall be identified as part of this evaluation.

Level of Significance after Mitigation

Adherence to current building codes, proper geotechnical investigation, and retrofit of unstable existing structures would reduce potential impacts related to seismic shaking for most projects. However, because of the unstable seismic nature of the region and the magnitude of some of the projects identified in the Proposed Plan, residual impacts may remain and are considered significant after mitigation.

Impact 4.4-2: Grading and earth modifications could increase long-term erosion potential and slope failure. Projects proposed in the Proposed Plan would involve road construction and widening, interchange modification, and alteration of existing bridges and culverts. Most projects would not result in substantial grading or other earth modifications. However, there will be projects that require substantial grading and excavation activities, both in urban and outlying areas, such as freeway and arterial construction that could generate air and waterborne erosion and slope failure. Also, projects that require crossings of drainages may result in the potential for air and waterborne contaminants. Earth work or major cuts into hillsides can create unstable slope conditions and lead to long-term soil erosion, creating potential landslide and falling rock hazards. Potential impacts related to long-term erosion and slope failure due to projects proposed in the Proposed Plan, particularly large-scale improvements, have the potential to generate significant erosion and slope failure impacts.

Mitigation Measures

Mitigation for impacts related to erosion and slope failure includes avoidance of unstable soils and landslide prone areas (Mitigation Measure 4.4-B) and appropriate slope drainage construction methods, revegetation of modified slopes, proper earthwork, and road cut design (Mitigation Measure 4.4-C).

4.4-B As part of environmental review and approval of individual projects and programs, the Lead Agency shall evaluate project geologic conditions for unstable slopes and potential landslide hazards. As part of this evaluation, projects shall be reviewed for compliance with Caltrans, County, and City code requirements for construction on slopes, as appropriate. Project design shall avoid potential landslide areas and unstable slopes. Appropriate mitigation measures shall be identified as part of this evaluation.

4.4-C As part of environmental review and approval of individual projects and programs, the Lead Agency shall evaluate potential slope instability and erosion impacts of the project. Project design shall provide adequate slope drainage and appropriate landscaping to minimize the

occurrence of slope instability and erosion. Appropriate mitigation measures shall be identified as part of this evaluation.

Level of Significance after Mitigation

Avoidance of unstable soils and landslide-prone areas and appropriate slope drainage construction methods will reduce potential impacts related to erosion and slope failure for most projects. However, given the topography, ecology, and meteorology of the Orange County region, and given the magnitude of some of the projects identified in the proposed project, residual long-term erosion and slope failure impacts for some projects could remain and would be considered significant after mitigation.

Impact 4.4-3: Expansive or unstable soils could lead to subsidence, damage to property, and risks to public safety. Subsidence has historically occurred within the Orange County region due to groundwater overdraft and petroleum extraction. Unconsolidated soils containing petroleum or groundwater compress when the liquids are removed, causing the surface elevation to decrease. Improperly abandoned oil wells or underground hard rock mining can also cause localized subsidence. Subsidence can also occur in areas with unconsolidated soils that have not historically shown elevation changes. In addition, soils with high percentages of clay can expand when wet, causing structural damage to surface improvements. Many of the projects proposed in the Proposed Plan would occur where expansive soils may be expected to have already been investigated and removed. However, damage to proposed facilities caused by subsidence in unstable soils is considered a potentially significant impact.

Mitigation Measures

Mitigation for impacts related to subsidence in unstable soils includes comprehensive geotechnical site investigation and implementation of corrective measures (Mitigation Measure 4.4-D), and investigation of soil conditions near abandoned wells (Mitigation Measure 4.4-E).

4.4-D Prior to individual project approvals, the Lead Agency for projects within the Proposed Plan shall ensure that geotechnical investigations are conducted by a qualified geologist to identify the potential for subsidence and expansive soils and evaluated in the environmental documentation prepared for the project. Recommended corrective measures, such as structural reinforcement and replacing soil with engineered fill, shall be implemented in project designs.

4.4-E Prior to individual project approvals, the Lead Agencies shall ensure that, new and abandoned wells are identified within construction areas to ensure the stability of nearby soils. Environmental documentation prepared for any project shall evaluate the potential for subsidence due to prior extraction activities, either petroleum or water, and incorporate mitigation measures.

Level of Significance after Mitigation

Comprehensive geotechnical site investigation, implementation of corrective measures, and investigation of soil conditions near abandoned wells and oil fields would reduce impacts related to subsidence in unstable soils to less than significant levels.

4.4.4 CUMULATIVE IMPACTS

The cumulative impact area of the Proposed Plan is the entire Orange County area. Future planned development and redevelopment within Orange County would have the potential to generate similar geologic seismic and soil impacts as the projects in the Proposed Plan. Each of these projects would be required to identify appropriate mitigation to minimize these impacts. The actions considered by the Proposed Plan have the potential to cause cumulatively considerable adverse effects on human beings when considered at the regional scale. Given the distribution of potentially hazardous geological and seismic factors in Southern California, and given the regional scale of transportation projects and programs considered as part of the Proposed Plan, when taken along with anticipated growth associated with local land use planning efforts, the contribution of the proposed project to the cumulative geologic and soil impacts would potentially be significant.

The project-level mitigation measures (4.4-A–4.4-E) specified in the impact categories discussed above, are generally expected to minimize or avoid potential hazards due to geologic and seismic factors. When considered in combination with the efforts of local agencies in their review and approval of future land use proposals, potential geologic and soil impacts will be identified and mitigated as appropriate for individual transportation and development projects throughout the County. While the entire Orange County region is susceptible to seismic hazards, it is also notable that many of the hazards are highly localized, such as those areas in the vicinity of known seismic rupture areas, such as the Newport-Inglewood, Elsinore, El Modeno-Peralta Hills, Los Alamitos, and Whittier Faults. Appropriate use of engineering technologies, when coupled with siting considerations, would substantially lessen the potential geology and soil impacts of cumulative development.

Despite the inclusion of Mitigation Measures 4.4-A through 4.4-E, there may continue to be residual geologic and soil cumulative impacts in localized areas such as near Alquist-Priolo Earthquake Fault Zones and locations within Seismic Hazards Mapping Zones that would remain significant.

4.4.5 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The following significant unavoidable adverse impact related to geology and soils have been identified:

- Damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landslides due to seismic events
- Long-term erosion and slope failure
- Cumulative geologic and soil impacts in localized areas such as near Alquist-Priolo Earthquake Fault Zones and locations within Seismic Hazards Mapping Zones

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ambient noise levels within the project area, specifically in developed areas and sensitive land uses (e.g., schools, parks). The construction of a new roadway and the expansion of existing roadways may affect residential land uses more than direct property acquisition and displacements. Impacts related to Aesthetics (Section 4.13), Air Quality (Section 4.1), and Noise (Section 4.9) are discussed in detail in the applicable sections of this PEIR. Refer to each section for more detail.

Aesthetics. As described in Section 4.13, expansion of existing facilities or widening of roadways into previously undisturbed sites potentially would block or impede views of scenic resources in a given area or generally be incompatible with surrounding land uses. Proposed projects in the Proposed Plan could potentially block or impede views of surrounding scenic resources during and after construction. Impacts to existing scenic resources would be considered potentially significant because it is likely that there will be situations where visual impacts cannot be mitigated to less than significant levels.

Air Quality. The potential air quality effects of the Proposed Plan are summarized in Section 4.1 of this PEIR. The Proposed Plan would involve substantial construction to implement the proposed project. The construction activities would create short-term temporary air emissions that could cause possible health impacts to the general public living near sections of freeway that would be affected by the Proposed Plan. Mitigation measures to reduce air quality impacts would be established in project-specific environmental documents.

Noise. The potential noise effects of the Proposed Plan are summarized in Section 4.9 of this PEIR. Short-term noise impacts may also result during construction of proposed projects under the Proposed Plan; however, construction activity is limited to the hours specified in the City's Noise Control Ordinance. Mitigation is included to ensure proposed projects' compliance with the Noise Control Ordinance, and additional measures are identified to reduce potential construction noise impacts on sensitive receptors. Potential noise impacts from any proposed improvement would be reduced for those receptors currently protected by a sound barrier such as a sound wall, earth berm, or intervening non-noise-sensitive structure. However, long-term noise levels may remain significant after mitigation for some projects, and impacts would be considered significant.

Mitigation Measures

4.8-A Environmental review of each proposed project under the Proposed Plan will be required to assess community effects and identify appropriate mitigation. Mitigation may include the following:

- Project implementation agencies shall consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible to avoid sensitive land uses and to reduce conflicts between transportation land uses and other types of land uses.
- Project implementation agencies shall implement design guidelines, local policies, and programs aimed at protecting views of scenic corridors and avoiding visual intrusions.

- The environmental documents for all major individual freeway projects shall evaluate short-term TAC/health risks. The evaluation shall assess the exposure of sensitive receptors near each project to TACs and determine the resulting health risks. Measures shall be considered, such as equipping construction equipment with diesel particulate traps and the use of low-sulfur or other alternative fuels in construction equipment to mitigate potential impacts.

4.8-B Potential long-term noise impacts and mitigation measures shall be evaluated and identified during the environmental review for each of the improvements identified in the Proposed Plan by the lead agency.

4.8-C Individual projects must be consistent with federal, State, and local policies that preserve lands, as well as policies that provide compensation for property owners if preservation is not feasible.

Level of Significance after Mitigation

With implementation of Mitigation Measures 4.8-A–4.8-C, potential community impacts for most projects/programs would be reduced to below a level of significance. However, for some projects such as large-scale freeway and rail projects, residual community impacts to aesthetics, air quality, and noise could remain significant after mitigation and are considered potentially significant.

4.8.5 CUMULATIVE IMPACTS

A cumulative impact consists of an impact that is created as a result of the combination of the Proposed Plan together with other past, present, and reasonably foreseeable future projects causing related impacts. In addition to the impacts described above, the urban development and growth that will be occurring and would be accommodated by the transportation investments in the Proposed Plan would have the following additional cumulative impacts:

Urbanization in the region will increase substantially by 2030, as is projected by the Center for Demographic Research. The Proposed Plan is intended to mitigate the transportation impacts of future growth identified in General Plans and current forecasts. Land use changes beyond current General Plan levels will be addressed through separate General Plan environmental reviews. The strategies and policies put forth in the Proposed Plan could affect future land use but would generally stay within the parameters of existing General Plans. In conjunction with planned development and infrastructure, some of the projects identified in the Proposed Plan would contribute to significant cumulative community impacts after mitigation. Long-term effects of projects within the Proposed Plan include significant and unavoidable impacts to land use, including any irreversible effects of noise, air, and aesthetic impacts.

4.8.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

In order to accommodate projected growth by 2030, the County will need to change land uses and increase the intensity of some existing land uses. Significant unavoidable adverse impacts include the following:

- Community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan
- Cumulative community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan

Local Noise Standards and Guidelines

The County of Orange and each of the cities within the County have established Noise Elements within their General Plans that list acceptable transportation noise levels for sensitive receptor locations. The Noise Elements established by each of the cities within the County are generally consistent with the County of Orange's Noise Element of the General Plan discussed below.

County of Orange Standards. The Noise Element of the County of Orange General Plan has developed noise standards for mobile noise sources. These standards address the impacts of noise from adjacent roadways and airports, including John Wayne Airport (JWA). The County specifies outdoor and indoor noise limits for residential uses, places of worship, educational facilities, hospitals, hotels/motels, and commercial and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The County prohibits new residential land uses within the 65 dBA CNEL contour from any transportation source, unless mitigated. Nonresidential noise-sensitive land uses such as hospitals, rest homes, convalescent hospitals, places of worship, and schools will not be permitted within the 65 dBA CNEL area from any transportation source, unless appropriate mitigation measures are included such that the standards contained in the Noise Element and in appropriate State and federal codes are met. The indoor noise standard is 45 dBA CNEL, which is consistent with the California Noise Insulation Standard. The County also enforces building sound transmission and indoor fresh-air ventilation requirements specified in Chapter 35 of the Uniform Building Code. However, for commercial uses, the County specifies interior noise standards only in terms of the hourly L_{eq}. Interior spaces of retail stores and restaurants shall not exceed 55 dBA L_{eq}.

"Outdoor living" area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, and jacuzzi areas associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship, which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes, which may be adversely impacted by noise. Outdoor areas usually not included in this definition are front yard areas, driveways, greenbelts, maintenance areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (e.g., school play yard areas). The County does not specify an outdoor noise standard for nonoutdoor living areas.

4.9.3 THRESHOLDS OF SIGNIFICANCE

As described in Appendix G of the CEQA Guidelines, the Proposed Plan would result in a significant noise impact if the following occurs:

a. Result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, specific plan or other land use plan.
b. Result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

4.9.4 IMPACTS AND MITIGATION MEASURES

4.9.4.1 Less Than Significant Impacts

There are no less than significant noise impacts associated with the implementation of the Proposed Plan.

4.9.4.2 Potentially Significant Impacts

Impact 4.9-1: Long-term noise levels could exceed the local noise standards or result in a significant noise level increase at adjacent sensitive receptor locations. Implementation of the improvements in the Proposed Plan such as the I-405, I-5, SR-57, and SR-91 widening projects and the interchange construction and reconfigurations projects could result in noise levels exceeding the Caltrans and FHWA NAC or result in a significant noise-level increase over existing conditions at sensitive receptors located in proximity to the proposed improvements.

Completion of arterial improvements outlined in the MPAH as well as Harbor Smart Street and Orangethorpe Smart Street could expose adjacent sensitive receptor locations to noise levels exceeding the local significance criteria or to significant noise increases.

Transit improvements such as the Metrolink expansion could expose adjacent sensitive receptor locations to noise levels or significant noise-level increases exceeding the FTA criteria.

Potential noise impacts from any proposed improvement would be reduced for those receptors currently protected by a sound barrier such as a sound wall, earth berm, or intervening non-noise-sensitive structure.

Exceedances of noise standards or substantial noise level increases are considered potentially significant impacts.

Mitigation Measure

4.9-A Potential long-term noise impacts and mitigation measures shall be evaluated and identified by the lead agency during the environmental review for each of the improvements identified in the Proposed Plan. The following would be included in these analyses:

- Identifying sensitive receptor locations within the vicinity of the proposed improvement
- Establishing the existing ambient noise levels at the sensitive receptor locations
- Determining future noise levels with the proposed transportation improvement

- Identifying sensitive receptors exposed to noise levels in excess of the noise standard or exposed to a significant increase in noise level increase
- Evaluating potential mitigation measures at the impacted receptor locations
- Identifying impacted receptor locations were feasible mitigation cannot be implemented

The following could be included as potential project-level mitigation measures:

- Sound barriers for outdoor active use areas, such as backyards, patios, or balconies. Sound berms should be provided instead of walls whenever possible.
- Building façade upgrades should be considered for noise-sensitive uses, such as bedrooms, classrooms, or churches, that are located within the vicinity of the proposed transportation improvements where sound barriers are not feasible.
- Mechanical ventilation, such as air-conditioning systems, should be considered as part of noise abatement measures for structures within the noise impact areas that require windows to be closed for noise attenuation purposes.

Level of Significance after Mitigation

Implementation of Mitigation Measure 4.9-A would reduce the long-term noise level increases associated with the transportation improvements included in the Proposed Plan to within the local noise criteria; however, long-term noise levels exceeding noise criteria may remain after mitigation for some projects, and impacts would be considered significant.

Impact 4.9-2: Implementation of the proposed transit improvements would potentially result in long-term vibration levels that would exceed the local standards. For transit facilities with more than 70 train trips per day, the project falls within the frequent events impact criteria. For frequent events, the groundborne vibration impact threshold for human annoyance is 72 VdB. It is known from Figure 10-1 of the Transit Noise and Vibration Impact Assessment (FTA, April 1995) that light rail vehicles traveling at 50 mph generate groundborne vibrations of 82 VdB at 10 feet from the track centerline, much lower than the 106 VdB level considered to be very safe for structures. This level is reduced by 10 VdB for elevated structures. Therefore, for elevated sections, the vibration levels drop below the threshold at a distance of 10 feet from the centerline of the tracks. For sections of the track that are at-grade, the vibration levels drop below the threshold at a distance of 60 feet from the centerline of the tracks. Therefore, sensitive receptor locations within 60 feet of the centerline of at-grade light-rail tracks would potentially be exposed to vibration levels exceeding the 72 VdB threshold due to rail operations. Although the Proposed Plan does not include constructing new rail facilities along new alignments, there is the possibility of additional rail operations along existing alignments. These additional operations could result in an increase in the frequency of the vibration annoyance. These vibration impacts are considered potentially significant.

Mitigation Measure

4.9-B Potential long-term vibration impacts and mitigation measures shall be evaluated and identified during the environmental review conducted by OCTA or SCRRA for each of the rail transit improvements identified in the Proposed Plan. A vibration analysis would be conducted that identifies sensitive receptor locations within the potential impact area and evaluates potential mitigation measures to reduce the impacts. The following could be included in potential mitigation measures.

- Locating transit improvements outside of the potential vibration impact area for sensitive land uses

Level of Significance after Mitigation

Although sensitive receptors would not be exposed to vibration levels that would result in structural damage, there is the potential for long-term annoyance. Implementation of Mitigation Measure 4.9-B would reduce the long-term vibration levels associated with the transit improvements included in the Proposed Plan; however, long-term vibration levels may remain after mitigation for some projects, and these residual impacts would be considered significant.

Impact 4.9-3: Construction activities could result in short-term noise levels that would potentially exceed the local significance criteria. Two types of short-term noise impacts would occur during construction of the project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities will be moved on site, will remain for the duration of each construction phase, and will not add to the daily traffic volume in the project vicinity. There will be a relatively high single-event noise exposure potential at a maximum level of 87 dBA L_{max} with trucks passing at 50 feet. However, the projected construction traffic will be small when compared to the existing traffic volumes on the local streets, and its associated long-term noise-level change will not be perceptible.

The second type of short-term noise impact is related to noise generated during excavation, grading, and roadway/transit construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, therefore, the noise levels along the alignments as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.9.H lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments based on a distance of 50 feet between the equipment and a noise receptor.

Table 4.9.H: Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Pile drivers, 12,000–18,000 ft-lb/blow	81–96	93
Rock drills	83–99	96
Jackhammers	75–85	82
Pneumatic tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul trucks	83–94	88
Cranes	79–86	82
Portable generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-end loaders	77–90	86
Hydraulic backhoe	81–90	86
Hydraulic excavators	81–90	86
Graders	79–89	86
Air compressors	76–89	86
Trucks	81–87	86

Source: Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987.

Typical noise levels at 50 feet from active construction areas range up to 91 dBA L_{max} during the noisiest construction phases. The site-preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve one to two minutes of full-power operation followed by three to four minutes at lower-power settings.

Construction of the proposed improvements is expected to require the use of earthmovers, bulldozers, and water and pickup trucks. Noise associated with the use of construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 feet from the active construction area for the grading phase. As seen in Table 4.9.H, the maximum noise level generated by each earthmover is assumed to be 88 dBA L_{max} at 50 feet from the earthmover in operation. Each bulldozer would also generate 88 dBA L_{max} at 50 feet. The maximum noise level generated by water and pickup trucks is approximately 86 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Each piece of the construction equipment operates as an individual point source. The worst-case composite noise level at 50 feet from an active construction area would be 91 dBA L_{max}.

Sensitive land uses within 500 feet of the proposed transportation improvement projects such as the I-405, I-5, SR-57, and SR-91 widening projects, the interchange construction and reconfigurations, local roadway improvements, and the transit improvements would potentially be exposed to significant construction noise levels.

Mitigation Measure

The following measures shall be implemented during construction of the proposed project:

4.9-C Potential short-term noise impacts and potential mitigation measures shall be evaluated and identified during environmental review for each of the improvements identified in the Proposed Plan. The construction noise impact will be evaluated in terms of maximum levels (L_{max}) and/or hourly equivalent continuous noise levels (L_{eq}) and their frequency of occurrence. Analysis requirements will be based on the sensitivity of the area and local noise regulations. The following could be included in potential mitigation measures:

- All construction vehicles or equipment, fixed or mobile, will be equipped with properly operating and maintained mufflers
- As part of the proposed project, all operations would comply with the noise ordinance standards, and stockpiling and/or vehicle staging areas would be located as far as practicable from dwellings
- Construction activities shall be restricted to between 7:00 a.m. and 8:00 p.m., Monday through Saturday, with no construction activity permitted on Sundays or federal holidays, or other noise restrictions set forth by the Lead Agency

Level of Significance after Mitigation

Implementation of Mitigation Measure 4.9-C would reduce the potential noise levels during construction activities for any project in the Proposed Plan; however, construction noise for any project could continue to exceed local noise criteria after mitigation, and this residual impact would be significant and unavoidable.

Impact 4.9-4: Construction activities could result in short-term vibration levels that would potentially exceed the local significance criteria. Bulldozers and other heavy tracked construction equipment generate approximately 92 VdB of groundborne vibration when measured at 50 feet based on Transit Noise and Vibration Impact Assessment (FTA, April 1995). This level of groundborne vibration exceeds the threshold of human perception, which is approximately 65 VdB. Based on the Caltrans Transportation Related Earthborne Vibration, Technical Advisory (Rudy Hendricks, July 24, 1992), vibration level at 100 feet is approximately 6 VdB lower than the vibration level at 50 feet. Vibration at 200 feet from the source is more than 6 VdB lower than the vibration level at 100 feet or more than 12 VdB lower than the vibration level at 50 feet. Therefore, receptors at 100 and 200 feet from the construction activity may be exposed to groundborne vibration up to 86 and 80 VdB, respectively.

Pile driving is another activity that generates vibration. Based on the Caltrans Transportation Related Earthborne Vibration, Technical Advisory (Rudy Hendricks, July 24, 1992), vibration level in a sandy soil for standard pile-driving techniques at 50 feet is approximately 0.20 inches/second (a level considered very safe to buildings) or 106 VdB (RMS vibration velocity level relative to 10^{-6} inches/second). At 100 feet, the vibration level drops to 0.09 inches/second or 99 VdB. At 200 feet, the vibration level drops to 0.04 inches/second or 92 VdB.

Therefore, land uses at 50 feet, 100 feet, and 200 feet from the project corridor would experience groundborne vibration from construction activity up to 106, 99, and 92 VdB, respectively. Although this range of groundborne vibration would result in potential annoyance at sensitive receptors within the vicinity of the Proposed Plan improvements, it would not result in any structural damage to the buildings.

Sensitive land uses within the vicinity of the proposed projects such as the I-405, I-5, SR-57, and SR-91 widening projects the interchange construction and reconfigurations, local roadway improvements, and the transit improvements would be potentially exposed to vibration levels exceeding the annoyance threshold.

Mitigation Measures

Potential short-term vibration impacts shall be evaluated during the review for each of the improvements in the Proposed Plan. However, due to the short-term nature of the construction impacts and the difficulties associated with reducing groundborne vibration, no mitigation measures are recommended. Implementation of Mitigation Measure 4.9-C would reduce the potential annoyance associated with groundborne vibration to the extent feasible.

Level of Significance after Mitigation

Implementation of Mitigation Measure 4.9-C would reduce the potential annoyance associated with vibration generated during construction; however, construction vibration associated with any project within the Proposed Plan, particularly these requiring substantial earth movement and pile driving, would continue to exceed the vibration annoyance threshold and would be significant and unavoidable.

4.9.5 CUMULATIVE IMPACTS

Implementation of the Proposed Plan could significantly increase noise and vibration levels above the existing ambient levels. Implementation of Mitigation Measures 4.9-A through 4.9-C would reduce the noise impacts of each transportation project and program in the Proposed Plan. In conjunction with future development within Orange County, future cumulative noise levels are expected to increase and potentially exceed local noise standards, even with implementation of feasible mitigation measures. Given that the noise and vibration impacts of the improvements in the Proposed Plan may not be completely mitigated to within appropriate criteria, the Proposed Plan's contribution to cumulative noise levels is considered significant.

4.9.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Implementation of the Proposed Plan would potentially result in the following significant unavoidable adverse impacts:

- Long-term noise levels adjacent to the Proposed Plan transportation improvements in excess of the local noise standards
- A substantial increase in the long-term noise levels adjacent to the Proposed Plan transportation improvements above the existing ambient noise levels
- An increase in the frequency of vibration events in excess of the annoyance threshold adjacent to the proposed rail improvements
- Short-term noise levels during construction of the proposed transportation improvements in excess of the local noise standards
- Short-term vibration levels in excess of the annoyance threshold during construction of the proposed transportation improvements
- Cumulative noise and vibration noise levels that could exceed noise standards or vibration thresholds

4.11.4.2 Potentially Significant Impacts

Impact 4.11-1: Implementation of the Proposed Plan would facilitate substantial population growth to certain vacant areas of the region. The CEQA statute and CEQA Guidelines require growth-inducing impacts to be identified. Such impacts occur when the Proposed Plan could foster economic or population growth or remove obstacles to growth. Growth-inducing impacts include changes in both the amount and distribution of growth. This section analyzes the potential growth-inducing impacts of the Proposed Plan.

The County is mostly developed within the northern and western areas with opportunities for new, large-scale development in the central, eastern, and southern areas of the County. These areas include the northern sphere of Irvine, East Orange, Rancho Mission Viejo, Mountain Park, and the Lake Forest Opportunities Study Area, which have land use approvals from the local jurisdictions. In existing urban areas, infill of vacant parcels and redevelopment will occur. The Proposed Plan would provide more efficient transportation to accommodate increased travel demand associated with projected growth and would improve the existing conditions. Much of the large-scale growth would occur independent of the Proposed Plan; however, the Proposed Plan may contribute to some growth beyond current projections.

Mitigation Measure

4.11-A OCTA shall continue to work with other jurisdictions in the County as part of the Growth Management Plan (GMP) process to implement growth strategies in order to create an urban form designed to utilize the existing transportation networks and the transportation improvements contained in the Proposed Plan, thus enhancing mobility and reducing land consumption.

Level of Significance after Mitigation

The policies included in the Proposed Plan seek to direct growth in a way that is efficient for both mobility and land consumption. Ongoing coordination between OCTA and the other jurisdictions within the County will reduce growth-related impacts to less than significant levels.

Impact 4.11-2: Acquisition of rights-of-way would displace existing homes and businesses. Development of highway, arterial, and transit projects identified in the Proposed Plan could result in the disturbance and/or loss of land currently used for residential or business purposes. The alignments of these projects have not been developed to the point that they can be reliably overlaid onto land use maps. However, these projects could potentially require the acquisition and relocation of homes and businesses.

The Proposed Plan also includes several interchange improvement projects and arterial highway widenings that could result in the displacement of homes and businesses. Improvements to older interchanges and arterial highways in the northern and central portions of the County would be more susceptible to property acquisition due to the reduced setbacks and rights-of-way between existing land uses and existing transportation facilities.

The acquisition and relocation of existing homes and businesses required by certain projects that are part of the Proposed Plan would be a significant impact of the Proposed Plan.

Mitigation Measures

4.11-B For projects with the potential to displace homes and/or businesses, project implementation agencies shall evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. An iterative design and impact analysis would help in cases where impacts to homes or businesses are involved. Potential impacts shall be minimized to the extent feasible. Existing rights-of-way should be used to the furthest extent possible.

4.11-C Project implementation agencies shall identify businesses and residences to be displaced. As required by law, relocation assistance shall be provided to displaced residents and businesses in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 and the State of California Relocation Assistance Act, as well as any applicable City, County, and port policies.

4.11-D Project implementation agencies shall develop a construction schedule that minimizes potential neighborhood deterioration from protracted waiting periods between right-of-way acquisition and construction.

Level of Significance after Mitigation

By providing relocation as required under State and federal law, Mitigation Measures 4.11-B through 4.11-D will reduce displacement impacts to less than significant levels.

Impact 4.11-3: Disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities. Expansion of existing facilities could contribute to changes to community character in many areas of the region. A widened roadway could be perceived as too great a distance to cross by a pedestrian and thus divide a residential community from community facilities such as schools, parks, and retail areas. An elevated grade crossing may create a physical barrier in some locations.

The addition of new lanes to existing freeways and arterials has the potential of further dividing communities. As these facilities have overcrossings or undercrossings only at select intervals, the widening of the facilities would consequently widen these crossings. These widenings may create a real or perceived barrier to pedestrians, bicyclists, and motorists. The additional width may be seen as too great a distance to traverse and thus limit community access. Railroad grade crossing improvements generally improve community mobility and accessibility through the elimination of traffic backups during rail crossings. They also provide better access for emergency vehicles to the entire community.

Disruption or division of existing communities would be a significant effect of the Proposed Plan.

Mitigation Measures

4.11-E Project implementation agencies shall design, as feasible, new transportation facilities that maintain or enhance access to existing community facilities. Access to community amenities and facilities shall be identified and considered during the design phase of the project.

4.11-F Project implementation agencies shall design, as feasible, roadway improvements that minimize barriers to pedestrians and bicyclists. During the design phase, pedestrian and bicycle routes shall be considered that permit connections to nearby community facilities.

Level of Significance after Mitigation

The Proposed Plan proposes projects that have the potential to disrupt or divide communities and, even with implementation of Mitigation Measures 4.11-E and 4.11-F and considering the scale and number of these projects, impacts for some projects may not be fully mitigated to less than significant levels. Residual impacts could remain significant.

4.11.5 CUMULATIVE IMPACTS

A cumulative impact is created as a result of the combination of the Proposed Plan and other past, present, and reasonably foreseeable projects causing related impacts. The urban development and growth that would be supported by the transportation investments in the Proposed Plan would have the following additional cumulative impacts on population, households, and employment.

The Proposed Plan's influence on growth contributes to regional cumulative growth impacts to currently undeveloped land. The Proposed Plan is intended to accommodate pending development projects in the County. The Proposed Plan could also facilitate earlier implementation of pending development projects. Implementation of the Proposed Plan in combination with increases in population, households, and employment would be expected to consume additional areas of vacant land within the County. The accessibility gained by improving mobility to vacant areas of the region and the acquisition and relocation of substantial numbers of homes and businesses through implementation of the Proposed Plan would contribute to these cumulatively considerable impacts.

The accessibility afforded by the Proposed Plan and the expected shifts in population, households, and employment associated with the mobility benefits could change the growth patterns in the region. Even with the implementation of Mitigation Measures 4.11-A through 4.11-F, potential population and housing impacts related to the Proposed Plan would remain significant.

4.11.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACT

The following significant unavoidable adverse socioeconomic impact has been identified:

- Disruption or division of existing communities by separating community facilities, restricting community access, and eliminating community amenities

- Cumulative impacts to growth patterns through acceleration of approved development by:
  (1) providing additional capacity on existing and planned transportation facilities, and
  (2) acquiring existing residences and businesses along existing roadways

also be officially designated. Designated Scenic Highways and Eligible Scenic Highways are described in Section 4.13.1.

Local Regulations

Local planning guidelines have been developed in General Plans to preserve and enhance the visual quality and aesthetic resources of urban and natural areas. Local jurisdictions may identify visual resources (usually in an Open Space Element) to protect through zoning codes and other land use policies. The value attributed to a visual resource is generally based on the characteristics and distinctiveness of the resource and the number of persons who view it. Vistas of undisturbed natural areas, unique or unusual features forming an important or dominant portion of a viewshed, and distant vistas offering relief from less attractive nearby features are frequently considered to be scenic resources. In some instances, a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community regarding which features are valued as scenic resources.

In addition to State designations, Orange County has its own scenic highway designation, which is intended to preserve and enhance existing scenic resources and routes. The County's designated scenic highways have been divided into two categories: Viewscape Corridors and Landscape Corridors. The intent of the Viewscape Corridor designation is to minimize the impact of development in scenic areas, and the intent of the Landscape Corridor designation is to provide aesthetic unity to routes of unique significance.

Aside from the County, 34 local jurisdictions have the ability to identify scenic roads and highways throughout their community.

4.13.3 THRESHOLDS OF SIGNIFICANCE

Criteria for determining significance of impacts are based on the California Environmental Quality Act (CEQA) Guidelines Appendix G checklist. The Proposed Plan would have a significant impact on aesthetics and views if implementation would:

- Have a substantial, adverse effect on a scenic vista
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area

4.13.4 IMPACTS AND MITIGATION MEASURES

Implementation of the Proposed Plan would affect aesthetics and views. Expected significant impacts would be the obstruction of scenic views and resources; alteration of areas along State-designated scenic highways and vista points; creation of significant contrasts with the scale, form, line, color, and

overall visual character of the existing landscape; and addition of visual urban elements to rural areas. Cumulative impacts would include contrasts with the overall visual character of the existing landscape.

Both short-term, construction-related impacts and long-term or permanent impacts potentially would occur as a result of implementation of the Proposed Plan. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the Proposed Plan. Indirect impacts (due to the changes in population distribution expected to occur in combination with the Proposed Plan's transportation investments and transportation and land use policies) are discussed under cumulative impacts.

Impacts to scenic resources resulting from these proposed projects would depend on several factors, such as the type of project proposed for the given area, scenic resources in the given area, and duration of the proposed construction activities.

The following discussion presents a regional evaluation of potential impacts of improvements and programs identified in the Proposed Plan on scenic resources. The following factors were considered in assessing the significance of impacts from the proposed Plan on scenic resources:

- **Scale:** the size, proportion, and sustainability (or "fit") of a transportation improvement to the surrounding area.
- **Degree of visibility:** the extent to which the transportation improvement can be seen. This depends to a large extent on route alignment and configuration (i.e., elevated, at grade, depressed, or underground) of the improvement. Generally, elevated and at-grade transportation investments have a more substantial impact on aesthetics and views.

4.13.4.1 Less Than Significant Impacts

Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Implementation of the Proposed Plan would widen and improve existing transportation facilities throughout Orange County. These modifications would include the replacement of existing street lighting and traffic signals and the potential for limited new lighting along roadways where no lighting currently exists. However, the majority of the Proposed Plan involves the modification of existing roadways where lighting currently exists; therefore, there would be no significant increase in street lighting or traffic signals. Thus, the Proposed Plan would not result in a source of substantial increase in light or glare that would affect day or nighttime views in the area.

4.13.4.2 Potentially Significant Impacts

Impact 4.13-1: Obstruct views of scenic resources. Expansion of existing facilities or widening of roadways into previously undisturbed sites potentially would block or impede views of scenic resources in a given area. For example, construction of highways, flyovers, interchanges, roadway facilities, and sound walls for these projects potentially would block or impede views of mountains, oceans, or rivers.

The Proposed Plan includes improvements to existing highways, high-occupancy vehicles (HOV) lanes, high-occupancy travel (HOT) lanes, arterials, interchanges, bridges, grade crossings, and transit rail and bus services. Potential impacts from modification projects would be less substantial than those potentially created by new system projects. The improvements proposed by these modification projects would occur on existing systems and generally at-grade. The modification projects are not expected to block views of scenic resources in their proposed areas.

Proposed projects in the Proposed Plan include the construction of roadway improvements such as grade-separated facilities for railroad crossings and HOV connectors. Grade-separated facilities potentially would block or impede views of surrounding scenic resources during and after construction. Moreover, the elevation and scale of the proposed grade-separated facilities potentially would be visually intrusive to surrounding areas (depending on the degree of visibility of the transportation facility), thus resulting in a potentially significant impact to existing views and scenic resources within certain project vicinities.

Mitigation Measures

4.13-A Prior to any individual project approval, the Lead Agency shall evaluate the potential effects of the improvements on scenic resources as part of the environmental review process. As part of this review, lead agencies shall require environmental review that requires assessment of visual impacts pursuant to appropriate federal, State, and local standards and identifies appropriate mitigation such as: design guidelines, local policies, and programs aimed at protecting views of scenic corridors and avoiding visual intrusions.

4.13-B Prior to any individual project approval, the Lead Agency shall evaluate the potential to construct visually neutral noise barriers and retaining walls of materials with color and texture that complement the surrounding landscape and development. Noise barriers and retaining walls shall be graffiti-resistant and landscaped with plants that screen the barrier, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.

Level of Significance after Mitigation

Impacts to existing scenic resources would be considered significant because it is likely that there will be projects where visual impacts cannot be mitigated to less than significant levels, including areas that would involve new grade separations where none currently exist.

Impact 4.13-2: Affect scenic resources along or near designated State Scenic Highways and vista points. Certain highways in the County are located in visually important areas, including SR-91 west of the Riverside County line, which is a designated Scenic Highway by the State of California.

Many of the proposed projects within the Proposed Plan are located within or near eligible scenic highways, including PCH, I-5, SR-57, and SR-74, and proposed projects in these areas may potentially create adverse impacts to the scenic resources in the area. Proposed projects in the Proposed Plan include construction of roadway improvements such as grade-separated facilities for railroad crossings and HOV connectors. Grade-separated facilities potentially could block or impede

views of surrounding scenic resources during and after construction. For example, there are several projects in the Proposed Plan that would be built along SR-91 that potentially would impact this Scenic Highway. The widening of SR-91 to accommodate the proposed HOT and HOV lanes and general-purpose lanes between SR-55 and the County line would require right-of-way acquisitions along the Scenic Highway, including undeveloped, natural hillsides that are the dominant visual feature along this section of SR-91.

Implementation of the Proposed Plan would result in a potentially significant impact to designated or eligible scenic highways or vista points.

Mitigation Measure

4.13-C Prior to any individual project approval, the Lead Agency shall evaluate the potential effects of the improvements on scenic highways and vista points as part of the environmental review process. As part of this review, the lead agency Project implementation agencies shall require evaluation of impacts on scenic resources as part of the environmental review prior to project implementation. Lead agencies shall complete design studies for projects in designated or eligible Scenic Highway corridors and develop site-specific mitigation measures to minimize impacts on the quality of the views or visual experience that originally qualified the highway for Scenic designation. Design, construction, and operation of the transportation facility shall be consistent with applicable guidelines and regulations for the preservation of scenic resources along the designated Scenic Highway.

Level of Significance after Mitigation

This impact would remain significant because it is likely that there will be projects where visual impacts to a Scenic Highway cannot be mitigated to less than significant levels.

Impact 4.13-3: Substantially degrade the existing visual character or quality of the site and its surroundings. There is an extraordinary range of urban characteristics and urban-natural environment contrasts throughout the County. Given the size and diversity of the County, there is no single, uniform visual quality that applies to all areas. Therefore, local planning guidelines regarding visual quality of urban areas must be researched and adhered to.

A component of the urban environment is the transportation infrastructure. Many roads have been built through the County connecting urban concentrations with natural areas in the region. Transportation systems have a major effect on the visual environment. As most vehicular movement occurs along transportation corridors, their placement largely determines which portions of the County region will be seen.

Arterials and freeways comprise a major component of the existing visual environment of the County. Arterials in the region offer a variety of visual experiences from the urban, high-volume arterial roadways in Irvine and Costa Mesa to the narrow, winding roads such as SR-74.

Development of previously undeveloped sites potentially would result in impacts to visual resources. For example, construction of highways in an undeveloped area potentially would result in the loss of vegetation and changes in topography. The introduction of a new transportation facility in a forested area potentially would be highly visible from scenic vistas if constructed aboveground and may not blend with the surrounding land uses. Similarly, the construction of a new transportation system through a developed area potentially would result in land use changes that also result in impacts to visual resources. For example, the extension of a highway through an urban area would require acquisition of residential, commercial, and/or industrial property, thereby changing the land use and consequently the visual quality of the given area.

As already mentioned, proposed projects in the Proposed Plan include construction of roadway improvements such as grade-separated facilities for busways, goods movement roadway facilities, and HOV connectors. Grade-separated facilities potentially would have substantial adverse visual impacts on surrounding land uses during and after construction. The elevation and scale of the proposed grade-separated facilities potentially would have significant contrasts with the overall visual character of the existing landscape setting. Modification projects that involve the widening or upgrading of existing roadways can be designed to complement the existing system and, therefore, would involve lesser changes to the visual character of the existing landscape setting.

Transit centers and park-and-ride lots would be constructed primarily within the heavily urbanized portions of the County and would, consequently, affect a large number of viewers. Transit centers potentially would be dominant visual elements due to their fixed structures, including terminals, service facilities, and lighted parking lots. While these facilities would become integrated with the urban setting over time, their initial effect potentially would result in a change in visual quality.

Potential impacts from modification projects would be less substantial than those potentially created by new system projects. The improvements proposed by these modification projects would occur on existing systems and are not assumed to be designed at a higher elevation. Therefore, impacts from modification projects generally would be less substantial.

Mitigation Measure

4.13-D Prior to any individual project approval, the Lead Agency shall evaluate the potential effects of the improvements on scenic highways and vista points as part of the environmental review process. As part of this review, the Lead Agency shall evaluate the project for visual effects and identify appropriate mitigation. Projects along Scenic Highways or eligible Scenic Highways will require special provisions to minimize any visual quality or character degradation. The Lead Agency shall design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. Project implementation agencies shall design projects to minimize their intrusion into important viewsheds and use contour grading to better match surrounding terrain. The Lead Agency shall use natural landscaping to minimize contrasts between the project and surrounding areas. Project implementation agencies shall, wherever possible, develop interchanges and transit lines at the grade of the surrounding land to limit view blockage and contour the edges of major cut and fill slopes to provide a more natural-looking, finished profile.

Level of Significance after Mitigation

Implementation of Mitigation Measure 4.13-D would reduce potential impacts to scenic resources for most projects in the Proposed Plan. However, there would be some projects whose visual impacts could not be fully mitigated, and these residual visual impacts are considered significant.

4.13.5 CUMULATIVE IMPACTS

A cumulative impact consists of an impact that is created as a result of the combination of the Proposed Plan with other projects, causing related impacts. The urban development and growth that would be supported by the transportation investments in the Proposed Plan combined with other development and redevelopment projects would have permanent impacts on the existing visual resources of the County. Some additional projects, in combination with expanded facilities in the Proposed Plan, are anticipated to create new sources of light and glare that will adversely affect day and nighttime views. The alteration of existing visual resources would be permanent. With implementation of Mitigation Measures 4.13-A through 4.13-D, the visual effects of projects in the Proposed Plan would be reduced, but not to below a level of significance. In conjunction with other cumulative development within Orange County, the visual impacts would contribute to significant cumulative visual impacts.

4.13.6 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The mitigation measures listed above would be expected to reduce potentially significant visual impacts for most proposed projects in the Proposed Plan to a less than significant level. There will be some projects in which expansion will occur at sensitive locations or modifications will obstruct views of scenic vistas or scenic corridors where the mitigation measures would not reduce impacts to a less than significant level.

- Visual impacts to important scenic resources and State-designated scenic highways
- Effects to community visual quality as seen public vantage points
- Cumulative visual impacts to scenic resources, State-designated Scenic Highways, and visual character

The No Project (Baseline) Alternative also would require irreversible and irretrievable commitments of resources, but to a lesser extent than the Proposed Plan, given that the No Project Alternative includes substantially fewer roadway and transit improvement projects than the Proposed Plan.

6.3 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The following significant unavoidable adverse impacts have been identified for the projects in the Proposed Plan:

- Short-term construction-related emissions that exceed the SCAQMD thresholds
- Short-term construction-related health risks associated with diesel exhaust
- Loss of special-interest species and sensitive natural communities
- Displacement of riparian habitat, federally protected wetlands, and waters of the U.S.
- Wildlife movement, habitat fragmentation, and increased roadkill
- Cumulative impacts to special interest species, sensitive natural communities, riparian habitat, federally protected wetlands, waters of the U.S., wildlife movement, and migratory birds
- Direct or indirect effects to historic, archaeological, and paleontological resources
- Disturbance of archaeological human remains
- Cumulative effects to historic, archaeological, and paleontological resources and archaeological human remains
- Damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landslides due to seismic events
- Long-term erosion and slope failure
- Cumulative geologic and soil impacts in localized areas such as near Alquist-Priolo Earthquake Fault Zones and locations within Seismic Hazards Mapping Zones
- Water quality impacts during operation of projects
- Water quality impacts caused by erosion and siltation
- Cumulative hydrology and water quality impacts
- Community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan
- Cumulative community impacts (indirect air quality, noise, and aesthetics impacts) to land uses and sensitive receptors adjacent to some projects within the Proposed Plan
- Long-term noise levels adjacent to the Proposed Plan transportation improvements in excess of local noise standards or substantially increased over ambient levels
- Long-term vibration impacts adjacent to expanded rail lines
- Short-term construction noise levels in excess of local standards during construction
- Short-term vibration levels in excess of the annoyance threshold during construction

- Cumulative noise and vibration noise levels that could exceed noise standards or vibration thresholds
- Disruption or division of existing communities by separating community facilities, restricting community access, and eliminating community amenities
- Cumulative impacts to growth patterns through acceleration of approved development by:
  (1) providing additional capacity on existing and planned transportation facilities, and
  (2) acquiring existing residences and businesses along existing facilities
- Visual impacts to important scenic resources and State-designated Scenic Highways
- Effects to community visual quality as seen from public vantage points
- Cumulative visual impacts to scenic resources, State-designated Scenic Highways, and visual character

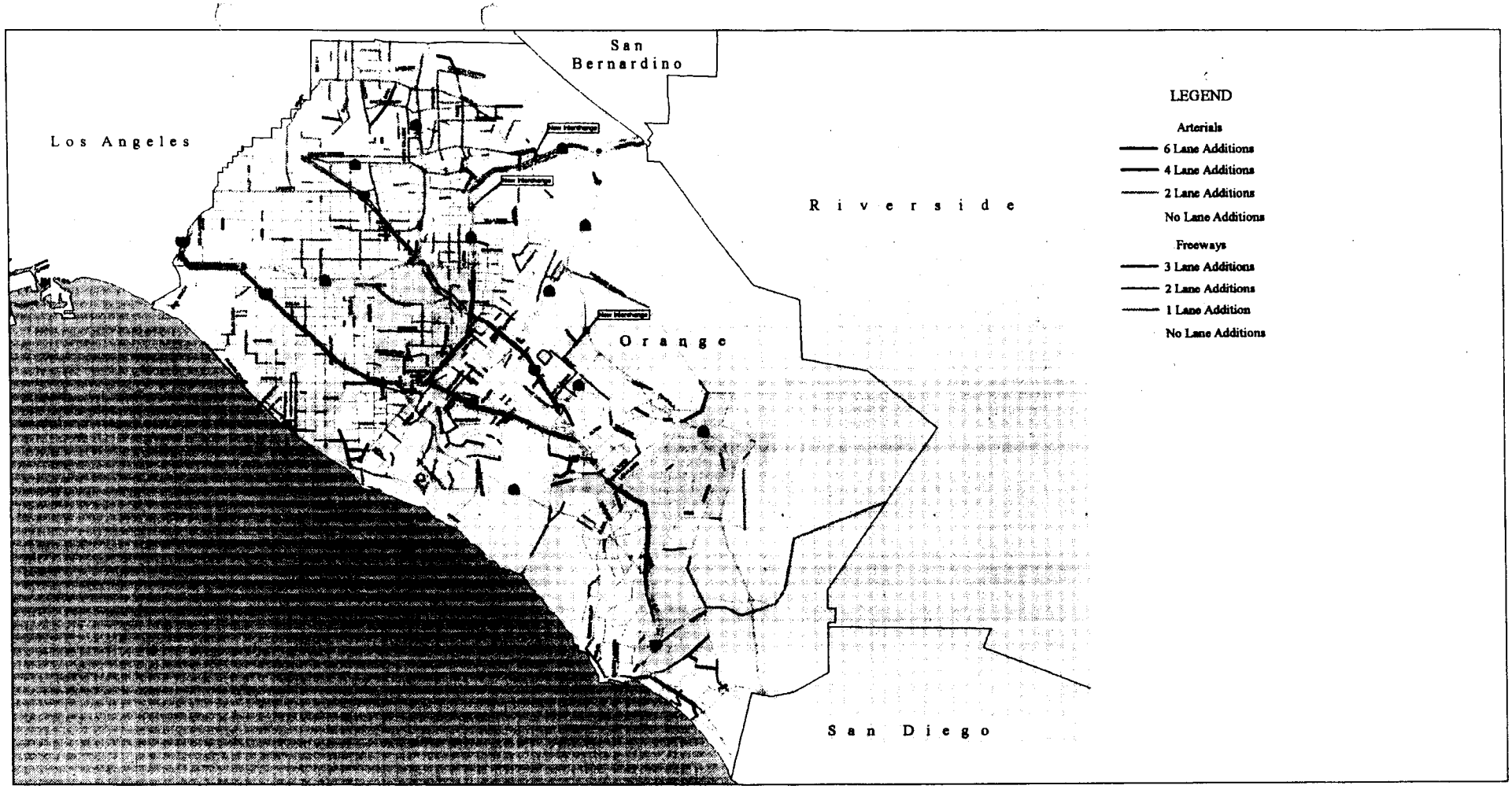

FIGURE 4.12.4a

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MILES

SOURCE: OCTA

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2006 OCTA Long Range Transportation Plan PEIR

2030 with Proposed Plan Lane Additions Over Baseline

Exhibit F

DRAFT 2004 Regional Transportation Plan Program Environmental Impact Report

SCH # 2003061075

December 2004

2.0 PROJECT DESCRIPTION

BACKGROUND AND LOCATION

SCAG is the federally designated MPO under Title 23, United States Code (USC) 134(g)(1) for a six-county region that is comprised of the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. These counties are illustrated in Figure 2.1-1. The SCAG region includes 14 subregions, which are presented in Figure 2.1-1. This area totals approximately 38,000 square miles and stretches from the state borders with Nevada and Arizona to the Pacific Ocean and from the southernmost edge of the Central Valley to the Mexican border. The region includes the county with the largest area in the nation, San Bernardino County, as well as the county with the highest population in the nation, Los Angeles County. This vast area includes millions of acres of open space and recreational land and a population of approximately 17 million people.

SCAG is required by federal and state mandates to update the long-range transportation plan for the region every three years. The SCAG region encompasses several federally designated non-attainment and maintenance areas for air quality standards. Under Section 176(c) of the Federal Clean Air Act [42 USC 7506(c)] the United States Department of Transportation (USDOT), Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) require that a non-attainment area submit a regional transportation plan every three years. The plan must conform with air quality requirements, and meet a number of other requirements, in order to continue receiving federal transportation funding. The state requirements under Section 65080 of the California Government Code generally mirror the federal requirements and require each Regional Transportation Planning Agency (RTPA) in urban areas to adopt and submit an updated RTP to the California Transportation Commission and the Department of Transportation (Caltrans) every three years.

PURPOSE AND NEED FOR ACTION

The purpose of the 2004 RTP is to provide a clear, long-term vision of the regional transportation goals, policies, objectives, and strategies for the SCAG region. The Plan provides an assessment of current and projected demand for travel and goods movement in the region, and includes actions to meet the region's mobility and accessibility needs. These actions must be within fiscal constraints and should promote consistency and coordination among state, regional, and local transportation plans. The development of the Plan provides an integrated, inclusive, and flexible process to help foster regional consensus on the social, economic, and environmental issues related to transportation planning in the SCAG region.

The need for the 2004 RTP arises from state and federal requirements and from the need for improvements to the regional transportation system. This need is driven by population growth and by maturation of the existing system requiring maintenance to preserve its long-term viability.

Over the next 25 years, the regional projections of growth forecast another 6 million people added to this large and diversifying area. The 2004 RTP is based on growth forecasts for the region in 2030, as shown in Table 2.1-1. By 2030 the population in the SCAG region is projected to grow to 22.9 million. This is a 38% increase from the population in 2000. The employment growth is forecast to be slightly lower at 36%. The number of households is projected to grow by 39%.

Table 2.1-1: 2004 RTP Population, Households, Employment in 2030 (in thousands)

Subregion	No Project Forecast			Plan		
	Population	Households	Employment	Population	Households	Employment
Imperial Assoc. of Gov.	270	84	110	270	84	111
North LA County	1,241	368	263	1,215	362	286
City of Los Angeles	4,425	1,649	2,213	4,413	1,663	2,265
Arroyo Verdugo Cities	399	149	264	398	151	271
San Gabriel Valley COG	2,479	731	941	2,472	738	951
Westside Cities COG	245	121	298	259	130	303
South Bay Cities COG	1,000	341	525	1,011	349	525
Gateway Cities COG	2,392	674	996	2,415	686	1,009
Las Virgenes-Malibu-Conejo COG	135	46	58	133	46	58
Orange County COG	3,553	1,098	1,922	3,553	1,152	1,989
Western Riverside County COG	2,330	792	805	2,330	808	856
Coachella Valley COG	716	252	248	716	258	266
SANBAG	2,713	842	1,071	2,713	898	1,179
Ventura County COG	993	329	455	993	335	467
SCAG Region	**22,890**	**7,476**	**10,168**	**22,890**	**7,660**	**10,536**

Source: No Project Forecast-incorporating local input from 90% of cities and subregions.
Plan Forecast-growth additions among subregions based on implementation of 2004 RTP.

Federal Guidelines (40 CFR 1502.13) require the preparation of a statement of purpose and need in conjunction with environmental documents prepared to meet the requirements of the National Environmental Policy Act (NEPA). In accordance with these guidelines, these statements are prepared to briefly specify the underlying purpose of the project and the need for the project to which the lead agency is responding in proposing actions and/or alternatives. Although adoption of the 2004 RTP is not subject to NEPA, SCAG has chosen to include this statement of purpose and need to enable proponents of specific projects included in the 2004 RTP to discuss the purpose and need for their individual projects in terms of the project's relationship to the 2004 RTP.

This statement of purpose and need has been prepared to identify the underlying purpose for adopting the 2004 RTP. This statement was not prepared to be a comprehensive statement of need for each individual RTP project. Where appropriate, this statement of need may be incorporated by reference in project-specific NEPA documents as provided in 40 CFR 1502.21.

The transportation planning process for the RTP is continuous as the region is constantly undergoing change. The 2004 RTP presents an assessment of the growth and economic trends in the SCAG region for the years 2000-2030 and provides strategic direction for investments during this time period. In order to update the Transportation Plan for the region, adjustments were required to the regional growth forecast, the airport strategy, the revenue forecast, and the plans and programs, as well as the incorporation of SCAG's on-going visioning process.

PROPOSED ACTION

SCAG is the federally designated MPO under Title 23, USC 134(g)(1), for the six-county region. SCAG is required by state and federal mandates to prepare a RTP every three years.

The 2004 RTP is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated and balanced regional transportation system. Transportation projects in the SCAG region must be consistent with the RTP in order to receive federal funds. The RTP includes: a policy element that includes goals, policies, and performance indicators, an action element that identifies projects, programs, and implementation. In addition the RTP includes and a description of regional growth trends to help identify future needs for travel and goods movement.

Policy Element

The 2004 RTP was developed in accordance with seven goals for the region detailed in Table 2.1-2. These goals reflect the requirements of the USDOT as identified in Transportation Equity Act for the 21st Century (TEA-21) to consider seven planning factors and strategies in the preparation of RTPs. The goals are provided in no particular order.

Table 2.1-2: Adopted 2004 RTP Goals
1. Maximize mobility and accessibility for all people and goods in the region.
2. Ensure travel safety and reliability for all people and goods in the region.
3. Preserve and ensure a sustainable regional transportation system.
4. Maximize the productivity of our transportation system.
5. Protect the environment, improve air quality and promote energy efficiency.
6. Encourage land use and growth patterns that complement our transportation investments.
Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

The goals demonstrate the need to balance many priorities in a cost-effective manner. The priorities for SCAG's regional investments are identified in the RTP as follows:

- The region's vast investments in multi-modal transportation infrastructure must be protected. This infrastructure is maturing and requires maintenance. The region cannot afford to replace the existing infrastructure and must protect it for future generations.
- A maturing system dictates an increased operational focus that leverages technology to maximize the system's productivity. This same investment will also minimize the variations of travel time, and increase reliability, due to incidents, weather, and other factors. The

region cannot substantially expand the transportation system, so the existing system must be utilized to its fullest, maximizing its reliability.

- Air quality for the region's residents must be improved and must meet federal regulations. Not doing so would undermine the health of our population and risk losing billions of dollars in federal funding to the region.

- The investments in the RTP must address travel safety and modal balance; recognize the importance of providing safe travel choices; meet the needs of transit dependents groups and the goods movement community; and provide connections among the highway system, ports, and airports.

- The RTP integrates urban-form strategies as a means to influence transportation performance and the economy. Without such integration, transportation needs in the future will outpace the ability to pay for them.

- The RTP must address these priorities in a cost-effective manner, so that mobility and accessibility are maximized for people and goods.

In order to achieve the goals described in Table 2.1-2 and reflect the priorities listed above, the 2004 RTP employs a series of policies. These policies were adopted by the SCAG Regional Council to guide the development of the 2004 RTP, and they are provided in Table 2.1-3.

Table 2.1-3: Adopted 2004 RTP Policies
1. Transportation investments shall be based on SCAG's adopted Regional Performance indicators.
2. Ensuring safety, adequate maintenance, and efficiency of operations on the existing multi-modal transportation system will meet RTP priorities and will be balanced against the need for system expansion investments.
3. RTP land use and growth strategies that differ from currently expected trends will require a collaborative implementation program that identifies required actions and policies by all affected agencies and sub-regions.
4. HOV gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy #1.
Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

Performance Expectations

As directed by the first policy, performance measures play a critical role in the development of the RTP. Performance measures quantify regional goals and provide a way to evaluate progress over time. Assessing the degree to which the outcomes of the 2004 RTP investments meet the regional goals requires complex technical analysis. Performance measurement is a critical part of this analysis. The same measures will be used to monitor progress in meeting the performance expectations of the RTP. This monitoring allows the region to correct its course over time as lessons are learned and new trends are established. For the 2004 RTP, one or more

performance indicator for each goal was developed, tested, and evaluated. The resulting indicators are shown in Table 2.1-4.

Table 2.1-4: 2004 RTP Performance Outcomes, Measures and Plan Objectives

Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Mobility	Average Daily Speed	Speed - experienced by travelers regardless of mode.	11% improvement
	Average Daily Delay	Delay - excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.	37% improvement
Accessibility	Percent PM peak period work trips within 45 minutes of home.		Auto: 90%; Transit: 35%
	Distribution of work trips travel times.		Auto: 7% improvement; Transit: 6% improvement
Reliability	Percent variation in travel time.	Day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems and other non-recurrent conditions.	10% improvement
Safety	Accident rates	Measured in accidents per million persons per mode.	0.5% improvement
Cost Effectiveness	Benefit-to-Cost (B/C) Ratio	Ratio of benefits of RTP investments to the associated investment costs.	$3.73
Productivity	Percent capacity utilized during peak conditions	Transportation infrastructure capacity and services provided. Roadway capacity: vehicles per hour per lane; Transit capacity: seating capacity utilized).	20% improvement in known bottle necks
Sustainability	Total cost per capita to sustain current system performance	Focus is on overall performance, including infrastructure condition. Preservation measure is a sub-set of sustainability.	$20 per capita, primarily in preservation costs.
Preservation	Maintenance cost per capita to preserve system at base year conditions	Focus is on infrastructure condition. Sub-set of sustainability.	Maintain current conditions.
Environmental	Emissions generated by travel	Measured/forecast emissions include CO, NO_X, PM_{10}, SO_X and VOC. CO_2 as a secondary measure to reflect greenhouse gas emissions.	Meets conformity requirements.

Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

Action Element

The programs, projects, and implementation actions of the proposed RTP focus on system management, transportation demand management, strategic system expansion, and the land use-transportation connection.

System Management

A key component of System Management is protecting the investment in the current transportation infrastructure. The 2004 RTP sets aside over $6 billion of additional funds for infrastructure preservation and a total budget for Operations and Maintenance of approximately $83 billion. System management includes operational strategies (getting the most out of the existing system) and the Congestion Management System (CMS).

Transportation Demand Management

Transportation Demand Management (TDM) is the all-inclusive term given to a variety of measures used to improve the efficiency of the existing transportation system by managing travel demand. TDM strategies encourage the use of alternatives to the single occupant vehicle such as carpools, vanpools, bus, rail, bikes, and walking. Alternative work-hour programs, such as compressed workweek programs, flextime and work-at-home (telework and home-based businesses) are also TDM strategies, as are parking management tactics, such as preferential parking for carpools and parking pricing.

Strategic System Expansion / Capital Investments

Highway and Arterial Investments

The 2004 RTP contains a total of approximately $39 billion in public funding for proposed, committed, and programmed highway and arterial projects. This figure includes all capital improvements for the highway and arterial network, including mixed-flow lanes, High Occupancy Vehicle (HOV) lanes, interchanges, truck climbing lanes, and grade crossings, but it does not include maintenance. In total, the 2004 RTP includes approximately 2,700 new freeway/HOV lane miles, approximately 3,300 new arterial lane miles, and over 700 other new lane miles.

New lanes miles by county are summarized in Table 2.1-5.

Goods Movement

The focus of the goods movement improvements in the 2004 RTP is on truck traffic and freight rail. The regional transportation system will be challenged to accommodate the projected doubling of truck trips by 2030. The 2004 RTP acknowledges the need for strategies that will accommodate this future growth in truck traffic. While specific strategies and alignment determinations need further evaluation and consensus building, the Plan identifies corridor improvement needs for a number of corridors. The Plan also proposes adding a number of truck climbing lane improvements to the Region's highway system. The Regional Rail Capacity

Table 2.1-5: New Regional Lane Miles by County*

County	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG total
Freeway Lane Miles	26	404	441	272	735	62	1,940
Principal Arterial Lane Miles	0	325	487	490	421	49	1,772
Minor Arterial Lane Miles	32	332	23	431	637	40	1,495
Major Collector Lane Miles	0	124	16	344	249	4	737
HOV Lane Miles	7	270	41	189	235	3	745
Freeway Link Lane Miles	0	17	9	3	8	0	37
Total Lane Miles in each County	65	1,472	1,017	1,729	2,285	158	6,726

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.
* This analysis does not include transit projects, MagLev projects, goods movement enhancement projects, or CETAP corridors with unknown routes.

Improvement Program proposes rail capacity improvements that include a total investment of $3.4 billion in Southern California: $1.2 billion for railroad infrastructure projects and approximately $2.2 billion in grade separation projects.

One strategy being explored is the concept of dedicated facilities to accommodate truck traffic. This system would comprise up to 140 center-lane miles of dedicated facilities from San Pedro Bay ports, through the East-West corridor and out in strategic distribution points northeast or southwest of the urbanized areas.

Maglev System

The Maglev system is the name for an elevated monorail using advanced magnetic levitation technology to move people and goods at a very high speed (up to 310 miles per hour (mph)), with a high degree of safety, comfort, and reliability. For the past four years, SCAG has been studying the feasibility of developing four Maglev corridors in the region:

- Los Angeles Airport (LAX) to March Inland Port in Riverside
- LAX to Palmdale
- Los Angeles Union Passenger Terminal (LAUPT) to Orange County (Anaheim)
- LAX to Orange County (Irvine Transportation Center).

If implemented as scheduled, the proposed system would include approximately 275 miles of Maglev corridors in the SCAG Region by 2030 that could move up to 500,000 riders a day.

Marine Ports

The ports of Los Angeles, Long Beach and Port Hueneme are planning to invest $6 billion over the next 25 years in infrastructure development programs. These efforts will include widening arterial streets, upgrading freeway ramps, separating railroad grade crossings, expanding rail yards, and adding intelligent transportation systems (ITS) to improve ground access management.

Inland Port

The 2004 RTP identifies an inland port that would serve as a cargo facilitation center where a number of import, export, manufacture, packing, warehousing, forwarding, customs, and other activities (with possible Foreign Trade Zone and/or Enterprise Zone inclusion) could take place in close proximity or even at the same site.

Aviation

SCAG has developed a new aviation demand forecast and plan that maximizes airport efficiency on a regional scale. This new aviation plan, termed the "Preferred Aviation Plan," is a decentralized airport demand strategy to serve a forecasted regional demand of 170 million passengers in 2030, which results in an estimated economic benefit of $18 billion and 131,000 jobs over a constrained system.

Under the Preferred Aviation Plan the future demand for air travel and air cargo will be largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County. Table 2.1-6 presents the million annual passengers in 2030 for the proposed ten commercial airport system, which includes:

- Bob Hope (BUR)
- John Wayne (SNA)
- Los Angeles International (LAX)*
- Long Beach (LGB)
- March Inland Port (MAR)
- Ontario International (ONT)*
- Palm Springs (PSP)
- Palmdale Regional (PMD)*
- San Bernardino International (SBD)
- Southern California Logistics (SCL)

Operated by Los Angeles World Airports

Under the Preferred Aviation Plan air cargo service in the region will become more decentralized. LAX will handle only twenty-seven percent of air cargo for the region, compared to its current share of seventy-five percent. Ontario's share of air cargo will increase from twenty-one to twenty-six percent. Other airports in Palmdale and the Inland Empire will ultimately handle a combined forty-one percent of the regional demand.

Table 2.1-6: 2002 and the 2030 Preferred Aviation Plan Air Passengers

	BUR	JWA	LAX	LGB	MAR[1]	ONT	PSP	PMD	SBD	SCI	TOTAL
Existing Conditions (2002)	4.6	7.9	56.2	1.4	0	6.5	1.1	0	0	0	77.8
Preferred Aviation Plan (2030)	**10.7**	**10.8**	**78.0**	**3.8**	**8.0**	**30.0**	**3.2**	**12.8**	**8.7**	**4.0**	**170.0**

[1] Air Force Reserve Activity at March is projected to remain at 51,426 annual operations. The primary objective of the commercial airport is cargo operations. SCAG projections assume commercial passenger service not yet contemplated by the March Joint Powers Commission. SCAG has a long standing policy to give priority to military and national defense needs

Public Transportation System

The 2004 RTP contains a total of approximately $25 billion in public funding for proposed, committed, and programmed transit projects, not including operation and maintenance. The goals of public transportation services are to ensure mobility for people without access to automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit, and some re-structuring of service to ensure efficient utilization of available capacity. New rapid bus lines will be implemented on heavily-traveled corridors and many bus lines will be added or restructured to feed into the existing and proposed urban and commuter rail system.

The 2004 RTP calls for increased and better coordination between transit and land-use planning to increase ridership, reduce congestion, and improve air quality. The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented development cooperatively along the major transit corridors. The 2004 RTP also supports development of a flexible transit system enabling a strong transit linkage to transit activity centers.

Land Use-Transportation Connection

The following tenets were developed through SCAG's Growth Visioning process to serve as the foundation for the land use strategies in the 2004 RTP:

- Using in-fill where appropriate to revitalize underutilized development sites
- Focusing growth along transit corridors and nodes to utilize available capacity
- Providing housing opportunities near job centers, and job opportunities, when appropriate, in housing-rich communities
- Providing housing opportunities to match changing demographics

- Ensuring adequate access to open space
- Changing land use to correspond to the implementation of a decentralized regional aviation strategy and its consequent short- and long-term job creation
- Changing land use to correspond to the implementation of regionally significant major transportation projects and their consequent short- and long-term job creation
- Incorporating the local input and feedback on future growth received from 90 percent of the jurisdictions in the SCAG Region.

Proposed Plan and RTP EIR Alternatives

The alternatives evaluated for the RTP EIR include:

The **Proposed Plan**, which includes all of the elements summarized above, contains transportation/urban-form strategies that encourage compact growth, increased jobs/housing balance, and centers-based development, where feasible, in all parts of the region.

The **No Project** Alternative includes only those programmed transportation projects that have had federal environmental clearance by December 2002. These reasonably foreseeable projects fulfill the definition of the mandated CEQA No Project Alternative.

The **2001 RTP Modified** Alternative is an update of the adopted 2001 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This Alternative does not include urban-form strategies.

The **PILUT[1] 1 (Infill)** Alternative includes transportation investments and urban-form strategies that encourage a substantial portion of future growth to be concentrated in existing urban centers through infill and redevelopment. This alternative has been designed to reduce consumption of open space and habitat. Impacts of the PILUT 1 Alternative are less adverse than the Plan for each resource category, and, overall, the PILUT 1 alternative is the environmentally superior alternative.

The **PILUT 2 (Fifth Ring)** Alternative includes additional transportation investments and land use/transportation strategies that encourage growth toward a more decentralized urban form and an improvement in the jobs/housing balance in the outlying areas of the region. Specifically, PILUT 2 focuses on improving and expanding infrastructure to efficiently utilize undeveloped land on the outer edges of the urbanized area.

[1] PILUT is Planning for Integrated Land Use and Transportation.

Relationship to other EIRs

The 2004 RTP PEIR builds upon the analysis and mitigation in the 2001 RTP PEIR. The project list for the 2004 RTP is similar to the project list for the 2001 RTP, although some of the transportation projects from the 2001 RTP are now considered committed and are included in the No Project Alternative. The 2004 RTP PEIR evaluates the most recent projects and policies and provides more direct comparisons between current conditions and expected future plan conditions. The 2004 RTP PEIR includes additional analysis of cumulative, growth-inducing, and other indirect impacts.

Intended Uses of the PEIR

SCAG will use this PEIR as part of its review and approval of the 2004 RTP. The lead agencies for individual projects analyzed in this PEIR are required to prepare project level CEQA documents. The lead agencies for individual projects may use this PEIR as the basis of their regional and cumulative analysis. Moreover, it is the intent of SCAG that member agencies and others use the information contained within the PEIR in order to "tier" subsequent environmental documentation of individual projects in the region. Information from this document may also be incorporated in future County Congestion Management Programs and associated environmental documents, as applicable.

The 2004 RTP is intended to meet the changing socioeconomic, transportation infrastructure, financial, technological and environmental conditions of the region. Individual projects are preliminarily identified in the 2004 RTP; however, this PEIR is programmatic in nature and does not specifically analyze these projects. Project-level analyses will be prepared by implementing agencies on a project-by-project basis. Project specific planning and implementation undertaken by each implementing agency will depend on a number of issues, including: policies, programs and projects adopted at the local level: restrictions on federal, state and local transportation funds; the results of feasibility studies for particular corridors; and further environmental review of proposed projects.

automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit, and some re-structuring of service to ensure efficient utilization of available capacity. New rapid bus lines will be implemented on heavily-traveled corridors and many bus lines will be added or restructured to feed into the existing and proposed urban and commuter rail system.

The 2004 RTP calls for increased and better coordination between transit and land-use planning to increase ridership, reduce congestion, and improve air quality. The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented development cooperatively along the major transit corridors. The 2004 RTP also supports development of a flexible transit system enabling a strong transit linkage to transit activity centers.

Land Use-Transportation Connection

The following tenets were developed through SCAG's Growth Visioning process to serve as the foundation for the land use strategies in the 2004 RTP:

- Using in-fill where appropriate to revitalize underutilized development sites
- Focusing growth along transit corridors and nodes to utilize available capacity
- Providing housing opportunities near job centers, and job opportunities, when appropriate, in housing-rich communities
- Providing housing opportunities to match changing demographics
- Ensuring adequate access to open space
- Changing land use to correspond to the implementation of a decentralized regional aviation strategy and its consequent short- and long-term job creation
- Changing land use to correspond to the implementation of regionally significant major transportation projects and their consequent short- and long-term job creation
- Incorporating the local input and feedback on future growth received from 90 percent of the jurisdictions in the SCAG Region.

Proposed Plan and RTP EIR Alternatives

As stated above, the PEIR for the 2004 RTP is required to evaluate a reasonable range of alternatives to the proposed 2004 RTP. The alternatives evaluated for the RTP EIR include:

The **Proposed Plan**, which includes all of the elements summarized above, contains transportation/urban-form strategies that encourage compact growth, increased jobs/housing balance, and centers-based development, where feasible, in all parts of the region.

period of the 2004 RTP, transportation projects and resulting growth will be inconsistent with currently adopted general plans. With these limitations, there will be inconsistencies with general plans and potentially a significant effect. However, it is the goal of regional planning tools such as the RTP to set goals for efficient regional development. These goals would likely be reflected in general plans when they are revised and updated.

Mitigation Measures

MM 3.1-3a: SCAG shall encourage through regional policy comments that cities and counties in the region provide SCAG with electronic versions of their most recent general plan and any updates as they are produced.

MM 3.1-3b: SCAG shall encourage through regional policy comments that cities and counties update their general plans at least every ten years, as recommended by the Governor's Office of Planning and Research.

MM 3.1-3c: SCAG shall work with its member cities and counties to ensure that transportation projects and growth are consistent with the RTP and general plans.

MM 3.1-3d: Planning is an iterative process and SCAG is a consensus building organization. SCAG shall work with cities and counties to ensure that general plans reflect RTP policies. SCAG will work to build consensus on how to address inconsistencies between general plans and RTP policies.

Significance after Mitigation

In some instances, currently adopted general plans will need to be updated, especially general plans that are known to be out of date. Thus, the impact would remain potentially **significant.**

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following additional cumulative impacts:

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

The construction and operation of the transportation projects in the 2004 RTP would affect a number of land uses. Table 3.1-2 shows the estimated acreage of different land use categories that occur within 150 feet of either side of the reasonably foreseeable transportation alignments included in either the Plan or the No Project Alternative. The land uses affected by the No Project Alternative will be discussed in the Comparison with the No Project section of this chapter.

Table 3.1-2: Land Uses Affected by Major Highway, Transit, and Freight Rail Projects in the 2004 RTP

Land Use	Plan Alternative Approximate Acres Affected	No Project Alternative Approximate Acres Affected
Commercial	8,000	2,600
Extraction	400	40
Grazing Land	7,700	1,800
Industrial	6,000	1,000
Low Density Residential.	11,900	3,600
Medium to High Density Residential	5,900	2,200
Open Space & Recreation	1,400	300
Prime Farmland	6,500	1,300
Public Facilities & Institutions	2,300	800
Rural Density Residential	900	300
Transportation & Utilities	8,800	2,400
Vacant	21,300	4,500
Water & Floodways	80	10

Source: SCAG GIS Analysis, 2003.

In addition to these direct impacts on land use, the urban footprint of new development supported by the 2004 RTP is expected to consume 500,000 – 700,000 acres of vacant, undeveloped land by 2030.

The 2004 RTP includes policies that would influence the distribution of the growing population. The land use measures included in the 2004 RTP would encourage use of underutilized land, and in some cases would help increase the intensity of the use to achieve mobility and other benefits. Underutilized land is land that is built at a density less than permitted by general plans. However, stable single family neighborhoods would be protected, regardless of whether or not they were built at the maximum allowable density, as indicated by general plans.

The innovative strategies and policies put forth in the 2004 RTP would affect current land use but would generally stay within the parameters of existing general plans. Implementation of these strategies under the 2004 RTP could result in changes in land uses by changing concentrations of development throughout the six-county region. The RTP will provide a blueprint to revitalize areas through its land use strategies.

The contribution of the 2004 RTP to impacts on existing land use would be cumulatively considerable, as it would result in changes to existing land use, including prime farmlands, grazing lands, and open space and recreational lands.

Mitigation Measures

Mitigation Measures 3.1-1a through 3.1-1f, 3.1-2a through 3.1-2e, and 3.1-3a through 3.1-3d would be applied to mitigate this cumulative impact in addition to the following measure.

MM 3.1-4a: SCAG's Growth Visioning program and the forthcoming Regional Growth Vision will be used to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.

Significance after Mitigation

In order to accommodate six million more people as projected by 2030, the region will need to change land uses and increase the intensity of some existing land use. The cumulative impact would remain **significant.**

Comparison with the No Project Alternative

In the No Project alternative the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects.

Direct Impacts

The No Project Alternative includes fewer transportation projects than the 2004 RTP. Thus, the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space than the Plan Alternative. The No Project Alternative potentially would affect 1,300 acres of prime agricultural land and 1,800 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land under the Plan Alternative. The transportation projects included in the No Project Alternative would be located within 150 feet of 300 acres of designated open space, compared with 1,100 acres of open space in the Plan Alternative. In addition, because the No Project Alternative includes only transportation projects that already have environmental clearance and includes no growth strategies, there would be less potential for conflict with general plans than under the Plan Alternative.

The Plan would have a greater impact than the No Project Alternative for Impacts 3.1-1 through 3.1-3.

MM 3.2-2c: Project implementation agencies shall develop a construction schedule that minimizes potential neighborhood deterioration from protracted waiting periods between right-of-way acquisition and construction.

Significance after Mitigation

Not all of the projects in the 2004 RTP will be able to be built in existing rights-of-way. A substantial number of businesses and residences likely would be displaced through the development of projects in the 2004 RTP. The impact would remain **significant.**

Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.

New transportation facilities or expansion of existing facilities could contribute to changes to community character in many areas of the region. A widened roadway could be perceived as too great a distance to cross by a pedestrian and thus divide a community. An elevated grade crossing may create a physical barrier in some locations. New transportation corridors may traverse community open space, thus eliminating a community amenity (see Land Use Section 3.1 for further discussion of open space). SCAG's GIS was used to analyze where major freeway, rail, and transit projects in the 2004 RTP intersect areas used as open space or public facility (school, university, hospital, etc). A 150-foot potential impact zone was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of acres potentially affected by the major projects in the 2004 RTP. The analysis shows that 1,400 acres of open space and 2,300 acres of public facilities would be located within the 150-foot radius of the freeway, transit, and freight rail projects included in the 2004 RTP.

The addition of new lanes to existing interstate routes has the potential of further dividing communities. As these routes have overcrossings or undercrossings only at select intervals, the widening of the routes would consequently widen the overpass or underpass. As the overpass or underpass is widened, it creates a real or perceived barrier to pedestrians, bicyclists, and motorists. The additional width may be seen as too great a distance to traverse and thus limit community access. In addition, new traffic signals required for the roadway improvements could impede the flow of traffic on the local roadway, thus disrupting community access.

Railroad grade crossing improvements generally improve community mobility and accessibility through the elimination of traffic backups during rail crossings. They also provide better access for emergency vehicles to the entire community.

In addition, the 2004 RTP includes arterial investments, goods movement capacity enhancements, and the Maglev system, which were not included in the GIS analysis summarized above. The alignments of these improvements have not been developed to the point that they can be reliably overlaid onto existing land use data using GIS. However, these projects would

potentially cause additional adverse effects that disrupt or divide communities. See Impact 3.2-2 for a further discussion of these RTP elements.

Additional communities would be affected by the growth associated with the 2004 RTP. The effect of growth and urban development on communities is addressed in the Cumulative Impacts section of this chapter.

Disruption or division of existing communities would be a significant effect of the 2004 RTP.

Mitigation Measures

Mitigation measures **MM 3.1-3a through MM 3.1-3d** would be applied to mitigate this impact in addition to the following measures.

MM 3.2-3a: Project implementation agencies shall design new transportation facilities that consider access to existing community facilities, as feasible. During the design phase of the project, community amenities and facilities shall be identified and considered in the design of the project.

MM 3.2-3b: Project implementation agencies shall design roadway improvements that minimize barriers to pedestrians and bicyclists, as feasible. During the design phase, pedestrian and bicycle routes shall be determined that permit connections to nearby community facilities.

Significance after Mitigation

The 2004 RTP proposes projects that have the potential to disrupt or divide communities and, considering the scale and number of these projects, impacts cannot be mitigated to a less than significant level. The impact would remain **significant.**

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. The urban development and growth that would be supported by the transportation investments in the 2004 RTP would have the following additional cumulative impacts on population, households, and employment.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Implementation of the 2004 RTP in combination with increases in population, households, and employment and other land consumption would be expected to consume 500,000 to 700,000

acres of vacant land.[3] Vacant land would be consumed in all six counties. The accessibility gained by improving mobility to vacant areas of the region through implementation of the 2004 RTP would contribute to this cumulatively considerable impact.

Mitigation Measures

Mitigation measure **MM 3.1-3a through MM 3.1-3d** and **3.2-1a** would be applied to mitigate this impact in addition to the following measure.

MM 3.2-4a: SCAG's Growth Visioning program and the forthcoming Regional Growth Vision shall be used to work toward building a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.

Significance after Mitigation

The accessibility afforded by the 2004 RTP, and the expected shifts in population, households, and employment associated with the mobility benefits would change the growth patterns in the region. The impact would remain **significant**.

Comparison with the No Project

Given the location of the region, its mild climate and existing population trends, growth in the region is inevitable. In the No Project alternative, the population of the SCAG region grows by approximately 6 million people, but no regional transportation investments are made above the existing programmed projects.

Direct Impacts

The No Project Alternative has fewer households, employment, and transportation projects than the Plan Alternative. It also does not have growth strategies that affect the growth distribution. The impact of induced population growth would be less than under the Plan Alternative. The No Project Alternative contains fewer transportation investments than the Plan Alternative. Subsequently, there are fewer places where businesses and homes would be displaced and fewer places where communities would be disrupted. The GIS analysis of existing land use data shows that the freeway, transit, and freight rail projects in the No Project Alternative would occur within 150 feet of 5,300 acres of business land uses (commercial, industrial, and extraction land uses) and 2,800 acres of residential land uses (rural, low, and medium to high density housing land uses). For the Plan Alternative, 18,100 acres of business land uses and 8,100 acres of residential land uses would be affected by transportation projects.

The Plan Alternative impacts would be greater than the No Project Alternative impacts for Impacts 3.2-1, 3.2-2, and 3.2-3.

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[3] Fregonese Calthorpe Associates. (2003). Unpublished data provided to SCAG. Los Angeles, CA.

in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects and benefits of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of the impacts on air quality compares the expected future Plan conditions to the current conditions, as required in CEQA Guidelines Section 15126.2(a).

SIGNIFICANCE CRITERIA

For purposes of this regional analysis, the following criteria for determining significance have been applied:

- Projected long-term emissions of criteria pollutants are considered significant if they are greater than the current emission levels.
- Projected long-term emissions of toxic air contaminants are considered significant if they are equal to or greater than current emission levels.
- Projected short-term regional emissions (construction) are considered to be significant if they exceed the thresholds established by the local air districts.
- Localized impacts on sensitive receptors (short-term and long-term) were compared to the significance threshold values presented in the SCAQMD *CEQA Air Quality Handbook*, Chapter 10, Air Toxics. The SCAQMD guidelines for operation permit processing considers the following types of projects significant:
  - Any project involving the emission or threatened emission of a carcinogenic or toxic air contaminant identified in District Rule 1401 that exceeds the maximum individual cancer risk of one in one million, or 10 in one million if the project is constructed with the best available control technology for toxics (T-BACT) using the procedures in SCAQMD Rule 1401.
- Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. The local air quality management plans demonstrate attainment with the NAAQS and consider emissions from all sources (stationary, mobile and area sources) in their attainment demonstrations. A project that has not been accommodated in the mobile source emissions budget will have a significant cumulative impact unless emissions are offset.

PROJECT IMPACTS AND MITIGATION MEASURES

Analysis of the potential air quality impacts of the 2004 RTP was conducted for both the construction and post-construction (operation) phases of the Plan. For each of these phases, an analysis was performed for regional emissions. The analysis for both operations and construction

impacts also addresses local area concentrations of TACs. A screening level Health Risk Assessment was conducted for project operation and construction phases of the Plan in accordance with SCAQMD, ARB and USEPA guidelines. Cumulative impacts were also assessed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.4-1: Long-term (Operational) Regional Impacts

- **Impact 3.4-1a: Under the Plan, PM10 emissions from on-road mobile sources would increase when compared to current conditions.**
- **Impact 3.4-1b: Under the Plan, emissions of ROG, NOX, CO, SOX and TACs would decrease when compared to current conditions.**

Direct, long-term impacts were assessed and are described in detail below. Projected long-term emissions of criteria pollutants are considered significant if they are greater than the current emission levels (2000 base year). Year 2000 represents current conditions, as it is the best practical, available and most accurate portrayal of current conditions.

Criteria Pollutant Emissions Analysis

To assess the effectiveness of the improvements proposed in the 2004 RTP, estimated air emissions for the year 2030 with the 2004 RTP were compared with the current conditions. The calculated emissions were compiled for each non-attainment area and SCAB County (SCAB portion only).

2004 RTP compared to current conditions

Table 3.4-3 summarizes emissions by nonattainment areas in the region. Under the Plan, emissions of ROG, NOX, CO and SOX for all nonattainment areas would decrease, when compared to current conditions. This would be considered a **beneficial** impact. Under the 2004 RTP, all nonattainment areas would experience elevated emissions of PM10. Antelope Valley would experience the greatest increase (75%) in PM10 emissions under the Plan. The SCAB would experience the smallest increase (4%) in PM10 emissions under the Plan. Emissions of PM10 for all nonattainment areas combined would increase 8% under the Plan, when compared to current conditions. The increase in emissions of PM10 would be a **significant** impact.

Table 3.4-4 summarizes the current and projected criteria pollutant emissions estimated for the 2004 RTP as compared to the current conditions by SCAB county. As shown in Table 3.4-4, under the Plan emissions of ROG, NOX, CO and SOX for all counties would decrease when

Table 3.4-3: Criteria Pollutant Emissions By Nonattainment Area Plan Emissions in 2030 Compared to Current Conditions (Emissions in 2000) (In Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	Plan	73.07	4.22	1.65	3.15	1.79	5.69	89.57
	Difference	-339.54	-17.06	-6.42	-11.22	-5.75	-4.78	-384.77
	% Difference	-82%	-80%	-80%	-78%	-76%	-46%	-81%
NOX	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	Plan	120.33	4.38	2.27	7.05	3.39	7.79	145.21
	Difference	-617.07	-26.26	-10.57	-24.12	-12.33	-5.86	-696.21
	% Difference	-84%	-86%	-82%	-77%	-78%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	Plan	538.1	25.14	14.4	26.89	16.02	41.91	662.46
	Difference	-3684.39	-169.13	-72.34	-143.08	-72.94	-63.95	-4205.83
	% Difference	-87%	-87%	-83%	-84%	-82%	-60%	-86%
PM10	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	Plan	19.8	0.86	0.56	1.01	0.64	0.59	23.46
	Difference	0.72	0.1	0.24	0.32	0.25	0.18	1.81
	% Difference	4%	13%	75%	46%	64%	44%	8%
SOX	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	Plan	2.44	0.11	0.06	0.12	0.08	0.08	2.89
	Difference	-2.47	-0.07	-0.02	-0.07	-0.03	-0.03	-2.69
	% Difference	-50%	-39%	-25%	-37%	-27%	-27%	-48%

Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02

compared to the current condition emissions. PM10 emissions would decrease by 4% in Los Angeles County under the Plan. All other SCAB counties would experience an increase in PM10 emissions. Overall, emissions of PM10 for all SCAB counties combined would increase approximately 4% under the Plan. The increase in regional emissions of PM10 would be considered a **significant** impact.

2004 RTP compared to No Project

For illustrative purposes, Table 3.4-5 summarizes the differences between No Project and projected criteria pollutant emissions estimated for the 2004 RTP by nonattainment area. When compared to the No Project emissions, the 2004 RTP would result in fewer emissions of ROG, PM10, CO and SOX for all nonattainment areas. Emissions of NOX would increase 1% for all nonattainment areas combined, with the greatest increases experienced in Victor Valley and Coachella Valley.

Table 3.4-4: SCAB Criteria Pollutant Emissions By County (SCAB portion only) Plan Emissions in 2030 Compared to Current Conditions (Emissions in 2000) (In Tons per Day)						
		LA	SB	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	Plan	40.37	8.09	14.45	10.16	73.07
	Difference	-217.62	-29.85	-61.73	-30.35	-339.55
	% Difference	-84%	-79%	-81%	-75%	-82%
NOX	Current Conditions	453.29	78.25	112.28	93.58	737.4
	Plan	68.92	14.95	17.43	19.02	120.32
	Difference	-384.37	-63.3	-94.85	-74.56	-617.08
	% Difference	-85%	-81%	-84%	-80%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	Plan	311.5	53.34	97.77	75.49	538.1
	Difference	-2340.42	-325.39	-653.82	-364.76	-3684.39
	% Difference	-88%	-86%	-87%	-83%	-87%
PM10	Current Conditions	11.79	1.83	3.23	2.23	19.08
	Plan	11.29	2.09	3.48	2.94	19.8
	Difference	-0.5	0.26	0.25	0.71	0.72
	% Difference	-4%	14%	8%	32%	4%
SOX	Current Conditions	2.95	0.53	0.8	0.64	4.92
	Plan	1.35	0.28	0.43	0.38	2.44
	Difference	-1.6	-0.25	-0.37	-0.26	-2.48
	% Difference	-54%	-47%	-46%	-41%	-50%
Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02						

Table 3.4-6 summarizes the differences between No Project and projected criteria pollutant emissions estimated for the 2004 RTP by SCAB county. When compared to the No Project emissions, the 2004 RTP would result in fewer emissions of ROG, PM10, CO and SOX for all SCAB counties. Emissions of NOX would increase 1% for all counties combined, with the greatest increases experienced in San Bernardino and Riverside Counties (SCAB portions only).

Toxic Air Contaminant (TAC) Emissions

Toxic air contaminants (TACs) include airborne substances other than the criteria pollutants that are known to cause cancer or otherwise harm human health. TAC emissions are also regulated by the local air quality management districts. Much of the effort toward controlling TACs has concentrated on point source emissions from businesses handling hazardous materials. However, mobile sources are responsible for approximately half of the total lifetime cancer risk attributed to air toxics.[45]

45 United States Environmental Protection Agency. Control of emissions of Hazardous Air Pollutants from Mobile Sources. *Federal Register*, 66:17234-17237, March 29, 2001.

Table 3.4-5: Criteria Pollutant Emissions By Nonattainment Area Plan Emissions in 2030 Compared to No Project Emissions in 2030 (In Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	No Project	75.92	4.36	1.83	3.15	1.83	5.72	92.81
	Plan	73.07	4.22	1.65	3.15	1.79	5.69	89.57
	Difference	-2.85	-0.14	-0.18	0	-0.04	-0.03	-3.24
	% Difference	-4%	-3%	-10%	0%	-2%	-1%	-3%
NOX	No Project	118.99	4.44	2.35	6.88	3.33	7.81	143.8
	Plan	120.33	4.38	2.27	7.05	3.39	7.79	145.21
	Difference	1.34	-0.06	-0.08	0.17	0.06	-0.02	1.41
	% Difference	1%	-1%	-3%	2%	2%	0%	1%
CO	No Project	571.32	26.18	16.36	27.33	16.52	42.31	700.02
	Plan	538.1	25.14	14.4	26.89	16.02	41.91	662.46
	Difference	-33.22	-1.04	-1.96	-0.44	-0.5	-0.4	-37.56
	% Difference	-6%	-4%	-12%	-2%	-3%	-1%	-5%
PM10	No Project	21.11	0.89	0.64	1.04	0.65	0.59	24.92
	Plan	19.8	0.86	0.56	1.01	0.64	0.59	23.46
	Difference	-1.31	-0.03	-0.08	-0.03	-0.01	0	-1.46
	% Difference	-6%	-3%	-13%	-3%	-2%	0%	-6%
SOX	No Project	2.56	0.11	0.07	0.12	0.08	0.08	3.02
	Plan	2.44	0.11	0.06	0.12	0.08	0.08	2.89
	Difference	-0.12	0	-0.01	0	0	0	-0.13
	% Difference	-5%	0%	-14%	0%	0%	0%	-4%

Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02

The EPA has designated the following 21 chemicals as mobile-source air toxics emitted by motor vehicles, locomotives, aircraft, ships and various types of nonroad equipment: 1,3-butadiene, acetaldehyde, acrolein, arsenic compounds, benzene, chromium compounds, diesel particulate matter (DPM) plus diesel exhaust organic gases, dioxin/furans, ethylbenzene, formaldehyde, lead compounds, manganese compounds, mercury compounds, MTBE (methyl tertiary butyl ether), naphthalene, n-hexane, nickel compounds, POM (polycyclic organic matter), styrene, toluene and xylene.

Since ROG emissions from mobile sources generally capture the majority of the volatile organic TAC contribution from the transportation network, ROG emissions are a good indicator of the volatile organic portion of mobile source TACs. As shown in Tables 3.4-3 and 3.4-4 and discussed previously, ROG emissions are expected to decrease under the Plan and therefore, the impact of the Plan on the volatile organic portion of TACs would be considered **beneficial**.

In 1998, the particulate portion of diesel exhaust was identified as a TAC by the California EPA. Recent studies conducted by the SCAQMD have attributed 70 percent of the potential health

Table 3.4-6: SCAB Criteria Pollutant Emissions By County (SCAB portion only)
Plan Emissions in 2030 Compared to No Project Emissions in 2030
(In Tons per Day)

		LA	SB	Orange	Riverside	Sum
ROG	No Project	42.52	8.10	14.79	10.51	75.92
	Plan	40.37	8.09	14.45	10.16	73.07
	Difference	-2.15	-0.01	-0.34	-0.35	-2.85
	% Difference	-5%	0%	-2%	-3%	-4%
NOX	No Project	69.14	14.13	17.17	18.54	118.98
	Plan	68.92	14.95	17.43	19.02	120.32
	Difference	-0.22	0.82	0.26	0.48	1.34
	% Difference	0%	6%	2%	3%	1%
CO	No Project	334.16	54.70	101.75	80.72	571.33
	Plan	311.50	53.34	97.77	75.49	538.1
	Difference	-22.66	-1.36	-3.98	-5.23	-33.23
	% Difference	-7%	-2%	-4%	-6%	-6%
PM10	No Project	12.21	2.12	3.61	3.17	21.11
	Plan	11.29	2.09	3.48	2.94	19.8
	Difference	-0.92	-0.03	-0.13	-0.23	-1.31
	% Difference	-8%	-1%	-4%	-7%	-6%
SOX	No Project	1.44	0.28	0.44	0.4	2.56
	Plan	1.35	0.28	0.43	0.38	2.44
	Difference	-0.09	0	-0.01	-0.02	-0.12
	% Difference	-6%	0%	-2%	-5%	-5%

Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02

risks from TACs in the SCAB to the particulate portion of diesel emissions,[46] also referred to as diesel particulate matter (DPM). Since PM10 emissions from heavy-duty vehicles (diesel-fueled) generally capture the DPM contribution from the transportation network, these PM10 emissions are a reasonable indicator of the DPM portion of the mobile source TACs.

Table 3.4-7 summarizes PM10 emissions from heavy trucks. Heavy-duty truck PM10 exhaust emissions include most of the diesel-related TAC emissions. As shown in the table, PM10 emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each nonattainment area. Table 3.4-7 also shows the PM10 emissions exclusively from heavy-duty vehicle exhaust. The emissions projections do not include newly proposed measures which would be expected to further reduce diesel particulate emissions. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the 2004 RTP would potentially have a **beneficial** impact with respect to regional TAC emissions.

46 SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin*, MATES-II, March 2000.

Table 3.4-7: PM10 Emissions for Heavy-Duty Trucks per County (Tons per Day)						
	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
2030 No Project	3.58	0.10	0.05	0.21	0.10	0.21
2030 Plan	3.57	0.10	0.05	0.22	0.10	0.21
PM Exhaust only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
2030 No Project	2.16	0.05	0.03	0.12	0.06	0.15
2030 Plan	2.12	0.05	0.03	0.12	0.06	0.21
Source: Southern California Association of Governments; DTIM 4.02, EMFAC2002						

Vehicle Miles Traveled

The 2004 RTP highway and arterial projects would increase the capacity of the existing transportation network. The majority of improvements would be categorized under the TCM Categories of the 2003 SCAQMP to meet target emissions reductions. Most of the highway capacity improvements include widening existing highways to provide more lanes, reducing delays and congestion. Only a few new highway links are proposed in the plan. Much of the public transit improvements would include improved bus rapid transit and improved commuter rail services. However, single-passenger highway travel will continue to provide the backbone of the transportation network in the future, despite the increase in projected transit ridership. Projected VMT is expected to increase on highways and arterials throughout the SCAG region, corresponding with population growth. See Table 3.3-11 for projections of regional VMT.

Mitigation Measures

Emissions of particulate matter are directly related to growth and VMT. Regardless of how clean a vehicle operates, the vast majority of PM10 emissions from on-road sources is generated from re-entrained dust on paved roads and is a function of the vehicle miles traveled. Mitigation measures that reduce VMT are proposed. Additional measures to control fugitive dust and transportation-related PM10 are outlined in the 2003 SCAQMP and include control methods such as watering, chemical stabilization, paving, revegetation, track-out control, construction project signage, sweeping and motor vehicle controls.

MM 3.4-1a: Additional mitigation measures are hereby incorporated by reference from the following air quality management plans:

- 2003 South Coast State Implementation Plan (SIP)

- Ventura County Air Quality Management Plan (2004 AQMP – Limited SIP Update, Scheduled for adoption in March 2004)
- Mojave Desert Air Quality Management Plan (1996)
- Antelope Valley Air Quality Management Plan (1994/97)
- Imperial County Air Quality Management Plan (1991 and 1993)

MM 3.4-1b: The 2003 SCAQMP control measures consist of 1) SCAQMD's Stationary and Mobile Source Control Measures; 2) State and Federal Source Control Measures proposed by CARB; and 3) Transportation Strategy and Control measures provided by SCAG. These control measures are based on the implementation of short-term, defined measures as well as long-term measures which will rely on new technologies to further reduce emissions. The SCAQMP includes estimated emissions reductions based on these short-term and long-term programs. The transportation improvements proposed for the short-term emissions reductions are grouped in the SCAQMP under Transportation Control Measure (TCM) project categories and include the following measures:

- High Occupancy Vehicle (HOV) Measures: New HOV lanes, HOV bypasses and connectors, Interchanges, High Occupancy Toll (HOT) Lanes;
- Transit and System Management Measures: Transit, Intermodal Transfer Facilities, Non-motorized Transportation Mode Facilities; and
- Information-based Transportation Strategies: Marketing for Rideshare and other services, Intelligent Transportation Systems, Telecommuting Programs and Real-time rail, transit or freeway information systems.

The 2004 RTP has been prepared to facilitate implementation of the transportation control measures outlined in the 2003 SCAQMP. The 2004 RTP incorporates both the capital and non-capital improvements recommended by the SCAQMP.

ARB's strategy, outlined in the South Coast SIP, includes the following elements:

- Set technology forcing new engine standards;
- Reduce emissions from the in-use fleet;
- Require clean fuels, and reduce petroleum dependency;
- Work with USEPA to reduce emissions from federal and state sources; and
- Pursue long-term advanced technology measures.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.

Impact 3.4-2: Long-term (Operational) Localized Impacts

Freeway operations under the Plan would be likely to exceed the locally acceptable cancer risk of 1 in one million.

Localized impacts are addressed for the operational phase of the 2004 RTP. Mobile sources are sources of carcinogenic pollutants and are responsible for diesel exhaust. Areas near roadways typically register elevated concentrations of air toxics, and these areas are known as "hot spots." Exposure to such "hot spots" may lead to adverse health effects. The proximity to roadways is an important factor in assessing exposure. Typically, concentrations drop off dramatically (around 90 percent) after the first quarter mile from the roadway.

Currently, there is a wide range of variability of concentrations throughout the SCAG region. The highest pollutant concentrations are found at the Ports, LAX, and along major corridors. The cancer risk in many of these areas is greater than the local air districts' acceptable risk of 1 in a million.

To determine the health impacts to the general public living near sections of freeway that would be affected under the 2004 RTP, a screening risk assessment was conducted to estimate increased cancer risks in areas near a sample of projects. The results indicate that cancer risk resulting from operation of freeway sections would be likely to exceed the acceptable threshold of one in a million at locations close to freeways. This impact would be considered significant.

However, the analysis also indicates that cancer risk levels in 2030 with implementation of the 2004 RTP would be substantially lower than cancer risk in 2000, primarily as a result of improvements in motor vehicle exhaust controls. The analysis also indicate that risk levels in 2030 without the 2004 RTP (the No Project) would be slightly higher than with the 2004 RTP.

Mitigation Measures

Same mitigation measures as Impact 3.4-1.

Significance After Mitigation

After implementation of all feasible mitigation measures the project would most likely have a **significant** and unavoidable impact.

Impact 3.4-3: Short-term (Construction) Regional Impacts

Under the Plan, construction activities would increase short-term air emissions.

The 2004 RTP would involve substantial construction to implement the proposed projects. The construction activities would create short-term temporary air emissions from the following activities: (1) demolition; (2) site preparation operations (grading/excavation); (3) fuel combustion from the operation of construction equipment; (3) delivery and hauling of construction materials and supplies to and from the site; (4) the use of asphalt or other oil based substances during the final construction phases; and (5) travel by construction workers to and from the site. Construction emissions are based on the type and magnitude of development that would be accommodated under the project, the timeline for construction, the mix of construction equipment required to build the project, and emission factors from the SCAQMD *CEQA Air Quality Handbook* and USEPA's AP-42. Emissions of NOX, VOC, and PM10 generated would be based on the number and type of operating vehicles and the number of hours of operation. Fugitive emissions would be based on the amount of soil disturbed, type of soil, duration, type of activity (grading, excavation, etc.), haul trips and other factors.

Most improvements in transit and system management (signal synchronization, striping, etc.) do not involve construction and are not expected to generate short-term impacts. However, a large number of the projects in the 2004 RTP would involve construction activities (new goods movement capacity enhancements, arterials, rail systems). It is very likely that some of these projects would be under concurrent construction throughout the region. Short-term impacts generated from the implementation of the 2004 RTP are expected to be significant.

The SCAQMD has developed thresholds of significance for individual construction projects within their jurisdiction as follows:

- Carbon Monoxide .....24.75 tons per quarter
- Reactive Organic Compounds .....2.5 tons per quarter
- Nitrogen Oxides.....2.5 tons per quarter
- Sulfur Oxides.....6.75 tons per quarter
- Particulates (10 microns) .....6.75 tons per quarter

These thresholds are established in the *CEQA Air Quality Handbook* prepared by the SCAQMD in 1993. Other air management districts within the SCAG region have adopted similar thresholds for individual construction projects for criteria pollutants. Project-level analysis conducted for CEQA purposes would estimate construction emissions for each project based on project specifics. Mitigation measures to reduce air quality impacts would be established in project-specific environmental documents. The construction of highways or arterials would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Handbook. This would create a significant short-term impact. These impacts would occur in localized areas depending on the construction site locations.

individual projects would be required to implement mitigation measures to reduce construction emissions.

Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed at the project level analysis.

Mitigation Measures

Compliance with SCAQMD Rule 403 (Fugitive Dust) will reduce emissions of fugitive dust from construction activities. The following additional air quality mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts from construction activities.

Land Clearing/Earth-Moving:

MM 3.4-3a: Apply water or dust suppressants to exposed earth surfaces to control emissions.

MM 3.4-3b: All excavating and grading activities shall cease during second stage smog alerts and periods of high winds.

MM 3.4-3c: All trucks hauling dirt, sand, soil, or other loose materials off-site shall be covered or wetted or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer).

Paved Surfaces:

MM 3.4-3d: All construction roads that have high traffic volumes, shall be surfaced with base material or decomposed granite, or shall be paved or otherwise be stabilized.

MM 3.4-3e: Public streets shall be cleaned, swept or scraped at frequent intervals or at least three times a week if visible soil material has been carried onto adjacent public roads.

MM 3.4-3f: Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.

Unpaved Surfaces:

MM 3.4-3g: Water or non-toxic soil stabilizers shall be applied as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and other unpaved surfaces.

MM 3.4-3h: Traffic speeds on all unpaved surfaces shall not exceed 25 mph.

Other Construction Mitigation Measures

MM 3.4-3i: Low sulfur or other alternative fuels shall be used in construction equipment where feasible.

MM 3.4-3j: Deliveries related to construction activities that affect traffic flow shall be scheduled during off-peak hours (e.g. 10:00 A.M. and 3:00 P.M.) and coordinated to achieve consolidated

truck trips. When the movement of construction materials and/or equipment impacts traffic flow, temporary traffic control shall be provided to improve traffic flow (e.g., flag person).

MM 3.4-3k: To the extent possible, construction activity shall utilize electricity from power poles rather than temporary diesel power generators and/or gasoline power generators.

MM 3.4-3l: Revegetate exposed earth surfaces following construction.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of project features as described above, activities related to construction of the project would most likely exceed emission thresholds for regional NOX, CO, PM10, SO2, and ROG. Therefore, construction of the 2004 RTP would have a **significant** and unavoidable impact on regional air quality.

Impact 3.4-4: Short-term Localized Impacts

The cancer risk associated with construction projects under the Plan would likely exceed the locally acceptable cancer risk of 1 in one million.

Localized impacts were evaluated for the construction phase of the 2004 RTP. Construction vehicles are sources of carcinogenic pollutants and are also responsible for diesel exhaust.

To determine the health impacts to the general public living near sections of freeway that would be affected by the 2004 RTP, a screening risk assessment was conducted to estimate increased cancer risks in areas near a sample of projects. The results indicate that cancer risk resulting from construction activities would be likely to exceed the acceptable threshold of one in a million at locations close to freeways. This is the case for the maximum one-year cancer risk, which reflects the temporary nature of construction. When this same risk is spread over a 70-year lifetime (in accordance with health risk assessment procedures), risk levels are much lower, approaching the threshold of one in a million. Overall, this impact would be considered **significant.**

Mitigation Measures

MM 3.4-4: Construction equipment shall be equipped with diesel particulate traps. Low sulfur or other alternative fuels shall be used in construction equipment where feasible.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.

analysis program. The network traffic results for the existing condition and for the plan were incorporated into an ArcView GIS project and roadways where it is anticipated that noise levels will increase 3 dBA or more above existing levels were identified.

The evaluation also considered the potential for absolute noise impacts. Following guidance published by Caltrans, a noise impact is determined to occur if predicted noise levels approach the NAC by 1 dBA (66 dBA).

To eliminate facilities from the evaluation where there would not be the potential for 66 dBA to occur, the following were identified and eliminated from consideration:

- Arterials where, at a distance of 100 from the edge of pavement, the FHWA's Traffic Noise Model (TNM) indicated that the motor vehicle volume (and the medium/heavy truck percentage) resulted in traffic noise levels less than 66 dBA.
- Arterials where the calculated motor vehicle speed was less than 17 miles per hour.
- Interstates where the calculated motor vehicle speed was less than 30 miles per hour.

Roadways anticipated to have an increase of 3 dBA from existing conditions are roadways where:

- the total traffic volume increases 100 percent from existing conditions,
- the truck (medium and heavy) volume increases by 130 percent from existing conditions, or
- the truck (medium and heavy) volume increases by 100 percent with an increase in other vehicles of 50 percent.

Since noise is a highly localized impact, specific and detailed analyses are most appropriate at the project level. Therefore the method used to assess noise impacts of the 2004 RTP is to review the list of proposed transportation improvements and assess the likelihood of potentially significant noise impacts based on the type of project, location and general land uses.

SIGNIFICANCE CRITERIA

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (CEQA § 21068). The proposed Plan would have a significant noise impact if implementation would potentially result in:

- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and temporarily adjacent to transportation facility construction.
- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and permanently adjacent to transportation facilities.
- Noise levels that increase substantially and permanently adjacent to sensitive receptors.

- A cumulatively considerable increase in regional ambient noise levels.

IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Grading and construction activities associated with the proposed freeway, arterial, transit and Maglev projects identified in the 2004 RTP would intermittently and temporarily generate noise levels above ambient background levels. Noise levels in the immediate vicinity of the construction sites would increase substantially sometimes for extended duration. This would be considered a significant impact in some cases.

The freeway and arterial projects proposed in the 2004 RTP include the widening of existing freeways and the construction of new interchanges. A few projects would involve constructing new freeway segments, including auxiliary capacity enhancement facilities and mixed flow connectors. However, many projects proposed in the 2004 RTP would not involve construction activities.

Construction activities associated with the proposed Plan would result in temporary noise increases at nearby sensitive receptors. Table 3.5-5 presents the different types of freeway, transit and goods movement projects which typically emit noise during construction. The table also shows the duration of construction noise created by project type. Impacts to sensitive receptors resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, land use of the given area, and duration of proposed construction activities. Additionally, construction noise levels would fluctuate depending on construction phase, equipment type, and duration of use; distance between noise source and receptor; and presence or absence of barriers between noise source and receptor.

In general, sensitive receptors could be significantly affected by projects involving the construction of new systems (new facilities, capacity enhancement facilities, rail corridors, interchanges, underground rail lines). Specifically, sensitive receptors located in the vicinity of these projects could be significantly impacted by construction of the proposed projects. Additionally, modification projects would result in short-term construction impacts to sensitive receptors. See Section 3.1, Land Use, for further discussion.

Short-term significant impacts would occur during the construction stage of individual projects. This would be considered a **significant impact.**

Maglev System

Construction-related noise and vibration impacts of the proposed Maglev System are discussed in Maglev Environmental Assessment (EA) report prepared by Parsons Transportation Group Inc., in February, 2000.

Table 3.5-5: Types and Duration of Noise Produced by Proposed Projects						
Project Type	Noise Levels			Duration		
	High	Medium	Low	Extended	Medium	Short
Freeways and Arterials						
Arterials/Interchanges	X			X		
Expressway	X			X		
Freeway – mixed flow	X			X		
HOV connector	X			X		
Reconfigure ramp	X			X		
Replace overcrossing	X			X		
Capacity enhancement facilities	X			X		
Widen underpass 4-6 lanes	X			X		
Auxiliary lanes		X			X	
Climbing lanes		X			X	
HOT lanes		X			X	
Interchange addition		X			X	
Bikeways		X				X
Capacity enhanced arterial		X				X
Interchange improvement		X			X	
Park & ride		X				X
Roadway operations & maintenance			X			X
Smart Street improvements			X			X
Transit						
Commuter rail	X			X		
High Speed Rail	X			X		
Inter-city rail	X			X		
Transit center		X			X	
Grade crossing			X			X
Intelligent Transportation System			X			X
Light rail	X			X		
Rail improvement	X			X		
Rail tunnel improvement	X			X		
Goods Movement						
Port rail access improvements	X			X		

Note: Project specific impacts depend on location and location of sensitive receptors. This table provides a general assessment of noise-generated by different types of impacts irrespective of the relationship to sensitive receptors.

Mitigation Measures

MM 3.5-1a: Project implementing agencies shall comply with all local sound control and noise level rules, regulations, and ordinances.

MM 3.5-1b: Project implementing agencies shall limit the hours of construction to between 6:00 a.m. and 8:00 p.m. on Monday through Friday and between 7:00 a.m. and 8:00 p.m. on weekends.

MM 3.5-1c: Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts.

MM 3.5-1d: Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction will be hydraulically or electrically powered wherever possible, to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust would be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures will be used such as the use of drilling rather than impact equipment, whenever feasible.

MM 3.5-1e: Project implementing agencies shall ensure that stationary noise sources will be located as far from sensitive receptors as possible. If they must be located near existing receptors, they will be adequately muffled.

MM 3.5-1f: The project implementing agencies shall designate a complaint coordinator responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring, if necessary.

MM 3.5-1g: Noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence shall be mitigated by the project proponent by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the local jurisdiction.

MM 3.5-1h: Project implementing agencies shall direct contractors to implement appropriate additional noise mitigation measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources to comply with local noise control requirements.

MM 3.5-1i: Project implementing agencies shall implement use of portable barriers during construction of subsurface barriers, debris basins, and storm water drainage facilities.

MM 3.5-1j: In residential areas, pile driving will be limited to daytime working hours. No pile-driving or blasting operations shall be performed within 3,000 feet of an occupied residence on Sundays, legal holidays, or between the hours of 8:00 p.m. and 8:00 a.m. on other days. Any variance from this condition shall be obtained from the project proponent and must be approved by the local jurisdiction.

MM 3.5-1k: Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, acoustical enclosures will be provided as necessary to ensure that pile driving noise does not exceed speech interference criterion at the closest sensitive receptor.

MM 3.5-1l: Engine and pneumatic exhaust controls on pile drivers will be required as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible.

MM 3.5-1m: Where feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts.

Significance After Mitigation

The above mitigation measures would reduce noise impacts; however, construction noise would still be **significant in the short term.**

Impact 3.5-2: Noise-sensitive land uses could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

For this regional scale of analysis, the unmitigated noise impacts of new highways, highway widening, new HOV lanes, new transit corridors, and increased frequency along existing transit corridors are generally expected to exceed the significance criteria when sensitive noise receptors are in proximity. Table 3.5-6 lists projects with potential noise impacts from proposed new and expanded facilities—highway, freeway, rail transit, tollway, truck-climbing lanes, freeway interchanges, and Maglev projects. Arterials, TDMs, O&M, grade crossings, ramp and interchange improvements, county-wide bus route expansions, and transit facility improvements are not specifically considered here, as both operational and cumulative noise impacts are found to be potentially significant.

It should be noted that the list of projects identified in the following table are indicative of projects most likely to generate potentially significant noise impacts due to facility operation, but the list is neither exhaustive nor definitive. Each of the projects included in the 2004 RTP would need to be evaluated independently as part of its own environmental assessment and review process.

Freeways

Changes in the percentage of miles of noise affected freeways and arterials are a direct result of increases and decreases in the traffic volumes, changes in fleet mix, and speeds assigned to each roadway in each county and additional interstate facilities proposed with the "build" scenarios.

MM 3.5-1k: Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, acoustical enclosures will be provided as necessary to ensure that pile driving noise does not exceed speech interference criterion at the closest sensitive receptor.

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Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
IM	SR-115	I-8	Evan Hewes Hwy	Construct 4 lane extension.
IM	SR-98	Sr-111	Dogwood/SR-98	Corridor improvements- widening or realignmer
IM	Dogwood Rd. Corridor/I-8	SR-98	I-8	Corridor improvements- widen to six lanes from to six lanes.
IM	SR-111	SR-98	I-8	Upgrade to 4-lane freeway with interchange(s)
LA	SR-14	Ave. P-8	Ave. L	Add 1 HOV lane each dir
LA	I-710	I-10	Huntington Dr	Construct 1 HOV lane each dir
LA	I-710	Huntington Dr	I-210	Construct 1 HOV lane each dir
LA	I-710	I-10	Huntington Dr	Construct 3 MF lanes each dir
LA	I-710	Huntington Dr	I-210	Construct 3 MF lanes each dir
LA	I-5/SR-170	North to South/South to North		HOV Connector
LA	I-5/I-405	North to South/South to North		HOV Connector
LA	I-5 Interchanges	Orange County Line	Rosemead Blvd	Interchange Improvements
LA	SR-57/SR-60			Interchange Improvement
LA	Metrolink Commuter Rail	Countywide		Service Expansion
LA	Green Line Extension	Mariposa@Nash to Century@Sepulveda (LAX Term.)		Light Rail
LA	Crenshaw Corridor			Transit Corridor (technology TBD)
LA	Gold Line Extension	Pasadena	Claremont	Light Rail
LA	Metro Center Connector	Blue Line/Exposition Line	Gold Line	Downtown Light Rail Connector
LA	Red Line Extension	Western Ave	Fairfax Ave	Subway
LA	US-101	SR-23	SR-134/SR-170	User-Fee-Backed Capacity Enhancement
OR	SR-91/SR-241			Add direct toll-to-toll or HOV connection from n lanes to/from the east

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
OR	SR-91	SR-241	SR-71	Add toll lane and toll connection at SR-71 (RIV)
OR	I-5 NB/SB	Coast Highway	Pico	Add 1 HOV lane each direction
OR	I-405/I-605			HOV Connector
OR	SR-57 NB	Orangethorpe	Lambert	MF or Aux Capacity
OR	SR-57 NB	at SR-91		Add 4th through lane
OR	SR-91 EB/WB	SR-55	Riverside County Line	Add 1 MF lane each direction
OR	I-405	SR-73	Beach	Add 1 MF lane each direction
OR	I-5 SB	La Paz Road	Oso Parkway	Extend auxiliary lane through interchange
OR	I-5 SB	Alicia Parkway		Extend auxiliary lane through interchange
OR	SR-55	17th / 4th / I-5 area		Add southbound auxiliary lane from SR-22 to I-Issues
OR	SR-55 SB	Dyer	Mac Arthur	Auxiliary lane
OR	SR-57 NB	Katella on-ramp	Lincoln off-ramp	Auxiliary lane, full standard median
OR	SR-57 SB	Ball off ramp	Katella on ramp	Add auxiliary lane
OR	SR-91 WB	SR-71	SR-241	Add auxiliary lane

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
OR	SR-91 EB	SR-241	SR-71	Add auxiliary lane EB which drops at Green Riv
OR	SR-91 WB	NB SR-55	WB SR-91 at Tustin	Add auxiliary lane
OR	SR-91 WB	SR-57	I-5 (WB Only)	Add auxiliary lane
OR	I-405 NB	SR-133	Sand Canyon	Widen NB I-405 SR-133 to Sand Canyon, add a
OR	I-405 SB	Irvine Center Drive	Irvine Center Drive	Add 2nd auxiliary lane
OR	I-405 NB	Jeffrey	Culver	Add auxiliary lane
OR	I-405 NB	Sand Canyon	Culver	Tie auxiliary lanes together
OR	I-405 SB	Beach	I-605	Continuous auxiliary lane, operational improver
OR	I-5 NB/SB	La Paz Road		Re-construct interchange to increase storage ca
OR	Fixed Route Bus	Countywide		Countywide Fixed Route, Express, Rail Feeder to achieve 10-minute headways in the core of th annual vsh by 2030.
OR	Metrolink Commuter Rail	Orange Line/IEOC Line/91 Line		Expand service - Orange Line to 30 daily trains 21 daily trains. Plan for midday intracounty ser
OR	Track La Mirada Basta	La Mirada		DT Junction to La Mirada Triple Track
OR	Metrolink Commuter Rail	Anaheim Stadium		Parking Structures and Platform Extensions - M
OR	SR-57 NB	Lambert	Tonner Canyon Road	Truck Climbing Lane
OR	Centerline Light Rail	Orange County	Orange County	Extension of the Orange County Centerline Ligh
RV	CETAP - Hemet to Corona/Lake Elsinore	Hemet	Corona/Lake Elsinore	Ramona/Cajalco expressway (3 lanes each dir)

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
RV	CETAP - Moreno Valley to San Bernardino County	Moreno Valley	San Bernardino County	Construct new intercounty transportation corrid
RV	CETAP - Riverside County to Orange County	Riverside County	Orange County	Construct new intercounty transportation corrid
RV	CETAP - Temecula Corridor	Winchester (SR-79/SR-74)	Temecula	On I-15, widen to 1 HOV & 6 MF each dir from MF each dir from Winchester to San Diego Cou & 4 MF each dir from Newport Rd to I-15; impro
RV	SR-60/I-215	SR60/I-215 E. Jct	East to SR-60 and South to I-215	HOV Connector
RV	I-15	San Diego County Line (R0.0)	SR-60 (51.5)	Add 1 HOV lane each direction (EA's 33790G, 33800G).
RV	SR-91/I-15	South to West/West to South		HOV Connector
RV	I-215	SR-60/SR-91/I-215 Jct	San Bernardino County Line	Add 1 MF and 1 HOV lane each direction (EA 4
RV	I-10	Monterey Ave (44.5)	Dillon Rd (58.9)	Add 1 MF lane each direction (EA 0A030K)
RV	I-10/SR-60			Construct new interchange
RV	I-215	Eucalyptus Ave (R37.4)	I-15 (R8.9)	Add 1 MF lane each direction (EA's 35380K, 35390K, 35370K)
RV	SR-71	SR-91	San Bernardino County Line	Widen to 3 MF lanes each direction
RV	SR-91	Pierce Street	Orange County Line	Add 1 MF lane each direction
RV	SR-91/SR-71			Improve interchange

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
RV	SR-79	Ramona Expwy	Domenigoni Parkway	Realign highway (construct 4 lanes)
RV	SR-79	Hunter	Ramona Expwy	Widen from 4 to 6 lanes (note: RTIP#46460 wic Domenigoni)
RV	Metrolink Commuter Rail	Countywide		Metrolink Improvements (track, rolling stock)
RV	Metrolink Commuter Rail	IEOC & 91 Lines		Metrolink Rail Station Improvements
RV	Metrolink Commuter Rail			Metrolink Construct New Station At 3360 Van B 550 Spaces)
RV	I-10	San Bernardino County Line (R0.0)	Banning City Limits (12.9)	Add eastbound truck climbing lane
RV	SR-60	Badlands area e/o Moreno Valley	Badlands area - w/o SR-60/I-10 Jct	Add eastbound truck climbing lane
SB	I-10	I-15	SR-38	Add 1 HOV lane each direction, widen UC's, re
SB	I-10	SR-38	Yucaipa Bl	Add 1 HOV lane each direction
SB	I-10	Yucaipa Bl	Riverside County Line	Add 1 HOV lane each direction
SB	I-15	Riverside County Line	I-215	Add 1 HOV lane each direction
SB	I-15	I-215	US-395	Add 1 HOV lane each direction
SB	I-15	US-395	D St	Add 1 HOV lane each direction
SB	I-215	Riverside County Line	I-10	Add 1 HOV lane each direction
SB	I-215	SR-30	I-15	Add 1 HOV lane each direction
SB	I-10/I-215	South to East/East to South		HOV Connector
SB	I-10/I-15	South to West/West to South		HOV Connector
SB	I-10/I-15	North to West/West to North		HOV Connector

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
SB	I-215	Riverside County Line	I-10	Add 1 MF lane each direction
SB	I-215	I-10	SR-30	Add 1 MF lane each direction (restriping)
SB	I-215	SR-30	I-15	Add 1 MF lane each direction
SB	SR-210	I-215	I-10	Add 1 MF lane each direction and widen UC's
SB	SR-18	Los Angeles County Line	US 395	Widen from 1 to 2 lanes each dir
SB	SR-18	0.8 mi west of Orchard Dr (PM 79.9)	2.1 mi west of Orchard Dr (PM 81.2)	Construct Passing Lanes (PM 79.9/81.2) and T
SB	SR-38 (Orange/Lugonia)	Redlands City Limit (W)	Redlands City Limit (E)	Widen from 1 to 2 lanes each dir
SB	SR-62 (Twentynine Palms Hwy)	Fairway Dr	SR-247	Widen from 2 to 3 lanes each dir
SB	SR-62	At Colorado River (PM141.9/143.1)		Bride widening from 2 to 4 lanes
SB	SR-83 (Euclid)	Merrill Av	Kimball Av	Widen from 2 to 4 lanes each dir
SB	SR-142 (Chino Hills Pkwy)	Carbon Canyon Rd	Pipeline Dr	Widen from 2 to 3 lanes each dir
SB	SR-247 (Old Woman Springs Rd)	North of SR-62	Griffith Rd	Widen from 1 to 2 lanes each dir
SB	San Bernardino-Redlands Extension	4th St/Vernon	Grove/Central	Extend rail service to Redlands (10 miles); rail t
SB	Gold Line Extension	Claremont in Los Angeles County	Montclair in San Bernardino County	Light Rail extension (1.5 miles)
SB	Metrolink Commuter Rail	Countywide		Service Expansion; SB Line 52 daily trains, Riv line 28 daily trains
SB	Local Transit Service	Countywide		Local Transit Service
SB	Elderly & Handicapped Assistance	Countywide		Elderly & Handicapped Assistance

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
SB	I-15	Devore	Summit	Truck Climbing Lane
VE	SR-33 (Casitas Bypass)	Foster Park	Creek Rd	Expressway
VE	SR-118	SR-232	Moorpark	Expressway
VE	Metrolink Commuter Rail	Ventura	Los Angeles County Line	Service Expansion
VE	Tunnel 26			Rail Tunnel Reconstruction
VE	Metrolink Commuter Rail	Coast Main Line		Enhanced Metrolink Capital Maintenance
REG	Maglev	Regionwide		By 2015 - IOS (West LA to Ontario); By 2030 -
REG	I-710 Corridor	Port of Long Beach/Los Angeles	SR-60	User Fee-Backed Capacity Improvement
REG	East-West Corridor (I-210, SR-210, I-10, SR-60, SR-91)	I-710 Corridor	I-10/SR-60 Interchange	User Fee-Backed Capacity Improvement
REG	I-15 Corridor	Eastern Gateway Corridor	Barstow	User Fee-Backed Capacity Improvement
REG	Regional rail capacity improvement program	Regionwide		Main line tracks and grade separation improver

Table 3.5-7 shows the percentage of freeways and arterials in each county and in the region that would experience noise levels exceeding 66 dBA, the Caltrans noise abatement criteria for noise sensitive land uses. The evaluation did not take into account whether there are sensitive receptors located adjacent to the freeways and arterials, but evaluates all roadways equally regardless of whether sensitive land uses are located adjacent thereto.

Transit

The 2004 RTP includes projects for rail transit and Metrolink. It is anticipated that any noise sensitive land uses located immediately adjacent to these lines would be significantly impacted. The existing urban rail and Metrolink system would experience increased use. Sensitive uses located along existing lines would be further exposed to noise associated with increased rail and light rail activities.

Maglev System

The environmental document for the Maglev system concludes that areas separated from the Maglev alignment by an existing freeway would not experience impacts because of the distance from the Maglev guideway. In addition, noise levels generated from the existing freeway are expected to be greater than the Maglev operational noise at the opposite side of the freeway.

Mitigation Measures

MM 3.5-2a: As part of the appropriate environmental review of each project, a project specific noise evaluation shall be conducted and appropriate mitigation identified and implemented.

MM 3.5-2b: Project implementation agencies shall employ, where their jurisdictional authority permits, land use planning measures, such as zoning, restrictions on development, site design, and use of buffers to ensure that future development is compatible with adjacent transportation facilities.

MM 3.5-2c: Project implementation agencies shall, to the extent feasible and practicable, maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities.

MM 3.5-2d: Project implementation agencies shall construct sound reducing barriers between noise sources and noise-sensitive land uses. Sound barriers can be in the form of earth-berms or soundwalls. Constructing roadways so as appropriate and feasible that they are depressed below-grade of the existing sensitive land uses also creates an effective barrier between the roadway and sensitive receptors.

MM 3.5-2e: Project implementation agencies shall, to the extent feasible and practicable, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not sufficiently reduce noise.

Table 3.5-7: Percentage of Roadways Where Noise Levels Exceed 66 dBA* (Regardless of Land Use)

Scenario	Facility	Los Angeles County	Orange County	Riverside County	San Bernardino County	Ventura County	Total (region-wide)
2000 (Existing)	Freeways	90%	97%	98%	100%	100%	95%
	Arterials	17%	24%	22%	22%	23%	20%
2030 No Project	Freeways	93%	94%	95%	98%	98%	95%
	Arterials	23%	25%	30%	23%	24%	24%
2030 Plan	Freeways	90%	98%	95%	100%	99%	95%
	Arterials	21%	21%	30%	25%	15%	23%
2030 Modified RTP	Freeways	89%	98%	95%	100%	99%	94%
	Arterials	22%	21%	31%	25%	16%	24%
2030 PILUT 1	Freeways	93%	99%	94%	100%	97%	96%
	Arterials	22%	18%	27%	27%	17%	23%
2030 PILUT 2	Freeways	94%	99%	96%	99%	97%	96%
	Arterials	21%	19%	27%	24%	15%	22%

* A noise level above 66 dBA is the Caltrans noise abatement criteria for sensitive receptors; this table does not include consideration of adjacent land uses but evaluates all roadways equally regardless of adjacent uses.

Note: for future conditions (2030) table includes roadways where noise levels increase by 3dBA or more and result in a noise level greater than 66 dBA.

MM 3.5-2f: The project implementation agencies shall implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts.

MM 3.5-2g: To reduce noise impacts, maximize distance of the Maglev route alignment from sensitive receptors. If the Maglev guideway is constructed along the center of a freeway, operation noise impacts would be reduced by the increase in distance to the noise sensitive sites and the masking effects of the freeway traffic noise.

MM 3.5-2h: Reduce Maglev speed in the vicinity of sensitive receptors.

MM 3.5-2i: As a last resort, eliminate the noise-sensitive receptor by acquiring rail and freeway right-of-way. This would ensure the effective operation of all transportation modes.

MM 3.5-2j: Passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations should be located away from sensitive receptors.

Significance After Mitigation

Although mitigation measures are implemented for the impact, it may not reduce noise levels to below regulatory levels, therefore, the impact would be **significant**.

Impact 3.5-3: Sensitive receptors could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

Using GIS and overlaying the Draft 2004 RTP projects on land uses, it is possible to determine the number of sensitive receptors that could face a substantial and permanent increase in noise levels. Using a 150' buffer, at least the following sensitive receptors could be impacted by the proposed 2004 RTP Projects:

- 1 college
- 1 hospital
- 4 elementary schools
- 3 middle schools
- 1 vocational high school
- 2 high schools
- 2 senior citizen's facilities
- 7 religious schools.

Mitigation Measures

Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j.**

Significance After Mitigation

Although mitigation measures are recommended for the impact, they may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**

Cumulative Impact 3.5-4: Regional cumulative ambient noise levels could increase to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic

resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

The projects included in the 2004 draft RTP could have a significant impact on total noise in the region. Many of the projects involved construction and that potential noise is outlined in **Impact 3.5-1**. While the construction noise is temporary and short term at the project level, the cumulative construction noise region wide could be significant. Over the course of the planning horizon there is likely to be constant construction within the region.

Forecasts for population and job growth are one factor driving the potential increase of ambient noise in the region. Sources of ambient noise increase include: housing construction, industrial manufacturing, etc.

Cumulative transportation noise could also increase. This ambient noise increase could be related to: aircraft overflights, port noise, ship horns, railroads, as well as freeway, arterial and transit noise.

Mitigation Measures

Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j**.

Significance After Mitigation

Although mitigation measures are recommended for the impact, this may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**

Comparison with the No Project

Through the construction of transportation projects, and increases in traffic volume and speed, the draft 2004 RTP projects may create substantially more noise than the No Project. By not implementing the 2004 RTP (No Project Alternative) the levels of cumulative ambient noise could be substantially less than with the proposed 2004 RTP implementation.

Cities and counties can use open space easements as a mechanism to preserve scenic resources, if they have adopted open-space plans, as provided by the Open Space Easement Act of 1974 and codified in California Government Code, Section 51070 et seq. According to the Act, a city or county may acquire or approve an open-space easement through a variety of means, including using public money.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on aesthetics and views.

Comparison with the No Project

The analysis of aesthetics and views includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts, however it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of these impacts compares the existing setting to expected future Plan conditions, as required in CEQA Guidelines Section 15126.2(a). The analysis assesses expected impacts to designated scenic resources, including scenic highways or vista points that may be caused by projects proposed within the Plan, and identifies the potential impacts of associated growth. The following factors were considered in assessing the significance of impacts from the proposed Plan on scenic resources:

Scale – the size, proportion, and sustainability (or "fit") of a transportation improvement to the surrounding area; and

Degree of visibility – the extent to which the transportation improvement can be seen. This depends to a large extent on route alignment and configuration (i.e., elevated, at grade, depressed, or underground) of the improvement. Generally, elevated and at grade transportation investments have a more substantial impact on aesthetics and views.

SIGNIFICANCE CRITERIA

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (Public Resource Code § 21068). The proposed Plan would have a significant impact on aesthetics and views if implementation would:

- Obstruct scenic resources (i.e., mountains, ocean, rivers, or significant man-made structures) as seen from an existing transportation facility or from the surrounding area;
- Alter the appearance of designated scenic resources along or near a state-designated scenic highway or vista point;

- Create significant contrasts with the scale, form, line, color and/or overall visual character of the existing landscape setting;
- Add visual elements of urban character to an existing natural, rural or open space area or add a contemporary element to a historic area; or
- Result in a cumulatively considerable adverse effect to aesthetics and views.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect aesthetics and views. Expected significant impacts would be the obstruction of scenic views and resources, altering areas along state designated scenic highways and vista points, creating significant contrasts with the scale, form, line, color and overall visual character of the existing landscape, and adding visual urban elements to rural areas. Cumulative impacts would include contrasts with the overall visual character of the existing landscape.

Both short term construction related impacts and long term or permanent impacts potentially would occur as a result of implementation of the 2004 RTP. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect impacts (due to the changes in population distribution expected to occur in combination with the 2004 RTP's transportation investments and transportation and land use policies) are discussed under cumulative impacts.

The highway and arterial projects proposed in the 2004 RTP primarily consist of widening existing highways and constructing new interchanges. Many projects and/or programs proposed in the 2004 RTP would not involve construction activities. However, some projects involve constructing new highway segments including auxiliary goods movement roadway facilities and mixed flow connectors.

Many of the proposed public transit projects would involve service alterations on existing streets, highways, and rail lines only. Other proposed public transit projects would involve the possible construction of new rail lines. Some public transit projects may include new stations or upgrades to existing stations.

Generally, proposed projects are of the following two types:

- **New Systems:** new facilities, goods movement roadway facilities, rail corridors, flyovers, interchanges, and Maglev.
- **Modifications to Existing Systems:** widening bridges, HOV, HOT, grade crossings, and maintenance operations.

Impacts to scenic resources resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, scenic resources in the given area, and duration of the proposed construction activities.

In general, scenic resources potentially would be significantly impacted by projects proposing new systems (i.e., new facilities, goods movement roadway facilities, rail corridors, flyovers, interchanges, and Maglev). Construction and operation of projects proposed within the 2004 RTP potentially would significantly impact scenic resources located in the vicinities of these new system projects. Modification projects generally would result in short-term construction impacts to scenic resources.

The following discussion presents a regional evaluation of potential impacts of 2004 RTP projects on scenic resources. However, it should be noted that significant impacts and appropriate mitigation measures would need to be identified and assessed on a project-by-project basis.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.6-1: Construction and implementation of individual 2004 RTP projects potentially would obstruct views of scenic resources.

Construction of new facilities, expansion of existing facilities or development of previously undisturbed sites potentially would block or impede views of scenic resources in a given area. For example, construction of highways, flyovers, interchanges, goods movement roadway facilities, Maglev, and sound walls for these projects potentially would block or impede views of mountains, oceans, or rivers.

Proposed projects in the 2004 RTP include construction of roadway improvements such as grade separated facilities for busways, goods movement roadway facilities, and HOV connectors. Grade separated facilities potentially would block or impede views of surrounding scenic resources during and after construction. Moreover, the elevation and scale of the proposed grade separated facilities potentially would be visually intrusive to surrounding areas (depending on the degree of visibility of the transportation facility).

Construction of transportation facilities that involve modifications like widening or upgrading existing roadways would involve lesser changes to the visual environment. These modification projects would most likely occur within existing roadway facilities and/or would require acquisition of right-of-way property. However, such changes may not block or impede views of scenic resources to a greater extent than at present.

New Projects

The proposed 2004 RTP would include projects involving new systems, as well as projects that would involve modifications to existing facilities. The proposed new system highways and arterials are located throughout the region. Construction of a new SR-18 in San Bernardino County, of a new extension on SR-115 in Imperial County, and of an extension to the SR-241 toll

lanes in Orange County are examples of new highway projects that potentially would obstruct scenic resources.

New light rail transit projects in Los Angeles and Orange Counties, such as the Exposition Line, Gold Line extension, Eastside Line, Green Line extension, and CenterLine also potentially would obstruct views, especially if all or parts of these lines are elevated. If the new rail extensions are constructed underground, the impacts to the surrounding views would only be during construction and, therefore, temporary. If the new rail extensions are constructed aboveground, it potentially would create a significant impact to the visual quality of the area by creating new land uses and potentially blocking views of mountains (i.e., San Gabriel, Santa Monica, and Santa Ana Mountains) and the Pacific Ocean. The impacts potentially would be especially significant if the new rail lines are constructed as elevated alignments. Additionally, new rail system and service improvement projects on existing rail lines are included in the proposed 2004 RTP. The level of impact from these transit projects on the surrounding area depends on whether they are developed underground or aboveground. However, given that most of these projects would use existing railroad right-of-ways, impacts would generally be minimized since, in many cases, they would represent the continuation of an existing or previous use.

An extension of I-710 from I-10 to I-210 would require the acquisition of residential and commercial property in the South Pasadena area. This proposed extension would create a significant impact on the visual quality of the area by creating new land uses and potentially blocking or impeding views of the San Gabriel Mountains. Furthermore, the extension of I-710 through the mostly residential area of South Pasadena potentially would lead to the construction of other visual intrusions like billboards or noise barriers. Depending on the elevation of such structures, the views of the surrounding San Gabriel Mountains potentially would be significantly blocked. The I-710 extension from I-10 to I-210 may be completed with a tunnel, which would avoid or minimize impacts on aesthetics and views. Construction equipment would create temporary impacts to views in the immediate area of the tunneling. However, long term, views would be preserved.

One strategy being explored in the2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. These facilities potentially would obstruct scenic views, result in the loss of vegetation along these routes, and change the topography of the given area depending on route alignment. Furthermore, these facilities constructed as elevated lanes and/or larger scale potentially would have significant visual impacts on surrounding land uses during and after construction. Specifically, elevated goods movement roadway facilities would block views of the San Gabriel Mountains, San Jose Hills, Puente Hills, San Bernardino Mountains, and Jurupa Mountains, depending on the alignment chosen for the lanes. The elevation and scale of the proposed grade separated goods movement roadway facilities potentially would be visually intrusive to surrounding areas (depending on the degree of visibility of the transportation facility).

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and

Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station.[3] In total, the proposed Maglev route in 2030 would be approximately 275 miles. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. Provided that the Maglev runs on an elevated track as currently projected, the Maglev potentially would cause a substantial adverse impact on views toward the San Gabriel Mountains, San Jose Hills, the Puente Hills, and the Pacific Ocean.

Projects Involving Modifications of Existing Roadways and Transit Networks

The proposed 2004 RTP includes modification projects in all six counties of the SCAG region. These proposed projects would consist of improvements to existing highways, HOV lanes, HOT lanes, arterials, interchanges, bridges and grade crossings, sound wall retrofitting, and improvements to transit rail and bus services. Potential impacts from modification projects would be less substantial than those potentially created by new system projects. The improvements proposed by these modification projects would occur on existing systems, and are not assumed to be designed at a higher elevation. The modification projects are not expected to block views of scenic resources in their proposed given areas.

Implementation of the 2004 RTP would result in a significant impact to views and scenic resources.

Mitigation Measures

MM 3.6-1a: Project implementation agencies shall implement design guidelines, local policies, and programs aimed at protecting views of scenic corridors and avoiding visual intrusions.

MM 3.6-1b: Project implementation agencies shall, to the extent feasible, construct noise barriers of materials whose color and texture complements the surrounding landscape and development. Noise barriers shall be graffiti resistant and landscaped with plants that screen the barrier, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.

Significance after Mitigation

This impact would be considered **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

[3] SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/

Impact 3.6-2: Construction and implementation of the proposed project potentially would alter the appearance of scenic resources along or near designated scenic highways and vista points.

Many state highways in the region are located in areas of outstanding beauty. The California Department of Transportation's (Caltrans) State Scenic Highway Program was created by the State Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are stated in the California Streets and Highways Code, Section 260.

The State Scenic Highway System includes a list of highways that have been designated by Caltrans as scenic highways or are eligible for designation as scenic highways. These highways are designated in Section 263 of the Streets and Highways Code. Scenic highway designation can offer the following benefits:

- protection of the scenic values of an area;
- enhancement of community identity and pride, encouraging citizen commitment to preserving community values;
- preservation of scenic resources to enhance land values and make the area more attractive; and
- promotion of local tourism that is consistent with the community's scenic values.

According to Caltrans, a scenic corridor is the land generally adjacent to and visible from the highway. A scenic corridor is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. Caltrans outlines the following minimum requirements for scenic corridor protection: regulation of land use and density of development; detailed land and site planning; control of outdoor advertising; careful attention to, and control of, earthmoving and landscaping; and careful attention to design and appearance of structures and equipment.

Many of the proposed projects in the 2004 RTP include countywide improvements to highways, arterials and transit systems. These improvements would potentially fall within a designated scenic corridor. Table 3.6-2 presents a list of the officially designated State Scenic Highways as identified by Caltrans in the 2004 RTP project area. Additionally, Caltrans has designated the following two vista points in the proposed 2004 RTP project area: 1) on SR-14 in Lakeview in Los Angeles County; and 2) at the SR-243 and Indian Hill Road intersection in Riverside County.

Caltrans also creates a list of highways that are eligible for official designation as a scenic highway by the State of California, which are listed in Table 3.6-3. Many of the proposed projects within the 2004 RTP are located within or near these eligible scenic highways, and proposed projects in these areas may potentially create an adverse impact to the scenic resources in the area. The proposed project would be required to comply with applicable rules and regulations governing the protection of that area as a scenic resource.

New Projects

State Scenic Highways are existing routes. Therefore, new projects in the 2004 RTP are not designated as State Scenic Highways.

Projects Involving Modifications of Existing Roadways and Transit Networks

SR-91 is one of the most congested freeways in the SCAG region. Caltrans has designated 4.2 miles of this freeway, from SR-55 to the eastern city limit of the City of Anaheim, as State Scenic Highway. There are several projects in the 2004 RTP that would be built along SR-91 that potentially would impact this Scenic Highway. The 2004 RTP includes improvements along SR-14 connecting Palmdale and the Antelope Valley to Santa Clarita. These improvements include the area on SR-14 where there is a state-designated vista point.

Table 3.6-3 shows the roadways eligible for State Scenic Highway designation in the SCAG region. The 2004 RTP plans projects involving modifications on several routes that are eligible for designation as State Scenic Highways. These projects are listed in Table 3.6-4. As these routes are not yet designated as State Scenic Highways, projects built on these routes are deemed to have a less substantial impact.

Table 3.6-4: 2004 RTP Projects Planned on Roadways Eligible for State Scenic Highway Designation

Route	County
I-5/SR-74 Separation	Riverside
I-10	San Bernardino
I-15	Riverside
I-215	Riverside
SR-18	San Bernardino
SR-38	San Bernardino
SR-57/SR-60 Interchange	Los Angeles
SR-62	San Bernardino
SR-71	Riverside
SR-79	Riverside
SR-91	Los Angeles
SR-91	Riverside
SR-91	Orange
SR-111	Imperial
SR-247	San Bernardino

Source: California Department of Transportation. (n.d.). *The California scenic highway system: A list of eligible and officially designated routes.* Retrieved February 3, 2003, from http://www.dot.ca.gov/hq/LandArch/scenic/cahiays.htm

Implementation of the 2004 RTP would result in a potentially significant impact to designated or eligible scenic highways or vista points.

Mitigation Measures

MM 3.6-2a: Project implementation agencies shall, where practicable and feasible, avoid construction of transportation facilities in state and locally designated scenic highways and/or vista points.

MM 3.6-2b: Project implementation agencies shall, complete design studies for projects in designated or eligible Scenic Highway corridors and develop site-specific mitigation measures to minimize impacts on the quality of the views or visual experience that originally qualified the highway for Scenic designation.

MM 3.6-2c: If transportation facilities are constructed in state and locally designated scenic highways and/or vista points, design, construction, and operation of the transportation facility shall be consistent with applicable guidelines and regulations for the preservation of scenic resources along the designated scenic highway.

Significance after Mitigation

This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

Impact 3.6-3: Construction and implementation of the proposed project potentially would create significant contrasts with the overall visual character of the existing landscape setting.

There is an extraordinary range of urban characteristics and urban-natural environment contrasts throughout the SCAG region. Given the size and diversity of the region, there are no standards that apply to all areas. Therefore, local planning guidelines regarding visual quality of urban areas must be researched and adhered to. A component of the urban environment is the transportation infrastructure. Many roads have been built through the SCAG region connecting urban concentrations with natural areas in the region. Transportation systems have a major effect on the visual environment. As most vehicular movement occurs along transportation corridors, their placement largely determines what parts of the SCAG region will be seen. Arterials and freeways comprise a major component of the existing visual environment of the region. Arterials in the region offer a variety of visual experiences from the uncrowded, undeveloped stretches of rural roads in Imperial, San Bernardino, Riverside and Ventura Counties to the narrow winding roads in the mountain areas and the high-volume urban streets in the densely populated areas of Los Angeles and Orange Counties.

Development of previously undeveloped sites potentially would result in impacts to visual resources. For example, construction of highways in an undeveloped area potentially would result in the loss of vegetation and changes in topography. The introduction of a new transportation facility in a forested area potentially would be highly visible from scenic vistas if constructed aboveground and may not blend with the surrounding land uses. Similarly the

construction of a new transportation system through a developed area potentially would result in land use changes that also result in impacts to visual resources. For example, the extension of a highway through an urban area would require acquisition of residential, commercial and/or industrial property, thereby changing the land use, and consequently, visual quality of the given area.

As already mentioned, proposed projects in the 2004 RTP include construction of roadway improvements such as grade separated facilities for busways, goods movement roadway facilities, and HOV connectors, as well as construction of a Maglev system. Grade separated facilities potentially would have substantial adverse visual impacts on surrounding land uses during and after construction. The elevation and scale of the proposed grade separated facilities potentially would have significant contrasts with the overall visual character of the existing landscape setting. Modification projects that involve the widening or upgrading of existing roadways can be designed to complement the existing system, and therefore, would involve lesser changes to the visual character of the existing landscape setting.

Transit centers and park-n-ride lots would be constructed primarily within the heavily urbanized portions of the SCAG region and would consequently affect a large number of viewers. Transit centers potentially would be dominant visual elements because of their fixed structures, including terminals, service facilities, and lighted parking lots. While these facilities would become integrated with the urban setting over time, their initial effect potentially would result in a change in visual quality.

New Projects

The 2004 RTP proposes several new system projects. These would consist of the construction of a new SR-18, extension of SR-115, SR-210, and SR-241, the I-710 extension, new goods movement roadway facilities from the Ports of Long Beach and Los Angeles to Barstow, and new transit light rail lines. The extension of I-710, depending on whether or not it was built above ground or below ground, would require the acquisition of residential and commercial property in the South Pasadena area. This proposed extension potentially would create an adverse impact on the visual character of the existing landscape setting by creating new land uses. Furthermore, the extension of I-710 potentially would potentially lead to the erection of other visual intrusions like billboards or noise barriers along the new highway extension that may not complement the surrounding residential area.

The proposed new system transit projects would include the development of new rail lines. These new proposed light rail extension projects would require the acquisition of residential, commercial and industrial property in numerous cities throughout Los Angeles and Orange Counties. If the new rail extensions are constructed aboveground, it potentially would create a significant impact to the visual character of the area by creating new land uses and disrupting the existing landscape. The impacts potentially would be especially significant if the new rail lines are constructed at a high elevation. Additionally, new rail system and service improvement projects on existing rail lines would be included in the overall proposed 2004 RTP. The level of impact from these transit projects on the surrounding area depends on whether they are developed underground or aboveground.

New interchanges and ramps would also require the acquisition of right-of-way property. It potentially would result in the loss of vegetation and changes in topography of the given area. Furthermore, new interchanges and ramps constructed at a higher elevation and/or larger scale potentially would have significant impacts on the visual character of the existing landscape during and after construction. Specifically, elevated interchanges and ramps may not complement the existing landscape. This potentially would create a potentially significant impact on the visual quality of the area.

One strategy being explored in the 2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. Elevated facilities may not complement the existing landscape. Depending on the degree of visibility of the transportation facility, the elevation and scale of the proposed grade separated facilities potentially would be visually intrusive to surrounding areas.

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station.[4] In total, the proposed Maglev route in 2030 would be approximately 275 miles. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. Provided that the Maglev runs on an elevated track as currently projected, the Maglev potentially would be visually intrusive to surrounding areas.

Projects Involving Modifications of Existing Roadways and Transit Networks

The proposed modification projects in the 2004 RTP consist of improvements to existing highways, HOV lanes, HOT lanes, arterials, interchanges, bridges and grade crossings, and improvements to transit rail and bus services. Modification projects would involve modifying or improving existing transportation systems. Since modifications and improvements would be

[4] SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/

designed to complement the existing system, there would be lesser changes to the visual character of the existing landscape. Therefore, impacts from modification projects generally would be less substantial.

Mitigation Measures

MM 3.6-3a: Project implementation agencies shall develop design guidelines for each type of transportation facility that make elements of proposed facilities visually compatible with surrounding areas. Visual design guidelines shall, at a minimum, include setback buffers, landscaping, color, texture, signage, and lighting criteria. The following methods shall be employed whenever possible:

- Transportation systems shall be developed to be compatible with the surrounding environment (i.e., colors and materials of construction material).
- If exotic vegetation is used, it shall be used as screening and landscaping that blends in and complements the natural landscape.
- Trees bordering highways shall remain or be replaced so that clear-cutting is not evident.
- Grading shall blend with the adjacent landforms and topography.

Significance after Mitigation

This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

Impact 3.6-4: The projects in the 2004 RTP potentially would add visual elements of urban character to an existing natural, rural, and open space area.

The SCAG region contains 38,000 square miles, many of which are in their natural state or are primarily rural. Transportation projects outside of the urban core would add visual elements of urban character to these regions. Some of the projects in the 2004 RTP are located in traditionally a more rural part of the region. New construction and modification projects will add visual elements of urban character to these rural areas.

As the goods movement roadway facilities extend east and north into the Inland Empire they potentially would add visual elements of urban character to these areas. The Maglev system potentially would have the same effect as it extends north to the Palmdale area in North Los Angeles County and east toward San Bernardino and Riverside Counties. The routes of the goods movement roadway facilities and Maglev system are not yet determined. However, they most likely would follow existing freeway routes, thus adding elements of urban character along currently existing transportation routes.

Mitigation Measures

MM 3.6-4a: Project implementation agencies shall design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. Project implementation agencies shall design projects to minimize their intrusion into important view sheds and use contour grading to better match surrounding terrain.

MM 3.6-4b: Project implementation agencies shall use natural landscaping to minimize contrasts between the project and surrounding areas. Wherever possible, develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile.

Significance after Mitigation

This impact would remain **significant** because the mitigation measures would not be able to reduce the visual elements of urban character to a less than significant level.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. Implementation of the 2004 RTP would have the following cumulative impact:

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

In addition to transportation investments, the 2004 RTP includes land use policies that would affect the regional distribution of population, households, employment, and facilities and potentially would impact aesthetics and views. One land use strategy in the 2004 RTP is infill development. Infill may result in taller buildings that obstruct views. At the same time, the infill strategy will help preserve the open space in the region, protecting scenic resources.

The region will add approximately 6 million people, 2 million households, and 3 million jobs by 2030. Some of these people will live in households and work at jobs on land that is currently vacant. This conversion of vacant land to residential or other uses would have a significant impact on aesthetics and views. As stated in Chapter 3.1 Land Use, the proposed growth is estimated to create an urban footprint that will consume approximately 500,000 to 700,000 acres of currently vacant land.

Population growth in the region potentially would create contrasts with the overall visual character of the existing landscape because some urban land will have its intensity of use increased and because currently vacant land would be developed into urban uses.

Mitigation Measures

MM 3.6-5a: In visually sensitive site areas, local land use agencies shall apply development standards and guidelines to maintain compatibility with surrounding natural areas, including site coverage, building height and massing, building materials and color, landscaping, site grading, etc.

Significance after Mitigation

This impact would remain **significant** because the population growth projected by 2030 in combination with the projects in the 2004 RTP would consume currently vacant land that would create significant contrasts with the overall visual character of the existing landscape setting.

Comparison with the No Project

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments.

Direct Impacts

Since the No Project Alternative includes fewer transportation projects than the 2004 RTP, it would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. The No Project would not affect any State Scenic Highways or vista points.

The Plan impacts would be greater than the No Project impacts for Impacts 3.6-1, 3.6-2, 3.6-3, and 3.6-4.

Indirect Impacts

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. These mitigating measures are absent in the No Project Alternative. The proposed Plan also includes additional transportation improvements that facilitate access to existing natural lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs

associated with the economic benefits of implementing the Plan that would consume land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would cumulatively create similar contrasts with the overall visual character of the existing landscape setting.

The Plan impacts will be approximately the same as the No Project impacts for Cumulative Impact 3.6-5.

endangered species, and whether the project would substantially change any of the existing biological resources, including biodiversity.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on biological resources.

Comparison with the No Project

The analysis of biological resources includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The impact assessment for biological resources focuses on significant effects the proposed Plan and associated growth would likely have on biological resources contained within the SCAG region. The methodology for determining the significance of these impacts compares a regional-level analysis of the future Plan conditions to the existing biological resources, as required in the CEQA Guidelines.

GIS was used to identify projects and associated growth that may cause a significant effect on biological resources. Specifically, using GIS spatial data, potential regional-level adverse effects were identified by overlaying 2004 RTP projects upon the distribution and locations of known biological resources, including natural vegetation, wetlands and water resources, and special status species and communities. GIS analysis calculated the acreage or extent of biological resources occurring within 150 feet and 0.25 miles of either side of freeway, transit and freight rail projects included in the 2004 RTP. The 150 foot zone was used for more precise impacts, such as the conversion of vegetation types. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species.

The impacts-analysis identifies direct intersection between proposed Plan projects and existing biological resources and identifies the potential cumulative impact of the transportation projects and associated growth on habitat loss, degradation, and fragmentation. The analysis also includes review of adopted habitat conservation plans to identify potential conflicts with their provisions.

SIGNIFICANCE CRITERIA

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (CEQA § 21068). The proposed Plan would have a significant impact on biological resources if implementation were to:

- Substantially reduce the habitat of a fish or wildlife species;

- Cause a fish or wildlife population to drop below self-sustaining levels;
- Threaten to eliminate a plant or animal community;
- Restrict the range of a rare or endangered plant or animal;
- Substantially and adversely affect, either directly or through habitat modification, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by DFG or USFWS;
- Substantially and adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by DFG or USFWS;
- Substantially and adversely affect federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh and vernal pool) through direct removal, filling, hydrologic interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with provisions of an adopted HCP, Natural Community Conservation Plan; or
- Cause a cumulatively considerable adverse effect on regional biological resources.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would adversely affect biological resources. Expected significant impacts include disturbance and removal of natural vegetation that may be utilized by sensitive species, habitat fragmentation and the associated decrease in habitat quality, litter, trampling, light pollution and road noise in previously undisturbed natural areas, displacement of riparian and wetland habitat, and siltation of streams and other water bodies during construction. Cumulatively, the increased urban development anticipated by the Plan would result in similar cumulative impacts.

Two basic types of impacts would potentially occur from transportation projects identified in the 2004 RTP. These include short-term construction related impacts, and long-term or permanent displacement or offsite impacts from new facilities.

Whenever a project is located near project-specific biological resources of concern, a biological resources evaluation would need to be conducted and project-specific impacts with appropriate feasible mitigation measures identified. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect, cumulative impacts due to the changes in population distribution expected to occur due to the 2004 RTP's transportation investments, and transportation and land use policies are also discussed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.7-1: Transportation projects included in the 2004 RTP on previously undisturbed land would potentially displace natural vegetation, and thus habitat, some of which is utilized by sensitive species in the SCAG region.

The significance of this impact would relate to the extent, and type of natural vegetation displaced. It is assumed that any areas of natural vegetation contain potentially significant biological value.

Impacts to sensitive species would not be expected to be limited to those mapped by the CNDDB (Figure 3.7-3 in the Figure Chapter at the end of this document). The CNDDB system relies on reported sitings of sensitive species, and it is not a complete inventory of sensitive species habitat. The intersection of 2004 RTP projects with these known habitat occurrences is provided as additional information. Intersections with point data that are included in CNDDB and that are based on individual species sitings are not included in Table 3.7-7. These point data are of varying reliability. Impacts associated with the intersection of 2004 RTP transportation projects and habitat (shown in Figure 3.7-1 and Table 3.7-8) are more conservative and lend a fuller picture of the potential impacts of the 2004 RTP projects. This analysis of transportation project intersection with natural vegetation and habitat is used to determine significance.

Table 3.7-7: Special Status Habitat and Communities Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project (acres)

	2004 RTP (highways, transit and freight rail)	No Project
Special Status Plant Habitat	290	50
Special Status Animal Habitat	4,800	950
Special Status Natural Community	470	200

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

The site-specific significance of projects would include the relative scarcity and importance to other valuable biological resources. Additionally, the nature of the site specific transportation project would affect the size of the disruption. Addition of a lane would be expected to cause less disruption than an entirely new road, for example.

Transportation projects in the 2004 RTP that would intersect with special status species habitat known and reported by the CNDDB are shown in Figure 3.7-3 in the Figure Chapter at the end of this document, and potential effects are summarized in Table 3.7-7. There are approximately 5,500 acres of special status plant habitat, animal habitat, and special status aquatic and

Table 3.7-8: Natural Vegetation Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project (acres)

Vegetation Type	2004 RTP (highways, transit and freight rail)	No Project
Chaparral	3,100	700
Conifer Forests and Woodlands	400	200
Desert Dunes	-	-
Grassland	1,400	80
Hardwood Forests and Woodlands	-	-
Riparian Forest and Scrub	500	300
Scrub	10,000	2,000

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

terrestrial communities that occur within 150 feet of the 2004 RTP freeway, transit, and freight rail projects.

For this assessment, if any measurable area of natural vegetation shown on Figure 3.7-1 was potentially displaced by a project, the impact to natural vegetation was considered significant. As Table 3.7-8 demonstrates, there are approximately 15,400 acres of natural vegetation in the SCAG region that occur within 150 feet of a freeway, transit, or freight rail project in the 2004 RTP. The distribution of potential effects by vegetation categories, as discussed above, is shown in Table 3.7-8.

Additional vegetated area would be impacted by Maglev, goods movement capacity enhancements, and arterial projects. The Maglev projects would eventually involve the construction of 275 route miles of elevated track, along with associated stations and other maintenance structures that could also potentially disrupt biological resources. The alignments of these projects are not developed to the point that analysis of the impacts to natural vegetation communities can be estimated directly. The Maglev potential alignments would encounter chaparral, conifer forests and woodlands, grasslands, riparian forest and scrub, and wetland habitats. The acreage of each of these vegetation types that would be affected would vary with the alignments chosen for each Maglev segment. SCAG expects the proposed goods movements enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width, and arterial projects would involve the construction of 3,300 lane miles, though some of these lane miles may be achieved through re-striping and would not consume additional land. The effects of the Maglev, goods movement enhancement projects, and arterials would contribute to the overall significant impact. Site specific analyses would be necessary once the alignments for these projects are developed.

Site-specific analyses would be required to identify and minimize the potential impacts of each particular transportation and/or development project. However,overall, the 2004 RTP would

substantially affect vegetation communities and habitat, some of which is utilized by species of special status. This impact would be significant.

Mitigation Measures

MM 3.7-1.a: Each transportation project shall assess displacement of habitat due to removal of native vegetation during route planning. Routes shall be planned in order to avoid and/or minimize removal of native vegetation.

MM 3.7-1.b: When avoidance of native vegetation removal is not possible, each transportation project shall replant disturbed areas with commensurate native vegetation of high habitat value adjacent to the project (i.e. as opposed to ornamental vegetation with relatively less habitat value).

MM 3.7-1c: Individual transportation projects shall include offsite habitat enhancement or restoration to compensate for unavoidable habitat losses from the project site.

Significance After Mitigation

Although many measures can be employed to minimize the impacts to habitat due to vegetation removal, for a regional plan of this scale, the impact remains **significant.**

Impact 3.7-2: The 2004 RTP would potentially contribute to the fragmentation of existing habitat, decreasing habitat patch sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2004 RTP includes new transportation corridors that may form barriers to animal migration or foraging routes.

Wildlife-roadway interactions often injure or kill wildlife (i.e., roadkills). Additionally, the direct effects of road building and widening provide a barrier between existing habitat patches in the SCAG region, serving to isolate habitat into smaller patches and thereby reduce their quality, especially for species with large home ranges.[10]

Where the barrier is effective, such disturbances can lead to further ecological disruptions from influenced prey-predator interactions and species alterations. The linear nature of transportation projects increases the potential extent and significance of this effect. The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors).[11] Assuming an average lane width of 12 feet and that all new lane miles would consume raw land, these lane miles would consume

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10 Frankham, R., J.D. Ballou and D.A. Briscoe, (2002). *Introduction to conservation genetics*. Cambridge University Press. Cambridge, MA.

11 SCAG. (2003). Regional Demand Travel Model.

approximately 9,800 acres. However, some lane additions would utilize re-striping and minimize additional right-of-way such that the actual acreage affected is unknown but would likely be less than 9,800 acres.

The full implementation of the Maglev projects would involve the construction of 275 route miles. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Along with transit routes, these projects and the associated stations and other maintenance structures could also potentially disrupt biological resources.

Where entirely new roadways would be constructed, there would be a high potential for a significant barrier effect. Conversely, where the project involves only an addition of lanes to an existing roadway, the barrier impact would likely not be significant because the existing roadway has already formed a barrier and the new lanes would slightly increase the existing barrier effect.

Table 3.7-9, below, provides the acreage of natural vegetation (and thus potential habitat) occurring with in 0.25 miles from a highway, transit or freight rail project. A much smaller area would actually be affected. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species. The intersections of regional transportation projects and vegetation communities are shown in Figure 3.7-1 in the Figure Chapter at the end of this document (The Maglev, goods movement enhancement, and arterial project alignments are not shown, as they are not developed to the point of analysis. However they would contribute to the significant impact on habitat fragmentation.)

Table 3.7-9: Natural Vegetation Acreage Occurring Within 0.25 miles of a Freeway, Transit, or Freight Rail Project

Vegetation Type	2004 RTP (highways, transit and freight rail)	No Project
Chaparral	20,400	6,600
Conifer Forests and Woodlands	3,300	1,700
Desert Dunes	-	-
Grassland	9,200	500
Hardwood Forests and Woodlands	100	100
Riparian Forest and Scrub	4,500	1,900
Scrub	80,100	16,400

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

Mitigation Measures

MM 3.7-2a: Individual transportation projects included in the 2004 RTP shall conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on and off-site. Mitigation banking (opportunities to purchase, maintain, and/or restore offsite habitat) is one opportunity that project proponents and jurisdictions may pursue.

MM 3.7-2b: Each transportation project shall provide wildlife crossings/access at locations useful and appropriate for the species of concern.

MM 3.7-2c: Individual transportation projects shall include analysis of wildlife corridors during project planning. Impacts to these corridors shall be avoided and/or minimized.

MM 3.7-2d: Each transportation project included in the Plan shall use wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads. Inclusion of this mitigation measure shall be considered on a case-by-case basis, as use of wildlife fencing could further increase the effects of habitat fragmentation and isolation for many species.

Significance After Mitigation

Route planning to minimize habitat fragmentation impacts, wildlife crossings, on- and off-site habitat restoration and linkages would all reduce the impacts of habitat fragmentation, isolation, and direct injury to wildlife due to transportation projects. For some species, implementation of MM 3.7-2d would increase the degree of habitat fragmentation. At a regional scale, the fragmentation of habitat due to the large scale of the 2004 RTP would not be fully avoided or mitigated. The impact would remain **significant**.

Impact 3.7-3: The 2004 RTP includes new transportation facilities that would potentially increase near-road human disturbances such as litter, trampling, light pollution and road noise in previously relatively inaccessible and undisturbed natural areas.

Many wild animals are negatively affected by such disturbances and will avoid or vacate areas where these factors become prevalent. Such losses might shift species abundance favoring more tolerable species over more sensitive species near well-used roadways. Often the more tolerable species is a non-native pest species and the species that vacate are more desirable native species. In some cases, the animals affected are of special concern.

Table 3.7-9 provides estimates of the extent of potential increases in near-road human disturbances from the distribution and extent of proposed transportation facilities in naturally vegetated lands. These acreage calculations represent the amount of each vegetation community that occurs within 0.25 miles of a 2004 RTP project. A much smaller area would actually be affected. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species.

The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors)[12] in Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The Maglev projects would involve the construction of 275 miles of elevated track. Transit routes (included in the calculation illustrated in Table 3.7-9) and their associated stations and other infrastructure would add to the affected acreage. The goods movement enhancement projects are expected to consist of 140 centerline miles. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. It is expected that these projects would contribute to the overall significant impact. The alignments of these projects are not developed to the point that analysis of the vegetation communities can be estimated directly. Site-specific analyses would be necessary once the alignments for these projects are developed.

Overall, the impact would be significant.

Mitigation Measures

MM 3.7-3a: Individual transportation projects shall minimize vehicular accessibility to areas beyond the actual transportation surface. This can be accomplished through fencing and signage.

MM 3.7-3b: Each project shall establish litter control programs in appropriate areas, such as trash receptacles at road turnouts and view points.

MM 3.7-3c: Each project shall use road noise minimization methods, such as brush and tree planting, at heavy noise-producing transportation areas that might affect wildlife. Native vegetation should be used.

Significance After Mitigation

In many cases, the mitigation measures outlined above would avoid or minimize impacts to wildlife. However, at the regional scale, additional transportation projects would increase wildlife disturbance and the impact would remain **significant.**

Impact 3.7-4: The 2004 RTP projects would potentially damage natural vegetation and other habitat components as a result of trampling or off-road machinery during the construction phases for these projects. Direct fatalities to wildlife would also potentially occur.

Trampling or driving over areas with native vegetation can not only destroy existing vegetation and cause short-term disruptions to associated wildlife uses, but it can also result in soil

12 *Ibid.*

hardening. Soil hardening often causes a longer-term change in species composition, with non-native invasive species often displacing more valuable native vegetation. Table 3.7-8 provides estimates of the natural vegetation occurring within 150 feet of a freeway, transit or freight rail project. Unmitigated, construction equipment has the potential to directly kill wildlife.

The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors).[13] The Maglev projects would involve the construction of 275 route miles, along with associated stations and other maintenance structures that could also potentially disrupt biological resources. The goods movement enhancement projects are expected to consist of 140 centerline miles. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Construction of these lane miles would contribute to the impact described above.

Construction activities are more likely to have significant effects with greater duration or if occurring over a large area of natural vegetation. These effects are also more likely to be significant when the disruption affects habitat of special status species. Soil hardening and vegetation losses can also increase erosion, causing the siltation effects described in Impact 3.7-7. Timing of the activity would also be important in situations where a critical life stage of an animal is affected (e.g., bird nesting).

Site specific analysis would be required to identify and minimize this impact for each individual project included in the 2004 RTP. However, at the regional scale, this impact would be significant.

Mitigation Measures

MM 3.7-4a: Each project shall be preceded by pre-construction monitoring to ensure no sensitive species' habitat would be unnecessarily destroyed. All discovered sensitive species habitat shall be avoided where feasible, or disturbance shall be minimized.

MM 3.7-4b: Each project shall schedule work to avoid critical life stages (e.g. nesting) of species of concern.

MM 3.7-4c: Each project shall fence and/or mark sensitive habitat to prevent unnecessary machinery or foot traffic during construction activities.

MM 3.7-4d: When removal and/or damage to sensitive species habitat is unavoidable during construction, each project shall replant any disturbed natural areas with appropriate native vegetation following the completion of construction activities.

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13 *Ibid.*

Significance After Mitigation

Full implementation of each of these mitigation measures would avoid and/or minimize the construction impacts to **less than significant** levels.

Impact 3.7-5: The 2004 RTP projects would potentially create noise, smoke, lights and/or other disturbances to biological resources during construction phases for these projects.

Construction activities have the potential to negatively affect animal behavior that may result in harm to an individual or population (e.g., causing a nesting failure of a sensitive bird). If the animal is a special status species, and the effect is likely, the potential for a significant impact is increased. Project-level potential impacts and appropriate mitigation measures would need to be identified on a project-by-project basis. At the regional programmatic level, this would be a significant impact.

Mitigation Measures

MM 3.7-5a: Individual projects shall avoid and/or minimize construction activities that have the potential to expose species to noise, smoke, or other disturbances. Pre-construction surveys shall be conducted as appropriate to determine the presence of any species that would need to be protected from such an impact.

MM 3.7-5b: Individual projects shall be scheduled to avoid construction during critical life stages or sensitive seasons (e.g. the nesting season).

Significance After Mitigation

Avoidance and minimization of impacts during construction, with special consideration for critical life stages and seasons of special status species would not reduce this impact to less than significant. The impact remains **significant**.

The operational impacts associated with transportation projects (i.e. those impacts not limited to the period of construction) are discussed in Impact 3.7-3 above.

Impact 3.7-6: The 2004 RTP includes projects that would potentially displace riparian or wetland habitat.

The significance of this impact would depend on the amount and kind of habitat removed. Removal of large riparian trees, for example, can especially reduce stream shading and increase temperatures. Removal of riparian shrubs or grasses can increase erosion and cause siltation impacts discussed below. Removal of aquatic vegetation such as rushes, cattails, or sedges can remove valuable aquatic food sources, spawning or cover habitat, and decrease the water

resource's ability to recycle nutrients. Table 3.7-8 estimates that approximately 520 acres of riparian forest and scrub occur within 150 feet of a freeway, transit, or freight rail project in the 2004 RTP. Impacts to water quality are discussed in Section 3.12 Water Resources.

Approximately 130 acres of NWI mapped wetlands occur within 150 feet of a freeway, transit or freight rail project included in the 2004 RTP (Table 3.7-10 below and Figure 3.7-2 in the map

Table 3.7-10: Wetland Acreage Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project

2004 RTP (highways, transit and freight rail)	No Project
130	20

Source: SCAG Analysis. (2003).
U.S. Fish and Wildlife Service. (1998). *National Wetlands Inventory*. (Most recent regional data available).

section at the end of this document). Some small-scale wetlands, such as vernal pools, that are not included on the NWI map could also occur near planned transportation projects. Lane additions achieved through re-striping would have significantly less or no impact compared to lane additions and new roadways. At the regional level, the area of wetlands adjacent to 2004 RTP projects provides a good measure of the potential direct impacts.

Additional riparian habitat and wetlands would likely be impacted by the planned 275 miles of Maglev projects and the associated stations and maintenance buildings, arterial, and goods movement enhancement projects. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width, and arterial projects would involve the construction of 3,300 lane miles, though some of these lane miles may be achieved through re-striping and would not consume additional land. The alignments of these projects are not developed to the point that analysis of the impacts to these resources can be estimated directly. It is expected that the impacts due to Maglev, arterials, and the goods movement enhancement projects would contribute to the overall significant impact. Site specific analyses would be necessary once the alignments for these projects are developed.

Due to these potential results, the 2004 RTP would substantially affect riparian and wetland habitat. This impact would be **significant**.

Mitigation Measures

MM 3.7-6a: Construction through or adjacent to wetlands or riparian areas shall be avoided where feasible through route-planning.

MM 3.7-6b: Each transportation project shall avoid removal of wetland or riparian vegetation. Specific vegetation that is not to be removed shall be so marked during construction. Riparian vegetation removal shall be minimized.

MM 3.7-6c: Each transportation project shall replace any disturbed wetland, riparian or aquatic habitat, either on-site or at a suitable off-site location at ratios to ensure no net loss.

MM 3.7-6d: When individual projects include unavoidable losses of riparian or aquatic habitat, adjacent or nearby riparian or aquatic habitat shall be enhanced (e.g. through removal of non-native invasive wetland species and replacement with more ecologically valuable native species).

Significance After Mitigation

The impact to wetlands and riparian areas would remain **significant.**

Impact 3.7-7: The 2004 RTP would potentially increase siltation of streams and other water resources from exposures of erodible soils during construction activities.

Excessive siltation can significantly degrade habitat for fish and other aquatic organisms. Heavy sediment deposition can bury slow-moving or sessile bottom-dwelling organisms, fish eggs and larval forms of many aquatic organisms. These losses are not only of direct concern, but also represent a loss of food sources for larger fishes and other organisms, such as birds and mammals, that are not directly affected by sediments. Increased sediment can also decrease light penetration for aquatic plant production and increase water temperature from greater insulation. Higher water temperatures can affect aquatic organisms through direct stress of temperature-sensitive organisms (e.g., steelhead require cold water streams), and by increasing nitrate productivity which can exacerbate eutrophication if the sediments contain or are accompanied by excessive nutrients (i.e., algal blooms).

The degree of this impact would depend on several factors including the following:

- *Length of occurrence.* The longer the period of sedimentation, the greater the potential for significance.
- *Timing of occurrence.* The effect would be of greater significance during particularly sensitive times of year, such as during fish spawning seasons when the eggs and larvae which are particularly sensitive to siltation would be present; and,
- *Significance of Resource.* The effect would be of greater significance where a special status species might be affected, such as near a steelhead spawning stream.

This impact would be significant.

Mitigation Measures

MM 3.7-7a: Individual projects near water resources shall implement Best Management Practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs

include encouraging growth of vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport. A more detailed description of BMPs is provided in Section 3.12 Water Resources.

MM 3.7-7b: Individual projects shall schedule construction activities to avoid sensitive times for biological resources (e.g. steelhead spawning periods during the winter and spring) and to avoid the rainy season when erosion and sediment transport is increased.

Significance After Mitigation

Full implementation of each of these mitigation measures would not avoid the siltation impacts. The impact remains **significant**.

Impact 3.7-8: Implementation of the 2004 RTP would not conflict with any provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan (NCCP).

Planned projects in Riverside County are included as "Covered Activities" in the adopted Riverside County Multiple Species Habitat Conservation Plan. The adopted Natural Community Conservation Plans in Orange County are not in conflict with any of the projects included in the 2004 RTP, including the extension of SR-241 which is accounted for in the Southern Orange County NCCP conceptual reserve design alternatives (not yet adopted). The impact is less than significant.

Mitigation Measures

The 2004 RTP is not in conflict with any adopted Habitat Conservation Plan or Natural Communities Conservation Plan. No mitigation measures are necessary.

Significance After Mitigation

The impact **is less than significant.**

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization.

The 2004 RTP's influence on growth potentially contributes to following regional cumulatively considerable impacts (as described in Impacts 3.7-1 through 3.7-7 above):

evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of energy impacts compares existing conditions to the expected future energy consumption with the Plan, as required in CEQA Guidelines Section 15126.2(a). Criteria below were applied to compare current energy usage to expected future (2030) Plan conditions.

SIGNIFICANCE CRITERIA

A *significant impact* is defined as "a substantial or potentially substantial, adverse change in the environment" (Public Resources Code §21068). The proposed Plan would have a significant impact if implementation would potentially:

- Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types between the current conditions and 2030;
- Use substantial amounts of electricity and natural gas, thereby requiring the construction of new facilities and sources of energy or major improvements to local infrastructure;
- Cause a cumulatively considerable increase in energy consumption and associated environmental effects; or
- Cause the use of large amounts of electricity and natural gas in a wasteful manner.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect the use of energy resources in the SCAG region. The analysis of these impacts is at the regional level and is therefore by its nature an analysis of cumulative impacts. Three main areas of impact have been identified: energy demands for construction and expansion of the regional transportation system; energy demands for operation of the regional transportation system as of 2030; and the cumulative impacts of growing energy demand associated with implementation of the 2004 RTP.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.11-1: The implementation of the 2004 RTP is likely to use electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the construction and expansion of the regional transportation system. This would be a less-than-significant impact.

Construction of the new elements of the regional transportation system included in the 2004 RTP will likely involve the use of diesel-powered heavy equipment, portable diesel generators, and other battery-operated support equipment, as well as electricity from the existing grid. There would be an irreversible impact from the consumption of diesel fuel (and other fuels) related to these construction activities. However, the 2004 RTP does not contemplate an increase in the amount of regional transportation system construction beyond current, ongoing levels of transportation system construction. Thus, it is unlikely that the energy demands of construction of the new elements of the regional transportation system would create a noticeable impact to regional energy systems. Therefore, this construction impact would be less than significant.

Mitigation Measures

None.

Significance After Mitigation

The impact is less than significant.

Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030. This would be a significant impact.

Operation of the transportation system as described in the 2004 RTP would involve a substantial increase in the use of petroleum fuels between the current conditions and 2030. Table 3.11-3 summarizes the expected increases in fuel usage, as predicted by SCAG's transportation and air quality model, between 2000 and 2030 with the investments in the RTP and without (the No Project Alternative).

Table 3.11-3. Projected SCAG Region Transportation Fuel Consumption (thousand gallons per day)

Alternative	Gasoline	Percent Increase over Base Year 2000	Diesel	Percent Increase over Base Year 2000	Total	Percent Increase over Base Year 2000
Base Year 2000	19,285.06	--	3,404.59	--	22,689.65	--
2030 No Project	25,038.86	32%	6,397.25	92%	31,436.11	41%
2030 with 2004 RTP	23,354.77	23%	6,574.61	97%	29,929.38	34%

Source: SCAG EMFAC/BURDEN Analysis, 2003

If world fuel supplies drop and prices increase dramatically, the cost of owning and maintaining a conventional vehicle could also increase. To help reduce the possible effects of this situation,

greater use of alternative fuels, public transit, and non-motorized transportation options must be encouraged. The mitigation measures listed below would help to further reduce petroleum and diesel demand in the SCAG region.

In addition to increased use of petroleum fuels, projects in the 2004 RTP would be expected to consume natural gas and electricity. Street lighting for new highways and arterials and nighttime lighting for rail projects would consume electricity. New transit vehicles and transit stations for Maglev, Metrolink, light rail and rapid bus would require electricity and natural gas during project operation. In response to air quality concerns, it is likely that in the future more buses would use natural gas instead of petroleum-based fuels for daily operations. The implementation of mitigation measures identified below would reduce the significance of these impacts.

Maglev would also use electricity for operation. Maglev trains are powered by electricity and elevated electromagnetically along a track. According to the Maglev environmental assessment performed in March 2000, power requirements would vary depending on the number of operating trains, their time of operation, their operating speed, number of passengers per train, and several other factors.[24] For a single train, energy consumption is anticipated to be approximately 2,412 million Btu on a single day with an annual consumption of 745,300 million Btu. The Maglev stations are assumed to consume approximately 10% of what a single train would consume. Therefore, one train and one station are anticipated to consume approximately 2,653 million Btu in a day and 819,832 million Btu annually.[25]

Mitigation Measures

In addition to the mitigation measures specified below, mitigation measures for the impacts of transportation system usage would serve to mitigate the impacts of growing transportation energy demand. In particular, Mitigation Measures **MM 3.3-1a, MM 3.4-1a and MM 3.4-1b** would contribute to energy impact mitigation.

MM 3.11-2a: Project implementation agencies shall review energy impacts as part of project-specific environmental review as required by CEQA. For any identified impacts, appropriate mitigation measures should be identified. The project implementation agency or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures.

MM 3.11-2b: For any project anticipated to require substantial electrical usage, the project implementation agency shall submit projected electricity and natural gas demand calculations to the local electricity or natural gas provider, respectively, for its analysis. Any infrastructure improvements necessary for project construction shall be completed according to the specifications of the energy provider.

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24 Parsons, (2000, March 1), *Environmental Assessment for Maglev*.

25 *Ibid.*

MM 3.11-2c: Transit providers shall, as feasible, assure that designers of new transit stations incorporate solar panels in roofing and tap other renewable energy sources to offset new demand on conventional power sources.

MM 3.11-2d: SCAG shall encourage state and federal lawmakers and regulatory agencies to pursue the design of programs to either require or incentivize the expanded availability and use of alternative-fuel vehicles to reduce the impact of shifts in petroleum fuel supply and price.

Significance After Mitigation

The regional increase in transportation-related energy demand as a result of implementing the 2004 RTP would remain a **significant** impact, even with the above mitigation.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

The 2030 transportation model includes the population, households, and employment projected for 2030, and therefore the largest demand on the transportation system expected during the lifetime of the 2004 RTP. In accounting for the effects of regional population growth, the model output provides a regional, long-term and cumulative level of analysis for the impacts of the 2004 RTP on transportation resources. **Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP, together with the increased mobility provided by the 2004 RTP, would contribute to the significant impacts described in impact 3.11-2 above.**

In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following cumulative impact:

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030. This would be a significant impact.

Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would entail substantially greater use of energy resources in 2030 than in 2000 for purposes indirectly related to transportation, such as housing and employment. For example, the estimated increase in residential energy consumption is projected to be comparable in magnitude to the overall increase in regional population. It is beyond the scope of this analysis to project how this increased energy demand will be met, but public and private energy providers should continue their current long-range planning processes to assure that there is no shortfall. A variety of energy sources are available, and recent state actions (see

Regulatory Setting) should help to meet the growth in energy demand while minimizing associated environmental impact and reducing dependence on fossil fuels. Mitigation Measures **MM 3.11-2a through MM 3.11-2d** will help to mitigate the cumulative impacts on energy consumption related to the 2004 RTP in addition to the following measure:

MM 3.11-3a: SCAG shall continue to work with local jurisdictions and energy providers, through its Energy and Environment Committee and other means, to encourage regional-scale planning for improved energy management. Future impacts to energy shall be minimized through cooperative planning, and information sharing within the SCAG region. This cooperative planning shall occur during the update of the Energy chapter of SCAG's *RCPG*.

Significance After Mitigation

Even with mitigation, this cumulative impact can be expected to remain **significant.**

Comparison with the No Project

In the No Project Alternative, the regional population is projected to be the same as the Plan Alternative, but no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

The No Project Alternative would result in the construction of only about 1,500 new lane miles, compared with over 6,700 new lane miles in the Plan Alternative. As shown in Table 3.11-3, the total projected use of transportation fuels would increase in the SCAG region even more in 2030 under the No Project conditions than under the Plan Alternative (an increase of 41% for the No Project vs. 34% for the Plan). This difference would result from the additional travel necessary without the Plan improvements to the regional transportation system. Thus, the No Project Alternative would have an even greater significant impact on regional transportation energy usage (Impact 3.11-2) than would the Plan Alternative. The No Project Alternative could be expected to have a smaller, though still less-than-significant, impact on energy needs for construction than the Plan Alternative since fewer new projects would be built.

Cumulative Impacts

Overall transportation energy usage is projected to be greater under the No Project Alternative than under the Plan Alternative. However, the analysis of residential growth distributions indicates that under the No Project, total residential energy usage would be slightly lower than under the Plan because there would be fewer total households under the No Project Alternative. In total, it is likely that given the region's projected growth, the increase in total regional energy usage under the No Project scenario would still be cumulatively considerable and therefore significant.

- Substantially degrade water quality compared to the existing conditions;
- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;
- Substantially alter the existing drainage patterns, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Substantially alter the existing drainage patterns, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation;
- Generate a substantial amount of wastewater that exceeds the region's available infrastructure's capacity to handle and dispose of the wastewater;
- Generate a substantial increase in the amount of potable water demand that exceeds the region's existing available supply and/or infrastructure capacity to provide water service; or;
- Result in the need to construct new water supply infrastructure.

IMPACTS AND MITIGATION MEASURES

Project-specific studies would be necessary to determine the actual potential for significant impacts on water resources resulting from implementation of the Plan. However, the following analysis identifies some general program-level impacts. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect impacts due to the changes in population distribution expected to occur due to the 2004 RTP's transportation investments, and transportation and land use policies are also discussed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process.

Impact 3.12-1: Local surface water quality would potentially be degraded by increased roadway runoff created by RTP projects, potentially violating water quality standards associated with wastewater and stormwater permits. These projects would potentially alter the existing drainage patterns in ways that could result in substantial erosion or siltation.

Projects that increase impervious surface areas increase urban runoff, resulting in the transport of greater quantities of contaminants to receiving waters that may currently be impaired. Construction activities related to Plan projects may increase pollutant loads carried by stormwater runoff. For example, road cut erosion can increase long-term siltation in local receiving waters.

Highway runoff is a component of urban runoff contributing oil and grease, sediment, nutrients, heavy metals, and toxic substances. Table 3.12-11 lists the pollutants commonly associated with transportation.

Table 3.12-11: Pollutants Associated with Transportation

Pollutant	Source
Asbestos	Clutch plates, brake linings
Cadmium	Tire wear and insecticides
Copper	Thrust bearing, bushing, brake linings, and fungicides and insecticides
Chromium	Pavement materials, metal plating, rocker arms, crankshafts, rings, and brake linings
Cyanide	Anti-caking compounds in deicing salt
Lead	Leaded gasoline, motor oil, transmission babbitt metal bearings, tire wear
Iron	Auto body rust, steel highway structures, moving engine parts
Manganese	Moving engine parts
Nickel	Diesel fuel and gasoline, pavement materials, lubricating oil, metal plating, bushing wear, and brake linings
Nitrogen and Phosphorous	Motor oil additives, the atmosphere, fertilizer applications
Sulphates	Roadway beds, fuel and deicing salts
Zinc	Motor oil and tires
Grease and hydrocarbons	Spills and leaks of oil and n-paraffin lubricants, antifreeze, hydraulic fluids
Rubber	Tire wear
Sediment particulates	Pavement wear, the atmosphere, maintenance activities

Source: U.S. EPA, Office of Water. (1995). *Controlling Nonpoint Source Runoff Pollution from Roads, Highways and Bridges.* (EPA-841-F-95-008a). Washington D.C.

Figure 3.12-3 shows the impaired water bodies identified within the SCAG region. The SWRCB has begun the process of assigning TMDLs for each pollutant impacting currently impaired water bodies, allowing for pollution interactions that may be unique to each water body. A TMDL will provide a numerical threshold for each pollutant within each watershed to be used for regulating both point and non-point source discharges. Future methods for quantifying highway runoff will assist regulators with applying appropriate management practices in areas where highway runoff impacts impaired water bodies. The inclusion of runoff control measures in the design of future

roadway projects will improve water quality and eliminate further impairments of the local receiving waters.

As discussed above, the proposed highway, arterial and other improvement projects proposed in the 2004 RTP would increase impervious surfaces in the SCAG region. Table 3.12-12 provides the lane mile additions planned for each county. Assuming an average lane width of 12 feet, approximately 9,800 additional acres of impervious surface could be added. Some of the lane additions may be constructed using re-striping and existing right of way, reducing the contribution to increased impervious surfaces, so this estimate is conservative for these types of facilities. Rail lines and their associated structures would be expected to increase the amount of impervious surfaces as well. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The Maglev projects would add 275 elevated route miles, along with associated stations and other maintenance structures. The precise routes and the number and width of lanes are not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width.

Table 3.12-12: New Regional Lane Miles by County*

County	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG total
Freeway Lane Miles	26	404	441	272	735	62	1,940
Principal Arterial Lane Miles	0	325	487	490	421	49	1,772
Minor Arterial Lane Miles	32	332	23	431	637	40	1,495
Major Collector Lane Miles	0	124	16	344	249	4	737
HOV Lane Miles	7	270	41	189	235	3	745
Freeway Link Lane Miles	0	17	9	3	8	0	37
Total Lane Miles in each County	65	1,472	1,017	1,729	2,285	158	6,726
Average Potential Additional Impervious Acreage**	130	2,145	1,482	2,520	3,330	230	9,837

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

*This analysis does not include transit projects, MagLev projects, goods movement enhancement projects, or CETAP corridors with unknown routes, widths and lane miles.

**Assumes an average lane width of 12 feet

Additional impervious surfaces would increase the potential for highway and other runoff pollutants to enter impaired receiving waters. Each project contributing to new impervious area would be subject to a Municipal Separate Storm Sewer System (MS4) permit requiring that pollutants be removed from the runoff to the maximum extent practicable. It is expected that TMDL requirements would be included in future MS4 permits, further strengthening a permit's controls of runoff.

Most of the proposed Plan projects would occur within watersheds that have impaired water bodies. Any increase in contaminant loading in these water bodies by constituents of concern appearing in a 303(d) list and contributed by a Plan project would be considered a significant Plan impact. Table 3.12-13 lists many of the impaired water bodies located within 150 feet of freeway, transit and freight rail projects proposed in the 2004 RTP. Maglev, goods movement

Table 3.12-13: Impaired Water Bodies (303(d)) Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project in the 2004 RTP	
Impaired Water Body	**Pollutant Constituents of Concern**
Pico Kenter Drain	Ammonia, Copper, Enteric Viruses, High Coliform Count
Alamo River	Pesticides, Selenium
New River	1,2,4-trimethylbenzene, Chloroform, Dissolved Oxygen, m,p,-Xylenes, o-Xylenes, p-Cymene, p-DCB, Toluene, Trash
Coachella Valley Storm Channel	Pathogens
Imperial Valley Drains	Pesticides, Sedimentation, Selenium
Coyote Creek	Algae, Dissolved Copper, High Coliform Count, Dissolved Lead, Total Selenium, Dissolved Zinc
San Gabriel River	Algae, Dissolved Copper, High Coliform Count, Lead, Dissolved Zinc
San Jose Creek	Algae, High Coliform Count,
Walnut Creek Wash	pH, toxicity
Ballona Creek	Cadmium, ChemA, Chlordane, Dissolved Copper, DDT, Dieldrin, Enteric Viruses, High Coliform Count, Dissolved Lead, PCBs, pH, Sediment Toxicity, Selenium, Silver, Toxicity, Dissolved Zinc
Dominguez Channel	Aldrin, Ammonia, Benthic Community Effects, ChemA, Chlordane, Chromium, Copper, DDT, Dieldrin, High Coliform Count, Lead, PAHs, PCBs, Zinc
Medea Creek	Algae, High Coliform Count, Sedimentation/Siltation, Selenium, Trash
Las Virgenes Creek	High Coliform Count, Nutrients (algae), Orgnaic Enrichment/Low Dissolved Oxygen, Scum/Foam-unnatural, Sedimentation/Siltation, Selenium, Trash
Lindero Creek	Algae, High Coliform Count, Scum/Foam-unnatural, Selenium, Trash
Palo Comado Creek	High Coliform Count
Los Angeles River	Aluminum, Ammonia, Dissolved Cadmium, Dissolved Copper, High Coliform Count, Dichloroethylene/1,1-DCE, Lead, Nutrients (algae), Odors, Oil, pH, Scum/Foam-unnatural, Tetrachloroethylene/PCE, Trichloroethylene/TCE, Dissolved Zinc,
Compton Creek	Copper, High Coliform Count, Lead, pH
Rio Hondo	Copper, High Coliform Count, Lead, pH, Trash, Zinc
Arroyo Seco	Algae, High Coliform Count, Trash
Verdugo Wash	Algae, High Coliform Count, Trash
Burbank Western Channel	Algae, Ammonia, Cadmium, Odors, Scum/Foam-unnatural, Trash
Tujunga Wash	Ammonia, Copper, High Coliform Count, Odors, Scum/Foam-unnatural, Trash
Conejo Creek	Algae, Ammonia, Cadmium, ChemA, Chloride, Dacthal, DDT, Endosulfan, Nickel, Nutrients, Silver, Sulfates, TDS, Toxaphene
Ballona Creek Estuary	Chlordane, DDT, High Coliform Count, Lead, PAHs, PCBs, Sediment Toxicity, Zinc
Fox Barranca	Boron, Nitrate and Nitrite, Sulfates, Total Dissolved Solids
San Gabriel River Estuary	Abnormal Fish Histology
Cucamonga Creek	High Coliform Count
Lytle Creek	Pathogens
San Diego Creek	Chlorides, Metals, Nutrients, Pesticides, Salinity, Sedimentation, Total Dissolved Solids
Santa Ana River	Chlorides, Nutrients, Pathogens, Salinity, Total Dissolved Solids,

Source: SCAG analysis of State Water Resources Control Board. (2003). *2002 Clean Water Act Section 303(d) List of Water Quality Limited Segment.*

enhancement, and arterial projects would potentially affect impaired water bodies as well; however, the alignments for these projects are not developed, and the impacts to particular water bodies cannot be reliably identified.

Fill Materials

Several projects may impact water bodies by placing fill material within a stream channel. For example, several of the lane widening projects and new facilities could cross existing creeks or be expanded into wetland areas. These potential intrusions would be subject to permitting by the USACE and a RWQCB pursuant to Sections 404 and 401 of the CWA.

Construction

Construction activities can be a major source of sediment loading and hydrocarbon contamination in local waterways. Unprotected soil easily erodes with rain water. In addition, fueling procedures and maintenance of heavy equipment on construction sites can spill diesel and oil and grease. The SWRCB has adopted a state-wide stormwater permit for construction sites over one acre. By 2003, a new construction permit requires compliance by construction projects one acre or more in size. Prior to commencement of construction activities, a project applicant must submit a Storm Water Pollution Prevention Plan (SWPPP) to the SWRCB that identifies the BMPs that will be used in the planned project construction. The applicant must receive approval of the SWPPP and submit a Notice of Intent prior to initiating construction. Each individual project in the 2004 RTP is expected to adopt BMPs appropriate to local conditions and to the proposed construction techniques that will reduce pollution runoff.

The proposed Plan's new roadway projects would create new impervious areas. Without mitigation, the runoff from these new impervious areas would contribute to local water impairments by degrading the water quality of the receiving waters, both in the short term (during project construction) and in the long term (during the project's operation). This would be a significant impact.

Mitigation Measures

In addition to **MM 3.7-7a** and **MM 3.9-2a**, the following mitigation measures are recommended:

MM 3.12-1a: Transportation improvements shall comply with federal, state, and local regulations regarding stormwater management. State-owned highways and other transportation facilities are subject to compliance with a statewide stormwater permit issued to Caltrans.

MM 3.12-1b: Project implementation agencies shall ensure that new facilities include water quality control features such as drainage channels, detention basins, and vegetated buffers to prevent pollution of adjacent water resources by polluted runoff. Wherever feasible, detention basins shall be equipped with oil and grease traps and other appropriate, effective and well maintained control measures.

MM 3.12-1c: Project implementation agencies shall ensure that operational best management practices for street cleaning, litter control, and catch basin cleaning are implemented to prevent water quality degradation.

MM 3.12-1d: SWPPPs shall be submitted to the SWRCB when proposed transportation improvement projects require construction activities. In these activities BMPs shall be followed to manage site erosion and spill control.

MM 3.12-1e: Projects requiring the discharge of dredged or fill materials into U.S. waters, including wetlands, shall comply with sections 404 and 401 of the CWA including the requirement to obtain a permit from the U.SACE and the governing RWQCB.

MM 3.12-1f: Long-term sediment control shall include an erosion control and revegetation program designed to allow reestablishment of native vegetation on slopes and undeveloped areas.

MM 3.12-1g: Drainage of roadway runoff should, wherever possible, be designed to run through vegetated median strips, contoured to provide adequate storage capacity and to provide overland flow, detention and infiltration before it reaches culverts. Detention basins and ponds, aside from controlling runoff rates, can also remove particulate pollutants through settling.

Significance After Mitigation

The mitigation measures would not fully mitigate water quality degradation, violation of water quality standards, or prevent erosion or siltation. The impact remains **significant.**

Impact 3.12-2: Increased impervious surfaces due to transportation projects would reduce groundwater infiltration. The proposed 2004 RTP would include additional impervious surfaces installed through new roadway projects. Table 3.12-12 provides information on the lane mile additions expected in each county. With the implementation of the 2004 RTP, approximately 6,700 new lane miles would be added to the region. These additions would include new facilities, additional right-of-way on existing facilities and/or re-striping of existing facilities. Conservatively, each lane addition was assumed to have an average width of 12 feet. The area of additional impervious surface has been calculated and appears in Table 3.12-12. Rail projects involving construction of new rail lines, new stations, and upgrades to existing stations are not included in this calculation. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The route alignments and the number and width of lanes are not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Where these projects involve installation of additional impervious surfaces, they would potentially have adverse impacts on groundwater infiltration.

development, restoration and preservation of the natural and beneficial floodplain values, and maintenance of consistency with the standards and criteria of the National Flood Insurance Program.

MM 3.12-3e: Improvement projects on existing facilities shall include upgrades to stormwater drainage facilities to accommodate any increased runoff volumes. These upgrades may include the construction of detention basins or structures that will delay peak flows and reduce flow velocities. System designs shall be completed to eliminate increases in peak flow rates from current levels.

Significance After Mitigation

After implementation of the mitigation measures, the 2004 RTP projects would regionally have a **less than significant** impact.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

IMPACTS AND MITIGATION MEASURES

Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.

The growth projection associated with the 2004 RTP would substantially increase the amount of urbanized land in the SCAG region. The amount of new urbanized acreage (consuming previously vacant land) would be on the order of several hundred thousands of acres. Pollutant loading in surface and groundwater correlates closely with land use patterns. Suspended sediments, oxygen-demanding substances, and oil and grease would constitute a substantial part of these pollutant loads. Total nitrogen and total phosphorous would increase less than these other pollutants, but would have the potential for influencing algal growth, reducing dissolved oxygen, and affecting aquatic species abundance and composition.[27]

Mitigation Measures

Mitigation Measures 3.12-1a through 3.12-1g shall be applied to all urban development projects, as feasible, in addition to the following measure.

[27] Keller, Arturo A. and Yi Zheng. (2003). Personal communication. University of California. Santa Barbara, CA.

MM 3.12-4a: SCAG shall continue to work with local jurisdictions and water quality agencies, through its Water Policy Task Force and other means, to encourage regional-scale planning for improved water quality management and pollution prevention. Future impacts to water quality shall be avoided through cooperative planning, information sharing, and comprehensive pollution control measure development within the SCAG region. This cooperative planning shall occur during the update of the Water Resources and Water Quality chapters of SCAG's *RCPG* and through SCAG's Water Policy Task Force. This task force offers an opportunity for local jurisdictions and water agencies to share information and strategies to plan for water quality in the region.

Significance After Mitigation

The urban development expected by 2030 would create adverse water quality and waste discharge conditions and/or unfavorably alter existing drainage patterns in a manner that would result in substantial erosion or siltation. The 2004 RTP's influence on growth distribution is a cumulatively considerable contribution to this **significant** impact.

Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.

The addition of 6 million people to the SCAG region would require increased urban development for housing, employment centers, and other services. The amount of new urbanized acreage (consuming previously vacant land) would be on the order of hundreds of thousands of acres. The enlarged impervious surfaces associated with this urban development would potentially reduce groundwater recharge.

Mitigation Measures

Mitigation Measures 3.12-2a through 3.12-2c shall be applied to all urban development projects, as feasible, in addition to the following measure.

MM 3.12-5a: SCAG shall continue to work with local jurisdictions and water agencies, through its Water Policy Task Force and other means, including the update of the Water Quality and Water Resources chapters for SCAG's *RCPG*, to encourage regional-scale planning for improved stormwater management and groundwater recharge. Future adverse impacts shall be avoided through cooperative planning, information sharing, and comprehensive implementation efforts within the SCAG region. SCAG's Water Policy Task Force offers an opportunity for local jurisdictions and water agencies to share information and strategies for improving regional performance in these efforts.

Significance After Mitigation

The urban development expected by 2030 would potentially affect stormwater infiltration and groundwater recharge. Future planning and implementation efforts may reduce the significance of this impact. **However, given current conditions, the 2004 RTP's effects on stormwater infiltration and groundwater recharge would contribute to a significant impact on regional water resources.**

Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.

The amount of new urbanized acreage (consuming previously vacant land) would be on the order of hundreds of thousands of acres. The additional urbanized acreage expected by 2030 could be located in areas with the potential for alluvial fan flooding or other flood hazards.

Mitigation Measures

Mitigation Measures 3.12-3a through 3.12-3e shall be applied to all urban development projects, as feasible.

Significance After Mitigation

Urban development expected by 2030 would potentially result in additional structures in areas with flood hazards. Future planning efforts may reduce the significance of this impact; however, to assume that all flood hazards would be avoided would be speculative. The 2004 RTP's effects on population distribution and its associated contribution to the impact of flooding hazards are **significant.**

Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacity in the region by 2030.

The proposed Plan influences population growth, resulting in an indirect and cumulative impact on wastewater treatment services.

The average wastewater generation rate in each county[28] was applied to the expected population growth in each county and compared to the remaining wastewater treatment capacity derived from the data in Table 3.12-8. Broadly assuming that wastewater capacity can be shared among the agencies in each county, it is estimated that Imperial, Riverside, and San Bernardino counties would outgrow their wastewater treatment capacity by the year 2030.

To determine the significance of the impact, wastewater treatment capacities needed in 2030 must be compared to the existing capacities only in accordance with CEQA Guidelines. (This analysis does not consider existing plans to build new facilities.)

Mitigation Measures

MM 3.12-7a: Local jurisdictions should encourage new development and industry to locate in those service areas with existing wastewater infrastructure and treatment capacity.

MM 3.12-7b: Wastewater treatment agencies are encouraged to have expansion plans, approvals and financing in place once their facilities are operating at 80 percent of capacity. Through the update to the Water Quality and Water Resources chapter of SCAG's *RCPG*, SCAG shall provide opportunities for information sharing and program development.

MM 3.12-7c: Local jurisdictions should promote reduced wastewater system demand by:

- designing wastewater systems to minimize inflow and infiltration to the extent feasible,
- reducing overall source water generation by domestic and industrial users,
- deferring development approvals for industries that generate high volumes of wastewater until wastewater agencies have expanded capacity.

Significance After Mitigation

The mitigation measures would lessen the impacts on wastewater treatment capacity in the region; however, they are not expected to prevent an imbalance between the demand for regional capacity and existing regional capacity. The 2004 RTP would make a cumulatively considerable contribution to this **significant** impact.

Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated

[28] Southern California Association of Governments. (1994). *Regional Transportation Plan and Chapters of the Regional Comprehensive Plan Final Environmental Impact Report.* Los Angeles, CA.

Infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.

The volume of water and water delivery infrastructure currently available within the SCAG region would not be sufficient to meet the future multiple dry year or average year demand at 2030. As population increases in the SCAG region, the demand for municipal water will increase. Increased commercial and industrial land uses will also increase water demand. Meeting future water demand is the responsibility of local and regional water agencies. Water supplies are either produced locally from groundwater and surface water sources or are imported by the Los Angeles Aqueduct, the California Aqueduct, the Colorado River Aqueduct, the All American Canal, or the Coachella Canal. Other means of providing water without increasing imported supplies include reclamation and recycling, ocean desalination, conservation, water transfers, and groundwater banking.

The Urban Water Management Plan Act of 1990 requires that local water agencies prepare plans showing projected water supplies and demands for average years and multiple dry years. These plans are updated every five years. Some water agencies project average year water deficits by the year 2020 if current management and supply efforts are not augmented. Other agencies project no deficits owing to the development of new supplies. Over 90 percent of the projected population in the SCAG region in 2030 is within the Metropolitan service area.

Supplying the water necessary to meet future demand and/or minimizing that demand would mitigate the effect to less than significant levels. Water districts provide water for the growth planned and authorized by the appropriate land use authority. Nonetheless, since these measures are not yet in place, and some areas currently are reporting future deficits, the impact remains significant.

Each water district develops its own policy for determining its planning horizon and for acquiring and building water facilities. Numerous measures that would mitigate water shortages are currently being implemented, including required planning efforts, water availability assurances to new development, water transfers, groundwater banking projects, recycling projects, desalination projects, conservation programs and tiered water rates. The California State Legislature recently approved two laws (SB 610 and SB 221) that require future development to obtain written assurances from water agencies of reliable future water supplies for a large-scale project prior to project approval. Numerous regional planning efforts are underway to avoid water shortages in the future.

MWD prepared the Report on Metropolitan Water Supplies in March 2003 that updated its 2000 Regional Urban Water Management Plan and provided regional assurances SB 610 and SB 221 requirements will be met. The 2003 report identified existing and projected water supplies for the service area including supplies under development and concluded that the agency had sufficient, reliable water supplies to meet water demand in its service area through the year 2025.

Mitigation Measures

MM 3.12-8a: SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to evaluate future water demands and establish the necessary supply and infrastructure, as documented in their Urban Water Management Plans.

MM 3.12-8b: SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to develop supplies to meet projected demand in 2030.

MM 3.12-8c: SCAG shall facilitate information-sharing about the kind of regional coordination throughout California and the Colorado River Basin that develops and supports sustainable growth policies.

MM 3.12-8d: Future impacts to water supply shall be minimized through cooperation, information sharing, and program development during the update of the Water Resources chapter of SCAG's *RCPG* and through SCAG's Water Policy Task Force. This task force presents an opportunity for local jurisdictions and water agencies to share information and strategies (such as those listed above) about their on-going water supply planning efforts, including the following types of actions:

- Minimize impacts to water supply by developing incentives, education and policies to further encourage water conservation and thereby reduce demand.
- Involve the region's water supply agencies in planning efforts in order to make water resource information, such as water supply and water quality, location of recharge areas and groundwater, and other useful information available to local jurisdictions for use in their land use planning and decisions.
- Provide, as appropriate, legislative support and advocacy of regional water conservation, supply and water quality projects.
- Promote water-efficient land use development.

The Water Policy Task Force and the update to SCAG's *RCPG* present an opportunity for SCAG to partner with the region's water agencies in outreach to local government on important water supply issues. SCAG provides a unique opportunity to increase communication between land use and water planners. The goals of the Task Force would not be to duplicate existing efforts of the water agencies.

Significance After Mitigation

Full implementation of these water supply mitigation measures would provide an adequate and reliable future water supply and infrastructure. The various water agencies update their Urban Water Management Plans to ensure that planning for the water needs of future growth is accommodated in a timely manner. However, CEQA requires the determination of significance to be based on a comparison between *existing* water supply and infrastructure and expected future demand. Although ensuring a reliable water supply for urban and other water demands in 2030 is

probable, the current, existing water supply and infrastructure would not be able to support the population in the Plan in 2030. Through its influence on regional growth, the 2004 RTP would make a cumulatively considerable contribution to this **significant** impact.

Comparison with the No Project Alternative

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments. The number of households and the employment are less than the Plan due to the absence of the economic benefits conferred by the Plan.

Direct Impacts

With fewer transportation projects than the 2004 RTP, the direct effects of the No Project Alternative on water resources would be reduced when compared with the 2004 RTP. As the currently planned projects included in the No Project alternative (those transportation projects that would occur regardless of the 2004 RTP adoption) are built, the impacts owing to increased roadway runoff and drainage patterns would remain significant. The impacts to groundwater infiltration caused by the increased impervious surfaces of roadway projects, and to increased flooding hazards would be less than significant (with the mitigation measures described for impacts 3.12-2 through 3.12-3). The proposed Plan's transportation project related impacts to water quality, groundwater recharge, and flooding would be greater than the No Project Alternative.

Cumulative Impacts

Cumulatively, both the Plan and the No Project would potentially impact water quality, groundwater recharge, flood hazards, wastewater treatment capacity, and water supply. In the No Project alternative, new development would occur to accommodate the same increase in population as projected for the proposed Plan. To reduce land consumption, the Plan includes land use measures that encourage centers-based development, redevelopment and infill where feasible. These measures are absent in the No Project alternative. However, the Plan also includes additional households and jobs associated with the economic benefits of the Plan. Since these are offsetting tendencies, it is expected that the No Project alternative would consume approximately the same acreage of vacant land as the Plan.

Because of the similar degree of urbanization and vacant land consumption, the cumulative impacts associated with urban development would be similar between the Plan and the No Project alternative.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the No Project alternative and the Plan. Because the total population in each county is constant between the No Project alternative and the Plan, Imperial, Los Angeles, Riverside and San Bernardino counties would be at or above their existing wastewater treatment capacities. Though it is expected that new treatment

capacities will be added as future demand requires, the relation between future growth and current treatment capacities in the No Project alternative and in the Plan creates a finding of significant impact on wastewater services at this time.

The No Project alternative's cumulative impacts to water quality due to urban development patterns would be similar to those associated with the 2004 RTP.

The No Project Alternative would distribute growth among water supply agencies similarly to the Plan (see Table 3.12-5). The *existing* water supply and infrastructure would not be able to support the population in the No Project alternative in 2030. The proposed Plan's impacts on water supply would be approximately the same as the No Project alternative.

Exhibit G

From: angie@dinghydocks.com
Sent: Wednesday, August 29, 2007 9:34 AM
To: 'Duane Cook'
Cc: garry@coastkeeper.org
Subject: ***SPAM*** News Release-Stormwater Mgmt. Firm Re-launches as Hydrophix

News Release

CONTACT: Angie Bera
310-701-6546

'OR IMMEDIATE RELEASE
\ugust 22, 2007

Stormwater Pollution Management Company Grows into Full-Service Firm

Hydrophix, formally AbTech Pacific, becomes full-service stormwater compliance consulting firm

RIVERSIDE, Calif. – As the weather heats up and beach season flourishes, a newly expanded company delivering innovative solutions for stormwater pollution and erosion control has re-launched to help make local waterways cleaner. Hydrophix is a full-service company providing the total range of stormwater compliance consulting services to commercial companies, industries, and municipalities throughout the Western United States. The company offers everything from products that capture and treat stormwater runoff to full-service engineering and technical support.

Hydrophix was formerly known as AbTech Pacific, a respected regional company that began as the West Coast distributor of AbTech Industries' Smart Sponge® stormwater filters and skimmers.

"Over the past year we have grown rapidly, evolved and diversified, outgrowing our identity as simply AbTech Pacific," explained Duane Cook, Executive Vice President and Chief Operating Officer of Hydrophix. "We decided that our original name no longer encompassed the broad range of products and services we are able to offer our clients. We needed a new name and identity to better communicate who we are and what we stand for. The name Hydrophix conveys our commitment to providing innovative solutions for clean water as well as our desire to help our clients contribute to a cleaner environment for all of us."

Hydrophix approaches stormwater management as a "treatment train" of best management practices. The first stop on this treatment train is to prevent contaminants from entering into the stormwater system. To do this, Hydrophix offers erosion control services and exclusion devices, which are deployed at the entrance of storm drains to keep sediment and debris street-side for street sweeper collection. Once the water enters the storm drains, Hydrophix offers filters and vault systems which not only filter debris, but also contain the Smart Sponge® technology to absorb hydrocarbons and bacteria

thereby preventing these contaminants from making it to the end of the pipe and being discharged into waterways.

To learn more about Hydrophix, please visit our developing website at www.Hydrophix.com.

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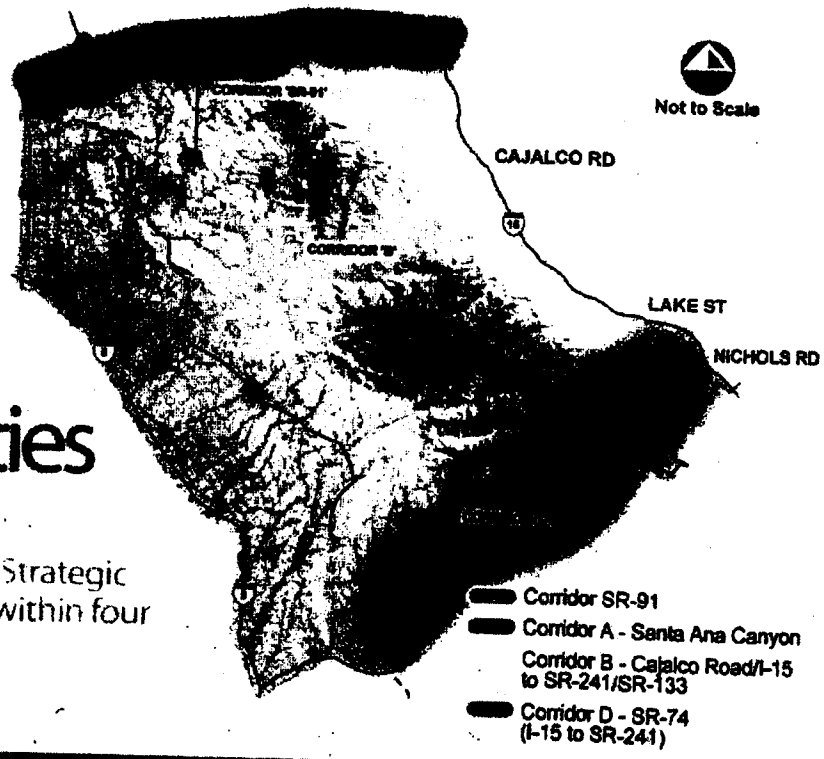
Exhibit H

The Connection

Riverside County Orange County Mag

Improving Travel Between Riverside and Orange Counties



Alternative and Three Strategic Alternatives are being evaluated within four corridors.

Background

www.octa.net/91mis
www.rcocconnection.info

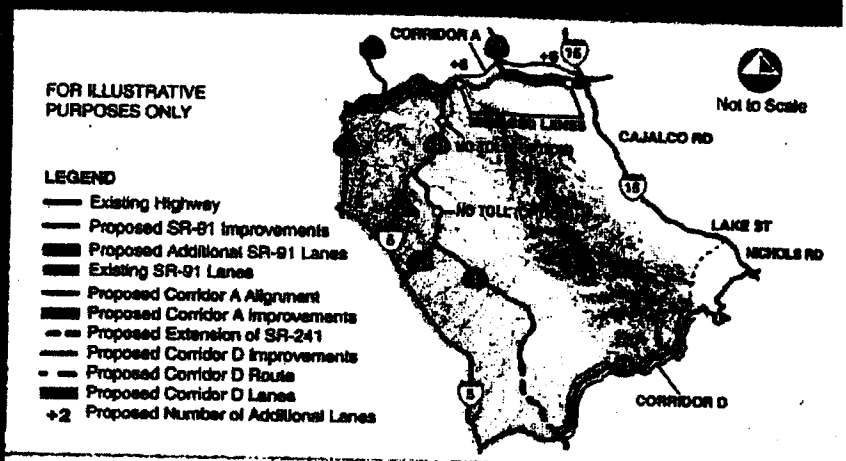
Four Alternatives Being Considered

The Next [illegible]

- Assumes widening the Riverside Freeway (SR-91) to add one lane in each direction from the Riverside County – Orange County line to the Corona Freeway (I-15)
- Adds one eastbound auxiliary lane from the 241 toll road to SR-71
- Extends the 241 toll road (Foothill South) to I-5
- Includes the potential implementation of Maglev* super speed [illegible] (*Maglev or Magnetic Levitation is a fixed guideway system powered by an electrically charged magnetic field. This group is currently under review separately from this study and would serve California and Nevada.)

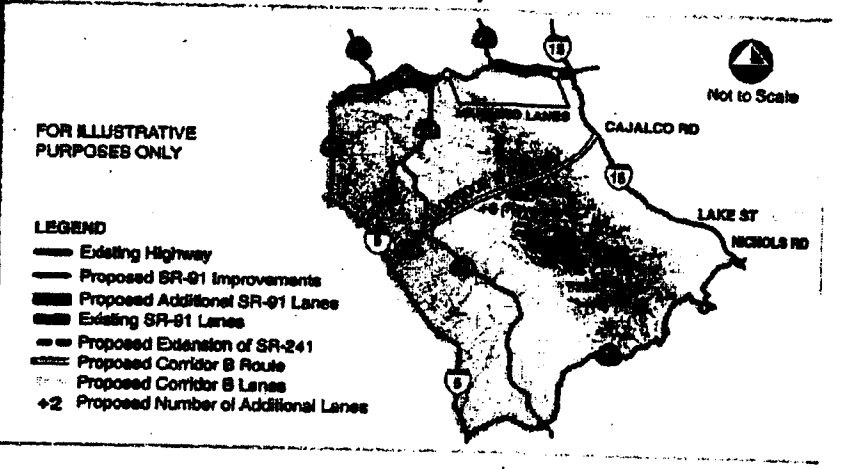
[illegible]

- Widens the Riverside Freeway (SR-91) to add one [illegible] two lanes in each direction between the Costa Mesa Freeway (SR-55) and the Corona Freeway (I-15)
- Improves Ortega Highway (SR-74) by making it a four-lane road (Corridor D)
- Builds a new six lane facility on the existing SR-91 right of way, if possible or just north of the SR-91 [illegible] from the Eastern toll road (SR-241 toll [illegible] Corridor A)
- Maximizes the transit system
- Possible managed lane changes for SR-91 [illegible] reversible, toll or carpool lanes.



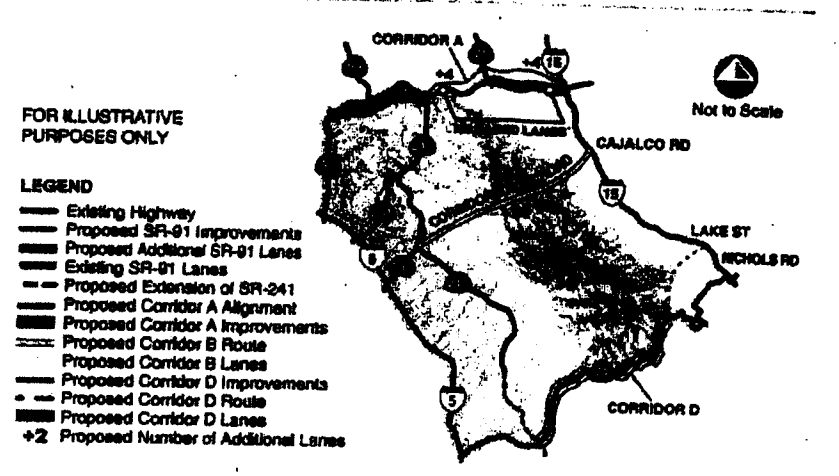
[illegible]

- Widens the Riverside Freeway (SR-91) to add one [illegible] two lanes in each direction between the Costa Mesa Freeway (SR-55) and the Corona Freeway (I-15)
- Builds a new six lane facility [illegible] reversible lanes; major portions in tunnels [illegible] intersection of the SR-241 toll road with the [illegible] toll road to I-15 in the vicinity of Cajalco Road [illegible]
- Maximizes the transit system
- Possible managed lane changes for SR-91



[illegible]

- Widens the Riverside Freeway (SR-91) to add [illegible] lanes in each direction between the [illegible] (SR-55) and the Corona Freeway (I-15)
- Builds a new four lane facility on the [illegible] of way, if possible or just north of the SR-91 [illegible] Eastern toll road (SR-241 toll [illegible]
- Builds a new four lane facility with toll lanes in the portions in tunnels from the intersection of the SR-241 toll road with the SR-241 toll road to I-15 in the vicinity of Cajalco Road (Corridor B)
- Improves Ortega Highway (SR-74) by making it a four-lane road (Corridor D)
- Maximizes the transit system
- Possible managed lane changes for SR-91 or Corridor A [illegible]

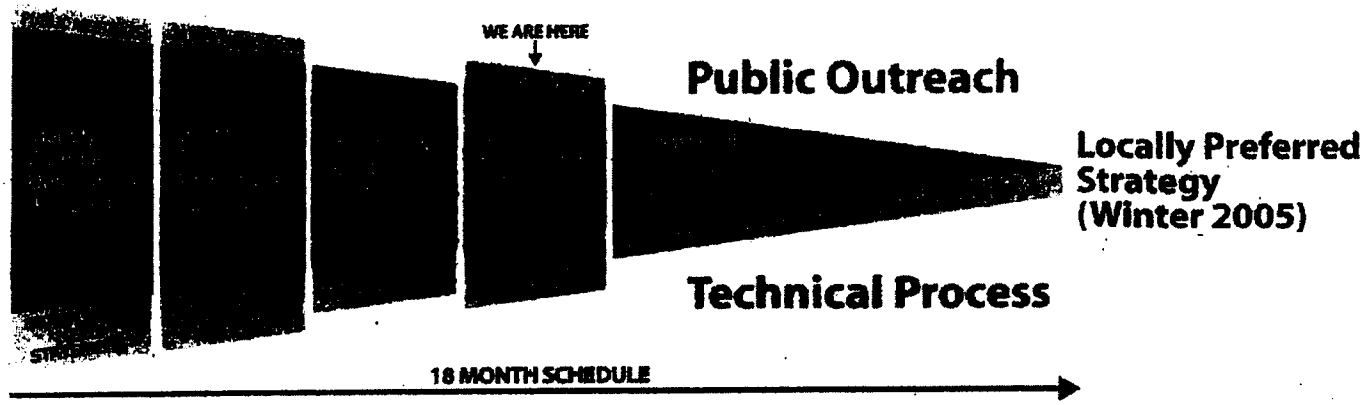


PLEASE NOTE: The strategic alternatives described above are conceptual in nature and will be refined, altered, and/or eliminated as the planning process moves forward.

Next Steps in the Major Investment Study (MIS)

After each strategic alternative has been analyzed in more detail, a strategy with "a program of projects" will be recommended for public review. The end result will be a recommended "Locally Preferred Strategy" (LPS) of improvements designed to enhance travel between Orange and Riverside counties. In December of this year, the OCTA and RCTC Board of Directors will evaluate the recommended LPS and vote on whether to approve the LPS. If approved by both Boards, the LPS will then move to a project-level environmental review process such as preparation of a Draft Environmental Impact Report/Statement on selected improvements.

The figure below provides information on the numerous opportunities for public participation throughout the MIS process.



Frequently Asked Questions

What is a Major Investment Study (MIS)?

A MIS is required to support decisions on significant transportation investments. The MIS identifies all reasonable alternative strategies for addressing mobility problems. The strategic alternatives are then studied further to understand their costs, benefits and potential impacts.

What is a Locally Preferred Strategy (LPS)?

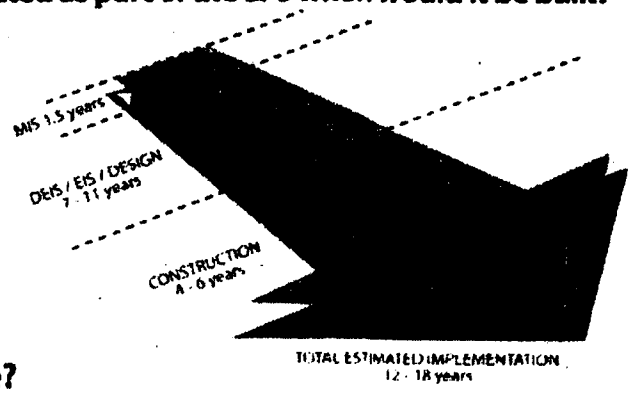
A LPS is an alternative recommended by the study team and presented to the OCTA and RCTC Boards for consideration to be moved forward. If approved by both Boards, the LPS will be looked at more closely in the next step, which is the environmental review process. This is not necessarily the strategy that will be implemented; it is simply a strategy that seems feasible enough to be considered further.

Please keep in mind that all of the alternatives are combinations of individual projects packaged into a LPS that can move forward separately through the next steps as funding becomes available.

If a new corridor such as Corridor A or Corridor B is selected as part of the LPS when would it be built?

There are many steps that need to be taken between the MIS and actual construction. The MIS is the first step in a process that can take many years to become a reality. The figure to the right illustrates the steps that need to take place before construction can begin on any new corridor. Preliminary engineering/environmental impact assessment are indicated and final design/construction are initiated after environmental documents are completed.

Further, new corridor routes could be modified slightly or completely and the project could be eliminated at any time due to funding, environmental constraints, and/or lack of public support.



What happens if OCTA and RCTC boards don't agree?

Since the LPS is a two county solution -- both agencies need to be in agreement for this to succeed. The agencies would need to work together to come up with a Locally Preferred Strategy that both can support.

The Connection

Riverside County Orange County Major Investment Study Update

We need your participation and input!

OCTA and RCTC are hosting five community meetings in October 2005 to gather feedback and comments from the public regarding the four alternatives. Due to the complexity of this study, we urge you to please join us at these meetings and take the opportunity to learn more about the alternatives, ask questions, and provide your comments to the Study team.

Community Meetings

Monday, [illegible]
5:30 to [illegible]
Canyon [illegible]

Wednesday, [illegible]
5:30 to [illegible]
Auditorium [illegible]

Wednesday, [illegible]
5:30 to [illegible]
Sala [illegible]

Thursday, October 13, 2005
6:30 to 8:30 p.m.
Lake Elsinore Cultural Center
183 North Main Street
Lake Elsinore

Thursday, October 20, 2005
6:30 to 8:30 p.m.
Corona Public Library
650 South Main Street
Corona

[illegible] house will be held from 5:30 to 6:30 p.m. followed by a presentation at 6:30 p.m.

OCTA
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Riverside County to Orange County Major Investment Study

Improving Travel in a Vital Corridor

Travel between Orange County and Riverside County has steadily increased because of affordable housing in the Inland Empire and the abundance of jobs in Orange County. The Riverside Freeway (SR-91), the key link between the counties, reached its capacity many years ago. Congestion levels are expected to get worse given the continued demand for employment in Orange County and housing in the Inland Empire.

Looking at Alternatives

The Orange County Transportation Authority (OCTA) and the Riverside County Transportation Commission (RCTC) began a study in partnership with the Transportation Corridor Agencies (TCAs) to evaluate proposed, long-term projects for improving traffic congestion in the 91 Corridor. The 18-month study, known as a Major Investment Study (MIS), examined a Transportation Systems Management (TSM) alternative, new SR-91 lanes, new toll or non-toll corridors, light and heavy rail transit, express bus service and high-speed rail. The study area is from SR-91 on the north, SR-74 on the south, I-5 and the Costa Mesa Freeway (SR-55) on the west and I-15 on the east.

Why a Study?

A study is required and fiscally prudent when looking at projects that cost taxpayers billions of dollars. The expected outcome of the study is to identify projects which are technically feasible, have public support and can be eligible for state and/or federal funding.

The Riverside County to Orange County Corridor Study, which includes a comprehensive public participation process, was divided into three major steps:

Step 1: Needs/Alternatives Identified Fall 2004. The study began in June 2004 to inform and involve local residents, communities and concerned groups and include their needs, ideas for improvements and concerns in a comprehensive technical analysis.

Step 2: Alternatives Reduced Spring/Summer 2005. Once the study team has developed a broad range of scenarios, the new information was presented to the public for additional feedback to help pare down the list to the most viable alternatives.

Step 3: Solutions Presented Fall 2005. After each alternative has been analyzed, a strategy with "a program of projects" was preselected for public review.

The end result is a "locally preferred strategy" of improvements designed to improve travel in this key corridor. The Board-approved program of projects and "locally preferred strategy" from the MIS then move to project-level environmental processes.

What's Next?

On December 12, 2005, the Orange County Transportation Authority Board of Directors voted unanimously to approve a comprehensive strategy for improving traffic flow between Orange and Riverside counties. The improvement plan approved by the Board of Directors marks the culmination of the 18-month Major Investment Study (MIS). The "locally preferred strategy" approved by OCTA, and ratified by RCTC, will act as a roadmap for future transportation improvements. Please see reverse for a list of projects recommended for further study and consideration.

For more information contact Tamara Warren, OCTA MIS Outreach Manager at (714) 560-5590, or John Standiford, RCTC Outreach Manager at (951) 787-7969.

Transportation Authority 550 S. Main Street, P.O. Box 14184, Orange, CA 92863-1584 • (714) 560-6282 • [illegible] 04/05/06

OCTA Approves Strategy for Tackling Orange-Riverside Traffic Tie-ups

The projects recommended for further study and consideration include:

- Make improvements to the Riverside Freeway (SR-91) the first priority by adding up to two new lanes in each direction, starting with improvements between the Corona Freeway (I-15) and the Foothill Toll Road (SR-241), followed by improvements between SR-241 and the Costa Mesa Freeway (SR-55)
- Work with TCA to encourage usage of the toll roads by improving the connection between SR-241 and SR-91, and by widening the Foothill/Eastern toll roads
- Continue evaluating the costs and potential impacts of adding a new four- or six-lane elevated highway parallel to SR-91 between I-15 and SR-241
- Continue studying the technical feasibility of building a new four- or six-lane highway, which could include a tunnel, between I-15 at Cajalco Road in Riverside County and the intersection of SR-241 and SR-133 in Orange County, including joint-use opportunities and potential funding options
- Balance highway improvements with new transit service, including increased Metrolink service, express bus service and continued study of Maglev high-speed rail service between Anaheim and Ontario
- Eliminate a proposal to connect a new elevated highway to SR-91 and SR-55 due to high residential right-of-way impacts that would be necessary to widen SR-55
- Eliminate further study of widening Ortega Highway (SR-74) due to high costs and environmental impacts; continue studying operational and safety upgrades
- Negotiate cooperative agreements or joint powers agreements with other agencies for future technical studies of proposed projects
- Return with an updated SR-91 Implementation Plan by June 30, 2006

Exhibit I

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Climate Action Team Report to Governor Schwarzenegger and the Legislature

CALIFORNIA

Climate

ACTION TEAM

March 2006

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1 INTRODUCTION

California has a long history of environmental leadership. Motivated by the stunning natural beauty of our coastline, inland valleys, forests and mountains, as well as by the public health and environmental challenges brought on by increasing levels of pollution, California's citizens have repeatedly called for and supported measures to protect California's environmental heritage. Our political leadership and governmental institutions have responded with a variety of initiatives that restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality. Often these California initiatives have provided a benchmark and template for further action both nationally and internationally.

This tradition of environmental leadership continues to this day. In 2005, recognizing that global warming will impose compelling and extraordinary impacts on California, the Governor signed Executive Order S-3-05 which established climate change emission reduction targets for the state and set in motion a process to ensure the targets are met. This Executive Order also recognized the importance of preparedness in that it directed the Secretary of the California Environmental Protection Agency (Cal/EPA) to lead an effort to evaluate the impacts of climate change on California and to examine adaptation measures that would best prepare the state to respond to the adverse consequences of climate change.

1.1 Organization of the Report

The report begins (Section 2) with an overview of the scientific evidence regarding climate change and its potential effects in California. Section 3 outlines the long history of previous actions that California has taken to understand and address the threat of climate change. Section 4 provides an overview of the scenario analysis that was done to evaluate the impacts of climate change on California, potential adaptation measures that can be taken to best respond to those impacts, and an economic assessment of the impacts. Section 5 presents the Climate Action Team recommendations regarding strategies the state should pursue to reduce climate change emissions.

Section 6 outlines market-based options for the state and includes a discussion of design choices that need to be further evaluated prior to adoption of a market-based program for the state. Section 7 discusses all possible emission reduction implementation options that were considered by the Climate Action Team, including market-based options. Section 8 covers a broad assessment of the economic implications of state actions to reduce climate change emissions. Section 9 looks specifically at potential impacts on minority and low-income communities. Section 10 contains the Climate Action Team's recommendations to the Governor and the Legislature.

2 CLIMATE CHANGE OVERVIEW

The Earth's climate has always evolved—the extremes of the 100,000-year ice-age cycles in both climate and climate change emissions over the last half million years are well documented. The period of the last 10,000 years has been warm and stable, and the last millennium, over which current societies have developed, has been one of the most stable climates observed. Yet, during the 20th century, we have observed a rapid change in the climate and climate change pollutants that is attributable to human activities.

These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.

It is true that levels of natural climate change pollutants have fluctuated in the past. However, there are several reasons for attributing the rise in climate change pollutants to anthropogenic, rather than natural emissions. The first indicator comes from comparing the current increase with changes that have occurred in the past.

At the end of the last ice age, the concentration of CO_2 increased by around 100 ppm (parts per million) over about 8,000 years, or approximately 1.25 ppm per century. Since the start of the industrial revolution, the rate of increase has accelerated markedly. The rate of CO_2 accumulation currently stands at around 150 ppm/century—more than 200 times faster than the background rate for the past 15,000 years.

The heat-trapping property of climate change pollutants is undisputed. Although there is uncertainty about exactly how and when the Earth's climate will respond to increasing concentrations of climate change pollutants, combining observations with climate models indicates that detectable changes are underway. There most likely are and will continue to be changes beyond global mean warming, such as changes in regional temperature extremes, precipitation, soil moisture, and sea level, all of which could have significant adverse effects on many ecological systems, as well as on human health and the economy.

This section first presents the causes and projections for climate change, then discusses climate change pollutants. It includes a definition of global warming potentials and climate change pollutants. The section concludes with a brief discussion of abrupt climate change.

2.1 Climate Change Causes and Projections

Climate change is a shift in the "average weather" that a given region experiences. This is measured by changes in the features that we associate with weather, such as temperature, wind patterns, precipitation, and storms. Global climate change means change in the climate of the Earth as a whole. The Earth's natural climate has always been, and still is, constantly changing. The

climate change we are seeing today, however, differs from previous climate change in both its rate and its magnitude.

The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Naturally occurring climate change pollutants, primarily water vapor, CO_2, CH_4, and N_2O, absorb heat radiated from the Earth's surface. As the atmosphere warms, it in turn radiates heat back to the surface to create the greenhouse effect. The Earth's surface temperature would be about 34°C (61°F) colder than it is now if it were not for the natural heat trapping effect of climate change pollutants like CO_2, CH_4, N_2O, and water vapor.

Human activities are exerting a major and growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying the land surface. The concentration of CO_2 in the atmosphere has risen about 30 percent since the late 1800s (National Assessment Synthesis Team [NAST], 2001). This increase has resulted from the burning of coal, oil, and natural gas, and the destruction of forests around the world to provide space for agriculture and other human activities.

Global projections of population growth and assumptions about energy use indicate that the CO_2 concentration will continue to rise, likely reaching between two and three times its late-19th-century level by 2100. Figure 2-1 shows the atmospheric CO_2 concentration from year 1000 to year 2000 from ice core data and from direct atmospheric measurements during the past few decades. Projections of CO_2 concentrations for the period 2000 to 2100 are based on model predictions.

Figure 2-1: Past and future CO_2 atmospheric concentrations. (Source: IPCC 2001 Synthesis report)

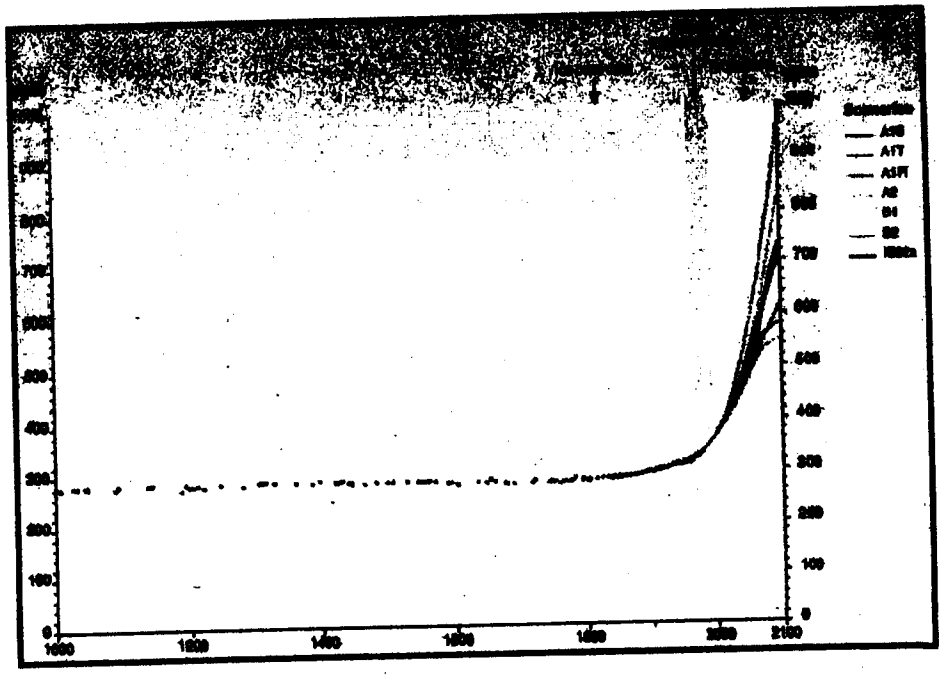
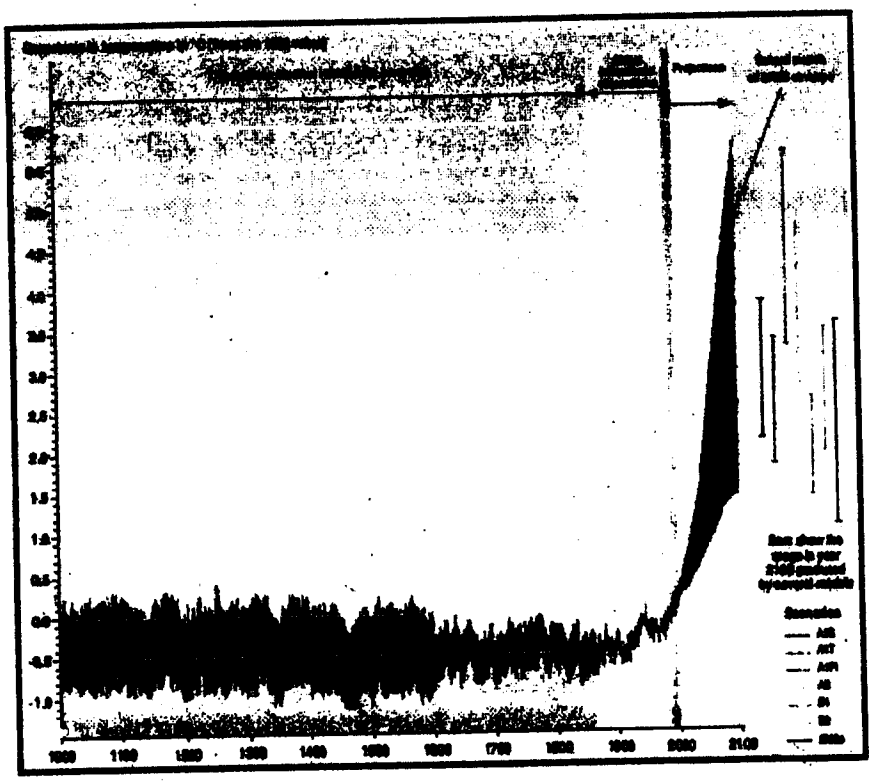


Figure 2-2 shows variations of the Earth's surface temperature for years 1000 to 2100. From year 1000 to year 1860 variations in average surface temperature of the Northern Hemisphere are reconstructed from proxy data (tree rings, corals, ice cores, and historical records). The line shows the 50-year average; the gray region, the 95 percent confidence limit in the annual data.

For the period 1860 to 2000, the figure shows variations in observations of globally and annually averaged surface temperature from the instrumental record; the line shows the decadal average. For 2000 to 2100, projections of globally averaged surface temperature are shown for several model scenarios using a global climate model.

The Third Assessment Report of the International Panel on Climate Change (IPCC, Synthesis Report, 2001) and the National Research Council of the National Academies (NRC, 2001) conclude that the global climate is changing at a rate unmatched in the past 1,000 years. The IPCC assessment cites new and stronger evidence that most of the global warming observed over the last 50 years is attributable to human activities and that anthropogenic climate change will persist for many centuries.

Figure 2-2. Variations of the Earth's surface temperature: years 1000 to 2100 (Source: IPCC 2001 Synthesis report)



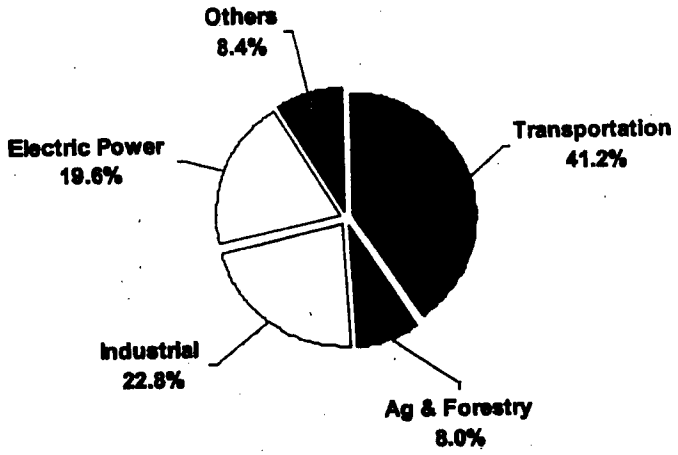
Many sources of data indicate that the Earth is warming faster than at any time in the previous 1,000 years. The global mean surface temperature has increased by 1.1° F since the 19th century (IPCC Synthesis report, 2001). The 10 warmest years of the last century all occurred within the last 15 years.

For example, 2002 and 2003 are tied as the second warmest years on record, according to a year-end review of climate data by the National Oceanic and Atmospheric Administration. Both the IPCC (2001) and the NAST (2001) reports project that warming in the 21st century will be significantly larger than in the 20th century. Scenarios examined in these assessments indicate that temperatures in the U.S. will rise by about 5° to 9°F (3° to 5°C) on average in the next 100 years.

2.2 Climate Change Emission Sources and Pollutants

As shown in Figure 2-3, fossil fuel consumption in the transportation sector was the single largest source of California's climate change emissions in 2002, with the industrial sector as the second-largest source. Electricity production, from both in-state and out-of-state sources, was the third-largest source. Agriculture, forestry, commercial, and residential activities comprised the balance of California's climate change emissions (CEC, 2005).

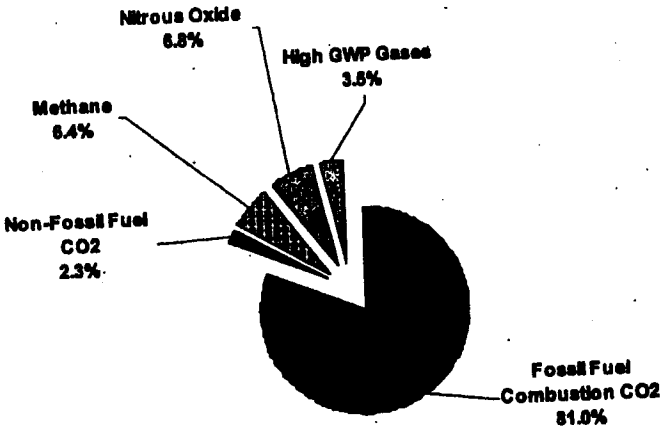
Figure 2-3: Sources of California's Climate Change Emissions, 2002 Expressed in Terms of CO2 Equivalence (adapted from CEC, 2005).



As previously indicated, human activities are altering the chemical composition of the Earth's atmosphere through the release and build-up of climate change emissions. However, climate change pollutants such as water vapor, CO2, CH4, N2O, and O3 can also be associated with natural sources. Conversely, several classes of halogenated substances that contain fluorine, chlorine, or bromine are also climate change emissions, but they are, for the most part, solely a product of industrial activities.

Figure 2-4 provides a distribution of California anthropogenic climate change pollutants by gas in 2002, expressed in terms of CO_2 equivalence. In addition, there are a number of other pollutants such as carbon monoxide, nitrogen oxides, and aerosols that have direct or indirect effects on terrestrial or solar radiation absorption. Individual climate change species are briefly discussed in the following section.

Figure 2-4: California Composition of Gross Climate Change Pollutants, 2002 Expressed in Terms of CO2 Equivalence (adapted from CEC, 2005).



Carbon Dioxide (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Increased CO_2 concentrations in the atmosphere have been primarily linked to increased combustion of fossil fuels. Fossil fuel combustion accounted for 98 percent of gross California CO_2 emissions. California's total CO_2 emissions from fossil fuel combustion in 2002 were 360 million metric tons CO_2, which accounts for approximately 7 percent of the U.S. emissions from this source. The transportation sector accounted for the largest portion of CO_2 emissions with gasoline consumption accounting for the greatest portion of emissions.

Methane (CH_4)

Methane accounted for approximately 6 percent of gross 2002 climate change emissions in California (CO_2 equivalent). Methane is produced during anaerobic decomposition of organic matter in biological systems. Decomposition occurring in landfills accounts for the majority of anthropogenic CH_4 emissions in California and in the United States as a whole. Agricultural processes such as enteric fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.

Nitrous Oxide (N_2O)

Nitrous oxide emissions accounted for nearly 7 percent of climate change emissions (CO_2 equivalent) in California in 2002. The primary sources of anthropogenic N_2O emissions in California are agricultural soil management and fossil fuel combustion in mobile sources.

Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. U.S.EPA estimates from 2003 suggest that in 2001, N_2O emissions from mobile combustion were 13 percent of U.S. N_2O emissions, while stationary combustion accounted for 3 percent.

Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF_6)

HFCs, PFCs and SF_6 accounted for about 3.5 percent of gross 2002 climate change emissions in California (CO_2 equivalent). HFCs are primarily used as substitutes for ozone-depleting substances (ODS) regulated under the Montreal Protocol. PFCs and SF_6 are generally emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

Other Radiatively Important Gases

In addition, there are a number of man-made pollutants, emitted primarily as by-products of combustion (both of fossil fuels and of biomass), that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions. These include carbon monoxide (CO), nitrogen oxides (NO_X), nonmethane volatile organic compounds (NMVOCs), and sulfur dioxide (SO_2).

These compounds, regulated in the U.S. and California pursuant to the Clean Air Act, are often referred to as "criteria pollutants." The criteria pollutants are reactive compounds, and they tend to remain in the atmosphere for a much shorter time (typically hours to months) than the previously discussed gases. As shown in Table 2-1, CO_2, N_2O, CH_4, and HFC-134a have atmospheric lifetimes ranging from a century to 10 years.

The sequence of reactions that removes CO, NO_X, and NMVOCs from the atmosphere, however, tends to promote the formation of tropospheric O_3 which is also a potent climate change emission. At present, there is large scientific uncertainty in estimating the radiative forcing effects of criteria pollutants.

Aerosols

Aerosols are extremely small particles or liquid droplets found in the atmosphere. Various categories of aerosols include naturally produced aerosols (e.g., soil dust, sea salt, biogenic aerosols, and volcanic aerosols), and anthropogenic aerosols (e.g., sulfates, ammonium nitrate, industrial dust, and carbonaceous aerosols including black carbon and organic carbon). Anthropogenic aerosols are derived directly or indirectly from transportation, coal combustion, cement manufacturing, waste incineration, and biomass burning.

Aerosols affect radiative forcing in both direct and indirect ways: directly by scattering and absorbing solar and thermal infrared radiation; and indirectly by altering the cloud properties and atmospheric heating rates that in turn modify the formation, precipitation efficiency, and radiative properties of clouds. The effect of aerosols on regional and global climate is complex: in general, sulfate aerosols enhance the reflection of sunlight and cool the Earth, while black carbon aerosols enhance the absorption of sunlight and warm the Earth.

Understanding the role of aerosols in climate change requires inclusion of realistic representations of aerosols and their radiative forcings in climate models. However, uncertainty in aerosol radiative forcing arises because neither emissions, atmospheric abundance, optical properties, nor indirect effects are well characterized. The IPCC (2001) and the NACIP (2002) have identified the total (direct and indirect) radiative forcing due to aerosols, and in particular light absorbing aerosols, as one of the most uncertain components of climate change models.

Water Vapor

It should be noted that just because water vapor is the most important contributor to the natural greenhouse effect does not mean that human-made climate change emissions are unimportant. However, human activities do not seem to be appreciably changing the atmospheric concentration of water vapor in any direct way on the global average.

A simple comparison of the relative greenhouse efficiencies of water vapor and CO_2 quickly becomes problematic because water vapor enters the climate system mostly as a "feedback" gas. Further, water stays in the atmosphere for a few days, while other climate change emissions linger for decades or centuries. The overall impact of water vapor with respect to global climate change is not well understood as it can lead to both warming (absorption of long-wave radiation from Earth) and cooling (cloud formation/reflection of solar radiation).

2.3 Global Warming Potentials

Radiative forcing is often defined as a net imbalance in energy flux in the atmosphere, and is expressed in watts per square meter (W/m^2), i.e. heat per area of the Earth's surface. Radiative forcing of the surface-troposphere system, resulting, for example, from a change in climate change pollutant concentrations, is the change in the balance between radiation coming into the atmosphere and radiation going out. A positive radiative forcing tends, on average, to warm the surface of the Earth, and negative forcing tends, on average, to cool the surface.

The impact of a climate change pollutant upon the atmosphere is related not only to radiative properties of the gas and its initial abundance, but also to the length of time the climate change pollutants remain in the atmosphere. Radiative properties control the absorption of radiation per kilogram of gas present at any instant, but the lifetime of the gas controls how long an emitted kilogram remains

in the atmosphere and hence its cumulative impact on the atmosphere's thermal budget.

Gases in the atmosphere can contribute to the greenhouse effect both directly and indirectly. Direct effects occur when the gas itself is a climate change pollutant. Indirect radiative forcing occurs when chemical transformations of the original gas produce other climate change pollutants, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., cloud formation).

The concept of a Global Warming Potential (GWP) has been developed in parallel to the concept of ozone depletion potential developed under the Montreal Protocol to compare the ability of each climate change pollutant to trap heat in the atmosphere relative to another gas.

Carbon dioxide, as the primary anthropogenic climate change pollutant, has been chosen as the reference gas. GWP is defined as the ratio of the time-integrated radiative forcing from the release of 1 kilogram of a trace substance relative to that of 1 kg of CO_2 (IPCC 2001). While any length of integration can be selected, the 100-year GWPs are recommended by the IPCC and will be employed for policy-making and reporting purposes.

GWP values allow a comparison of the impacts of emission changes (reductions or increases) of different gases. According to the IPCC (2001), GWPs typically have an uncertainty of ±35 percent. In addition to communicating climate change pollutants in units of mass, we have also chosen to use GWPs to reflect their inventories in CO_2-equivalent terms because it effectively places all of the climate change pollutants on the same comparative scale.

Table 2-1 lists GWPs for CO_2, CH_4, N_2O, and HFC-134a for the 20-, 100-, and 500-year time horizons. It should be noted that when the lifetime of the species in question differs substantially from the response time of CO_2 (nominally about 150 years), then the GWP becomes very sensitive to the choice of time horizon. The GWP concept is only relevant for compounds that have sufficiently long lifetimes to become globally well-mixed. Therefore, short-lived gases and aerosols with varying atmospheric distributions and lifetimes pose a problem in the simple GWP framework.

Table 2-1. Numerical Estimates of Global Warming Potentials Compared with CO_2 (Kilograms of Gas Per Kilogram of CO_2 adapted from IPCC 2001).

		20 years	100 years	500 years
CO_2	~150	1	1	1
CH_4	12	62	23	7
N_2O	114	275	296	156
HFC-134a	14	3,300	1,300	400

2.4 Abrupt Climate Change

When most people think about climate change, they imagine gradual increases in temperature and only marginal changes in other climatic conditions, continuing indefinitely or even leveling off at some time in the future. It is assumed that human societies can adapt to gradual climate change. However, recent climate change research has uncovered a disturbing feature of the Earth's climate system: it is capable of sudden, violent shifts. This is a critically important realization.

Climate change will not necessarily be gradual, as assumed in most climate change projections, but may instead involve relatively sudden jumps between very different states. A mounting body of evidence suggests that continued increasing climate change emissions may push the oceans past a critical threshold and into a drastically different future.

Abrupt climate change is the subject of reports commissioned by the National Academy of Science (NRC 2002) and the U.S. Department of Defense (Schwartz and Randall, 2003). Thus, in addition to the gradual (albeit accelerated) climate changes projected by current climate models, Californians need to be aware of the possibility of much more sudden climate shifts.

2.5 Summary

There is little doubt that climate change is happening today, that human-caused increases in the atmospheric abundance of climate change pollutants are a large cause of that change, and the 21st century climate change will be greater than that we have experienced in the 20th century. Much of that projected climate change is as yet unrealized warming from the climate change pollutants in the atmosphere today. Nevertheless, actions taken to reduce climate change emissions today can reduce the magnitude and rate of climate change this century.

environmental, public health, and economic challenges, and work in partnership with other State programs to advance energy efficiency and renewable energy. The CA H2 Net mission is to assure that hydrogen infrastructure is in place as fuel cells and other hydrogen technologies reach commercial readiness.

Hydrogen can be derived from a variety of sources including petroleum based feedstock to a range of renewable resources. To assure that the production of hydrogen and operation of hydrogen fueled vehicles is environmentally beneficial the CA H2 Net has the clearly defined goals of utilizing at least 20 percent renewable resources in the production of hydrogen, reducing climate change emissions by at lease 30 percent, and to not increase smog forming and toxic pollutants relative to fossil fuel vehicle use.

Achieve 50% Statewide Recycling Goal

Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. Currently a diversion rate of 48 percent has been achieved on a statewide basis. This strategy would result in achieving an additional 2% waste diversion of recyclables from landfills using existing authorities and mandates, collection infrastructures, and recycling processes.

Landfill Methane Capture

Methane production varies greatly from landfill to landfill depending on site-specific characteristics such as the quantity of waste in place, waste composition, moisture content, landfill design and operating practices, and climate. Unless captured first by a gas recovery system, methane generated by the landfill is emitted when it migrates through the landfill cover to the atmosphere and becomes a potent climate change emission.

Landfills can install direct gas use projects or electricity projects with backup flare systems to capture and use methane. The technical applicability of any mitigation option is dependent on the amount of landfill gas generated by landfills in a given size category.

Zero Waste—High Recycling

Additional recovery of recyclable materials from landfills will reduce the climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. Transforming organics/biomass and plastic waste into marketable products will also reduce the amount of material going to landfill, and therefore will further reduce climate change emissions. Currently, the State is mandated to divert 50 percent of waste going to landfills as established by the Integrated Waste Management Act of 1989. Efforts to exceed the 50 percent goal would allow for additional reductions in climate change emissions.

5.3 Strategies the Resources Agency will Implement over the Next Two Years

Table 5-2 lists all of the strategies that Resources Agency will implement over the next two years. The Forest management efforts promise not only climate change emission reductions but also protect biodiversity, water quality and habitat resources. For three decades the California Energy Commission has led the world with the most progressive new building and appliance efficiency standards. These efficiency standards have provided substantial climate change emission reductions and have saved consumers about $1,000 per household in California. Finally, by reducing the energy used to transport and deliver water in the State and increasing water use efficiency California can both protect our water supply and reduce climate change emissions.

Table 5-2. Resources Agency

Department of Forestry		
Forest Management	1-2	2-4
Forest Conservation	4.2	8.4
Fuels Management/Biomass	3.4	6.8
Urban Forestry	0	3.5
Afforestation/Reforestation	0	12.5
Department of Water Resources		
Water Use Efficiency	0.4	1.2
Energy Commission		
Building Energy Efficiency Standards in Place	1	2
Appliance Energy Efficiency Standards in Place	3	5
Fuel-Efficient Replacement Tires & Inflation Programs	1.5	1.5
Building Energy Efficiency Standards in Progress	TBD	TBD
Appliance Energy Efficiency Standards in Progress	TBD	TBD
Cement Manufacturing	<1	<1
Municipal Utility Energy Efficiency Programs/ Demand Response	1	5.9

Municipal Utility Renewable Portfolio Standard	<1	3.2
Municipal Utility Combined Heat and Power	0	<1
Municipal Utility Electricity Sector Carbon Policy	3	9
Alternative Fuels: Non-Petroleum Fuels	TBD	TBD

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-2 is included below:

Forest Management

Strategies for storing more carbon through forest management activities can involve a range of management activities such as increasing either the growth of individual trees, the overall age of trees prior to harvest, or dedicating land to older aged trees. With roughly 4 million acres of private managed forestland in California, changes in forest management can produce significant amounts of climate change emission reduction benefits for the state.

Inclusion of the forest sector in climate mitigation policy can lead to additional local environmental benefits that may help the state's resources adapt to potential negative effects of climate change. Overall changes in forest management can enhance and protect biodiversity, water quality, and habitat resources that the state will increasingly seek to protect in the advent of climate change.

Forest management projects could be included in a broader multi-sector climate change emission market-based program or climate trust system. In a market-based program, forest management projects could provide offsets that would be purchased by capped entities. In a climate trust program, the state would fund forest management projects and recapture the costs by selling carbon credits to industries needing to reduce their climate change emissions.

The regulatory framework for timber harvesting requires landowners to secure permits from a large number of agencies to meet the requirements of the Forest Practice Act, Endangered Species Act, and Clean Water Act. Together the time and cost of obtaining these permits have led to conversions of timberlands to other uses and made it more difficult and time consuming to implement forest management activities that would increase carbon storage. Simplification of the permitting processes for forest management and timber harvesting would result in additional carbon being stored over a larger number of acres.

Forest Conservation

Conservation projects are designed to minimize/prevent the climate change emissions that are associated with the conversion of forestland to non-forest uses by adding incentives to maintain an undeveloped forest landscape.

California is losing forestland at increasing rates: 35,000 to 40,000 acres of private forestland is converted annually to non-forest uses (Bill Stewart, 2005),

which could contribute as much as 12 million tons of CO_2 emissions annually. Policies designed to minimize or prevent forestland conversion to non-forest uses could provide significant benefits by 1) preventing or minimizing climate change emissions that are associated with increasing forestland conversion in California and 2) maintaining the opportunity to increase forest carbon stocks on these lands through additional sequestration over time.

Forest conservation can also enhance and protect biodiversity, water quality, and habitat resources that the state will increasingly seek to protect from the negative effects of climate change. Finally, in contrast to the other forest sector strategies such as reforestation, the climate benefits of forest conservation are immediate.

Specific actions that can be taken include establishing a state forest conservation program that operates independently from the federal Forest Legacy program; increasing Forest Legacy Program Funding with an $11 million annual investment that could prevent the conversion of 14,000 acres of forestland. Another step could include directing the Wildlife Conservation Board, the State Conservancies, and other state land acquisition and easement programs to consider climate benefits in evaluating and ranking projects to be funded. Finally, the state could include forestland conservation as an emission reduction project in a broader multi-sector climate change market-based program or climate trust system.

Fuels Management/Biomass

Large, episodic, unnaturally hot fires are an increasing trend on California's wild lands because of decades of fire suppression activities, sustained drought, and increasing insect, disease, and invasive plant infestations. Actions taken to reduce wildfire severity through fuel reduction and biomass development would reduce climate change emissions from wildfire, increase carbon sequestration, replace fossil fuels, and provide significant local economic development opportunities.

Fire management and biomass development projects could be accelerated by establishing a new state goal of thinning, removing, and treating 212,000 acres of public and privately owned forestland annually by 2010, and 275,000 acres by 2020. Such projects would: 1) reduce the intensity of wildfires and their associated climate change emissions; 2) increase the carbon stock of the remaining trees, 3) remove pests that create mortality of live stored carbon and reduce large damaging wildfires, 4) reduce state and local fire suppression costs; 5) provide a source of renewable alternative fuel; and 6) provide significant rural economic development opportunities.

Urban Forestry

This strategy would expand the State Urban Forestry Program. A new state-wide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs. At a cost of $100 per tree, $500 million would have to be invested by local urban forestry programs to meet this target.

This could be achieved by issuing an Executive Order to establish a new state-wide goal and directing the Board of Forestry and California Department of Forestry to launch an aggressive public assistance and outreach campaign to expand local urban forestry programs. The state could request that the California Climate Action Registry develop and adopt a protocol for the certification of climate change emission reductions from local urban forestry programs.

This strategy would develop new urban biomass programs. The California Department of Forestry would develop an urban biomass utilization program to provide technical advice, planning, education, and seed money for local government marketing centers for biomass waste.

Afforestation (Planting Trees)/Reforestation Projects

Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types. Recent studies have estimated that approximately 9 million acres of land in California could be reforested to increase carbon stocks and provide other benefits. Each of these acres has the potential to store between 150 to 230 tons of carbon.

Specific actions that could be taken include: establishing a new statewide goal of reforesting 500,000 acres of forestlands by 2020, including 250,000 acres on private lands and 250,000 acres on federal lands; seeking $30 million annually, or $300 million in bond funds to meet these targets; establishing a long-term loan program to fund private land reforestation; establishing a multisector market-based program where reforestation projects can be included as offsets in a broader, mulit-sector climate change market-based program; and establishing a state-owned carbon bank, modeled after Oregon's Climate Trust, as part of a market-based program.

Water Use Efficiency

Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. The California Energy Commission (CEC) estimates 44 million tons of CO2 emissions are expelled annually on average to provide the 44 million acre feet (MAF) of water used statewide.

The key to the reduction of climate change emissions through water use efficiency is strategic investment in measures tied to water energy intensity. When a unit of water is saved, so too is the energy required to convey, treat, affect local delivery, perform wastewater treatment and safely dispose of that unit of water. In short, saving water saves energy. Saving water that gets treated as wastewater saves more energy. Saving water that gets heated or additionally pressurized saves still more.

Region, elevation, water use sector, and energy source, among other factors, all influence water energy intensity. The statewide average for climate change emissions per acre foot is skewed by the wide local variation in the water energy intensity. Everything else being equal, a cooling tower condition meter installed in an industrial plant in Northern California will save 2,920 kWh compared to

9,270 kWh saved annually in a comparable plant south of the Tehachapi Mountains.

Increased water use efficiency is the key element in the California Water Plan Update (Bulletin 160-05) plans to meet the state's needs for water in 2030 with a growing population. The plan calls for reducing urban water use by 1.1 to 2.3 MAF per year and agricultural water use by 0.5 to 2.0 MAF per year by 2030. Accelerating the investment to attain that water use savings by 2015 would result in an estimated additional climate change emission reductions of approximately 30 million tons cumulatively by 2030. Accelerating the investment to 2010 would result in a further cumulative reduction of 10 million tons.

The California Bay-Delta Authority's larger estimated potential for 3.0 MAF per year urban water use reduction requires a greater rate of local and state/federal investment in conservation. Incentive driven advances in water-saving technology over the next 25 years potentially could further push savings beyond the levels indicated.

A comprehensive program focused on the state's water and wastewater agencies and their customers would yield significant benefits to the state including: meeting the state's water plan, increasing energy system reliability and price stability, meeting the state's renewable portfolio standard goals and reducing the state's climate change emissions. Following are measures to include in this comprehensive program:

- Accelerate investment in water use efficiency: Accelerate implementation of best management practices and efficient water management practices (EWMP) and incentives. Coordinate this accelerated investment with the state's investments in energy efficiency. Start in the areas of the state with most energy-intensive water use cycles.
- Increase the energy efficiency of all water and wastewater treatment operations. Develop long-term programs to better mesh with the long-term investments in water and wastewater infrastructure.
- Improve price signals so that water-related energy use can be shifted off periods of peak energy demand.
- Increase water storage to increase operational flexibility throughout the water use cycle and reduce peak electric system energy requirements.
- Identify suitable locations for new pumped storage facilities. Construct facilities at these locations.
- Increase energy production by water and wastewater agencies from renewable sources such as in-conduit hydropower and biogas. Add generation from solar and wind resources.

Building Energy Efficiency Standards in Place

Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings). The

Energy Commission updates the standards at its discretion (i.e. three-year cycle for building standards). In addition to the long existing legislative mandates, recent policies have placed priority on and established specific goals for updating of the standards.

The Energy Action Plan and the Integrated Energy Policy Report both call for ongoing updating of the standards, including meeting energy efficiency goals, addressing demand response and promoting the combination of solar photovoltaics and high-energy efficiency buildings. The Energy Commission has also initiated work for the building standards that will go into effect in 2008 (i.e. the first of three update cycles that will occur prior to 2015).

Appliance Energy Efficiency Standards in Place

Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California). The Energy Commission updates the standards at its discretion. In addition to the long existing legislative mandates, recent policies have placed priority on and established specific goals for updating of the standards.

New standards for a variety of appliances were adopted in December 2004. Some standards under consideration in December were delayed to further consider manufacturer comments. Those standards are being developed by the Energy Commission at the present time. The estimates in Table 5-1 represent the expectation of full adoption of these standards.

Fuel-Efficient Replacement Tires and Inflation Programs

State legislation (Chapter 912, Statutes of 2001) directed the Energy Commission to investigate and to recommend ways to improve fuel efficiency of vehicle tires. The bill established a statewide program to encourage the production and use of more fuel efficient tires, and required the Energy Commission to:

- Establish a test procedure for measuring tire fuel efficiency.
- Develop a database on the fuel efficiency of existing tires in order to establish an accurate baseline of tire efficiency.
- Develop a rating system for tires that provides consumers with information on the fuel efficiency of individual tire models.
- Develop a consumer-friendly system to disseminate tire fuel-efficiency information as broadly as possible.
- Study the safety implications of different policies to promote fuel efficient replacement tires in the consumer market.
- Evaluate a mandatory fuel efficiency standard for all after-market tires sold in California.

- Develop consumer incentive programs that would offer a rebate to purchasers of replacement tires that are more fuel-efficient than the average replacement tire.
- Study ways to improve the fuel-efficiency of vehicles in the State's fleet.
- AB 844 later required tire manufacturers to report to the Energy Commission the rolling resistance and relative fuel economy of replacement tires sold in California.

Building Energy Efficiency Standards in Progress

As part of the process of updating the Building Energy Efficiency Standards, the Energy Commission evaluates new and emerging technology for possible inclusion in the standards. The CEC administers an ongoing "compliance option" process which evaluates to what extent compliance credit should be approved for new technologies and develops algorithms that can be used to properly evaluate their energy consequence within building simulation computer programs that are used for standards compliance.

Upon commission approval, compliance options can be used to demonstrate compliance with the performance approach in the standards. Once a compliance option has been in existence for a period of time, the commission often considers whether or not the compliance option should be made a requirement of the standards (as a prescriptive requirement and basis of the energy budget established for the performance standards).

Appliance Energy Efficiency Standards in Progress

As part of the process of updating the Appliance Energy Efficiency Standards, the CEC evaluates new and emerging technology for increasing the energy efficiency of appliances and equipment for possible inclusion in the standards. The Commission's Buildings and Appliances Office works on an ongoing basis with the Public Interest Energy Research (PIER) program and with the Utility Codes and Standards Programs to track promising new technologies and consider their appropriate inclusion in the standards.

Fundamentally, the standards updating process is achieved thorough technology assessment of the potential to include new technologies in the standards, and the program is continuously evaluating new technologies.

Cement Manufacturing

This strategy involves cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry. There is a large technical potential to improve energy efficiency in cement operations at a reasonable cost.

Climate change emissions from burning fossil fuels in the manufacturing of cement produces 1.5 to 2.0 percent of U.S. carbon dioxide emissions. Roughly half is from fossil fuel combustion and roughly half is from the conversion of limestone (45 million tons per year). California's cement industry produced 5.6

million metric tons in 2001; total statewide climate change emissions approached 500 million metric tons in 2001.

Annual emissions from the manufacturing of cement are growing at a rate of 2 percent per year, according to industry sources and using California-specific data. Direct emissions of carbon dioxide are estimated to rise from 10.4 million metric tons in 2005 to more than 15 million metric tons in 2025. Use of limestone Portland cement and the use of blended cement account for 70 percent of the potential emission reductions and would cost less than $10 per metric ton.

State policy options can take several forms, including technology mandates, financial incentives, negotiated agreements, voluntary commitments, emissions-intensity benchmarking, or mandatory measures. Policy changes would be needed to encourage the use of limestone and blended cement and to allow waste tires to be used as a fuel in cement manufacturing. Based on CEC's analysis, these measures have been shown to provide cost-effective climate change emission reduction benefits.

Municipal Utility Energy Efficiency Programs

The Energy Commission and the California PUC are collaborating on additional energy efficiency programs beyond those programs already adopted.

While the Energy Commission does not have regulatory authority over the publicly owned utilities in the way that the CPUC regulates the IOUs, the publicly owned utilities are required to report their energy savings to the CEC. A process to ensure comparability between public benefit program savings and funding data reported by public and investor-owned utilities will need to be established. Possible steps for implementing this strategy include:

- Pursuing statutory modifications or a cooperative agreement with the publicly owned utilities to achieve the needed CO_2 reductions.
- Seeking statutory modifications or the establishment of a formal memorandum of understanding (MOU) with the utilities to achieve these targets.
- Pursuing statutory modifications or another mechanism to ensure that all load-serving entities account for climate change emissions and emission reductions in a manner consistent with investor-owned utilities.

Municipal Utility Renewable Portfolio Standard

California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20 percent of retail electricity sales from renewable energy sources by 2017, within certain cost constraints. The *2003 Energy Action Plan* and the *2003 Integrated Energy Policy Report* (2003 *Energy Report*) accelerated the 20 percent goal from 2017 to 2010. The *2004 Energy Report Update* further recommended an increased goal of 33 percent renewable by 2020, which the California Public Utilities Commission (CPUC) and the California Energy Commission (Energy Commission) adopted in the *2005 Energy Action Plan II*.

The Energy Commission and the CPUC are responsible for implementing the RPS for the investor-owned utilities, electric service providers, and community choice aggregators. The publicly-owned utilities are responsible for implementing their own RPS programs.

The CPUC has undertaken a study to identify the steps necessary to achieve the 33 percent goal for the state's IOUs. The Energy Commission is undertaking a similar related study on RPS programs adopted by publicly-owned utilities, including barriers and policy options to accelerate those programs to reach the 20 percent goal by 2010 and 33 percent goal by 2020. Possible steps for implementing this strategy include:

- Pursuing a cooperative agreement with the publicly-owned utilities to achieve the needed climate change emission reductions.
- Seeking statutory modifications to require the publicly owned utilities to contribute proportionally to the state's RPS goals.
- Seeking statutory modifications or a cooperative agreement to ensure that publicly-owned utilities account for climate change emissions and emission reductions in a manner consistent with investor-owned utilities.

Municipal Utility Combined Heat and Power

This strategy constitutes cost-effective reductions from fossil fuel consumption in the commercial and industrial sector through application of on-site power production to meet both heat and electricity loads. To effectively implement this strategy, various policy instruments will likely be needed to attain the realistic market potential and subsequent climate change emission reductions.

These policy mechanisms may include regulatory incentives to encourage utilities to promote customer and utility-owned CHP, utility rate structures that are transparent and connected to market forces where externalities such as environmental impacts and transmission and distribution constraints are internalized, rules and regulations enabling easier access to wholesale markets, production tax credits for CHP, and other measures or incentives directed at key commercial and industrial activities in California.

Through existing efficiency commercialization programs at the CEC where relationships have been well established with the commercial and industrial sectors, a set of implementation activities will be developed that include:

- Utility tariffs to enable CHP owners to sell excess on-site electricity generation to the utility at prevailing wholesale prices. Existing analysis suggests this would be very effective in stimulating the near-team (next 5 years) market.
- Climate change emission reduction credits to reflect the net reduction of climate change emissions for the CHP systems compared to the avoided electricity and boiler fuel emissions.
- Transmission and distribution benefit payments that reflect the local and temporal benefits CHP provides utilities.

- Utility regulatory incentives to encourage utilities to promote installation of customer- and utility-owned CHP projects.

Municipal Utility Electricity Sector Carbon Policy

The Energy Commission and the CPUC are collaborating on additional programs to address ways to transition investor-owned utilities away from carbon-intensive electricity sources. Some publicly owned utilities have historically relied on coal-based generation, and many of these facilities will reach the end of their design life by 2020. The Energy Commission will explore options to encourage municipal utilities to transition away from carbon-intensive generation to low-carbon alternatives, and to reduce purchases of carbon-intensive power. Options include establishing emissions targets or caps, providing incentives for preferred generation options, and setting a climate change emission performance standard for new utility resource procurement, including both coal and non-coal resource additions.

In its recently adopted *2005 Integrated Energy Policy Report*, the Energy Commission recommends:

- Any climate change emission performance standard for utility procurement should be set no higher than emission levels achieved by a new combined-cycle natural gas turbines. In the case of coal-fired generation, the capacity to capture and store carbon dioxide safely and inexpensively is essential for meeting these standards.
- The state should specify a climate change emission performance standard and apply it to all utility procurement, including in-state generation and out-of-state purchases, coal, and non-coal resources.
- Additional consideration is needed before determining what role climate change emission offsets could play in complying with such a standard.
- The Energy Commission should work with the CPUC to develop a framework that accounts for the financial risk of reliance on carbon-based generation.
- California should have a consistent electricity carbon policy for all electric utilities within the state that applies to both in-state generation and out-of-state power purchases.

Alternative Fuels: non-Petroleum Fuels

This strategy involves increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the Energy Commission's *2003 and 2005 Integrated Energy Policy Reports*. The Governor has also directed the Energy Commission to develop a workable, long-term transportation fuels plan that will result in significant reductions in gasoline and diesel use and that will establish realistic and achievable objectives. The Bio-Energy Interagency Working Group, which the Energy Commission is leading, has been asked to recommend options for optimizing the market potential for bio-fuels through a coordinated state level effort.

State policy options can take several forms, including technology performance standards, financial incentives, negotiated agreements, voluntary commitments, emissions-intensity benchmarking for fuel producers or automobile manufacturers, or other mandatory measures, such as fuels or motor vehicle standards or a market-based program. Based on our analysis, some alternative fuels have been shown to provide cost-effective climate change emission reduction benefits. But they face economic, market, or regulatory barriers that are impeding their use.

To achieve the benefits of this strategy, the following implementation issues would need to be overcome:

- The high first cost of alternative-fuel vehicles, when compared to conventional vehicles using internal combustion engines.
- The absence of a convenient retail fueling network to dispense alternative fuels to customers.
- Other regulatory and market barriers.

5.4 Strategies Other State Agencies will Implement over the Next Two Years

Table 5-3 lists all of the strategies that other state agencies will implement over the next two years. Many participants at the Climate Action Team public meetings, particularly in Southern California, indicated that smart land use and increased transit availability should be a priority in the state. The participation of Business, Transportation and Housing Agency on the Climate Action Team has highlighted the fact that such strategies can provide substantial climate change emission reductions. Similarly the efforts of the Department of Food and Agriculture and the State and Consumer Resources Agency provide benefits beyond their climate change emission reduction potential.

Table 5-3. Other State Agencies

Business, Transportation and Housing		
Measures to Improve Transportation Energy Efficiency	1.8	9
Smart Land Use and Intelligent Transportation	5.5	18
Department of Food and Agriculture		
Conservation tillage/cover crops	TBD	
Enteric Fermentation	<1	<1

State and Consumer Services Agency		
Green Buildings Initiative	0.5	1.8
Transportation Policy Implementation	TBD	

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-3 is included below:

Measures to Improve Transportation Energy Efficiency

This strategy builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.

The effort includes the following:

- Incorporating energy efficiency and climate change emissions reduction measures into the policy framework governing land use and transportation, including framework for developing energy element in state transportation and regional planning documents. Better coordination on cross-agency climate change and energy policy framework to ensure a concerted effort and synergy among state agencies' climate change emission reduction activities.
- Increasing incentives and accelerating technology applications to improve transportation system productivity and move toward cleaner and more efficient vehicles, especially for the public sector fleet. Enhancing outreach and educational programs to bring a coordinated message of sustainable transportation and root causes of climate change emissions.
- Diversifying transportation energy infrastructure and advancing measures to slow the rate of vehicle miles traveled growth and excessive reliance on petroleum.

Smart Land Use and Intelligent Transportation

Smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce and socioeconomic needs for the full spectrum of the population.

Intelligent Transportation Systems (ITS) is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. Smart growth/land use and ITS would minimize the need for major capital improvements and can provide a host of benefits including more livable communities, transportation energy efficiency, lower emissions from mobile sources, and a lower-cost provision of public services (e.g., sewer, water).

Governor Schwarzenegger is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity, and a quality environment. The Administration is pursuing funding and budgetary measures to support the strategic growth plan.

Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.

Conservation/Tillage Cover Crops

Conservation tillage and cover crops practices are increasingly being used by California farmers for a variety of reasons, including improved soil tilth, improved water use efficiency, reduced tillage requirements, saving labor and fuel, and reduced fertilizer inputs. However, due to the wide diversity of California agriculture, these practices must be demonstrated in a wide variety of cropping systems, soil types, irrigation regimes, and climate conditions.

This diversity also creates difficulty in quantifying both carbon emissions and potential carbon sequestration benefits from implementing conservation tillage and cover crops in the myriad of California cropping systems. This potential needs to be verified through extensive research directly applied to California conditions. Thus, the potential climate change emission reductions for 2010 and 2020 remains to be determined.

Enteric Fermentation

Enteric fermentation is the process of feed digestion by ruminant animals (primarily dairy and beef cattle). This process results in methane emission from the animals. To reduce climate change emissions resulting from enteric fermentation, feed adjustments may be made that improve milk and meat productivity.

New measures would include establishing a research initiative to quantify emission changes from enteric fermentation resulting from changing feed regimens versus productivity impacts. Different animal populations would have differing abilities to manage feed rations. For example, grass-fed beef would have little to no ability to reduce enteric emissions. Dairy operators vary feed rations based on numerous factors. Feed rations are a complex system that not only provide nutrition to the animal, but also provide cost-effective and efficient use of other agricultural by-products including food processing residuals, fruit culls, almond hulls, cotton seed, and even rice straw.

This system would have to be carefully analyzed to determine overall climate change emission effects if the use of these other residuals is altered. This analysis would include both a technical analysis and a cost effectiveness analysis that would be initiated in 2006.

Pricing of food commodities to reflect embodied climate change emissions is not recommended for any action at this time. A "calcium crisis" currently exists in this country, where a significant portion of women and children are calcium deficient. Milk and dairy products are a major source of calcium that should be available to these at-risk populations, especially those of low and moderate income, at affordable prices.

Green Buildings Initiative

Governor Schwarzenegger's Green Building Executive Order, S-20-04, sets an ambitious goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20 percent target.

Preliminary estimates indicate that 6.5 million tons of CO_2 will be reduced annually by the year 2015 through building efficiency efforts in commercial and institutional buildings. This number is based on the average displaced power generation being an efficient natural gas combined cycle turbine. The 6.5 million-ton estimate has been adjusted in Table 5-2 to ensure against double counting amongst other strategies being recommended by the CAT.

5.5 Strategies the Public Utilities Commission will Implement Over the Next Two Years

Table 5-4 lists all of the strategies that the Public Utilities Commission will implement over the next two years. Working in cooperation with the Energy Commission, the Public Utilities Commission has implemented the most progressive Renewable Portfolio Standard in the nation. The Public Utilities Commission has also been progressive in energy efficiency and clean energy programs for investor-owned utilities. Many stakeholders indicated that these programs should apply to the publicly-owned utilities as well.

Table 5-4. Public Utilities Commission

[redacted]		
Accelerated Renewable Portfolio Std to33% by 2020 (includes load-serving entities)	5	11

California Solar Initiative	0.4	3
Investor Owned Utility Energy Efficiency Programs(including LSEs)	4	8.8
Investor-Owned Utility (IOU) Additional Energy Efficiency Programs/Demand Response	NA	6.3
IOU Combined Heat and Power Initiative	1.1	4.4
IOU Electricity Sector Carbon Policy	1.6	2.7

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-4 is included below:

Accelerated Renewable Portfolio Standard (33 percent by 2020)

The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal. The PUC and Energy Commission have already commenced review of the legal, regulatory, and infrastructure changes necessary to achieve the Governor's goal.

The Center for Resource Solutions has prepared a preliminary report for the CPUC entitled *Achieving a 33% Renewable Energy Target* (The Center for Resource Solutions, November 1, 2005), which concludes that the 33 percent target by 2020 is achievable and discusses the major hurdles and necessary implementation steps. The report is a starting point for further review by the CPUC on instituting a 33 percent goal.

California Solar Initiative

The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.

Legislation to codify the Governor's initiative (SB 1) failed to pass the California Assembly in the fall of 2005. However, the PUC, in cooperation with the Energy Commission and the Governor's Office, will implement the California Solar Initiative under its existing statutory authority.

Investor-Owned Utility Energy Efficiency Programs

In September 2004, the PUC adopted aggressive savings targets for the investor-owned utility energy efficiency programs through 2013. The savings targets through 2013 are challenging goals to meet, and the PUC will reassess these targets and adopt more realistic goals during each three-year program cycle.

The PUC funds energy efficiency programs through the Public Goods Charge and the resource procurement budgets of the utilities. For the 2006–2008 program cycle, the total energy efficiency budget for all of the investor-owned

utilities is approximately $2 billion, for a total projected annual net savings of 7,371 gigawatt hours and 121,989 million therms. These projections exceed the savings targets by 108 percent and 109 percent respectively. By 2008 these programs will reduce annual carbon dioxide emissions by more than 3 million tons per year.

Investor Owned Utility Additional Energy Efficiency Programs/Demand Response

In September 2004, the PUC adopted aggressive savings targets for the IOUs' energy efficiency programs through 2013. The savings targets through 2013 are stretch goals and the PUC will reassess these targets and adopt the actual goals during each three-year program cycle. The PUC funds energy efficiency programs through the Public Goods Charge and the IOUs' resource procurement budgets. For the 2006–2008 program cycle, the total energy efficiency budget for all of the IOUs is approximately $2 billion, for a total projected annual net savings of 7,371 gigawatt hours and 121,989 million therms. These projections exceed the savings targets by 108 percent and 109 percent respectively. By 2008 these programs will reduce annual carbon dioxide emissions by more than 3 million tons per year.

Over the next year, the PUC will develop a risk/reward incentive mechanism for the IOUs and refine energy measurement and verification protocols. In 2008, the PUC will evaluate and adopt the 2009–2011 energy efficiency savings goals and programs of the IOUs.

Investor-Owned Utility Combined Heat and Power Initiative

This strategy encourages the installation of on-site power production to meet both heat and electricity loads, known as combined heat and power projects (CHP). The PUC's existing Self-Generation Incentive Program allocates $0.80 per watt to eligible CHP projects in the territories of the IOUs, up to a capacity size of 5 MW. Currently, all SGIP funds are reserved through 2007, although funding may become available if proposed projects do not materialize.

This strategy would seek to develop additional programs to further encourage the development of CHP. These additional programs are not yet underway, will require further consideration, and could likely require administrative, legislative, regulatory, and budget initiatives. To effectively implement this strategy, it is likely various policy instruments will be needed to attain the realistic market potential and subsequent CO_2 reductions.

These policy mechanisms may include regulatory incentives to encourage IOUs to promote customer and utility-owned CHP, changes to IOU rate design, market rules and regulations enabling easier access to wholesale markets, production tax credits for CHP, and other measures or incentives directed at key commercial and industrial activities in California. Statutory modifications are required in order to apply a similar strategy for CHP programs implemented by publicly-owned utilities.

Investor Owned Utility Electricity Sector Carbon Policy

The PUC is currently investigating various strategies and incentives to encourage the IOUs to make cost-effective procurement decisions that are based in part on reducing climate change emissions. These strategies include emissions targets or caps, incentives for preferred procurement options, and incentives for portfolio optimization and total cost minimization.

The PUC conducted workshops in March 2005 on the procurement incentive framework and issued a staff report in March 2005. The post-workshop comments were filed in April and May 2005. A final decision to include a carbon cap on emissions associated with all utility procurement activities was adopted in February of 2006. This strategy includes the following steps:

- Determine a methodology the IOUs will use to report their climate change emissions.
- Continue to work with the CEC to ensure that the IOUs and the municipal utilities use consistent methodologies to report their emissions.
- Begin work to establish emission baselines for IOUs.

5.6 The Governor's Targets Can Be Met

Based on the emission reduction potential demonstrated in the tables above and illustrated in Figure 2-1 below, it is clear the Governor's targets are achievable. However, continued top-down leadership as has been demonstrated by this Governor as well as a coordinated agency-level effort as has been achieved via the Climate Action Team will be essential to success.

Figure 5-1. California's Target Can Be Met

Exhibit J

Transport and Land Use: Key Issues in Metropolitan Planning and Smart Growth

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1. Growing Smart

At the risk of appearing fashionable, I decided to stick "smart growth" in the title of my talk. I confess this is because I find smart growth to be a nice shorthand for "transport and land-use integration". Stripped to its essentials, smart growth is mainly about better coordinating and integrating transportation and land development. "Smart growth" is a compressed (two-syllable) way of saying this.

In the United States, "smart growth" has gained a momentum of its own, fueled by progressive legislation in states like Maryland and Florida which ties infrastructure dollars to land-use management. No longer just a local issue, smart-growth rhetoric is today even heard on the national campaign trail.

In ways, smart growth is synonymous with sustainable development. As a rapacious consumer of natural resources and emitter of pollutants, the transport sector must be judged on the basis of sustainability -- maintaining or improving, as opposed to harming, the natural environment. Sustainability argues for resource-efficient forms of mobility, such as metrorail systems that link planned urban centers in the case of big cities and dedicated carpool and bus lanes that reward efficient motor-vehicle use in smaller ones. Congestion pricing, parking restraints, and the development of alternative-fuel vehicles are other strategies that embrace sustainability principles.

Smart growth takes on all the more importance in a country like Australia where land is plentiful and, in physical and topographic terms, little stands in the way of American-style, spread-out patterns of growth. South East Queenlands is a case in point, where the rapid-fire pace of consumptive land development along coastal areas and the hinterlands threatens natural environments and the future quality-of-life.

Of course, there are no shortages of naysayers who trivialize the importance of transport-and-urbanization linkages. Uncovering unsuccessful experiences is as easy as shooting fish in a barrel.[1] My own research shows in the U.S. rail investments, like BART, have exerted modest influences on urban form.[2] However this is less an indictment of the transport-land use nexus and more an indictment of gross mis-pricing of resources and institutional fragmentation. Singapore-like prices and Zürich-like public transport services would have led to radically different results in the case of San Francisco's BART. But let's not fool ourselves. Smart-growth doesn't come easy. Something has to give. In Stockholm, middle-class residents give up private living space in return for more public open space and a high-amenity public realm. In Zürich, residents give up private cars in return for wonderfully efficient public transport services. Smart growth is not painless.

With smart growth, there must be some degree of private sacrifice, at least in part, for public gains. The public-private conundrum is revealed by the commuting statistics. Suburbanization has lengthened average commutes, but average driving speeds have gone up even faster. The only two U.S. cities that saw congestion levels fall from the mid-80s to the mid-90s were spread-out Houston and Phoenix. America's most traffic-snarled cities are also its densest and most transit-intensive. With smart growth, personal time losses incurred when switching from cars to transit are matched by societal gains like cleaner air and fuel savings.

Portland shows that containment policies like urban growth boundaries (UGBs) are a necessary pill to curb the sprawl disease. However, supply constraints have inflated land costs (both per square foot and per residence). Portland's experiences show that public gains (i.e., cheaper infrastructure per mile, cleaner air) are at the expense of private losses (i.e., higher housing and land costs). What remains unclear is how much cost inflation is due to constrained land-supplies versus Portland being an attractive place to live and do business, in no small part because of successfully linking transportation and land development.

This paper raises core issues at the center of the debate over coordinated transport and land use – that is, smart growth. I hope to shed light on promising avenues for advancing smart-growth principles and practice as well as to identify major hurdles that need to be overcome.

2. Need Decentralization = Sprawl?

Square one in advancing smart growth is acknowledging that decentralization is here to stay. Decentralizing trends wrought by advances in information technologies, rising affluence, and sheer population growth itself mean that metropolitan areas, worldwide, will continue to spread outward. Telecommunication advances continue to diminish the need for spatial proximity. The information highway, cyberspace, and the emergence of "smart" office parks laced with fiber optic cables and satellite dishes have freed many companies to spin off their lower-tier, back-office functions to the outer suburbs and beyond. Today's workers can handle routine communications and obtain information electronically from remote, less costly locations. What form, if any, this spread-out growth takes, and the economic and environmental sustainability of the evolving patterns, raises fundamental questions about the role of public-sector planning. Is decentralization to be largely private market (business-as-usual) shaped, or through public stewardship of resources, to take the form of concentrated, mixed-use centers?

In a motorized world, decentralization has mainly taken the form of sprawl, defined by its seven-S's – spread-out, skipped-over, segregated, shapeless, scattershot, strip-commercialized, and subsidized land development. Worldwide, sprawl stands as a serious threat to a sustainable future. This is in good part due to the fact that sprawl creates near total dependence on the private car. Between 1980 and 1995, the global fleet of cars, trucks, and buses grew by 70 percent, with a third of the increase occurring in developing countries.[3] The ability of planet Earth to absorb astronomical increases in the population of cars and the distances they travel, in terms of both fossil fuel supplies and greenhouse gas emissions, is worrisome. Only 8 percent of the world's population presently owns a car. The 700-plus million motor vehicles worldwide represent just 10 percent of potential market saturation. The spread of U.S. auto ownership rates (750

vehicles per 1,000 residents) to citizens of Russia, India, and China (where fewer than one in ten own a car) would wreak havoc on the globe's finite resources.

3. Linking Transport and Land Use...ergo, Growing Smart

Smart growth is an antidote to sprawl. By their nature, smart growth strategies are *spatial*. They focus on *where* growth should best occur and in what physical form. Programmatically, they share four common traits. One, they embrace urban planning by anticipating and creating a vision of the future. Smart growth flourishes where a firm and well articulated image of the future is in place. Two of the most efficient and sustainable cities in the world, Copenhagen and Stockholm, adopted metaphors to articulate and market their visions of the future – the "Finger Plan" in case of Copenhagen, and a "Planetary Cluster" in the case of Stockholm.[4] Second, smart growth balances the twin and often competing aims of urban design – form versus function. In designing and building places, functionality is reflected by the details and attention given to *sustainability* and *resourcefulness*. Form is expressed through the *livability* and *aestheticism* of neighborhoods and communities. Third, under smart growth, infrastructure investments are cleverly used to shape and leverage development. This can take the form of extending a rail line to a desired corridor of growth in advance of demand, a practice long employed in Scandinavia and Japan, or withholding public utilities from vulnerable and high-valued areas, like forests, wetlands, and hillsides. Lastly, areas that are growing intelligently and responsibly almost always have an institutional landscape that is conducive to dealing with spillover and cross-boundary problems. This often means some form of regional governance and oversight of local land-use decisions, whether in the form of regional master planning, tax-base sharing, environmental mandates, or zoning overrides. It also means having the capability of making guilty parties absorb at least some of the social and environmental costs they impose, such as through impact fees, exactions, concurrency programs, or externality pricing.

In the U.S., studying the costs of sprawl has become a cottage industry. Most focus has been on the costs of extending roads, sewer lines, school buses, and fire services to far-flung places. The public at-large ends up subsidizing peripheral development since newcomers rarely pay true marginal costs. Robert Burchell of Rutgers University recently reported that if one-third of America's future growth was directed toward central cities and inner suburbs and developed with modest changes (slightly higher densities, more mixed uses, traffic calming), the country would save approximately US$250 billion over the next 25 years – about US$10,000 per household.[5] Be that as it may, most middle-class Americans prefer living in the suburbs because of better schools (which in the U.S., are locally supported), lower crime rates, and having like-minded people as neighbors. Clearly, smart growth is more than rearranging land uses. It is also community-rebuilding.

Ultimately, what distinguishes auto-centricity and sprawl from more sustainable development patterns is poor accessibility of co-dependent land uses from each other. Most thoughtful observers agree with the seminal research of Peter Newman and Jeff Kenworthy that concluded the key to reducing auto-dependence and promoting more sustainable patterns of urbanization lies with making cities more compact.[6] For the middle class, the most evident effect of compact development is the giving up of private back-lot space for neighborhood shared-public space. Compact development needs to

be matched by amenities, open spaces, and quality design if they are to gain acceptance in affluent countries. Studies show that perceived densities can be increased by such treatments as varying building heights, rooflines, materials, and textures, or adding rear-lot, in-law units.[7]

4. Knowledge Gaps

Fragmented knowledge is the first hurdle we must face in coming to grips with sprawl. Even diagnosing the "disease" of "Los Angeles-style sprawl" is fraught with difficulties, much less trying to solve it. Kenneth Small shows, for example, metropolitan Los Angeles, long America's poster child of sprawl, has the nation's highest net population densities and the least amount of dis-contiguous development (it is uniformly amoeba-like in shape).[8] By the definitions of sprawl's critics[9], Los Angeles is the antithesis of sprawl – it's compact and filled-in.

Perhaps most problematic, all of us who research the impacts of sprawl are guilty of informing public policy based on partial analyses. Some do so through the narrow lens of examining just costs, particularly fiscal (taxpayer) outlays. My own research can be faulted for dwelling on the transportation and environmental costs of sprawl. What about the benefits of alternative urban forms? Until we can weigh fully tallied costs against fully tallied benefits, our diagnoses and prescriptions will remain woefully inadequate.

That said, the good news is evidence is beginning to trickle in showing smart growth tallies well on the benefit side of the ledger. Specifically, regions with well-managed growth seem to economically outperform all others. A recent study of 182 U.S. metropolitan areas, 26 of which have smart-growth programs, found growth-management to be positively associated with economic performance.[10] I reached a similar conclusion in a recent study of 47 U.S. metropolitan areas – those with higher densities, good job accessibility, and greater primacy (shares of jobs in the central city) averaged higher labor productivity, all else being equal.[11]

5. Mis-pricing and Fiscal Mis-allocations

Throughout the world, underpricing of scarce resources – fossil fuels, pristine landscapes, clean air, people's time – has propelled sprawl. So has the politicalization of road projects – namely capacity additions aimed at appeasing car-owning suburbanites. Suburbs receive more highway dollar, in Sydney and elsewhere, because that is where traffic is growing the fastest. With most of their roads already in place, built-up cities need funds to repave and rehabilitate aging infrastructure. New highways are often valued as much for their political capital as their physical capital – compared to maintenance projects, they generate more jobs and appeal more to voters anxious for quick fixes.

Sprawl and road building insidiously feed off each other. Trying to build roads fast enough to keep pace with ever-escalating demands for mobility drains public coffers of monies that might instead go to improve schools. In America, sprawl has been as much a consequence of bad inner-city schools (a "push" factor) as it has been of free-flowing suburban highways (a "pull" factor). Increasingly, transportation is less and less an

agent of white flight and central-city abandonment. However, it can be a catalyst to urban reinvestment and gentrification, as cities like Portland, Oregon show. My home town, Oakland, is a case in point. Lousy schools have prompted many middle-class families to leave the city in favor of California's central valley, even if it means enduring two-hour commutes. The Bay Area's exorbitant housing prices have accelerated the exodus. Yet Oakland is blessed with great transportation assets, notably a thriving port and BART rail-transit stations with superb regional access. It is ludicrous that Bay Area workers must live in far-flung communities to find decent schools and affordable housing at the same time neighborhoods around Oakland's BART stations cry out for redevelopment. Fixing the schools and curbing random violence is part of the solution to Oakland's woes. But so is exploiting the city's transportation assets. This is happening in and around Oakland's Fruitvale BART station which is slowly but steadily evolving into a mixed-use "transit village". Transportation, and specifically rail transit, is the centerpiece of Fruitvale's economic transformation.

Sprawl is nurtured by inter-modal funding biases as well. This certainly has been the case in the U.S. where highway construction dollars are pegged to the steady stream of gasoline tax receipts whereas public transport support is subject to whims of political brokering. European-like transit systems will always be a pipedream unless European-like financial support is provided – only then might the morphologies of Australian and American cities become more European-like. Of course, cities like Sydney will never be as dense than their European and Asian counterparts. Sydney's inner area, with the high concentration of people in Australia, contains a half million inhabitants, about one-fifth the density of Paris.[12] But on the other hand, neither does Sydney need to be as thinly spread and car-dependent as Houston or Atlanta.

Economists often argue that proper pricing – such as congestion fees, parking surcharges, and premature land-consumption taxes – would eliminate the need for smart growth campaigns and public interventionism. Design movements like the New Urbanism, transit-oriented development, and jobs-housing balance would quickly become passé. With substantially higher road prices, people would move closer to jobs and transit stops to economize on travel, and shops would be warmly welcomed into residential neighbourhoods. So far, road pricing is something that makes good sense in theory but which finds absolutely no political constituency, at least not in the United States. Martin Wachs, as chair of a national committee that explored the possibility of implementing road pricing in the United States, concluded that "except for professors of transportation economics and planning – who hardly constitute a potent political force – I can think of few interest groups that would willingly and vigorously fight for the concept...".[13] In the absence of true market-based pricing of transportation, public initiatives that reduce automobile dependence and thus help conserve finite resources must be turned to. In the jargon of economists, physical land-use planning becomes a second-best response to the inability to introduce first-best, pareto-optimal pricing.

6. Institutions and Politics

In America and to some degree Australasia as well, growing smart is complicated by messy institutional landscapes. Quite often, regional land-use patterns – which set the stage for travel – are the sum product of local, incremental decisions on where to locate a new shopping plaza, whether to rezone a particular land parcel, etc. Rarely do these decisions shape into a coherent vision of the future. One of many institutional

impediments to transportation-land use coordination is the mismatch between where decisions on land development are made – locally – and the transportation impacts are felt – regionally. Travel, of course, knows no boundaries. The effects of poor coordination get played out all too often as inefficiencies, negative spillovers, and fiscal disparities. In America, for instance, it is not uncommon for fast-growing communities to place regional trip generators, like big box retailers that fatten local tax coffers, near their boundaries so that surrounding communities absorb much of the traffic burden.

Worldwide, transportation planning is mired by bureaucratic inertia and redundancies. Ideally, jurisdiction over transport and land-use matters would match commutersheds – similar to the regional context in which water resources (watersheds) and air resources (airsheds) planning occurs. In practice, decision-making is fragmented across many jurisdictions and often multiple transportation service-providers (e.g., separate entities involved with public transport, highways, freight, ferry services, etc.).

Another institutional impediment to smart growth is the irregular pace of land-use change. Local and subregional growth often occurs incrementally, in fits and starts. Land-use maps are continuously changing because of zoning amendments, variances, and new subdivisions. In contrast, decisions on regionally important transportation improvemetns often occur in 2 to 3 year time increments, and are hard to reverse or change in response to unfolding land-use patterns. Thus whereas land use changes are fluid and on-going, large-scale transportation projects tend to be rigid and occur over much longer time increments.

Also hampering coordination is the reality that the benefits of careful transport-land use integration are often not evident until ten or more years in the future. This is inherently at odds with political systems that demand short-term payments, IMTO ("in my term of office"). Elected officials are much more likely to embrace a large-scale road project that immediately relieves congestion and generates lots of jobs and political capital than transit villages, jobs-housing balance, New Urbanism, and other land-use strategies with questionable near-term pay-offs.

Compared to the U.S., Australia's state governments have been far more progressive in coming to terms with auto-centric development. The New South Wales Government's integrated transport plan, *Action for Transport 2010,* sets a zero-growth VKT per capita target for the Sydney-Newcastle-Wollongong metropolitan area by 2011.. Such bold measures require a clear understanding of the science of land use and travel behaviour. An important first step is better knowledge on trip generation and modal choice behaviour, such as being advanced by the NSW Government in a study of "Traffic Generating Developments". What is particularly imperative is learning more about how land-use arrangements "de-generate" trips and favour transit, walking, and cycling. Knowledge must then be put to practice, such as embodied in sliding-scale impact fee programmes and integrated transport-land use modeling.

South East Queensland has also made headway in integrating metropolitan planning under its Integrated Regional Transport Plan (IRTP), which has been given the highest institutional status by the Queensland cabinet. The state itself is vested in the enterprise of coordinated planning under Queensland's Integrated Planning Act of 1998. The Act binds the State to integrated regional planning.

In the United States, all eyes are on the state Georgia where an all-powerful regional transportation authority has recently been formed. Called the Georgia Regional Transportation Authority (GRTA), the organization not only oversees the planning and expenditure of funds for all urban transportation improvements in the state, but also has broad control over regionally important land uses, like shopping malls, industrial parks, and sport stadia. Local land-use decisions must conform to broader regional transportation and development goals, otherwise GRTA can effectively veto the decision by threatening to cut off all state infrastructure funds. GRTA's formation was largely in reaction to decades of poorly planned growth in metropolitan Atlanta, matched by ever-worsening traffic congestion. The announced plans of a large high-technology employer to relocate out of Atlanta because of unsustainable traffic congestion and a declining quality of life was a political wake-up call. The region's new planning philosophy – one of balancing urbanization and transportation investments – aims to enhance mobility while also placing the region on a smart-growth pathway. The ability of GRTA to leverage the mix-use transformation of an in-city brownfield site abandoned by the Atlantic Steel company into a mixed-use village has been an important victory for smart growth. For purposes of securing Federal infrastructure funds currently frozen because of Atlanta's violation of air quality mandates, GRTA and others successfully argued that infill development would be less harmful to Atlanta's air basin than comparable growth on the car-dependent edges.

7. Transportation-Land Use-Air Quality Conundrum

Continuing on the air-quality theme, it not uncommon to hear "the solution to pollution is dilution" – i.e., sprawl poses fewer air pollution risks than compact development. One study found little difference in New Jersey's future air quality under sprawl or compact-city scenarios.[14] The danger with such analyses is that they focus solely on local and ignore global pollution. Yes, exposure levels (and thus health risks) are lower with sprawl, but tailpipe emissions and fossil-fuel consumption are greatly increased. Sprawl must be judged not only in terms of ozone levels but also greenhouse gas emissions. In this respect, the U.S. is as much in denial as any nation. America, a laggard in the move to exact carbon taxes and set greenhouse gas emission limits, has under 5 percent of the world's population but is responsible for about a quarter of transportation VKT and a third of carbon-dioxide emissions. (As a signatory to the Kyoto Agreement, Australia is far more committed to greenhouse gas reductions, with a 2008-2012 emissions target for the country as a whole of no more than 8 percent above 1990 levels).[15] Destructive weather patterns, some fear, are a harbinger of what's to come in a car-dependent world that emulates America's pattern of suburbanization.

8. Induced Demand

No issue has paralyzed highway programmes and side-tracked our ability to rationalize new road development as concerns over "induced travel demand". Time and again, experiences show that building new roads or widening existing ones, especially in fast growing areas, provides only ephemeral relief – in short time, they are once again filled to capacity. A study using 18 years of data from 14 California metropolitan areas found every 10 percent increase in highway lane-miles was associated with a 9 percent increase in vehicle-miles-traveled four years after road expansion, controlling for other factors.[16] Similar findings have been recorded in the United Kingdom.[17] In the United

States, regional transportation plans, such as in the San Francisco Bay Area, have been legally contested by environmental interest groups on the very grounds that they failed to account for the induced travel demand effects of road investments and expansions.

The on-going construction of circumferential roads around Australian cities unavoidably raises concerns over induced demand impacts. The NSW Roads and Traffic Authority (RTA) is moving ahead with the Sydney Orbital series that will ring the city with a network of circumferential highways, including the M2 (to the Northwest Sector) and M5 (to the southwest). As with all beltways, the aim is to deflect through traffic out of the center, expedite freight movements, and accommodate lateral, tangential trips. Experiences show that in fairly congested settings like Sydney, the augmentation of road capacity shifts growth as developers seek to exploit newly added accessibility. Parcels near interchanges become particularly valued and sought out. In the near term, there is "triple-convergence" – motorists switch modes, routes, and times of day to exploit available capacity. Over the long term, new roads induce structural shifts – namely, realignment of land development and a tendency toward higher car ownership as a result of more auto-centric landscapes. It is largely for this reason that VicRoads recently shelved plans to build the Scoresby Freeway east of Melbourne.

8. Inequities and Environmental Justice

New road development also pits the interests of in-city dwellers against those of the suburbs. America's legacy of radial superhighways that channel surburbanites to well-paying central city jobs has been at the expense of severing in-town communities, separating people by race and class, and social dislocation. Sydney's F2 highway proposal has sparked similar controversy over the destruction of urban bush land, the isolation of neighborhoods, and infringement upon archaeological sites. For these and other reasons, the project was scrapped. Melbourne's CityLink project (at $A1.8 million, Australia's largest single urban road project) has been faulted for similar reasons.

9. Regional Balance

Shaping regional growth to achieve public good has long been a central precept of sustainable planning principles, at least as early as Ebenezer Howard's celebrated *Garden Cities of Tomorrow.*[18] British, French, and Scandinavian post-war new towns embraced principles of balanced, self-contained growth as means of preserving natural landscapes and redressing social inequalities.[19] Jobs-housing balance has found favor in some American regions as a means to "rationalize" commutersheds by internalizing larger shares of motorized trips within sub-regions. Australia's much-ballyhooed multifunctional polis (MFP) – a high-tech, market-friendly urban prototype slated for bushlands north of Adelaide – similarly embraces balanced growth principles.

There is no better example of the efficiency and sustainability gains that come from balanced growth than Stockholm, Sweden. The last half-century of strategic regional planning has given rise to a regional settlement and commutation pattern that has substantially lowered car-dependency in middle-income suburbs. Stockholm planners have created jobs-housing balance along rail-served axial corridors. This in turn has produced directional-flow balances. During peak hours, 55 percent of commuters are typically traveling in one direction on trains and 45 percent are heading in the other

direction. Stockholm's transit modal share is nearly twice that found in bigger rail-served European metropolises such as Berlin and even higher than inner London's market share. Perhaps most impressive, Stockholm is one of the few places where automobility appears to be receding. Between 1980 and 1990, it was the only city in a sample of 37 global cities that registered a per capita decline in car use -- a drop off of 229 annual kilometers of travel per person.[20]

In America, jobs-housing imbalances are fundamentally a problem of barriers to housing production in jobs-rich cities. One of many policy challenges to American planners in coming years will be to work toward breaking down barriers to residential mobility. Among the most promising remedies is tax-base sharing, wherein jobs-surplus cities share their local tax receipts with bedroom communities that end up housing their workers.[21] In theory, this would remove the incentive to zone out apartments and other low tax-yielding/high service-demanding land uses. Another option tried in Boston and San Francisco with some degree of success is fair- share housing mandates. Prodding municipalities to "think regionally and act locally" remains a huge obstacle.

10. Privatization

Privatization of transportation facilities makes good sense in more than purely financial terms. The private sector largely dictates land development, and there is no reason it cannot successfully finance and integrate supportive infrastructure as well. Over the past century, there has often been a disconnect between privately-led land development and publicly provided infrastructure. The private sector is best positioned to ensure concordance between land and transport development. In America, this takes the form of *concurrency* laws, such as in the state of Florida, wherein private developers must furnish adequate infrastructure to accommodate their projects. In Australia, privatization has been mostly in the form of BOOT projects, like Sydney's M2 and Melbourne's City Link. While the promise of profiteering from tolls is partly behind private interests in road development, so is the prospect of ancillary real-estate development from land holdings near interchanges. While on the surface there is nothing wrong with this, the longer term implication is an acceleration of car-oriented development patterns. A public policy challenge is to elicit private participation in public transport development as well, at least as a counter-balance to privately built highways. Experiences in Tokyo and Osaka show privatization of suburban railway development can spur compact, mixed-use patterns of suburbanization.[22] In Japan, suburban railway companies are mainly in the real estate business. Transportation is a loss-leader in that huge profits are derived from land sales near railway stations. Companies make handsome profits through value capture, but society at-large generally benefits from the close nexus between rail and land-use development.

11. Bus-Based TODs

Because of Australia's generally low population densities, outside of central Sydney and Melbourne, bus-based transit offers more promise than rail in wooing motorists out of cars. However, buses suffer from the stigma of second-class forms of mobility, though Europe's mass introduction of low-floor, bubble-glass equipment could soon change that image. There remains a popular perception that bus stations are not attractive places for compact village development – whether for reasons that diesel fumes are

unattractive (though CNG buses can fix this problem) or too many undesirables hanging around bus depots. The absence of much TOD (transit-oriented development) along Adelaide's northwest track-guided busway (Tea Tree Gulley, notwithstanding) lends credence to this view. However, what ultimately drives development is accessibility gains – whether in the form of rubber tyres on concrete or steel wheels on steel rail. Cities like Ottawa, Canada and Curitiba, Brazil show that bus-based TODs can be every bit as successful as rail TODs as long as they are accompanied by forward-looking, intelligent planning. Brisbane is attempting to emulate these successes by using bus rapid transit to shape growth. As the nation's fastest growing city, Brisbane has as much to gain from smart growth as any Australian city.

11. Resourcefulness

Smart growth is intimately tied to smart pricing and being resourceful. Countries like France, Denmark, and Sweden have held sprawl in check by heavily taxing electricity and petroleum consumption at a rate three to four times higher than in the United States. Besides encouraging the use of smaller cars and appliances, pricing that reflects the scarcity value of resources encourages the commingling of land uses. In Europe, this takes the form of workplaces situated within convenient reach of residences, and in-neighborhood shops and restaurants that reduce the need for gigantic, electricity-hungry refrigerators and freezers.

In the U.S., car parks are arguably the most wasteful of all land consumers. Zoning codes – notorious for inflating parking supplies that in turn drive up the cost of development – bear much of the blame.[23] Over-zoning is particularly problematic in the suburbs where surface parking often consumes twice as much land as the footprint of buildings. Many German cities lower mandatory parking requirements depending upon how close a new development is to a high-quality public transport node. Zürich, Switzerland has constrained parking supplies so much that over a third of middle-income families do not own cars, relying on a combination of car-sharing and superb public transport (which enjoys signal priority throughout the city).

A good example of being resourceful is adaptive re-use of urban spaces. Sydney's soon-to-be transformation of the Olympic village at Homebush Bay into a transit-oriented village promises to be a showcase of resourcefully recycling valuable in-city land. Through intelligent design and planning, Vancouver managed to successfully transform what was a moribund waterfront into a vibrant mixed-use village in the wake of the 1986 World Expo.

Even in the U.S., adaptive re-use is gaining currency, mainly taking the form of re-using superfluous surface parking lots. Car parks are proving to be a blessing in disguise for they provide large swaths of pre-assembled land. Most attractive are surface parking lots at train stations since they enjoy great accessibility. Many were originally overbuilt, thanks to generous federal funding for rail development. As areas have matured and surrounding land values have increased, market pressures are prompting U.S. transit agencies to sell off at least portions of them as a means to both create a ridership base and to reap windfalls in the form of value capture. Often, the profits earned are more than enough to cover the cost of replacement structured parking, freeing up land for infill development. Surface parking conversion, then, is a back-door form of land-banking,

which in many European cities, including Stockholm, has been a principle means of leveraging transit-oriented development.

The city of San Jose, California and the Santa Clara Valley Transportation Authority (SCVTA) recently joined forces in designing a mid-rise, mixed-use project on the park-and-ride lot at the Ohlone-Chynoweth light rail station. Historically, the region's light-rail system has struggled to build a ridership base in large part because much of its service territory is the Silicon Valley, a landscape of sprawling office campuses and car-oriented shopping plazas. However, as the demand for affordable housing with good access to the Silicon Valley has intensified, local policy-makers have come to the realization that parking-lot infilling was too good of an opportunity to pass up. At the time of project development, only 30 percent of the 1,140 original parking spaces at the Ohlone-Chynoweth station were used. Already, 500 parking spaces have been converted to 195 units of two and three story town homes, a retail plaza, a child-care facility, and a community recreation center.

Another promising area is to smartly re-use antiquated and dysfunctional shopping centers. The trend in retailing toward warehouse-shopping, e-commerce, and mega-entertainment malls has led to the closure of many out-dated 1960s and 1970s shopping centers across the United States. Like rail parking lots, one of the biggest assets of dying shopping centers is their huge amount of pre-assembled real estate. One of the more successful adaptive re-uses of a shopping center and integration with rail transit is The Crossings project in Mountain View, California. The Crossings is an 18-acre compact, mixed-use, and walkable neighborhood near a commuter rail line some 30 miles south of San Francisco. It replaced a slowing dying shopping center and movie theater that were surrounded, in big-box fashion, by a huge, underutilized surface parking lot. The project's 540 housing units have commanded a rent premium, partly because of proximity to rail and partly because of the high-quality of urban design. Many well-paid young professionals with jobs in downtown San Francisco and the nearby Silicon Valley have opted to buy into The Crossings, drawn by its ambience and exceptional accessibility to transit. Generous landscaping and public spaces punctuated by an internal pathway network have created a highly attractive urban milieu, notwithstanding residential densities of 30 units per acre, fairly high by suburban California standards. Zero-lot lines and rear-lot parking have allowed such densities to be achieved. As a gateway to the Mount View CalTrain station, The Crossings stands as one of the few transit villages oriented toward commuter rail.

Pivotal to the success of growth is the rewarding of socially and ecological responsible behaviour. This might take the form of granting credits to impact fees, targeting complementary public improvements, fast-tracking development permits, and offering tax concessions. Zürich, Switzerland rewards efficiency by dedicating the majority of road rights-of-way to trams, buses, and bicycles.[24] Advanced monitoring and information technologies have also been used to give preferences to trams and buses at virtually all signalized intersections as well as to provide a continuous flow of information to customers about when transit vehicles are expected to arrive. Minimum-delay, surface-street transit connections have won over most Zürich residents to public transit, producing one of the highest per capita ridership levels in the world. Zürich is also one of the world's wealthiest cities on a per capita basis. Who says compactness, prosperity, and ecological transportation can't go hand in hand?

12. Multi-Sectoral Planning

Coping with transport problems through the narrow perspective of transport planning is a recipe for failure. Transport problems are also housing problems. Why many young couples and first-time home-buyers reside on the metropolitan fringes and endure ultra-long commutes has a lot to do with the unaffordability of decent in-city housing. Peripheral communities like Baulkham Hills and Belgrave owe their existence, in part, because many families are displaced from the middle-class housing markets of Sydney and Melbourne. The Ultimo-Pyrmont area near Sydney's Darling Harbor is a good example of infill housing development based on low car ownership and high environmental quality.

Linking transport and housing policy makes good financial sense. Together, transportation and housing often make up a good half or more of household consumption expenditures. To the degree less is spent on transport, more income is freed up for housing consumption. This is partly the philosophy of Europe's successful car-limited settlements and car-sharing schemes. In the U.S., the concept of Location Efficient Mortgages (LEMs) has gained currency. If transit-oriented living lowers transportation by relieving residents of the need to own a second car, this frees up more earnings for housing consumption. This should be reflected by commercial banks when qualifying applicants for home mortgages. Demonstration programs, co-sponsored by Fannie Mae (federal mortgage insurance agency) and several private banks, are currently under way in Chicago, Seattle, and Los Angeles to pilot-test the location-efficient mortgage concept.

13. Accessibility Planning

Accessibility reflects the ability to efficiently and conveniently reach frequently visited places. It can be enhanced either by increasing travel speeds or by bringing urban activities closer together, or some combination thereof. Replacing automobility planning with accessibility planning means social and community considerations take precedence over individualistic ones. It also recognizes what cities are about, first and foremost -- *people* and *places*, not *movement*.

Decentralization pressures are working against accessibility throughout the world. Work trip lengths in eleven large European cities increased from 8.1 km in 1980 to 9.6 km in 1990, an 18.5 percent rise.[25] In Shanghai, journeys-to-work lengthened, on average, from 6.2 km in 1981 to 8.1 km ten years later.[26] Trip distances in Santiago are rising by 1.3 percent a year. Longer trips have increased automobile dependence -- motorized travel per person in greater Santiago doubled between 1977 and 1991 and the automobile's mode share has risen from 10 percent in 1977 to 25 percent today.[27]

Efficient, well-managed cities minimize the need to travel, enabling residents to spend time more productively at desired destinations rather than fighting traffic. Accessible communities bring activities closer together by in-filling, inter-mixing land uses, and promoting tele-travel. Broadening our objectives to include accessibility inescapably leads to a wider array of approaches to physical planning, including better land-use management.

The co-development and integration of land-use and transportation can substantially enhance accessibility. Curitiba, Brazil is a case in point. Curitiba, widely viewed as one of the world's most sustainable, well-managed metropolises, is also one of the most accessible – a product of some forty years of carefully integrating urbanization and transportation improvements. By emphasizing planning for people rather than cars, Curitiba has evolved along well-defined linear axes that are intensively served by dedicated busways. Along some corridors, elephant-trains of double-articulated buses haul 16,000 passengers per hour, comparable to what much pricier metro-rail systems carry.[28] A design element used to enhance accessibility is the "trinary" – three parallel roadways with compatible land uses. An important benefit of mixed land uses and transit service levels along these corridors, besides phenomenally high ridership rates, has been balanced, bi-directional flows, ensuring efficient use of available bus capacity. On a per capita basis, Curitiba is Brazil's second wealthiest city yet it averages considerably more transit trips than much-bigger Rio and São Paulo. It also boasts the cleanest air among any Brazilian city, despite being a provincial capital with a sizable industrial sector. The strong, workable nexus that exists between Curitiba's bus-based transit system and its linear settlement pattern deserves most of the credit.

The Dutch take the concept of accessibility-based planning to the ultimate degree through their A-B-C programme. Dutch planners draw *mobility profiles* for new businesses which define the amount and type of traffic likely to be generated. They also classify various locations within a city according to their *accessibility levels*. A study showed that putting businesses that generate lots of traffic per square meter of development in transit-oriented locations results in, on average, a 41 percent transit mode split versus just 12 percent if the same business is placed in an otherwise comparable auto-centric location.[29]

14. Livability

Along with accessibility and sustainability, smart growth advances the goal of "livabilility". Livability applies principles of sustainable planning to the scale of the neighborhood. It is about the human need for social amenity, health, and well-being.

Many European cities have brought livability to the forefront of transportation planning, opting for programs that tame and reduce dependencies on the private car. Traffic calming is one such approach, pioneered by Dutch planners who have designed in speed humps, realigned roads, necked down intersections, and planted trees and flowerpots in the middle of streets to slow down traffic. With traffic calming, the street is viewed as an extension of a neighborhood's livable space – a place to walk, chat, and play. Automobile passage becomes secondary. After traffic-calming its streets in the early 1990s, the city of Heidelberg, Germany witnessed a 31 percent reduction in accidents and a 44 percent reduction in casualties.[30]

15. Cyber-cities of Tomorrow

A prominent feature of tomorrow's accessible city will be the distributed workplace. The growth in communications industries, back offices, self-employed entrepreneurs, and cottage industries will spread more and more workplaces into the suburbs, exurbs, and rural hinterlands. New types of communities are already beginning to take form. Some,

like Montgomery far north of Toronto, have been developed and marketed as mixed-use communities suited to telecommuters who only need to make the 100-km long trek to their main office in central Toronto once or twice a week.

Some have speculated that home-working and tele-commuting will fail to bring about transportation and environmental benefits because people will adjust by making more and longer non-work trips; borrowing from time-budget theory, the suggestion is that people have an innate and insatiable desire to travel, and when denied this unalienable right, they compensate by driving more often to shopping malls or taking longer weekend excursions. A study of a pilot tele-commuting programme of 200 government employees in Sacramento, California found just the opposite.[31] VMT went down among tele-commuters (to just 20 percent of the distance they normally travelled on commuting days), and on the one or two days a week when they went to their offices, they tended to make more efficient trips (e.g., chaining work, shopping, and personal business travel). Even greater reductions in travel were found several months into a tele-commuting demonstration program in Rijswijk, The Netherlands.[32] A recent study of tele-work centers, which are neighborhood-based shared workplaces equipped with advanced communications facilities, in the greater Seattle-Tacoma area found VMT was cut by more than half.[33] Yet telecommunications has not proven to be the panacea that some had hoped for, in large part because most occupational roles are not suited for home-working, at least not on a regular basis. Management fears of losing oversight controls over tele-workers have also thwarted past initiatives. Another concern is that home-workers will feel cut off from office social life and promotion opportunities. It is for these reasons that part-time tele-commuting, say working at home one or two days a weeks and in the office the remaining workweek, has gained popularity.

Whether telematics and the internet will substitute for or stimulate physical tavel is anyone's guesss. What is abundantly clear, however, is that future travel will take on new shapes and forms: international trips (air travel) will increasingly substitute for intrametropolitan trips (car travel); with e-commerce, truck delivery trips will replace personal shopping trips; and real-time information on how to avoid congestion will enhance automobility. Such structural shifts, of course, will exert strong land-use influences every bit as much as did past transport innovations. E-commerce suggests the emergence of goods distribution centers in many pockets of the city. Cyber-work will exert pressures for in-neighborhood shops, services, and "watering holds" for those wanting a break from staring at the screen for four straight hours. Global-sourcing promises that airports and all the ancillary activities around them will become dominant activity centers and trip generators.

It is sometimes said transportation and land-use planning is today inconsequential because transportation is of weakening importance in location decisions. Such banter is totally blind to the reality that we are today in the midst of revolutionary changes in forms of transport – albeit more in the way of ideas and information than physical movement. While the canvass in which we are working with is vastly enlarged, the need for integrating land development and transportation is as great today and in the foreseeable future as anytime in our history.

16. Command-and-Control or Choice?

Smart growth is sometimes ridiculed for being tantamount to "command and control planning". Clearly, living in compact, mixed-use, easily walkable communities is not for everyone. Middle-class and well-to-do households with several or more children and a preference for privacy and seclusion will continue to reside mostly in the suburbs and beyond. Back-office functions will continue to flock to outlying and far-flung places where real estate prices are cheaper. Big-box retailers and multi-plex cinemas will continue sprouting on the outskirts. Smart-growth initiatives in no way intervene in such free-market locational choices as long as those making the choice pay something which comes reasonably close to reflecting true social costs. Rather, smart growth – whether in the form of an infill housing project on a former transit parking lot or an edge city with a balance of jobs-to-housing and roads-to-busways – is mainly about expanding choices and offerings in a free market context. More variety in housing choices, in particular, is an adaptation to the steady growth in single-person households, childless couples, and empty-nesters, many of which prefer in-city, small-lot living in attractive environments that are well-served by public transport and easy to get around by bike and foot. Variety and choice is something that finds broad political and ideological appeal. It is precisely for this reason that smart-growth will ultimately prevail as the dominant paradigm of community-building in the twenty-first century.

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CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Climate Action Team Report to Governor Schwarzenegger and the Legislature

CALIFORNIA

Climate

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March 2006

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1 INTRODUCTION

California has a long history of environmental leadership. Motivated by the stunning natural beauty of our coastline, inland valleys, forests and mountains, as well as by the public health and environmental challenges brought on by increasing levels of pollution, California's citizens have repeatedly called for and supported measures to protect California's environmental heritage. Our political leadership and governmental institutions have responded with a variety of initiatives that restore, protect, and enhance the environment to ensure public health, environmental quality, and economic vitality. Often these California initiatives have provided a benchmark and template for further action both nationally and internationally.

This tradition of environmental leadership continues to this day. In 2005, recognizing that global warming will impose compelling and extraordinary impacts on California, the Governor signed Executive Order S-3-05 which established climate change emission reduction targets for the state and set in motion a process to ensure the targets are met. This Executive Order also recognized the importance of preparedness in that it directed the Secretary of the California Environmental Protection Agency (Cal/EPA) to lead an effort to evaluate the impacts of climate change on California and to examine adaptation measures that would best prepare the state to respond to the adverse consequences of climate change.

1.1 Organization of the Report

The report begins (Section 2) with an overview of the scientific evidence regarding climate change and its potential effects in California. Section 3 outlines the long history of previous actions that California has taken to understand and address the threat of climate change. Section 4 provides an overview of the scenario analysis that was done to evaluate the impacts of climate change on California, potential adaptation measures that can be taken to best respond to those impacts, and an economic assessment of the impacts. Section 5 presents the Climate Action Team recommendations regarding strategies the state should pursue to reduce climate change emissions.

Section 6 outlines market-based options for the state and includes a discussion of design choices that need to be further evaluated prior to adoption of a market-based program for the state. Section 7 discusses all possible emission reduction implementation options that were considered by the Climate Action Team, including market-based options. Section 8 covers a broad assessment of the economic implications of state actions to reduce climate change emissions. Section 9 looks specifically at potential impacts on minority and low-income communities. Section 10 contains the Climate Action Team's recommendations to the Governor and the Legislature.

2 CLIMATE CHANGE OVERVIEW

The Earth's climate has always evolved—the extremes of the 100,000-year ice-age cycles in both climate and climate change emissions over the last half million years are well documented. The period of the last 10,000 years has been warm and stable, and the last millennium, over which current societies have developed, has been one of the most stable climates observed. Yet, during the 20th century, we have observed a rapid change in the climate and climate change pollutants that is attributable to human activities.

These recent changes in climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone. Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.

It is true that levels of natural climate change pollutants have fluctuated in the past. However, there are several reasons for attributing the rise in climate change pollutants to anthropogenic, rather than natural emissions. The first indicator comes from comparing the current increase with changes that have occurred in the past.

At the end of the last ice age, the concentration of CO_2 increased by around 100 ppm (parts per million) over about 8,000 years, or approximately 1.25 ppm per century. Since the start of the industrial revolution, the rate of increase has accelerated markedly. The rate of CO_2 accumulation currently stands at around 150 ppm/century—more than 200 times faster than the background rate for the past 15,000 years.

The heat-trapping property of climate change pollutants is undisputed. Although there is uncertainty about exactly how and when the Earth's climate will respond to increasing concentrations of climate change pollutants, combining observations with climate models indicates that detectable changes are underway. There most likely are and will continue to be changes beyond global mean warming, such as changes in regional temperature extremes, precipitation, soil moisture, and sea level, all of which could have significant adverse effects on many ecological systems, as well as on human health and the economy.

This section first presents the causes and projections for climate change, then discusses climate change pollutants. It includes a definition of global warming potentials and climate change pollutants. The section concludes with a brief discussion of abrupt climate change.

2.1 Climate Change Causes and Projections

Climate change is a shift in the "average weather" that a given region experiences. This is measured by changes in the features that we associate with weather, such as temperature, wind patterns, precipitation, and storms. Global climate change means change in the climate of the Earth as a whole. The Earth's natural climate has always been, and still is, constantly changing. The

climate change we are seeing today, however, differs from previous climate change in both its rate and its magnitude.

The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Naturally occurring climate change pollutants, primarily water vapor, CO_2, CH_4, and N_2O, absorb heat radiated from the Earth's surface. As the atmosphere warms, it in turn radiates heat back to the surface to create the greenhouse effect. The Earth's surface temperature would be about 34°C (61°F) colder than it is now if it were not for the natural heat trapping effect of climate change pollutants like CO_2, CH_4, N_2O, and water vapor.

Human activities are exerting a major and growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying the land surface. The concentration of CO_2 in the atmosphere has risen about 30 percent since the late 1800s (National Assessment Synthesis Team [NAST], 2001). This increase has resulted from the burning of coal, oil, and natural gas, and the destruction of forests around the world to provide space for agriculture and other human activities.

Global projections of population growth and assumptions about energy use indicate that the CO_2 concentration will continue to rise, likely reaching between two and three times its late-19th-century level by 2100. Figure 2-1 shows the atmospheric CO_2 concentration from year 1000 to year 2000 from ice core data and from direct atmospheric measurements during the past few decades. Projections of CO_2 concentrations for the period 2000 to 2100 are based on model predictions.

Figure 2-1: Past and future CO_2 atmospheric concentrations. (Source: IPCC 2001 Synthesis report)

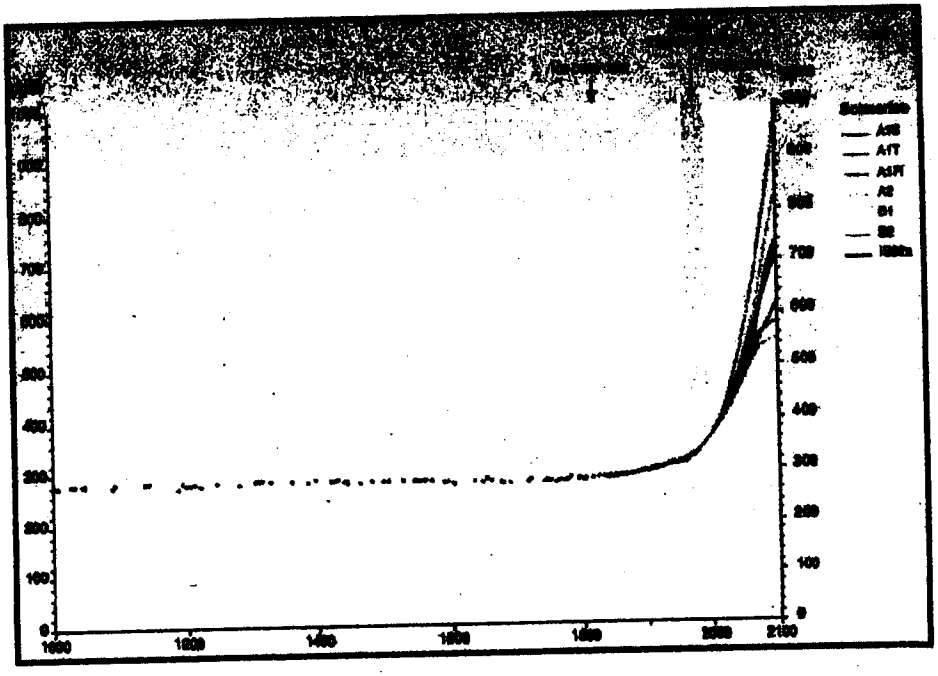
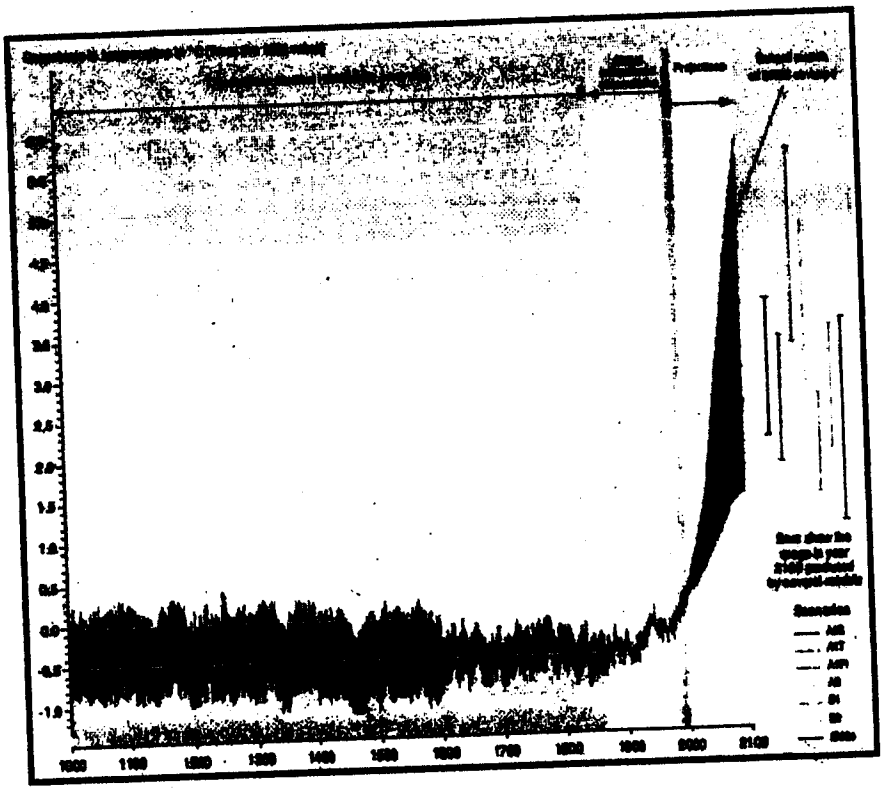


Figure 2-2 shows variations of the Earth's surface temperature for years 1000 to 2100. From year 1000 to year 1860 variations in average surface temperature of the Northern Hemisphere are reconstructed from proxy data (tree rings, corals, ice cores, and historical records). The line shows the 50-year average; the gray region, the 95 percent confidence limit in the annual data.

For the period 1860 to 2000, the figure shows variations in observations of globally and annually averaged surface temperature from the instrumental record; the line shows the decadal average. For 2000 to 2100, projections of globally averaged surface temperature are shown for several model scenarios using a global climate model.

The Third Assessment Report of the International Panel on Climate Change (IPCC, Synthesis Report, 2001) and the National Research Council of the National Academies (NRC, 2001) conclude that the global climate is changing at a rate unmatched in the past 1,000 years. The IPCC assessment cites new and stronger evidence that most of the global warming observed over the last 50 years is attributable to human activities and that anthropogenic climate change will persist for many centuries.

Figure 2-2. Variations of the Earth's surface temperature: years 1000 to 2100 (Source: IPCC 2001 Synthesis report)



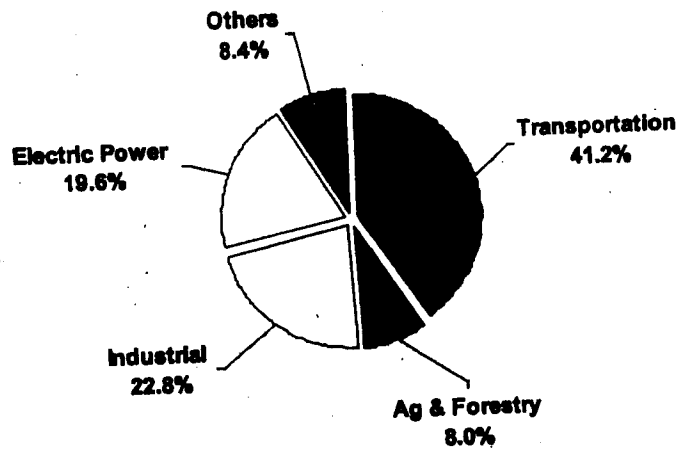
Many sources of data indicate that the Earth is warming faster than at any time in the previous 1,000 years. The global mean surface temperature has increased by 1.1° F since the 19th century (IPCC Synthesis report, 2001). The 10 warmest years of the last century all occurred within the last 15 years.

For example, 2002 and 2003 are tied as the second warmest years on record, according to a year-end review of climate data by the National Oceanic and Atmospheric Administration. Both the IPCC (2001) and the NAST (2001) reports project that warming in the 21st century will be significantly larger than in the 20th century. Scenarios examined in these assessments indicate that temperatures in the U.S. will rise by about 5° to 9°F (3° to 5°C) on average in the next 100 years.

2.2 Climate Change Emission Sources and Pollutants

As shown in Figure 2-3, fossil fuel consumption in the transportation sector was the single largest source of California's climate change emissions in 2002, with the industrial sector as the second-largest source. Electricity production, from both in-state and out-of-state sources, was the third-largest source. Agriculture, forestry, commercial, and residential activities comprised the balance of California's climate change emissions (CEC, 2005).

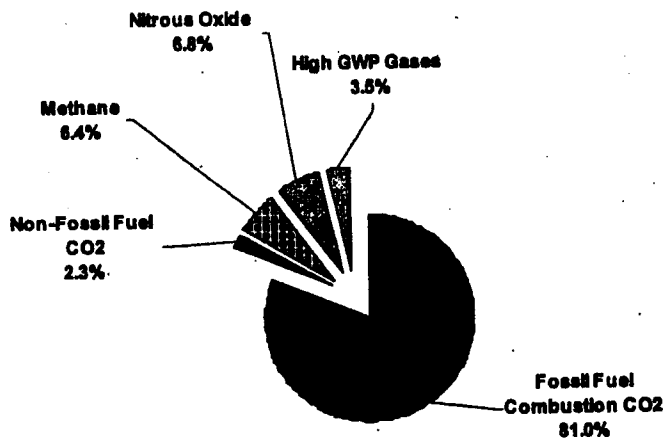
Figure 2-3: Sources of California's Climate Change Emissions, 2002 Expressed in Terms of CO2 Equivalence (adapted from CEC, 2005).



As previously indicated, human activities are altering the chemical composition of the Earth's atmosphere through the release and build-up of climate change emissions. However, climate change pollutants such as water vapor, CO2, CH4, N2O, and O3 can also be associated with natural sources. Conversely, several classes of halogenated substances that contain fluorine, chlorine, or bromine are also climate change emissions, but they are, for the most part, solely a product of industrial activities.

Figure 2-4 provides a distribution of California anthropogenic climate change pollutants by gas in 2002, expressed in terms of CO_2 equivalence. In addition, there are a number of other pollutants such as carbon monoxide, nitrogen oxides, and aerosols that have direct or indirect effects on terrestrial or solar radiation absorption. Individual climate change species are briefly discussed in the following section.

Figure 2-4: California Composition of Gross Climate Change Pollutants, 2002 Expressed in Terms of CO2 Equivalence (adapted from CEC, 2005).



Carbon Dioxide (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Increased CO_2 concentrations in the atmosphere have been primarily linked to increased combustion of fossil fuels. Fossil fuel combustion accounted for 98 percent of gross California CO_2 emissions. California's total CO_2 emissions from fossil fuel combustion in 2002 were 360 million metric tons CO_2, which accounts for approximately 7 percent of the U.S. emissions from this source. The transportation sector accounted for the largest portion of CO_2 emissions with gasoline consumption accounting for the greatest portion of emissions.

Methane (CH_4)

Methane accounted for approximately 6 percent of gross 2002 climate change emissions in California (CO_2 equivalent). Methane is produced during anaerobic decomposition of organic matter in biological systems. Decomposition occurring in landfills accounts for the majority of anthropogenic CH_4 emissions in California and in the United States as a whole. Agricultural processes such as enteric fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.

Nitrous Oxide (N_2O)

Nitrous oxide emissions accounted for nearly 7 percent of climate change emissions (CO_2 equivalent) in California in 2002. The primary sources of anthropogenic N_2O emissions in California are agricultural soil management and fossil fuel combustion in mobile sources.

Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion emit N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. U.S.EPA estimates from 2003 suggest that in 2001, N_2O emissions from mobile combustion were 13 percent of U.S. N_2O emissions, while stationary combustion accounted for 3 percent.

Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur Hexafluoride (SF_6)

HFCs, PFCs and SF_6 accounted for about 3.5 percent of gross 2002 climate change emissions in California (CO_2 equivalent). HFCs are primarily used as substitutes for ozone-depleting substances (ODS) regulated under the Montreal Protocol. PFCs and SF_6 are generally emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

Other Radiatively Important Gases

In addition, there are a number of man-made pollutants, emitted primarily as by-products of combustion (both of fossil fuels and of biomass), that have indirect effects on terrestrial or solar radiation absorption by influencing the formation or destruction of other climate change emissions. These include carbon monoxide (CO), nitrogen oxides (NO_X), nonmethane volatile organic compounds (NMVOCs), and sulfur dioxide (SO_2).

These compounds, regulated in the U.S. and California pursuant to the Clean Air Act, are often referred to as "criteria pollutants." The criteria pollutants are reactive compounds, and they tend to remain in the atmosphere for a much shorter time (typically hours to months) than the previously discussed gases. As shown in Table 2-1, CO_2, N_2O, CH_4, and HFC-134a have atmospheric lifetimes ranging from a century to 10 years.

The sequence of reactions that removes CO, NO_X, and NMVOCs from the atmosphere, however, tends to promote the formation of tropospheric O_3 which is also a potent climate change emission. At present, there is large scientific uncertainty in estimating the radiative forcing effects of criteria pollutants.

Aerosols

Aerosols are extremely small particles or liquid droplets found in the atmosphere. Various categories of aerosols include naturally produced aerosols (e.g., soil dust, sea salt, biogenic aerosols, and volcanic aerosols), and anthropogenic aerosols (e.g., sulfates, ammonium nitrate, industrial dust, and carbonaceous aerosols including black carbon and organic carbon). Anthropogenic aerosols are derived directly or indirectly from transportation, coal combustion, cement manufacturing, waste incineration, and biomass burning.

Aerosols affect radiative forcing in both direct and indirect ways: directly by scattering and absorbing solar and thermal infrared radiation; and indirectly by altering the cloud properties and atmospheric heating rates that in turn modify the formation, precipitation efficiency, and radiative properties of clouds. The effect of aerosols on regional and global climate is complex: in general, sulfate aerosols enhance the reflection of sunlight and cool the Earth, while black carbon aerosols enhance the absorption of sunlight and warm the Earth.

Understanding the role of aerosols in climate change requires inclusion of realistic representations of aerosols and their radiative forcings in climate models. However, uncertainty in aerosol radiative forcing arises because neither emissions, atmospheric abundance, optical properties, nor indirect effects are well characterized. The IPCC (2001) and the NACIP (2002) have identified the total (direct and indirect) radiative forcing due to aerosols, and in particular light absorbing aerosols, as one of the most uncertain components of climate change models.

Water Vapor

It should be noted that just because water vapor is the most important contributor to the natural greenhouse effect does not mean that human-made climate change emissions are unimportant. However, human activities do not seem to be appreciably changing the atmospheric concentration of water vapor in any direct way on the global average.

A simple comparison of the relative greenhouse efficiencies of water vapor and CO_2 quickly becomes problematic because water vapor enters the climate system mostly as a "feedback" gas. Further, water stays in the atmosphere for a few days, while other climate change emissions linger for decades or centuries. The overall impact of water vapor with respect to global climate change is not well understood as it can lead to both warming (absorption of long-wave radiation from Earth) and cooling (cloud formation/reflection of solar radiation).

2.3 Global Warming Potentials

Radiative forcing is often defined as a net imbalance in energy flux in the atmosphere, and is expressed in watts per square meter (W/m^2), i.e. heat per area of the Earth's surface. Radiative forcing of the surface-troposphere system, resulting, for example, from a change in climate change pollutant concentrations, is the change in the balance between radiation coming into the atmosphere and radiation going out. A positive radiative forcing tends, on average, to warm the surface of the Earth, and negative forcing tends, on average, to cool the surface.

The impact of a climate change pollutant upon the atmosphere is related not only to radiative properties of the gas and its initial abundance, but also to the length of time the climate change pollutants remain in the atmosphere. Radiative properties control the absorption of radiation per kilogram of gas present at any instant, but the lifetime of the gas controls how long an emitted kilogram remains

in the atmosphere and hence its cumulative impact on the atmosphere's thermal budget.

Gases in the atmosphere can contribute to the greenhouse effect both directly and indirectly. Direct effects occur when the gas itself is a climate change pollutant. Indirect radiative forcing occurs when chemical transformations of the original gas produce other climate change pollutants, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., cloud formation).

The concept of a Global Warming Potential (GWP) has been developed in parallel to the concept of ozone depletion potential developed under the Montreal Protocol to compare the ability of each climate change pollutant to trap heat in the atmosphere relative to another gas.

Carbon dioxide, as the primary anthropogenic climate change pollutant, has been chosen as the reference gas. GWP is defined as the ratio of the time-integrated radiative forcing from the release of 1 kilogram of a trace substance relative to that of 1 kg of CO_2 (IPCC 2001). While any length of integration can be selected, the 100-year GWPs are recommended by the IPCC and will be employed for policy-making and reporting purposes.

GWP values allow a comparison of the impacts of emission changes (reductions or increases) of different gases. According to the IPCC (2001), GWPs typically have an uncertainty of ±35 percent. In addition to communicating climate change pollutants in units of mass, we have also chosen to use GWPs to reflect their inventories in CO_2-equivalent terms because it effectively places all of the climate change pollutants on the same comparative scale.

Table 2-1 lists GWPs for CO_2, CH_4, N_2O, and HFC-134a for the 20-, 100-, and 500-year time horizons. It should be noted that when the lifetime of the species in question differs substantially from the response time of CO_2 (nominally about 150 years), then the GWP becomes very sensitive to the choice of time horizon. The GWP concept is only relevant for compounds that have sufficiently long lifetimes to become globally well-mixed. Therefore, short-lived gases and aerosols with varying atmospheric distributions and lifetimes pose a problem in the simple GWP framework.

Table 2-1. Numerical Estimates of Global Warming Potentials Compared with CO_2 (Kilograms of Gas Per Kilogram of CO_2 adapted from IPCC 2001).

[redacted]	[redacted]	[redacted]		
		20 years	100 years	500 years
CO_2	~150	1	1	1
CH_4	12	62	23	7
N_2O	114	275	296	156
HFC-134a	14	3,300	1,300	400

2.4 Abrupt Climate Change

When most people think about climate change, they imagine gradual increases in temperature and only marginal changes in other climatic conditions, continuing indefinitely or even leveling off at some time in the future. It is assumed that human societies can adapt to gradual climate change. However, recent climate change research has uncovered a disturbing feature of the Earth's climate system: it is capable of sudden, violent shifts. This is a critically important realization.

Climate change will not necessarily be gradual, as assumed in most climate change projections, but may instead involve relatively sudden jumps between very different states. A mounting body of evidence suggests that continued increasing climate change emissions may push the oceans past a critical threshold and into a drastically different future.

Abrupt climate change is the subject of reports commissioned by the National Academy of Science (NRC 2002) and the U.S. Department of Defense (Schwartz and Randall, 2003). Thus, in addition to the gradual (albeit accelerated) climate changes projected by current climate models, Californians need to be aware of the possibility of much more sudden climate shifts.

2.5 Summary

There is little doubt that climate change is happening today, that human-caused increases in the atmospheric abundance of climate change pollutants are a large cause of that change, and the 21st century climate change will be greater than that we have experienced in the 20th century. Much of that projected climate change is as yet unrealized warming from the climate change pollutants in the atmosphere today. Nevertheless, actions taken to reduce climate change emissions today can reduce the magnitude and rate of climate change this century.

environmental, public health, and economic challenges, and work in partnership with other State programs to advance energy efficiency and renewable energy. The CA H2 Net mission is to assure that hydrogen infrastructure is in place as fuel cells and other hydrogen technologies reach commercial readiness.

Hydrogen can be derived from a variety of sources including petroleum based feedstock to a range of renewable resources. To assure that the production of hydrogen and operation of hydrogen fueled vehicles is environmentally beneficial the CA H2 Net has the clearly defined goals of utilizing at least 20 percent renewable resources in the production of hydrogen, reducing climate change emissions by at lease 30 percent, and to not increase smog forming and toxic pollutants relative to fossil fuel vehicle use.

Achieve 50% Statewide Recycling Goal

Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. Currently a diversion rate of 48 percent has been achieved on a statewide basis. This strategy would result in achieving an additional 2% waste diversion of recyclables from landfills using existing authorities and mandates, collection infrastructures, and recycling processes.

Landfill Methane Capture

Methane production varies greatly from landfill to landfill depending on site-specific characteristics such as the quantity of waste in place, waste composition, moisture content, landfill design and operating practices, and climate. Unless captured first by a gas recovery system, methane generated by the landfill is emitted when it migrates through the landfill cover to the atmosphere and becomes a potent climate change emission.

Landfills can install direct gas use projects or electricity projects with backup flare systems to capture and use methane. The technical applicability of any mitigation option is dependent on the amount of landfill gas generated by landfills in a given size category.

Zero Waste—High Recycling

Additional recovery of recyclable materials from landfills will reduce the climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. Transforming organics/biomass and plastic waste into marketable products will also reduce the amount of material going to landfill, and therefore will further reduce climate change emissions. Currently, the State is mandated to divert 50 percent of waste going to landfills as established by the Integrated Waste Management Act of 1989. Efforts to exceed the 50 percent goal would allow for additional reductions in climate change emissions.

5.3 Strategies the Resources Agency will Implement over the Next Two Years

Table 5-2 lists all of the strategies that Resources Agency will implement over the next two years. The Forest management efforts promise not only climate change emission reductions but also protect biodiversity, water quality and habitat resources. For three decades the California Energy Commission has led the world with the most progressive new building and appliance efficiency standards. These efficiency standards have provided substantial climate change emission reductions and have saved consumers about $1,000 per household in California. Finally, by reducing the energy used to transport and deliver water in the State and increasing water use efficiency California can both protect our water supply and reduce climate change emissions.

Table 5-2. Resources Agency

Department of Forestry		
Forest Management	1-2	2-4
Forest Conservation	4.2	8.4
Fuels Management/Biomass	3.4	6.8
Urban Forestry	0	3.5
Afforestation/Reforestation	0	12.5
Department of Water Resources		
Water Use Efficiency	0.4	1.2
Energy Commission		
Building Energy Efficiency Standards in Place	1	2
Appliance Energy Efficiency Standards in Place	3	5
Fuel-Efficient Replacement Tires & Inflation Programs	1.5	1.5
Building Energy Efficiency Standards in Progress	TBD	TBD
Appliance Energy Efficiency Standards in Progress	TBD	TBD
Cement Manufacturing	<1	<1
Municipal Utility Energy Efficiency Programs/ Demand Response	1	5.9

Municipal Utility Renewable Portfolio Standard	<1	3.2
Municipal Utility Combined Heat and Power	0	<1
Municipal Utility Electricity Sector Carbon Policy	3	9
Alternative Fuels: Non-Petroleum Fuels	TBD	TBD

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-2 is included below:

Forest Management

Strategies for storing more carbon through forest management activities can involve a range of management activities such as increasing either the growth of individual trees, the overall age of trees prior to harvest, or dedicating land to older aged trees. With roughly 4 million acres of private managed forestland in California, changes in forest management can produce significant amounts of climate change emission reduction benefits for the state.

Inclusion of the forest sector in climate mitigation policy can lead to additional local environmental benefits that may help the state's resources adapt to potential negative effects of climate change. Overall changes in forest management can enhance and protect biodiversity, water quality, and habitat resources that the state will increasingly seek to protect in the advent of climate change.

Forest management projects could be included in a broader multi-sector climate change emission market-based program or climate trust system. In a market-based program, forest management projects could provide offsets that would be purchased by capped entities. In a climate trust program, the state would fund forest management projects and recapture the costs by selling carbon credits to industries needing to reduce their climate change emissions.

The regulatory framework for timber harvesting requires landowners to secure permits from a large number of agencies to meet the requirements of the Forest Practice Act, Endangered Species Act, and Clean Water Act. Together the time and cost of obtaining these permits have led to conversions of timberlands to other uses and made it more difficult and time consuming to implement forest management activities that would increase carbon storage. Simplification of the permitting processes for forest management and timber harvesting would result in additional carbon being stored over a larger number of acres.

Forest Conservation

Conservation projects are designed to minimize/prevent the climate change emissions that are associated with the conversion of forestland to non-forest uses by adding incentives to maintain an undeveloped forest landscape.

California is losing forestland at increasing rates: 35,000 to 40,000 acres of private forestland is converted annually to non-forest uses (Bill Stewart, 2005),

which could contribute as much as 12 million tons of CO_2 emissions annually. Policies designed to minimize or prevent forestland conversion to non-forest uses could provide significant benefits by 1) preventing or minimizing climate change emissions that are associated with increasing forestland conversion in California and 2) maintaining the opportunity to increase forest carbon stocks on these lands through additional sequestration over time.

Forest conservation can also enhance and protect biodiversity, water quality, and habitat resources that the state will increasingly seek to protect from the negative effects of climate change. Finally, in contrast to the other forest sector strategies such as reforestation, the climate benefits of forest conservation are immediate.

Specific actions that can be taken include establishing a state forest conservation program that operates independently from the federal Forest Legacy program; increasing Forest Legacy Program Funding with an $11 million annual investment that could prevent the conversion of 14,000 acres of forestland. Another step could include directing the Wildlife Conservation Board, the State Conservancies, and other state land acquisition and easement programs to consider climate benefits in evaluating and ranking projects to be funded. Finally, the state could include forestland conservation as an emission reduction project in a broader multi-sector climate change market-based program or climate trust system.

Fuels Management/Biomass

Large, episodic, unnaturally hot fires are an increasing trend on California's wild lands because of decades of fire suppression activities, sustained drought, and increasing insect, disease, and invasive plant infestations. Actions taken to reduce wildfire severity through fuel reduction and biomass development would reduce climate change emissions from wildfire, increase carbon sequestration, replace fossil fuels, and provide significant local economic development opportunities.

Fire management and biomass development projects could be accelerated by establishing a new state goal of thinning, removing, and treating 212,000 acres of public and privately owned forestland annually by 2010, and 275,000 acres by 2020. Such projects would: 1) reduce the intensity of wildfires and their associated climate change emissions; 2) increase the carbon stock of the remaining trees, 3) remove pests that create mortality of live stored carbon and reduce large damaging wildfires, 4) reduce state and local fire suppression costs; 5) provide a source of renewable alternative fuel; and 6) provide significant rural economic development opportunities.

Urban Forestry

This strategy would expand the State Urban Forestry Program. A new state-wide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs. At a cost of $100 per tree, $500 million would have to be invested by local urban forestry programs to meet this target.

This could be achieved by issuing an Executive Order to establish a new state-wide goal and directing the Board of Forestry and California Department of Forestry to launch an aggressive public assistance and outreach campaign to expand local urban forestry programs. The state could request that the California Climate Action Registry develop and adopt a protocol for the certification of climate change emission reductions from local urban forestry programs.

This strategy would develop new urban biomass programs. The California Department of Forestry would develop an urban biomass utilization program to provide technical advice, planning, education, and seed money for local government marketing centers for biomass waste.

Afforestation (Planting Trees)/Reforestation Projects

Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types. Recent studies have estimated that approximately 9 million acres of land in California could be reforested to increase carbon stocks and provide other benefits. Each of these acres has the potential to store between 150 to 230 tons of carbon.

Specific actions that could be taken include: establishing a new statewide goal of reforesting 500,000 acres of forestlands by 2020, including 250,000 acres on private lands and 250,000 acres on federal lands; seeking $30 million annually, or $300 million in bond funds to meet these targets; establishing a long-term loan program to fund private land reforestation; establishing a multisector market-based program where reforestation projects can be included as offsets in a broader, mulit-sector climate change market-based program; and establishing a state-owned carbon bank, modeled after Oregon's Climate Trust, as part of a market-based program.

Water Use Efficiency

Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. The California Energy Commission (CEC) estimates 44 million tons of CO2 emissions are expelled annually on average to provide the 44 million acre feet (MAF) of water used statewide.

The key to the reduction of climate change emissions through water use efficiency is strategic investment in measures tied to water energy intensity. When a unit of water is saved, so too is the energy required to convey, treat, affect local delivery, perform wastewater treatment and safely dispose of that unit of water. In short, saving water saves energy. Saving water that gets treated as wastewater saves more energy. Saving water that gets heated or additionally pressurized saves still more.

Region, elevation, water use sector, and energy source, among other factors, all influence water energy intensity. The statewide average for climate change emissions per acre foot is skewed by the wide local variation in the water energy intensity. Everything else being equal, a cooling tower condition meter installed in an industrial plant in Northern California will save 2,920 kWh compared to

9,270 kWh saved annually in a comparable plant south of the Tehachapi Mountains.

Increased water use efficiency is the key element in the California Water Plan Update (Bulletin 160-05) plans to meet the state's needs for water in 2030 with a growing population. The plan calls for reducing urban water use by 1.1 to 2.3 MAF per year and agricultural water use by 0.5 to 2.0 MAF per year by 2030. Accelerating the investment to attain that water use savings by 2015 would result in an estimated additional climate change emission reductions of approximately 30 million tons cumulatively by 2030. Accelerating the investment to 2010 would result in a further cumulative reduction of 10 million tons.

The California Bay-Delta Authority's larger estimated potential for 3.0 MAF per year urban water use reduction requires a greater rate of local and state/federal investment in conservation. Incentive driven advances in water-saving technology over the next 25 years potentially could further push savings beyond the levels indicated.

A comprehensive program focused on the state's water and wastewater agencies and their customers would yield significant benefits to the state including; meeting the state's water plan, increasing energy system reliability and price stability, meeting the state's renewable portfolio standard goals and reducing the state's climate change emissions. Following are measures to include in this comprehensive program:

- Accelerate investment in water use efficiency: Accelerate implementation of best management practices and efficient water management practices (EWMP) and incentives. Coordinate this accelerated investment with the state's investments in energy efficiency. Start in the areas of the state with most energy-intensive water use cycles.
- Increase the energy efficiency of all water and wastewater treatment operations. Develop long-term programs to better mesh with the long-term investments in water and wastewater infrastructure.
- Improve price signals so that water-related energy use can be shifted off periods of peak energy demand.
- Increase water storage to increase operational flexibility throughout the water use cycle and reduce peak electric system energy requirements.
- Identify suitable locations for new pumped storage facilities. Construct facilities at these locations.
- Increase energy production by water and wastewater agencies from renewable sources such as in-conduit hydropower and biogas. Add generation from solar and wind resources.

Building Energy Efficiency Standards in Place

Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its building energy efficiency standards (that apply to newly constructed buildings and additions to and alterations to existing buildings). The

Energy Commission updates the standards at its discretion (i.e. three-year cycle for building standards). In addition to the long existing legislative mandates, recent policies have placed priority on and established specific goals for updating of the standards.

The Energy Action Plan and the Integrated Energy Policy Report both call for ongoing updating of the standards, including meeting energy efficiency goals, addressing demand response and promoting the combination of solar photovoltaics and high-energy efficiency buildings. The Energy Commission has also initiated work for the building standards that will go into effect in 2008 (i.e. the first of three update cycles that will occur prior to 2015).

Appliance Energy Efficiency Standards in Place

Public Resources Code 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards (that apply to devices and equipment using energy that are sold or offered for sale in California). The Energy Commission updates the standards at its discretion. In addition to the long existing legislative mandates, recent policies have placed priority on and established specific goals for updating of the standards.

New standards for a variety of appliances were adopted in December 2004. Some standards under consideration in December were delayed to further consider manufacturer comments. Those standards are being developed by the Energy Commission at the present time. The estimates in Table 5-1 represent the expectation of full adoption of these standards.

Fuel-Efficient Replacement Tires and Inflation Programs

State legislation (Chapter 912, Statutes of 2001) directed the Energy Commission to investigate and to recommend ways to improve fuel efficiency of vehicle tires. The bill established a statewide program to encourage the production and use of more fuel efficient tires, and required the Energy Commission to:

- Establish a test procedure for measuring tire fuel efficiency.
- Develop a database on the fuel efficiency of existing tires in order to establish an accurate baseline of tire efficiency.
- Develop a rating system for tires that provides consumers with information on the fuel efficiency of individual tire models.
- Develop a consumer-friendly system to disseminate tire fuel-efficiency information as broadly as possible.
- Study the safety implications of different policies to promote fuel efficient replacement tires in the consumer market.
- Evaluate a mandatory fuel efficiency standard for all after-market tires sold in California.

- Develop consumer incentive programs that would offer a rebate to purchasers of replacement tires that are more fuel-efficient than the average replacement tire.
- Study ways to improve the fuel-efficiency of vehicles in the State's fleet.
- AB 844 later required tire manufacturers to report to the Energy Commission the rolling resistance and relative fuel economy of replacement tires sold in California.

Building Energy Efficiency Standards in Progress

As part of the process of updating the Building Energy Efficiency Standards, the Energy Commission evaluates new and emerging technology for possible inclusion in the standards. The CEC administers an ongoing "compliance option" process which evaluates to what extent compliance credit should be approved for new technologies and develops algorithms that can be used to properly evaluate their energy consequence within building simulation computer programs that are used for standards compliance.

Upon commission approval, compliance options can be used to demonstrate compliance with the performance approach in the standards. Once a compliance option has been in existence for a period of time, the commission often considers whether or not the compliance option should be made a requirement of the standards (as a prescriptive requirement and basis of the energy budget established for the performance standards).

Appliance Energy Efficiency Standards in Progress

As part of the process of updating the Appliance Energy Efficiency Standards, the CEC evaluates new and emerging technology for increasing the energy efficiency of appliances and equipment for possible inclusion in the standards. The Commission's Buildings and Appliances Office works on an ongoing basis with the Public Interest Energy Research (PIER) program and with the Utility Codes and Standards Programs to track promising new technologies and consider their appropriate inclusion in the standards.

Fundamentally, the standards updating process is achieved thorough technology assessment of the potential to include new technologies in the standards, and the program is continuously evaluating new technologies.

Cement Manufacturing

This strategy involves cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry. There is a large technical potential to improve energy efficiency in cement operations at a reasonable cost.

Climate change emissions from burning fossil fuels in the manufacturing of cement produces 1.5 to 2.0 percent of U.S. carbon dioxide emissions. Roughly half is from fossil fuel combustion and roughly half is from the conversion of limestone (45 million tons per year). California's cement industry produced 5.6

million metric tons in 2001; total statewide climate change emissions approached 500 million metric tons in 2001.

Annual emissions from the manufacturing of cement are growing at a rate of 2 percent per year, according to industry sources and using California-specific data. Direct emissions of carbon dioxide are estimated to rise from 10.4 million metric tons in 2005 to more than 15 million metric tons in 2025. Use of limestone Portland cement and the use of blended cement account for 70 percent of the potential emission reductions and would cost less than $10 per metric ton.

State policy options can take several forms, including technology mandates, financial incentives, negotiated agreements, voluntary commitments, emissions-intensity benchmarking, or mandatory measures. Policy changes would be needed to encourage the use of limestone and blended cement and to allow waste tires to be used as a fuel in cement manufacturing. Based on CEC's analysis, these measures have been shown to provide cost-effective climate change emission reduction benefits.

Municipal Utility Energy Efficiency Programs

The Energy Commission and the California PUC are collaborating on additional energy efficiency programs beyond those programs already adopted.

While the Energy Commission does not have regulatory authority over the publicly owned utilities in the way that the CPUC regulates the IOUs, the publicly owned utilities are required to report their energy savings to the CEC. A process to ensure comparability between public benefit program savings and funding data reported by public and investor-owned utilities will need to be established. Possible steps for implementing this strategy include:

- Pursuing statutory modifications or a cooperative agreement with the publicly owned utilities to achieve the needed CO_2 reductions.
- Seeking statutory modifications or the establishment of a formal memorandum of understanding (MOU) with the utilities to achieve these targets.
- Pursuing statutory modifications or another mechanism to ensure that all load-serving entities account for climate change emissions and emission reductions in a manner consistent with investor-owned utilities.

Municipal Utility Renewable Portfolio Standard

California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20 percent of retail electricity sales from renewable energy sources by 2017, within certain cost constraints. The *2003 Energy Action Plan* and the *2003 Integrated Energy Policy Report* (2003 *Energy Report*) accelerated the 20 percent goal from 2017 to 2010. The *2004 Energy Report Update* further recommended an increased goal of 33 percent renewable by 2020, which the California Public Utilities Commission (CPUC) and the California Energy Commission (Energy Commission) adopted in the *2005 Energy Action Plan II*.

The Energy Commission and the CPUC are responsible for implementing the RPS for the investor-owned utilities, electric service providers, and community choice aggregators. The publicly-owned utilities are responsible for implementing their own RPS programs.

The CPUC has undertaken a study to identify the steps necessary to achieve the 33 percent goal for the state's IOUs. The Energy Commission is undertaking a similar related study on RPS programs adopted by publicly-owned utilities, including barriers and policy options to accelerate those programs to reach the 20 percent goal by 2010 and 33 percent goal by 2020. Possible steps for implementing this strategy include:

- Pursuing a cooperative agreement with the publicly-owned utilities to achieve the needed climate change emission reductions.
- Seeking statutory modifications to require the publicly owned utilities to contribute proportionally to the state's RPS goals.
- Seeking statutory modifications or a cooperative agreement to ensure that publicly-owned utilities account for climate change emissions and emission reductions in a manner consistent with investor-owned utilities.

Municipal Utility Combined Heat and Power

This strategy constitutes cost-effective reductions from fossil fuel consumption in the commercial and industrial sector through application of on-site power production to meet both heat and electricity loads. To effectively implement this strategy, various policy instruments will likely be needed to attain the realistic market potential and subsequent climate change emission reductions.

These policy mechanisms may include regulatory incentives to encourage utilities to promote customer and utility-owned CHP, utility rate structures that are transparent and connected to market forces where externalities such as environmental impacts and transmission and distribution constraints are internalized, rules and regulations enabling easier access to wholesale markets, production tax credits for CHP, and other measures or incentives directed at key commercial and industrial activities in California.

Through existing efficiency commercialization programs at the CEC where relationships have been well established with the commercial and industrial sectors, a set of implementation activities will be developed that include:

- Utility tariffs to enable CHP owners to sell excess on-site electricity generation to the utility at prevailing wholesale prices. Existing analysis suggests this would be very effective in stimulating the near-team (next 5 years) market.
- Climate change emission reduction credits to reflect the net reduction of climate change emissions for the CHP systems compared to the avoided electricity and boiler fuel emissions.
- Transmission and distribution benefit payments that reflect the local and temporal benefits CHP provides utilities.

- Utility regulatory incentives to encourage utilities to promote installation of customer- and utility-owned CHP projects.

Municipal Utility Electricity Sector Carbon Policy

The Energy Commission and the CPUC are collaborating on additional programs to address ways to transition investor-owned utilities away from carbon-intensive electricity sources. Some publicly owned utilities have historically relied on coal-based generation, and many of these facilities will reach the end of their design life by 2020. The Energy Commission will explore options to encourage municipal utilities to transition away from carbon-intensive generation to low-carbon alternatives, and to reduce purchases of carbon-intensive power. Options include establishing emissions targets or caps, providing incentives for preferred generation options, and setting a climate change emission performance standard for new utility resource procurement, including both coal and non-coal resource additions.

In its recently adopted *2005 Integrated Energy Policy Report*, the Energy Commission recommends:

- Any climate change emission performance standard for utility procurement should be set no higher than emission levels achieved by a new combined-cycle natural gas turbines. In the case of coal-fired generation, the capacity to capture and store carbon dioxide safely and inexpensively is essential for meeting these standards.
- The state should specify a climate change emission performance standard and apply it to all utility procurement, including in-state generation and out-of-state purchases, coal, and non-coal resources.
- Additional consideration is needed before determining what role climate change emission offsets could play in complying with such a standard.
- The Energy Commission should work with the CPUC to develop a framework that accounts for the financial risk of reliance on carbon-based generation.
- California should have a consistent electricity carbon policy for all electric utilities within the state that applies to both in-state generation and out-of-state power purchases.

Alternative Fuels: non-Petroleum Fuels

This strategy involves increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the Energy Commission's *2003 and 2005 Integrated Energy Policy Reports*. The Governor has also directed the Energy Commission to develop a workable, long-term transportation fuels plan that will result in significant reductions in gasoline and diesel use and that will establish realistic and achievable objectives. The Bio-Energy Interagency Working Group, which the Energy Commission is leading, has been asked to recommend options for optimizing the market potential for bio-fuels through a coordinated state level effort.

State policy options can take several forms, including technology performance standards, financial incentives, negotiated agreements, voluntary commitments, emissions-intensity benchmarking for fuel producers or automobile manufacturers, or other mandatory measures, such as fuels or motor vehicle standards or a market-based program. Based on our analysis, some alternative fuels have been shown to provide cost-effective climate change emission reduction benefits. But they face economic, market, or regulatory barriers that are impeding their use.

To achieve the benefits of this strategy, the following implementation issues would need to be overcome:

- The high first cost of alternative-fuel vehicles, when compared to conventional vehicles using internal combustion engines.
- The absence of a convenient retail fueling network to dispense alternative fuels to customers.
- Other regulatory and market barriers.

5.4 Strategies Other State Agencies will Implement over the Next Two Years

Table 5-3 lists all of the strategies that other state agencies will implement over the next two years. Many participants at the Climate Action Team public meetings, particularly in Southern California, indicated that smart land use and increased transit availability should be a priority in the state. The participation of Business, Transportation and Housing Agency on the Climate Action Team has highlighted the fact that such strategies can provide substantial climate change emission reductions. Similarly the efforts of the Department of Food and Agriculture and the State and Consumer Resources Agency provide benefits beyond their climate change emission reduction potential.

Table 5-3. Other State Agencies

[redacted]		
Business, Transportation and Housing		
Measures to Improve Transportation Energy Efficiency	1.8	9
Smart Land Use and Intelligent Transportation	5.5	18
Department of Food and Agriculture		
Conservation tillage/cover crops	TBD	
Enteric Fermentation	<1	<1

State and Consumer Services Agency		
Green Buildings Initiative	0.5	1.8
Transportation Policy Implementation	TBD	

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-3 is included below:

Measures to Improve Transportation Energy Efficiency

This strategy builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools and information that advance cleaner transportation and reduce climate change emissions.

The effort includes the following:

- Incorporating energy efficiency and climate change emissions reduction measures into the policy framework governing land use and transportation, including framework for developing energy element in state transportation and regional planning documents. Better coordination on cross-agency climate change and energy policy framework to ensure a concerted effort and synergy among state agencies' climate change emission reduction activities.
- Increasing incentives and accelerating technology applications to improve transportation system productivity and move toward cleaner and more efficient vehicles, especially for the public sector fleet. Enhancing outreach and educational programs to bring a coordinated message of sustainable transportation and root causes of climate change emissions.
- Diversifying transportation energy infrastructure and advancing measures to slow the rate of vehicle miles traveled growth and excessive reliance on petroleum.

Smart Land Use and Intelligent Transportation

Smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce and socioeconomic needs for the full spectrum of the population.

Intelligent Transportation Systems (ITS) is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services. Smart growth/land use and ITS would minimize the need for major capital improvements and can provide a host of benefits including more livable communities, transportation energy efficiency, lower emissions from mobile sources, and a lower-cost provision of public services (e.g., sewer, water).

Governor Schwarzenegger is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through state investments, incentives and technical assistance, land use, and technology strategies that provide for a prosperous economy, social equity, and a quality environment. The Administration is pursuing funding and budgetary measures to support the strategic growth plan.

Smart land use, demand management, ITS, and value pricing are critical elements in this plan for improving mobility and transportation efficiency. Specific strategies include: promoting jobs/housing proximity and transit-oriented development; encouraging high density residential/commercial development along transit/rail corridor; valuing and congestion pricing; implementing intelligent transportation systems, traveler information/traffic control, incident management; accelerating the development of broadband infrastructure; and comprehensive, integrated, multimodal/intermodal transportation planning.

Conservation/Tillage Cover Crops

Conservation tillage and cover crops practices are increasingly being used by California farmers for a variety of reasons, including improved soil tilth, improved water use efficiency, reduced tillage requirements, saving labor and fuel, and reduced fertilizer inputs. However, due to the wide diversity of California agriculture, these practices must be demonstrated in a wide variety of cropping systems, soil types, irrigation regimes, and climate conditions.

This diversity also creates difficulty in quantifying both carbon emissions and potential carbon sequestration benefits from implementing conservation tillage and cover crops in the myriad of California cropping systems. This potential needs to be verified through extensive research directly applied to California conditions. Thus, the potential climate change emission reductions for 2010 and 2020 remains to be determined.

Enteric Fermentation

Enteric fermentation is the process of feed digestion by ruminant animals (primarily dairy and beef cattle). This process results in methane emission from the animals. To reduce climate change emissions resulting from enteric fermentation, feed adjustments may be made that improve milk and meat productivity.

New measures would include establishing a research initiative to quantify emission changes from enteric fermentation resulting from changing feed regimens versus productivity impacts. Different animal populations would have differing abilities to manage feed rations. For example, grass-fed beef would have little to no ability to reduce enteric emissions. Dairy operators vary feed rations based on numerous factors. Feed rations are a complex system that not only provide nutrition to the animal, but also provide cost-effective and efficient use of other agricultural by-products including food processing residuals, fruit culls, almond hulls, cotton seed, and even rice straw.

This system would have to be carefully analyzed to determine overall climate change emission effects if the use of these other residuals is altered. This analysis would include both a technical analysis and a cost effectiveness analysis that would be initiated in 2006.

Pricing of food commodities to reflect embodied climate change emissions is not recommended for any action at this time. A "calcium crisis" currently exists in this country, where a significant portion of women and children are calcium deficient. Milk and dairy products are a major source of calcium that should be available to these at-risk populations, especially those of low and moderate income, at affordable prices.

Green Buildings Initiative

Governor Schwarzenegger's Green Building Executive Order, S-20-04, sets an ambitious goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels. The Executive Order and related action plan spell out specific actions state agencies are to take with state-owned and -leased buildings. The order and plan also discuss various strategies and incentives to encourage private building owners and operators to achieve the 20 percent target.

Preliminary estimates indicate that 6.5 million tons of CO_2 will be reduced annually by the year 2015 through building efficiency efforts in commercial and institutional buildings. This number is based on the average displaced power generation being an efficient natural gas combined cycle turbine. The 6.5 million-ton estimate has been adjusted in Table 5-2 to ensure against double counting amongst other strategies being recommended by the CAT.

5.5 Strategies the Public Utilities Commission will Implement Over the Next Two Years

Table 5-4 lists all of the strategies that the Public Utilities Commission will implement over the next two years. Working in cooperation with the Energy Commission, the Public Utilities Commission has implemented the most progressive Renewable Portfolio Standard in the nation. The Public Utilities Commission has also been progressive in energy efficiency and clean energy programs for investor-owned utilities. Many stakeholders indicated that these programs should apply to the publicly-owned utilities as well.

Table 5-4. Public Utilities Commission

[redacted]		
Accelerated Renewable Portfolio Std to33% by 2020 (includes load-serving entities)	5	11

California Solar Initiative	0.4	3
Investor Owned Utility Energy Efficiency Programs(including LSEs)	4	8.8
Investor-Owned Utility (IOU) Additional Energy Efficiency Programs/Demand Response	NA	6.3
IOU Combined Heat and Power Initiative	1.1	4.4
IOU Electricity Sector Carbon Policy	1.6	2.7

[1] These estimates are based on best available current information and will be updated as needed.

A summary description of each of the strategies in Table 5-4 is included below:

Accelerated Renewable Portfolio Standard (33 percent by 2020)

The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020. The joint PUC/Energy Commission September 2005 Energy Action Plan II (EAP II) adopts the 33 percent goal. The PUC and Energy Commission have already commenced review of the legal, regulatory, and infrastructure changes necessary to achieve the Governor's goal.

The Center for Resource Solutions has prepared a preliminary report for the CPUC entitled *Achieving a 33% Renewable Energy Target* (The Center for Resource Solutions, November 1, 2005), which concludes that the 33 percent target by 2020 is achievable and discusses the major hurdles and necessary implementation steps. The report is a starting point for further review by the CPUC on instituting a 33 percent goal.

California Solar Initiative

The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.

Legislation to codify the Governor's initiative (SB 1) failed to pass the California Assembly in the fall of 2005. However, the PUC, in cooperation with the Energy Commission and the Governor's Office, will implement the California Solar Initiative under its existing statutory authority.

Investor-Owned Utility Energy Efficiency Programs

In September 2004, the PUC adopted aggressive savings targets for the investor-owned utility energy efficiency programs through 2013. The savings targets through 2013 are challenging goals to meet, and the PUC will reassess these targets and adopt more realistic goals during each three-year program cycle.

The PUC funds energy efficiency programs through the Public Goods Charge and the resource procurement budgets of the utilities. For the 2006–2008 program cycle, the total energy efficiency budget for all of the investor-owned

utilities is approximately $2 billion, for a total projected annual net savings of 7,371 gigawatt hours and 121,989 million therms. These projections exceed the savings targets by 108 percent and 109 percent respectively. By 2008 these programs will reduce annual carbon dioxide emissions by more than 3 million tons per year.

Investor Owned Utility Additional Energy Efficiency Programs/Demand Response

In September 2004, the PUC adopted aggressive savings targets for the IOUs' energy efficiency programs through 2013. The savings targets through 2013 are stretch goals and the PUC will reassess these targets and adopt the actual goals during each three-year program cycle. The PUC funds energy efficiency programs through the Public Goods Charge and the IOUs' resource procurement budgets. For the 2006–2008 program cycle, the total energy efficiency budget for all of the IOUs is approximately $2 billion, for a total projected annual net savings of 7,371 gigawatt hours and 121,989 million therms. These projections exceed the savings targets by 108 percent and 109 percent respectively. By 2008 these programs will reduce annual carbon dioxide emissions by more than 3 million tons per year.

Over the next year, the PUC will develop a risk/reward incentive mechanism for the IOUs and refine energy measurement and verification protocols. In 2008, the PUC will evaluate and adopt the 2009–2011 energy efficiency savings goals and programs of the IOUs.

Investor-Owned Utility Combined Heat and Power Initiative

This strategy encourages the installation of on-site power production to meet both heat and electricity loads, known as combined heat and power projects (CHP). The PUC's existing Self-Generation Incentive Program allocates $0.80 per watt to eligible CHP projects in the territories of the IOUs, up to a capacity size of 5 MW. Currently, all SGIP funds are reserved through 2007, although funding may become available if proposed projects do not materialize.

This strategy would seek to develop additional programs to further encourage the development of CHP. These additional programs are not yet underway, will require further consideration, and could likely require administrative, legislative, regulatory, and budget initiatives. To effectively implement this strategy, it is likely various policy instruments will be needed to attain the realistic market potential and subsequent CO_2 reductions.

These policy mechanisms may include regulatory incentives to encourage IOUs to promote customer and utility-owned CHP, changes to IOU rate design, market rules and regulations enabling easier access to wholesale markets, production tax credits for CHP, and other measures or incentives directed at key commercial and industrial activities in California. Statutory modifications are required in order to apply a similar strategy for CHP programs implemented by publicly-owned utilities.

Investor Owned Utility Electricity Sector Carbon Policy

The PUC is currently investigating various strategies and incentives to encourage the IOUs to make cost-effective procurement decisions that are based in part on reducing climate change emissions. These strategies include emissions targets or caps, incentives for preferred procurement options, and incentives for portfolio optimization and total cost minimization.

The PUC conducted workshops in March 2005 on the procurement incentive framework and issued a staff report in March 2005. The post-workshop comments were filed in April and May 2005. A final decision to include a carbon cap on emissions associated with all utility procurement activities was adopted in February of 2006. This strategy includes the following steps:

- Determine a methodology the IOUs will use to report their climate change emissions.
- Continue to work with the CEC to ensure that the IOUs and the municipal utilities use consistent methodologies to report their emissions.
- Begin work to establish emission baselines for IOUs.

5.6 The Governor's Targets Can Be Met

Based on the emission reduction potential demonstrated in the tables above and illustrated in Figure 2-1 below, it is clear the Governor's targets are achievable. However, continued top-down leadership as has been demonstrated by this Governor as well as a coordinated agency-level effort as has been achieved via the Climate Action Team will be essential to success.

Figure 5-1. California's Target Can Be Met

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Exhibit K

Road Expansion, Urban Growth, and Induced Travel: A Path Analysis

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Abstract

Claims that roadway investments spur new travel and thus fail to relieve traffic congestion, known as induced demand, have thwarted road development in both the United States and abroad. Most past studies point to a significant induced demand effect. This research challenges past results by employing a path model to causally sort out the links between freeway investments and traffic increases, using data for 24 California freeway projects across 15 years. Traffic increases are explained in terms of both faster travel speeds and land-use shifts that occur in response to adding freeway lanes. While the path model confirms the presence of induced travel in both the short- and longer-run, estimated elasticities are generally lower than those of earlier studies. This research also reveals significant "induced growth" and "induced investment" effects – real-estate development has gravitated to improved freeway corridors and road investments have been shaped by traffic trends in California. Fighting road projects on the grounds of induced-demand should be carefully considered. Energies might be better directed at curbing mis-pricing in the highway sector and managing land-use changes spawn by road investments.

Road Expansion, Urban Growth, and Induced Travel: A Path Analysis

Few issues in the urban transportation field have sparked as much controversy and threatened proposed road projects as claims of "induced demand". For decades, highway critics have charged that building new roads or expanding existing ones to relieve traffic congestion is a futile exercise. Improved roads simply spur additional travel or divert trips from parallel routes, quickly returning a facility to its original congested condition. Traffic is thought to behave more like a gas than a liquid – it expands to fill available space. Regional transportation plans, such as in the San Francisco Bay Area, have been mired in legal and political squabbles on the very grounds that they failed to account for the possibility that new roads might induce sprawl and the extra trips associated with it. Claims of induced demand have spawned such clichés as "build it and they will come" and "you can't pave our way out of traffic congestion".

The preponderance of empirical evidence to date suggests that induced effects are substantial. A widely cited study by Hansen and Huang (1997), based on 18 years of data from 14 California metropolitan areas, found every 10 percent increase in lane miles was associated with a 9 percent increase in vehicle miles traveled (VMT) four years after road expansion, controlling for other factors. Another study of 70 U.S. metropolitan areas over a 15-year time period concluded that areas investing heavily in road capacity fared no better in easing traffic congestion than areas that did not (Surface Transportation Policy Project, 1998). Based on a meta-analysis of more than 100 road expansion projects in the United Kingdom, Goodwin (1996) found that proportional savings in travel time were matched by proportional increases in traffic on almost a one to one basis, a finding that prompted the U.K. government to jettison its longstanding policy, "predict and provide", of responding to traffic-growth forecasts by building more motorways.

With the cumulative weight of evidence on induced demand threatening road projects in many parts of the United States, it bears noting that past research has recently come under fire on methodological grounds. Many studies can be faulted for failing to introduce a normative behavioral framework for tracing impacts, one that accounts for

intermediate steps between road improvements and traffic growth and that allows for two-way causality (DeCorla-Souza and Cohen, 1999; Cohen, 2001; Pickrell, 2001; Cervero, 2001).

Using data for a panel of California freeways, this paper aims to fill past methodological gaps by postulating and empirically testing a path model of induced travel. A short-run model, which focuses on relationships within a one-year time frame, holds that changes in road supply affect travel speeds, which nearly instantaneously affect traffic levels. In contrast to most recent analyses of induced demand that measure VMT growth as a direct function of lane-mile additions, this analysis introduces an important intermediate step – namely, that road improvements confer benefits, in the form of higher travel speeds, and that it is changes in operating conditions that influence demand, not the physical attributes (e.g., lane miles) of a project. A longer-run model traces how road investments induce major building activities over a multi-year time horizon, and how resulting land-use shifts in turn lead to increased travel. A feedback loop is also modeled, capturing how traffic growth influences road investment decisions.

Econometric models are called upon to sort out the relative influences of land-use shifts in stimulating traffic vis-à-vis travel behavioral adjustments that are normally associated with induced demand. To the degree that induced travel is found to be a consequence of long-term structural adjustments, land-use management and planning gains all the importance as a tool for managing traffic levels.

1. The Anatomy of Induced Demand

Road improvements are thought to have distinct near- and longer-term impacts. In the short run, increased capacity prompts *behavioral* shifts – some formerly suppressed trips are now made (i.e., latent demand), and some motorists switch modes, routes, and times of travel to exploit available capacity, what Downs (1962, 1992) calls "triple convergence". For example, those who previously patronized transit to work might decide to drive once they see traffic flowing more smoothly. Some who previously commuted on the shoulders of the peak might start filling freeway slots that are vacant in the heart of the peak. Over the longer term, *structural* changes can be expected. Notably, people and firms locate to exploit the accessibility benefits created when freeways are upgraded. The consequences dot America's landscape: fast-food restaurants, gas stations, and other auto-oriented uses cluster around interchanges, warehouses align themselves along frontage roads, and new residential

subdivisions spring up along connecting arterials (Hartgen and Kim, 1998; Hartgen and Curley, 1999).

Some of the traffic gains spawn by a new or improved road are *generative* in nature and some are *redistributive*. The former represents new travel that did not previously exist in any form. Included here are formerly suppressed trips, longer trips as motorists opt to travel farther because of freer flowing traffic, and modal shifts. Route and schedule changes, on the other hand, are redistributive in the sense that they do not increase total miles traveled (assuming trips do not become more circuitous).

Short of placing an electronic tag on each traveler affected by a new road and monitoring his or her travel, disentangling the many contributors to increased travel – at least to a high degree of precision – can be a futile exercise (Bonsall, 1996). For this reason, many past studies have examined the magnitude of traffic increases following a road improvement for *all* sources combined. Some studies have employed county- or metropolitan-level data to trace the influences of aggregate increases in lane-miles on aggregate increases in vehicle miles traveled (VMT) (for example: Hansen and Huang, 1997; Noland and Cowart, 2000; Fulton, *et al.*, 2000). This helps to net out redistributive trips since route diversions occur largely within the unit of analysis, although the downside of such aggregate analyses is they are more easily prone to ecological fallacies when drawing statistical inferences.

Many past empirical studies have applied simplified model structures to gauge "induced demand" effects. Often, traffic increases are treated as a direct consequence of lane-mile additions. It is not the lane miles of roads that prompt people to travel more, however. Rather it is the benefits that the lane miles confer. Only if travel speeds increase and travel times fall will motorists gravitate to an improved corridor. Adding a 12-foot lane matters along a highly congested urban corridor; adding one to a lightly trafficked exurban stretch really does not. A firmer econometric framework is needed to help unravel the imbedded, often intricate relationship between road investments and traffic conditions.

2. Toward a Normative Theory: A Path Model

Figure 1 presents a path model for tracing the effects of road improvements on travel demand as well as urban development. The diagram's solid lines represent near-instantaneous impacts, occurring within a year's time. The dashed lines represent longer-

term adjustments, signifying the need for a lagged model structure. In the transportation and land-use arena, delayed responses to "stimuli" like road improvements reflect

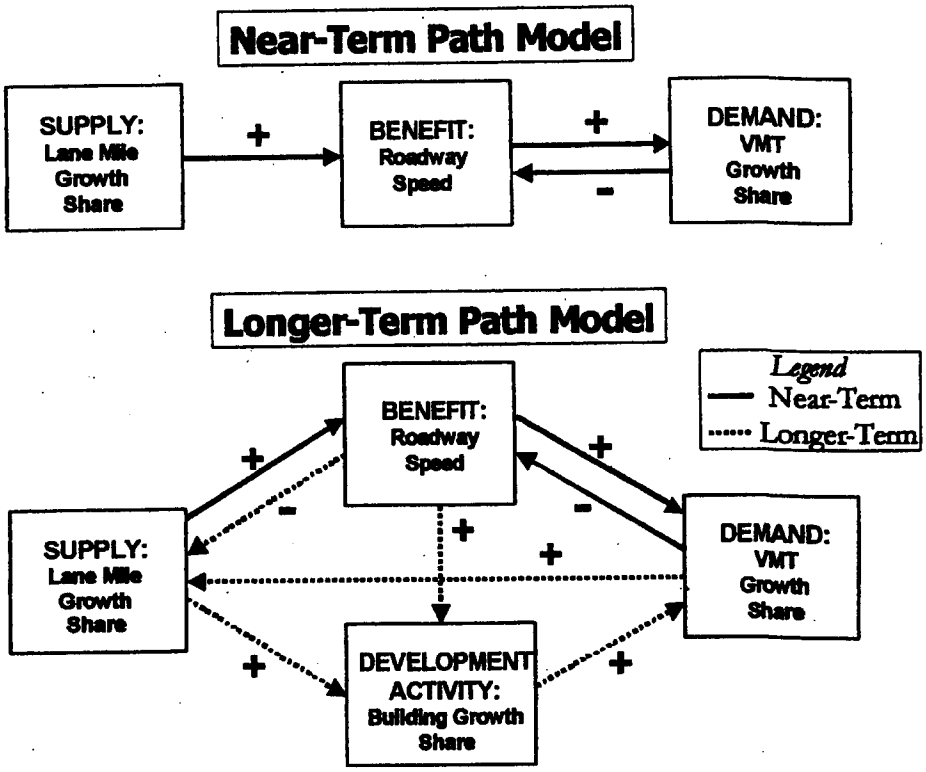


Figure 1. Hypothesized Path Model

institutional lags – such as the need for local planning agencies to rezone land to accommodate new growth or time spent by real-estate developers securing building permits and bank loans.

The path diagram also informs the model estimation process. In the case of uni-directional relationships (in both the near-term and longer-term models), ordinary least squares (OLS) provides efficient, unbiased estimates (as long as OLS assumptions are met). Estimation of two-way, co-dependent relationships hinges on the time structure. Where two variables, like travel speed and demand, nearly instantaneously influence each other, OLS will produce biased parameter estimates. This is because speed and demand are endogenously related. Accordingly, instrumental variables are needed to reduce

simultaneous-equation biases. Where two variables are jointly related, and variable X influences variable Y nearly instantaneously but Y's effect on X is delayed over several years, OLS will generally provide suitable parameter estimates. Because the co-dependence is not contemporaneous, the value of one variable, by definition, will be pre-determined in relation to that of the other. For example, while a road improvement can be expected to have a near-immediate effect on travel speed, the effects of eroding speeds over time (once travel demand has risen) on the decision to further expand a facility unfold over a number of years. Econometrically, the values of travel speed in time period (t-n) are already known in relation to the values of road capacity in the current time period (t). Thus, wherever a solid path-line operates in both directions between two variables, multi-stage (e.g., two-stage or three-stage) estimation is called for. Wherever one path-line is solid and the other is dashed in a two-way relationship, instrumentation is unnecessary.

Effects of Road Improvements on Travel Speeds

This link is missing from most past studies of induced demand. Economic theory holds that road improvements spur behavioral changes in travel by reducing "generalized costs", expressed mainly in terms of travel times. Over a fixed distance, there is a one-to-one correspondence between changes in average travel times and average speeds. In this study, average recorded operating speeds over a one-year period for each study corridor is used to gauge reductions in generalized costs.

Effects of Road Improvements and Travel Speeds on Urban Development

In congested urban settings with reasonably vibrant economies, real estate developers scramble to acquire and develop properties with good regional roadway access. Parcels well-served by roads can yield handsome profits (Voith, 1993; Boarnet and Chalermpong, 2001). Two forces are set into motion that influence the decision to develop a parcel, and for modeling purposes help to define a time-lag structure. One is the announcement and construction of road improvements. Developers are well aware of roadway projects slated for construction under regional Transportation Improvement Programs and position themselves to take advantage of planned public improvements. Due to institutional delays, however, it can take several years before necessary permits are secured. A five-plus year time lag between project announcement and new development is

not uncommon. The time lapse between when capacity is actually added and induced development occurs is likely shorter, often on the order of two to three years.

Besides the opening of new lanes, actual operating conditions are also thought to influence the scale of land-use changes, at least at the margin. Higher speeds provide confirmation, demonstrating first-hand that there are advantages to owning or leasing properties along a particular stretch of roads. The combination of past-year road investments and recent trends in operating speeds are thought to influence the amount of development added within a buffer zone of a freeway.

Effects of Travel Speeds and Urban Development on Travel Demand

It is this link of the path diagram that encapsulates the idea of induced demand. The model postulates that the combination of current operating speeds on a roadway and previous-year changes in urban development influence current-period demand levels. Both factors are thought to increase VMT -- the former in the near term, the latter over the longer run.

Effects of Travel Demand and Speeds on Road Improvements

Figure 1 also accounts for "induced investment" effects. Notably, changes in a project's share of countywide VMT over time can be expected to influence future shares of countywide road improvements targeted at the corridor, as will trends in travel speeds. Indeed, a criticism leveled at past induced demand studies is they ignored this feedback loop. Roads not only stimulate but also respond to demand. Using 60 years of data, a study by the Urban Transportation Center (1999) found that road improvements in metropolitan Chicago could be better explained by population growth a decade earlier than vice-versa. Over time, it is this combination of "induced demand" and "induced investment" effects that yields some degree of partial equilibrium between road supply and demand.

3. Methodology and Data

For purposes of empirically testing the hypothesized path model, a system of log-linear equations was specified and estimated. In this functional form, coefficient estimates represented elasticities, revealing the proportional change in one variable as a function of a proportional change in another, all else being equal. For the longer-run analysis, the

estimated equations took the following form (with all except the fixed effect variables expressed as natural logarithms):

Speed Model: $B_{it} = f(S_{i,t}\ D_{i,t}\ C_{i,t}\ T_t\ P_i)$
Development Model: $L_{it} = f(B_{i,t-n}\ S_{it-n}\ C_{i,t}\ T_t\ P_i)$
Demand Model: $D_{it} = f(B_{i,t}\ L_{i,t-n}\ C_{it}\ T_t\ P_i)$
Supply Model: $S_{it} = f(D_{i,t-n}\ B_{i,t-n}\ C_{it}\ T_t\ P_i)$

Where:

B = Benefit vector (e.g., mean operating speed)
S = Supply vector (e.g., lane miles)
D = Demand vector (e.g., vehicle miles traveled)
L = Land-Use vector (e.g., building square footage)
C = Control vector (e.g., median personal income in area)
T = Time-series fixed effect (0-1 "dummy variable")
P = Project fixed effect (0-1 "dummy variable")
i = Project cross-sectional observation
t = Time-series observation
n = Length of time lag

With this formulation, benefits and demand are jointly related, thus endogenous variables (i.e., operating speed and VMT) were predicted as functions of pre-determined (exogenous and lagged-endogenous) variables. Given the lagged, pre-determined nature of other endogenous variables, other equations were predicted using ordinary least squares. Also, various time-lag specifications were attempted in the analyses that follow. Before turning to the results, background information on data sources, the sampling frame, and approaches used to measure and impute certain variables are reviewed below.

Data Sources

Records on freeway expansions throughout California were obtained from the California Department of Highways (CalTrans) for years that matched the time span (1980 to 1994) of annual records on building activities obtained from the U.S. Census Bureau. Census records on land-use additions were turned to because, among available secondary sources, they provided the most disaggregate and consistently reported time-series data. Project contracts archived by CalTrans supplied needed information on freeway improvements: the project name and location, number of lanes added, and the length of improved segments.

Sampling Frame

Only freeway expansion projects that occurred in small to medium-size municipalities in suburban settings were chosen for the analysis. This constraint was necessary because of how land-use changes were measured and how building activities were reported. A two-mile "impact zone" around the centerline of each improved freeway project was chosen to gauge development impacts, forming a four-mile wide buffer. However, building data from the census bureau were available only down to the municipal level. To ensure that the impact zone encompassed a significant share of a municipality's land area, only freeway projects that traversed or skirted small-to-medium size cities were considered for the analysis. In all, 24 freeway-expansion projects over the 1980 to 1994 period (representing 360 data points) were chosen on the grounds that four-mile buffers encompassed at least 40 percent of the land area of municipalities that were either traversed or that directly bordered the improved facility.

Variable Measurement

The core variables from Figure 1 that were measured in aggregate units -- notably, lane-mile of roads, building-permit additions, and VMT -- were expressed in proportional terms for carrying out the path analysis. Specifically, these variables were defined as shares of countywide totals -- e.g., "VMT proportion" represented the share of VMT on all state-owned freeways and highways in a county that occurred on a particular facility for a particular year. In this sense, core variables were expressed as "market shares". If the countywide share of total road-mile additions along a freeway corridor increases, this research hypothesizes that this will be followed by an increase in the share of countywide building activities within a four-mile buffer and that this in turn will be followed by increases in the share of countywide VMT recorded along the facility. Expressing aggregate variables in proportional terms meant that sub-regional trends and conditions were imbedded in the analysis.

The biggest measurement challenge involved estimating building activity within four-mile buffer zones. Using a Geographic Information Systems (GIS) street layer as a guide, paths of the 24 selected freeway projects were digitally traced. Next, four-mile buffers were formed around each project segment and superimposed onto a GIS layer of municipal boundaries. From this, the percentage of land area of each affected municipality that lied

within the four-mile buffer was determined. It was assumed that the share of a municipality's building activities within a four-mile buffer matched the share of that municipality's land area within the same buffer. This implicitly assumed that land-use densities were uniform within a municipality. This was felt to be a reasonable assumption given that densities tend to be fairly similar in most small-to-medium size suburban municipalities – the places traversed or bordered by the freeway projects that were studied. To the degree that errors were introduced in imputing building activities within four-mile buffers, there was no reason to suspect such errors were systematically biased.

Census records contained fairly detailed information (e.g., square-footage, number of units) on building activities, drawn from municipal and county building-permit records, across major residential and commercial land-use categories. To empirically test the "induced growth" hypothesis, a composite variable of "building activity" was created for each freeway corridor, gauging the relative degree of countywide development that occurred within a four-mile-wide impact zone. Creating such a variable was necessary since VMT changes were thought to be less sensitive to particular land uses than the overall amount of building activity that took place within a corridor. Because building-permit data on the "scale" of activities reported by the Census Bureau differed among land uses, a composite variable was needed. (For example, residential development is report by number of housing units whereas industrial growth is tracked in terms of building square footage.) The composite represented a weighted average of countywide proportions of each of the six land-use categories: single-family residential; multi-family residential; offices; retail; industrial; and other (representing mainly public and institutional uses). Weights were based on total square footage estimates for each land-use category. Local data on average building sizes were used to estimate total square footage of housing units, offices, and retail establishments.[i]

Induced Travel Versus Induced Demand

As noted previously, not all of the changes in VMT that occur along an improved roadway are truly "induced demand" since some of the traffic growth migrates from other facilities, and will thus be redistributed. The term "induced travel" is often used to represent all changes in trip-making that are unleashed when a road is improved, not only in terms of newly added traffic but also in terms of diverted trips from other routes (Hills, 1996; Lee, *et*

al., 1999). This distinction is important, and many previous studies have failed to carefully distinguish "induced demand" from "induced travel". Because this study examines VMT at the facility level, and there is no way to know from reported VMT data how much is diverted, "induced travel" is the focus of the research that follows.

4. Project List, Variables, and Descriptive Statistics

Table 1 lists the 24 freeway projects that formed the panel used to carry out the analyses, and Map 1 shows their locations within nine of California's 56 counties. Nineteen of the freeway segments studied were in four "mature suburban" counties: Contra Costa, Santa Clara, Orange, and Alameda. As limited-access, high-performance facilities, freeways provide favorable contexts for gauging induced travel and land-use impacts, particularly in fairly congested, fast-growing settings such as many of the California corridors studied.

Background data on segment length (in centerline miles) and lane expansions are also shown in Table 1. For each project, lane-miles of capacity were estimated by simply multiplying number of lanes by number of centerline miles. For example, the capacity of Project 15 increased from 15.6 lane miles (4 * 3.9) to 31.2 lane miles (8 * 3.9) when the 3.9-mile segment along Interstate-580 in Alameda County was expanded by one lane in each direction in 1986. In the data base, the number of lane miles for Project 15 was recorded as 15.6 for the period of 1980 to 1985 and 31.2 for the period of 1986 to 1994. Table 1 also shows the "variable name" used in the predictive models to account for each project's fixed effects (based on 0-1 coding). Fixed-effect variables help to capture the unique characteristics of certain places that are not expressed by other variables in an equation. Noland and Lem (2000) maintain that the inclusion of fixed-effect variables is absolutely essential in induced travel studies since so many exogenous, difficult-to-measure factors (e.g., entry of women into the workplace) have propelled VMT growth over the past several decades [see Heanue (1997) for further discussions].

Table 2 presents key variables used in conducting the path analysis, with variables organized across seven dimensions. Summary statistics for 360 data points (15 years of data pooled over 24 projects) are also shown. Over the 15-year study period, the 24 freeway segments constituted, on average, less than 3 percent of countywide VMT and lane-mile capacity. Office buildings constituted the highest average share (21 percent) of countywide

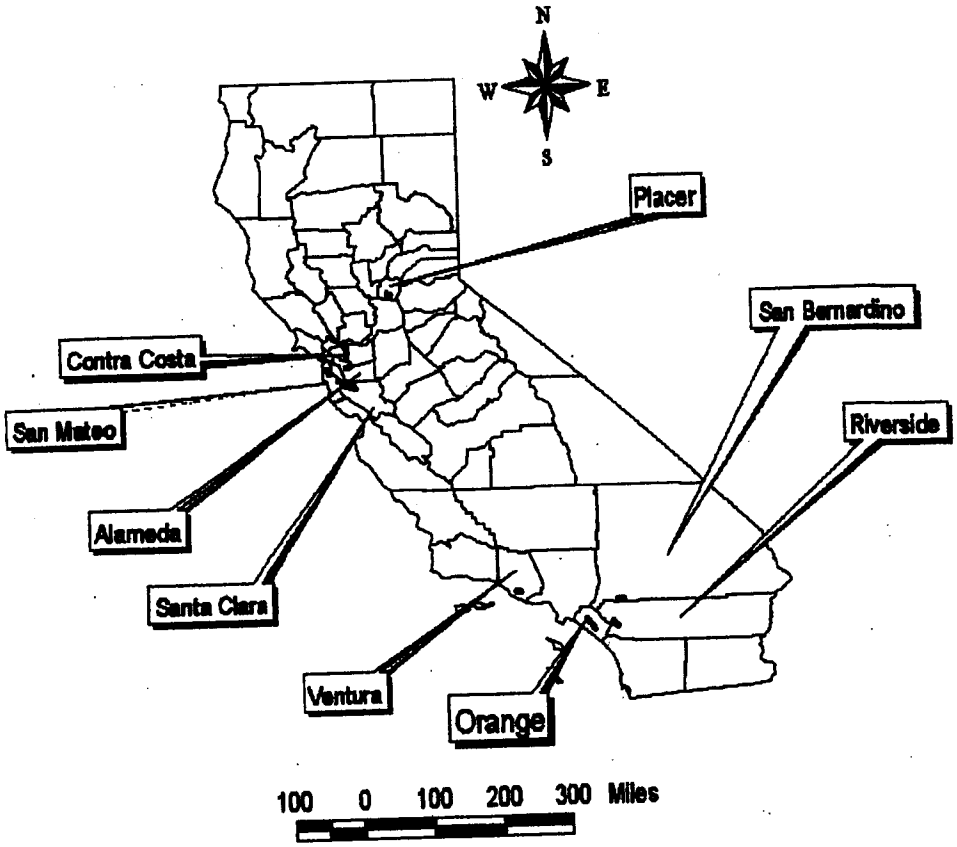
Table 1. Freeway Projects: Locations, Centerline Miles, Lane Expansions, and Variable Name

Project: Facility & County	Centerline Miles	Lane Expansion	Variable Name
1. Interstate-5, Orange County	4.9	8 to 10 lanes	Project1
2. Interstate-5, Orange County	2.6	8 to 16 lanes	Project2
3. Interstate-5, Orange County	2.7	6 to 10 lanes	Project3
4. Interstate-5, Orange County	2.1	6 to 14 lanes	Project4
5. Interstate-10, San Bernardino County	1.0	8 to 10 lanes	Project5
6. Interstate-15, Riverside County	3.6	4 to 6 lanes	Project6
7. U.S.-65, Placer County	3.5	2 to 4 lanes	Project7
8. U.S.-101, Ventura County	3.9	4 to 6 lanes	Project8
9. U.S.-101, Santa Clara County	1.3	6 to 8 lanes	Project9
10. U.S.-101, Santa Clara County	1.9	6 to 8 lanes	Project10
11. U.S.-101, Santa Clara County	1.2	6 to 8 lanes	Project11
12. U.S.-101, Santa Clara County	5.9	6 to 8 lanes	Project12
13. U.S.-101, Santa Clara County	6.4	6 to 8 lanes	Project13
14. U.S.-101, San Mateo County	5.4	6 to 8 lanes	Project14
15. Interstate-580, Alameda County	3.9	4 to 8 lanes	Project15
16. Interstate-580, Alameda County	2.1	4 to 8 lanes	Project16
17. Interstate-580, Alameda County	3.4	4 to 6 lanes	Project17
18. Interstate-680, Alameda County	2.8	4 to 8 lanes	Project18
19. Interstate-680, Contra Costa County	1.3	6 to 8 lanes	Project19
20. Interstate-680, Contra Costa County	1.2	6 to 7 lanes	Project20
21. Interstate-680, Contra Costa County	3.1	4 to 6 lanes	Project21
22. Interstate-680, Contra Costa County	2.7	4 to 6 lanes	Project22
23. Interstate-680, Contra Costa County	1.5	4 to 6 lanes	Project23
24. Interstate-680, Contra Costa County	1.8	4 to 6 lanes	Project24

land-use activities within the freeway buffers. Because study corridors were in suburban settings, gross densities tended to be fairly low for municipalities served by the freeways studied. Whites made up a majority of households among the freeway-served municipalities. Also, an appreciable share of households -- one out of six – was Hispanic.

5. Near-Term Path Model

The near-term model shown in Figure 1 postulates that the influences of freeway expansions on VMT are channeled through an intermediate step – operating speed. Only if speeds increase can traffic levels also be expected to rise, reflecting both newly generated trips (e.g., latent trips unleashed by faster moving traffic) and route diversions. And in due time, an equilibrium is reached as rising traffic volumes erode the travel-time savings, some trips are again suppressed, and motorists stop switching routes and modes.



Map 1. Location of 24 Freeway Projects Across Nine California Counties

Table 2. Key Endogenous and Predictor Variables: Summary Statistics and Data Sources

Dimension	Variable	Mean or Proportion	Std. Deviation
Demand	VMT on facility, proportion of countywide total[1]	0.028	0.019
Supply	Lane Miles on facility, proportion of countywide total[1]	0.021	0.011
Benefit	Operating speed on facility, mean mph[1]	38.1	7.5
Land Use	Total building activity[2], buffer proportion of countywide total[3]	0.093	0.111
	Single-family units, buffer proportion of countywide total[3]	0.022	0.057
	Multi-family units, buffer proportion of countywide total[3]	0.016	0.022
	Office valuation, buffer proportion of countywide total[3]	0.211	0.432
	Retail-commercial valuation, buffer proportion of countywide total[3]	0.073	0.137
	Industrial building square footage, buffer proportion of countywide total[3]	0.080	0.125
	Other building square footage, buffer proportion of countywide total[3]	0.010	0.045
Density	Population, persons per square mile, municipality[4]	1,308.5	842.3
	Employment, workers per square mile, municipality[4]	744.2	531.1
Policy	Air Quality, Maximum CO, one hour, parts per million, county[5]	14.17	4.78
Population	Personal Income, mean ($000), municipality[6]	20.605	5.199
	Race: White, proportion, municipality[6]	0.669	0.082
	Race: Black, proportion, muncipality[6]	0.067	0.051
	Race: Asian, proportion, municipality[6]	0.093	0.045
	Ethnicity: Hispanic, proportion, municipality[6]	0.166	0.057

Notes: 1 *Source:* California Department of Transportation, agency data files
2 Defined as weighted average of countywide proportions for six land-use categories, with weights for each category measured by the number of units (residential uses) or establishments (non-residential uses).
3 *Source:* U.S. Census Bureau, *Construction-Building Permits*, Residential Construction Branch, Manufacturing Construction Division, Building Permit Branch.
4 *Source:* California Department of Finance, agency data files
5 *Source:* California Air Resources Board, agency data files
6 *Source:* U.S. Department of Commerce, Bureau of Economic Analysis

Operating Speed Model

The left-hand side of Table 3 presents a best-fitting log-linear model that predicts operating speeds for any time period as a function of predictor variables for the same time period. The coefficients for all but the fixed-effect control variables represent point elasticities. Values of the endogenous variable "VMT proportion" were estimated using instrumental variables (consisting of all exogenous and fixed-effect variables used in the simultaneous predictions of "operating speed" and "VMT proportion"). The estimated model explained over two-thirds of the variation in operating speeds across the 360 pooled time series and cross-sectional observations.

The results clearly show that operating speeds increased in step with gains in the share of countywide lane-miles along the study corridors. On average, every 10 percent increase in a facility's share of countywide freeway lane mileage was associated with a 4.2 percent increase in mean operating speed on that facility. As hypothesized, rising travel eroded some of the speed benefits conferred by a road. Based on elasticity values, however, it appears that VMT increases were not totally offsetting – that is, the speed-enhancing benefits of freeway expansions exceeded the speed-eroding impacts of rising VMT.

Consistent with theory, Table 3 also shows that operating speeds tended to fall in higher density settings. Moreover, there appeared to be secular declines in average freeway speeds, reflected by the consistent negative signs of time-series fixed effect variables (relative to the prior-year suppressed categories of 1980 and 1981).

Induced Travel Model

The near-term model that predicted VMT shares as a function of mean operating speeds is shown in the left-hand column of Table 4. Two-stage least squares (2SLS) estimation was used to provide instrumental-variable estimates of the endogenous variable, "operating speed", to reduce possible simultaneous-equation biases.

Statistically significant and positive induced travel effects were found, though it is noted that the estimated elasticity of 0.238 is considerably smaller than elasticities estimated in previous county-level studies drawn from California experiences that used lane-miles as a direct predictor (e.g., Hansen, *et al.*, 1993; Hansen and Huang, 1996; Cervero and Hansen, 2001). It is also smaller than "induced demand" elasticities estimated using project-level data

Table 3. Operating Speed Model: Natural Logarithm of Mean Operating Speed on Freeway, 24 California Freeway Segments, 1980 to 1994; 2SLS Estimation; See Tables 1 and 2 for Variable Definitions

	NEAR-TERM MODEL			LONGER-TERM MODEL		
	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
Natural Log of:						
Lane Mile Proportion	0.418	0.033	0.000	0.385	0.085	0.000
VMT Proportion	-0.184	0.027	0.000	-0.165	0.078	0.036
Employment Density	-0.173	0.011	0.000	-0.173	0.016	0.000
Time-Series Fixed Effects:						
1982	-0.032	0.024	0.198	0.247	0.221	0.272
1983	-0.045	0.025	0.069	0.201	0.183	0.280
1985	-0.091	0.025	0.000	0.161	0.144	0.276
1986	-0.047	0.025	0.064	0.212	0.170	0.226
1987	-0.046	0.025	0.069	0.214	0.169	0.220
1988	-0.037	0.025	0.142	0.224	0.170	0.217
1989	-0.058	0.026	0.024	0.206	0.181	0.267
1990	-0.056	0.025	0.028	0.204	0.180	0.269
1991	-0.046	0.025	0.070	0.210	0.177	0.248
1992	-0.037	0.026	0.147	0.226	0.178	0.212
1993	-0.052	0.026	0.050	0.219	0.183	0.239
1994	-0.038	0.027	0.142	0.245	0.185	0.195
Project Fixed Effects:						
Project1	0.188	0.035	0.000	0.199	0.051	0.000
Project2	0.315	0.036	0.000	0.304	0.052	0.000
Project3	0.453	0.039	0.000	0.430	0.057	0.000
Project4	0.494	0.040	0.000	0.452	0.063	0.000
Project5	0.473	0.067	0.000	0.340	0.140	0.016
Project7	-0.219	0.039	0.000	-0.191	0.059	0.001
Project9	0.377	0.040	0.000	0.356	0.067	0.000
Project10	0.380	0.041	0.000	0.324	0.070	0.000
Project11	0.300	0.035	0.000	0.304	0.036	0.000
Project15	0.099	0.034	0.004	0.112	0.050	0.026
Project16	0.176	0.038	0.000	0.167	0.054	0.002
Project17	0.102	0.034	0.003	0.109	0.050	0.028
Project18	-0.071	0.031	0.021	-0.074	0.033	0.023
Project19	0.122	0.031	0.000	0.109	0.045	0.016
Project20	0.191	0.032	0.000	0.161	0.050	0.001
Project21	-0.117	0.029	0.000	-0.119	0.042	0.005
Project22	-0.126	0.030	0.000	-0.125	0.043	0.004
Constant	5.630	0.107	0.000	5.223	0.374	0.000
Summary Statistics						
No. of Cases		360			360	
F Statistic (prob.)		21.22 (.000)			9.47 (.000)	
R Square		.675			.632	

Table 4. *Induced Travel Model:* Natural Logarithm of Vehicle Miles Traveled on Freeway as a Proportion of Countywide VMT on State Freeway and Highway Facilities, 24 California Freeway Segments, 1980 to 1994; 2SLS Estimation; See Tables 1 and 2 for Variable Definitions

	NEAR-TERM MODEL			LONGER-TERM MODEL		
	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
Natural Log of:						
Operating Speed	0.238	0.083	0.004	0.637	0.374	0.089
Building Activity (T-2)	–	–	–	0.107	0.055	0.059
Building Activity (T-3)	–	–	–	0.065	0.034	0.064
Employment Density	0.394	0.149	0.009	–	–	–
Population Density	0.834	0.219	0.000	1.071	0.211	0.000
Black Proportion	-1.244	0.060	0.000	-0.631	0.114	0.000
Hispanic Proportion	–	–	–	-0.791	0.224	0.001
Time-Series Fixed Effects:						
1982	0.162	0.028	0.000	-0.038	0.012	0.000
1983	0.128	0.027	0.000	-0.040	0.015	0.000
1984	0.108	0.029	0.000	-0.095	0.039	0.018
1985	0.082	0.026	0.000	-0.075	0.048	0.121
1986	0.046	0.026	0.074	-0.063	0.032	0.049
1987	-0.034	0.026	0.193	-0.117	0.033	0.000
1988	-0.035	0.026	0.175	-0.067	0.030	0.028
1989	-0.036	0.026	0.169	-0.054	0.031	0.079
1990	0.016	0.008	0.058	0.017	0.009	0.060
1991	0.054	0.026	0.038	0.079	0.035	0.025
Project Fixed Effects:						
Project1	-2.809	0.143	0.000	-0.831	0.283	0.004
Project2	-3.220	0.144	0.000	-1.288	0.295	0.000
Project3	-3.571	0.144	0.000	-1.695	0.314	0.000
Project4	-3.577	0.143	0.000	-1.681	0.300	0.000
Project5	2.089	0.238	0.000	2.307	0.671	0.001
Project6	2.347	0.167	0.000	2.846	0.418	0.000
Project7	-1.020	0.180	0.000	-1.051	0.179	0.000
Project8	0.705	0.093	0.000	2.048	0.227	0.000
Project9	-1.708	0.042	0.000	-0.423	0.047	0.000
Project10	-1.733	0.042	0.000	-0.459	0.047	0.000
Project11	-1.303	0.043	0.000	-1.205	0.039	0.000
Project12	0.068	0.042	0.108	1.208	0.047	0.000
Project14	0.482	0.042	0.000	1.230	0.072	0.000
Project15	0.485	0.067	0.000	0.398	0.082	0.000
Project16	-0.120	0.066	0.069	-0.179	0.063	0.005
Project17	0.377	0.066	0.000	0.298	0.071	0.000
Project18	0.937	0.039	0.021	0.968	0.054	0.000
Project19	0.304	0.038	0.000	0.183	0.059	0.002
Project20	0.386	0.038	0.000	0.398	0.051	0.000
Project21	1.178	0.037	0.000	1.272	0.043	0.000
Project22	0.678	0.037	0.000	0.716	0.042	0.004
Constant	-16.257	0.837	0.000	-17.143	3.244	0.000
Summary Statistics						
No. of Cases	360			360		
F Statistic (prob.)	339.99 (.000)			257.00 (.000)		
R Square	.971			.973		

(Pells, 1989; Hansen, *et al.*,, 1993). The lower estimate supports the arguments of Cohen (1995), DeCorla-Souza (2000), Pickrell (2001), and others that lane-mile elasticities tend to overstate induced demand effects.

Signs for the other major predictor variables used in the model generally match *a priori* expectations. The proportion of countywide VMT along a freeway tended to increase where the population and employment densities of municipalities traversed or flanked by the freeway were comparatively high. The racial composition of a corridor (likely reflecting income and possibly cultural factors) also tended to have some bearing on traffic volumes, all else being equal.

Short-Run Model Summary

Overall, the short-term path model postulated in Figure 1 was confirmed by the empirical results. Notably, added capacity increases speeds, which in turn raises the countywide share of traffic, which then erodes some of the speed benefits, thereby moderating the growth in traffic until more or less an equilibrium condition is reached. Based on California experiences along 24 freeway corridors over the 1980 to 1994 period, a near-term "induced travel" elasticity of 0.24 was estimated. In that some of this travel increase represents route diversions, the "induced demand" elasticity of newly produced VMT is likely even smaller. These results, which are more in line with those of several recent disaggregate, person-level studies of induced demand (Strathman, *et al.*, 2000; Barr, 2000), suggest that past estimates of induced demand derived from lane-mile elasticities have overstated near-term impacts.

6. Longer-Term Path Model

The results of subjecting the longer-term path model to empirical scrutiny are summarized in Tables 3 through 7. Current VMT is treated as a product of both immediate- and delayed-response influences, the former consisting mainly of behavior shifts (i.e., latent trips, route diversion) and the latter comprising structural adjustments (i.e., land-use changes).

Operating Speed Model

From the right-hand side columns of Table 3, model outputs for predicting mean operating speeds paralleled those of the near-term model. Differences in coefficient estimates reflect the influences of a different (and larger) set of instrumental variables in the longer-term model. In the longer-term specification, the elasticity of operating speed as a function of relative road capacity and traffic levels was slightly smaller.

Induced Growth Model

The hypothesis of "induced growth" – i.e., road improvements and the resulting swifter travel speeds spur real-estate construction along a corridor -- was substantially confirmed. The model presented in Table 5 represents the lagged structure that yielded the best-fitting statistical results. The model, which explained around two-thirds of variation in total building activity as a share of countywide totals, reveals the presence of institutional delays, as postulated. Notably, the share of countywide building square footage and valuations along a corridor increased with the share of countywide freeway lane-mileage added three years earlier. Building activities were also highly responsive to average operating speeds two years before. Evidently, lane-mile additions in previous years, confirmed by increased operating speeds, spurred developers to build more housing, offices, shops, and other establishments within several miles of improved freeways. Based on elasticity estimates, the influences of operating speeds on the decision to build were more than twice as great as the influences of lane-mile additions. Far more important than either factor was the control variable "personal income". All things being equal, growth among the California municipalities studied tended to gravitate to areas with relatively high incomes.

As noted, a composite variable was created to represent "building activities" within the two-mile buffers. While this variable proved to be statistically robust, it masked the relative influences of capacity expansions and speed improvements on development activities for specific land uses. To shed light on which uses were most sensitive to road improvements, individual OLS regression models were also estimated that predicted the shares of countywide units, valuations, or building square footage within freeway impact zones for specific land uses. The same variables considered in estimating the best-fitting "building activity" model were candidates for entry into each of the specific land-use models.

Table 5. ***Induced Growth Model:*** **Natural Logarithm of Building Activity in Two-Mile Buffer as a Proportion of Countywide Building Activity, 24 California Freeway Segments, 1980 to 1994; OLS Estimation;** See Tables 1 and 2 for Variable Definitions

	Coefficient	Std. Error	Prob.
Natural Log of:			
Lane Miles Proportion (T-3)	0.443	0.137	0.001
Operating Speed (T-2)	1.052	0.267	0.000
Personal Income	1.655	0.259	0.000
Time-Series Fixed Effects:			
1985	-0.430	0.280	0.125
1986	-1.113	0.297	0.000
1987	-1.485	0.322	0.000
1988	-2.295	0.380	0.000
1989	-2.848	0.416	0.000
1990	-3.375	0.460	0.000
1991	-4.176	0.470	0.000
1992	-4.518	0.499	0.000
1993	-5.771	0.513	0.000
1994	-4.889	0.551	0.000
Project Fixed Effects:			
Project1	-0.864	0.321	0.008
Project2	-0.518	0.313	0.098
Project4	0.557	0.335	0.096
Project5	3.891	0.558	0.000
Project7	2.957	0.339	0.000
Project8	1.403	0.348	0.000
Project15	-2.278	0.340	0.000
Project16	-0.853	0.351	0.016
Project17	-0.806	0.344	0.020
Project18	-0.884	0.328	0.008
Project19	1.765	0.317	0.000
Constant	-77.261	11.313	0.000
Summary Statistics			
No. of Cases		360	
F Statistic (prob.)		21.90 (.000)	
R Square		.666	

Table 6 presents elasticities for designated time-lag periods for the path model's two key predictor variables – lane miles and operating speed. Overall, development seemed to be fairly sensitive to freeway improvements across all six land-use categories. Home-building was most responsive. Lane-mile additions two to four years previously, and in the case of apartments and multi-family units, operating speeds two years earlier, significantly explained residential construction, with elasticity estimates well above one. Barring restrictive zoning or Not-in-my-Backyard (NIMBY)resistance, housing developers clearly reacted to capacity expansions along most of the freeway corridors studied. The opening of new lanes and the ensuing higher travel speeds appear to have prompted housing developers to draft plans and seek building permits, with actual housing additions occurring several years later.

Non-residential activities were most responsive to changes in operating speeds two to four years previously, with lane-mile additions three to four years earlier exerting more modest effects on office, industrial, and public-use construction. Consistent with theories of "highest and best use", offices and public buildings appeared to value accessibility benefits conferred by freeway expansions more than industrial uses. These results square with the finding of Hansen, *et al.* (1993) that from 1966 to 1989, commercial-office construction in California urban areas was more sensitive to freeway expansions than were other types of land uses. Table 5 also shows that prior-year operating speeds, but not lane-mile additions, spurred retail development. The lower elasticity could reflect the relatively higher premium many retailers place on visibility and exposure to pass-by traffic, regardless of the operating speeds, rather than on roadway capacity *per se* (see, for example, Bonsignore and Roach, 1992).

Induced Travel Model

Table 4 also provides elasticity estimates of "induced travel" over a longer-term time horizon, which consistent with theory and past research are higher than short-run effects. Still, the longer-run elasticity estimate of 0.637 is smaller in absolute terms than elasticities estimated in previous studies that used lane miles as direct predictors (Hansen, *et al.*, 1993; Hansen and Huang, 1997; Noland and Cowart, 2000; Cervero and Hansen, 2001).

Table 6. Summary Elasticities of Building Activities as Functions of Predictor Variables on Lane Miles and Operating Speeds, and Model Goodness-of-Fit Statistic. All variables expressed in natural log form, thus coefficients denote elasticities. See Tables 1 and 2 for definitions of variables.

Building Activity Dependent Variable:	Key Predictor Variables (in natural log form)				R Square
	Lane Miles		Operating Speed		
	No. Years Lagged	Coefficient	No. Years Lagged	Coefficient	
Residential:					
Single-Family[1]	2	1.311***	–	–	0.804
Multi-Family[2]	4	1.252**	2	1.260***	0.747
Non-Residential:					
Office[3]	3	0.655*	3	0.916*	0.638
Retail[4]	–	–	4	0.544*	0.566
Industrial[5]	3	0.405*	2	0.762*	0.708
Other[6]	4	0.576*	2	0.900*	0.533

Key:

*** = Significant at the 0.01 probability level

** = Significant at the 0.05 probability level

* = Significant at the 0.01 probability level

1 = Other predictor variables in the model: Time Series: 1984-1997; Project7 through Project15; Project 18.

2 = Other predictor variables in the model: Time Series: 1996-1997; Project1 through Project4; Project 6 through Project9; Project12; Project13; Project18 through Project21.

3 = Other predictor variables in the model: Natural logs of Personal Income, Population Density, and Asian Proportion; Time Series: 1983 through 1993; Project1 through Project4; Project7 through Project19.

4 = Other predictor variables in the model: Natural logs of Personal Income, Population Density, White Proportion, and Asian Proportion; Times Series: 1985 through 1994; Project1; Project2; Project5 through Project11; Project14; Project16 through Project19; Project21.

5 = Other predictor variables in the model: Natural log of Employment Density; Time Series: 1983 through 1994; Project4 through Project11; Project14; Project15; Project18 through Project21.

6 = Other predictor variables in the model: Natural logs of Personal Income, Population Density, and Black Proportion; Time Series: 1984 through 1994; Project2; Project5 through Project15; Project18; Project19.

The longer-term model also reveals that a smaller but nonetheless appreciable increase in VMT is attributable to heightened development activity along impacted corridors. Notably, traffic generated by new residential and commercial-industrial-institutional development accounted for some of the VMT gains, with the additive elasticity for building activities two and three years previously estimated to be 0.172. The output suggests that the influences of behavioral shifts (e.g., latent trips, modal changes, route diversions) are nearly four times as strong as those of structural changes (e.g., land-use shifts).

While longer-run induced travel effects were corroborated by the model, it is worth noting that other "control" factors, such as population density and racial-economic attributes (presumably as proxies for income and cultural factors), tended to exert even stronger influences on VMT shares. All else being equal, dense corridors made up predominantly of non-black and non-Hispanic households tended to account for relatively high shares of countywide VMT.

Induced Investment Model

To bring the analysis of freeway demand-supply relationships full circle, a model was estimated on how road investments respond to traffic increases. Table 7 reveals a significant induced-investment effect. Every 10 percent increase in the share of countywide VMT on a corridor two years previously is associated with a 4.9 percent increase in the current share of countywide lane-mile capacity, *ceteris paribus*. While the induced-investment effect appears smaller than the induced-travel effect, the estimated elasticity is considerably larger than that estimated by Cervero and Hansen (2001) using countywide data from California over a similar time span. This finding further suggests an over-statement of induced demand effects from past studies. That is, a significant share of the statistical correlation between travel demand and road supply has long been assigned to induced demand effects; however, when a path-model framework is adopted that accounts for intermediate steps and induced investment effects, longer-run elasticities of VMT growth tend to be smaller, matched by higher "induced investment" elasticities.

Besides VMT levels, previous-year operating speeds were also statistically associated with freeway expansion. The fact that variables measuring both VMT and operating speeds appeared as direct and statistically significant predictors of freeway expansion could reflect

Table 7. *Induced Investment Model* Natural Logarithm of Lane Miles of Freeway Capacity as a Proportion of Countywide Lane Miles of Capacity for State Freeways, 24 California Freeway Segments, 1980 to 1994; OLS Estimation; See Tables 1 and 2 for Variable Definitions

	Coefficient	Std. Error	Prob.
Natural Log of:			
VMT Proportion (T-2)	0.490	0.049	0.000
Operating Speed (T-2)	-0.425	0.084	0.000
Maximum CO Level	-0.316	0.042	0.000
Time-Series Fixed Effects:			
1982	-0.055	0.040	0.164
1983	-0.113	0.038	0.003
1984	-0.143	0.037	0.000
1985	-0.131	0.037	0.000
1986	-0.568	0.042	0.179
1987	-0.063	0.402	0.140
1988	-0.104	0.040	0.010
1989	-0.071	0.041	0.085
1990	-0.059	0.041	0.147
1991	-0.058	0.037	0.133
1992	-0.032	0.022	0.128
Project Fixed Effects:			
Project1	0.440	0.064	0.000
Project2	0.204	0.055	0.000
Project5	-1.643	0.082	0.000
Project6	0.289	0.070	0.000
Project7	0.138	0.081	0.091
Project8	-0.152	0.074	0.042
Project9	-0.427	0.053	0.000
Project10	-0.472	0.053	0.000
Project11	-0.243	0.050	0.000
Project12	0.417	0.080	0.000
Project13	0.434	0.085	0.000
Project14	0.240	0.088	0.007
Project15	0.257	0.052	0.000
Project17	0.190	0.051	0.000
Project18	0.432	0.065	0.000
Project20	-0.229	0.053	0.000
Project21	0.286	0.070	0.000
Constant	-2.917	0.353	0.000
Summary Statistics			
No. of Cases	360		
F Statistic (prob.)	217.20 (.000)		
R Square	.949		

the influences of multiple criteria in investment decisions – that is, a combination of both traffic growth and performance levels could have played into political decisions to expand freeway capacity. Table 7 also shows that concerns over air-quality may have deterred freeway expansion, possibly out of fear that freeway-induced growth would ultimately exacerbate air quality. This stands in contrast to research by Cervero and Hansen (2001) that found deterioration in air-quality tended to spur road investments in California under the premise that congestion relief ultimately produces cleaner air. The fact that these two studies were carried out using different grains of analysis – county-level data in the case of the Cervero and Hansen study versus project-level data for this current study – could partly explain the differences.

Longer-Term Model Summary

Overall, the longer-term model performed fairly well in accounting for VMT growth along sampled California freeway segments. Evidence of "induced travel", "induced growth", and "induced investment" was uncovered. Elasticity estimates of induced travel were lower than what was found in most previous studies, including those focused on California freeways.

The long-run model suggests that it takes around 5 to 6 years before the full-brunt of traffic increases spurred by land-use shifts to be felt. Based on model outputs, it generally takes 2 to 3 years for development activity to respond to the addition of lane miles, and another 3 years for VMT to respond to development activity. The model also suggests that VMT growth feeds back to influence freeway investments several years later. The entire lagged structure, then, covers a 7 to 8 year period.

Based on beta weights, about 55 percent of the association between freeway expansion and VMT growth was accounted for by the path model.[ii] Thus while the postulated path model was supported by empirical analysis, more research is needed in different settings and at different resolutions of analysis to further refine our understanding of the co-dependencies between road investments, land-use shifts, and induced travel – hopefully research that is firmly rooted in behavioral and economic theories, and that adopts a casual modeling framework.

7. Conclusion

In recent years, concerns over induced demand have seemingly paralyzed the ability to rationalize road development in the United States. "Build it and they will come" has become a rallying cry of environmentalists, New Urbanists, and many others opposed to "sprawl-inducing" freeways.

Fairly firm positions have been taken on the induced demand debate despite the methodological shortcomings of past research. Simple mode structures have often been used to reach the conclusion that road investments provide only ephemeral congestion relief, with most added road capacity absorbed by increases in traffic. The path model presented in this paper attempts to sort through the ways in which road improvements affect travel demand, and vice-versa. As with past research, evidence of induced demand, induced growth, and induced investment was uncovered. Roads and the prominent fixtures of America's landscape that they serve – e.g., big-box retail, edge cities, and corporate campuses – are clearly co-dependent. While the magnitude of induced growth effects found in this study is generally consistent with that of previous research, the magnitude of induced demand effects is generally less. To the degree the path model better captures causal relationships than previous studies, many past elasticity estimates are likely inflated. The contention that capacity additions are quickly absorbed by increases in traffic and that "you can't build yourself out of traffic congestion" might not hold in all settings. Houston is a case in point. Over the past 15 years when the city invested around a billion dollars annually in freeway improvements (see Dunphy, 1997), Houston has made greater headway in relieving traffic congestion than most of its U.S. counterparts (Shrank and Lomax, 2000).

The problems people associate with roads – congestion, air pollution, and the like – are not the fault of road investments *per se*. These problems stem mainly from the unborne externalities from the *use* of roads, new and old alike. They also stem from the absence of thoughtful and integrated land-use planning and growth management around new interchanges and along new corridors. While the induced demand phenomenon is important and not to be trivialized, far more energies need to go toward figuring out how to best invest and manage scarce transportation and land resources – e.g., should we be building more bus rapid transit systems, applying "value-pricing" on current carpool lanes, and more closely integrating transportation and land use, and if so, when, where, and under what conditions? Whether new roads are on balance beneficial to society cannot be informed by studies of

induced demand, but rather only through a full accounting and weighing of social costs and benefits.

Critics of any and all highway investments, even those backed by credible benefit-cost analyses, should more carefully choose their battles. Energies might be better directed at curbing mis-pricing in the highway sector and managing land-use changes spawn by road investments.

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Notes

[i] Square footage statistics were already known from the census source for industrial and "other" land uses.

[ii] This was based on the application of "Wright's Rules" for decomposing correlation coefficients, as reviewed in Asher (1983). For the long-term model, the Pearson Product-Moment correlation between the natural logarithms of the "lane mile" variable and the "VMT" variable lagged by 5 years (to reflect the 2-year lag in lane-miles influencing building activities and the 3-year lag in building activities influencing VMT) was 0.898. If the model were completely specified, this correlation could be re-expressed as the sum of the products of beta weights (i.e., standardized regression coefficients) across all bona fide indirect paths. For the four indirect paths, the products of beta-weights are: Lane-miles → Speed → VMT [(1.294*0.265) = 0.342]; Lane-miles → Development Activity → VMT [(0.239*0.284) = 0.068]; Lane-miles → Speed → Development Activity → VMT [(1.294* 0.218*0.284) = 0.080]; Lane-Mile → Speed → VMT → Speed → Development Activity → VMT [(1.294* 0.265* 0.337*0.218*0.284) = 0.007]. Thus, the total product of beta weights among indirect path equals 0.497, or 55 percent, of the total correlation of 0.898.

Exhibit L

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STPP California Surface Transportation Policy Project

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ISSUES

traffic congestion

public transit

pedestrian safety

streets & highways

funding

smart growth

social equity

public health

bicycling

legislation

tourism

the environment

TRAFFIC CONGESTION

Build It And They'll Come

A growing body of research has shown that widening highways is only a temporary solution at best to the complex problem of traffic congestion. Indeed, research has pointed to a phenomenon known as "induced traffic" that suggests new and wider highways actually create additional traffic, above and beyond what can be attributed to rapid population increases and economic growth. In larger metropolitan areas, drivers will often abandon carpools and public transit when additional roadway space is made available through highway widenings or new road construction, thus creating additional trips and more traffic. In the longer term, the promise of more convenient transportation access allows commuters to live further from work, increasing development pressures and thus fueling even more traffic demand. (It should be noted that any form of transportation can produce this effect; whether it was "streetcar suburbs" at the turn of the 20th century or new commuter trains attracting Silicon Valley workers to live in the Central Valley with the promise of a more convenient commute.)

REGIONAL IMPACTS FROM "INDUCED TRAFFIC"

Metropolitan area (UZA)	Forecast annual growth rate in VMT (on freeways & arterials), assuming current growth	Forecast annual growth rate in VMT (on freeways & arterials), with no growth in roadway	Percent of total VMT growth attributable to "induced traffic"

	trends	capacity	
Bakersfield	9.0%	6.8%	24.6%
Fresno	5.8%	5.1%	12.4%
Los Angeles	-0.01%	-0.8%	100.0%
Sacramento	3.3%	1.5%	54.6%
San Diego	1.3%	0.4%	72.6%
San Francisco-Oakland	0.6%	-0.4%	100.0%
San Jose	1.3%	0.3%	73.6%
AVERAGE	3.0%	1.6%	45.2%

Note: VMT = vehicle miles traveled or overall mileage driven; Los Angeles and San Francisco have negative growth in VMT when no lane miles are constructed, thus 100% of growth is attributed to the induced travel effect. **Source:** Robert Noland, 2000.

The Federal Highway Administration has recently concluded that this phenomenon of "induced traffic" does in fact occur quite frequently in metropolitan areas throughout the United States. Another detailed study has also concluded that traffic in the Bay Area and Los Angeles would actually decrease if no new highway expansion took place. It also determined that two-thirds of the growth in traffic in San Jose and San Diego in the coming decades will be attributable to induced demand.

A recent study conducted by the U.C. Berkeley Institute for Transportation Studies concluded that 90 percent of all new highway capacity added to California's metropolitan areas is filled within four years, and 60 percent-70 percent of all new county-level highway capacity is filled within two years. This, authors Mark Hansen and Yuanlin Huang explain, means an additional highway lane-mile constructed in the San Francisco Bay Area, Los Angeles or San Diego regions would increase traffic by 10,000-12,000 vehicle-miles traveled per day; in Sacramento and Stockton would equate to 7,000-8,000 additional VMT; and in smaller but nonetheless rapidly growing areas like Modesto, Merced, Monterey and Bakersfield would translate into an additional 3,000-6,000 VMT per day. The authors conclude:

"Our results suggest that the urban state highway lane miles added since 1970 have, on the whole, yielded little in the way of level of service improvements. Consistent with previous work, we find that increasing highway supply results in higher vehicle miles traveled (VMT). An induced traffic impact of such magnitude must be considered when assessing road capacity enhancements, whether in a broad policy context or on a project specific basis."

Several other reports in recent years have pointed to similar conclusions. In 1998, the Legislative Analyst's Office revealed the results of its own research on the issue and cautioned policymakers about the promise of relying solely on new highway construction in order to reduce traffic congestion throughout California:

"New road capacity will typically lead to new traffic, especially in urban areas, because people and businesses benefit from the mobility that the transportation system provides and seek to use it to their benefit. Ultimately, road use will increase, leading to congestion of new road capacity. For this reason, expansion of the existing transportation will rarely alleviate congestion permanently; however, by restraining demand this tendency can be offset and existing congested roads, as well as new roads, can be made to operate efficiently."

The growing belief that induced traffic largely offsets any short-term congestion relief gains also led authorities in the United Kingdom to cancel more than 70 planned highway construction and road expansion projects in the 1990s alone. Similar experiences have been reported by transportation officials in Germany, Holland and Japan. Many of these countries have retooled their transportation programs to incorporate a more balanced approach to managing traffic congestion as well as a new emphasis on growth management techniques, more compact development patterns, and other land use strategies as a way of beginning to combat what officials and experts see as the underlying cause of increasing traffic volumes.

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Exhib. M

ROAD SUPPLY AND TRAFFIC IN CALIFORNIA URBAN AREAS

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Abstract—We estimate relationships between the supply of state highways, measured in lane-miles, and the quantity of traffic, measured in vehicle-miles traveled, for urban counties and metropolitan areas in the state of California. The analysis employs a panel data set of annual observations for the years 1973 to 1990. We estimate several versions of a log-linear model including fixed regional and time period effects. Our main concern is with models of state highway (as opposed to total) vehicle-miles traveled. By using two types of models designed to capture long-term effects, we estimate that state highway vehicle-miles traveled has a lane-mile elasticity of 0.6–0.7 at the county level and 0.9 at the metropolitan level, and that the full impact of vehicle-miles traveled materializes within five years of the change in road supply. We also consider limited data on off-state highway vehicle-miles traveled, and find no conclusive evidence that increases in state highway lane-miles have affected traffic on other roads. Population, income, and gasoline price elasticities are also discussed. We find that, even when all these factors are accounted for, there has been a sharp increase in the propensity towards vehicle travel over the period of study, particularly during the late 1980s. © 1997 Elsevier Science Ltd. All rights reserved

1. INTRODUCTION

The idea of 'building our way out' of urban traffic congestion problems has been decisively rejected in the United States, both by the transportation community and the public at large. Beginning in the early 1970s, our society has turned away from urban road construction as a transportation improvement strategy. In California, the focus of this paper, state highway lane-mile (SHLM) growth averaged 2.2% annually from 1963 to 1974, but slumped to 0.3% in the years thereafter to 1990. The resulting system includes less than half of the 12 000 miles of limited access roadways envisioned in the 1958 California Division of Highways Freeway plan (California Division of Highways, 1958).

This policy shift has a variety of causes, including diminished finances, increased environmental concerns, and growing support for demand-oriented strategies for improving traffic flow (see Jones, 1989 for a cogent political analysis). An additional factor was the emerging suspicion that urban road improvements, by encouraging sprawl and discouraging transit use, generated new traffic and thereby undermined their benefit in reducing congestion.

The concern of this paper is with this latter point. The relationship between road supply and road use is crucial to the appraisal of urban road construction programs. If the effect is strong, urban road construction becomes very hard to justify in light of its enormous cost, marginal congestion reduction benefit, and probable adverse environmental and energy consequences. On the other hand, if the effect is more modest, then urban road construction, while still expensive, could yield sizable mobility, air quality, and energy efficiency benefits.

The emergence of new technologies that expand road capacity without adding lane-miles heightens the need for understanding the relationship between road capacity and traffic. Decisions on both the development and the deployment of such technologies require information on their probable traffic generation consequences.

Not surprisingly, the extent to which 'roads generate traffic' is a matter of sharp disagreement between defenders and opponents of the automobile-highway system. Highway interests argue that traffic growth is driven by economic and demographic factors, and view decisions about road supply in terms of how to best accommodate a fixed amount of demand. Opponents emphasize the variety of mechanisms by which adding roads can generate new traffic. For example, Mogridge

(1985) argued that adding road capacity could induce a mode shift from transit sufficient to actually worsen congestion. More generally, the philosophy of many highway opponents is succinctly stated by a Los Angeles water superintendent: "If you don't get the water, you wont need it" (Sierra Club, 1982).

While the transportation planning literature contains much research that bears on this question, it lacks a strong consensus. The conventional wisdom is that adding road capacity generates some traffic, and provides some congestion relief. This is the outcome predicted at the individual link level by classical traffic assignment models (Wardrop, 1952), and at the network level by extensions of such models (Sheffi, 1985) that endogenize trip generation, trip distribution, and mode choice decisions. There is, however, little agreement about the relative magnitude of the traffic generation and congestion reduction effects.

This paper attempts to quantify the relationship between highway capacity and traffic on an area level. To do this, we estimate statistical relationships between the supply of state highways, measured in lane-miles (SHLM), and vehicle-miles traveled (VMT), using data for a panel of California urban counties covering the years 1973 to 1990. The resulting macroscopic models have the advantage of implicitly accounting for all the various mechanisms—land-use change, trip generation, mode shift, etc.—by which traffic generation can occur. On the other hand, the macroscopic approach cannot reliably ascertain the traffic generation effects of any individual project. Rather, it is intended to capture the central tendency of this effect for a large collection of projects.

A novel aspect of this research is the use of panel data—time series observations for a set of urban areas. This yields several major benefits. First, we control for a host of region- and time-specific variables by incorporating them as fixed effects. Second, we reduce the problem of simultaneity bias, as elaborated below. Third, we use the time dimension in our data set to investigate the dynamic response of VMT to changes in road supply.

We focus primarily on VMT on state highways, as opposed to that on local roads and streets, because more and better data are available for this variable. State highways account for about 50% of the total VMT in California. Using limited evidence, we also address the relationship between state highway supply and total VMT.

The remainder of this paper is organized as follows. Section 2 overviews previous research on the relationship between road supply and traffic level. Section 3 discusses models of state highway VMT, while Section 4 considers models of total VMT. In Section 5, we consider some implications of our results, while conclusions are offered in Section 6.

2. PREVIOUS LITERATURE

Efforts to assess the traffic-inducing effects of road improvements date back at least to the 1940s, when Jorgensen (1947) attempted to estimate the traffic generated by the opening of the Merrit and Wilbur Cross Parkways, which together formed a parallel route to U.S. 1 in Connecticut. The early studies all follow the same general approach. Traffic in the improved corridor is counted before and after project completion, and observed changes are compared with the change that would be expected without the improvement. The latter is estimated either by observation of a control corridor or of some indicator of region-wide traffic levels such as gasoline sales. Studies by the Cook County Highway Dept. (1955), Frye (1962, 1964) and Holder and Stover (1972), as well as several studies in Great Britain reported by Pells (1989), all follow this logic. The results are typically summarized by an estimate of the percentage gain in corridor traffic resulting from an improvement for a given year after the improvement was completed. Figure 1 summarizes a number of these studies by plotting this percentage against the number of years since project completion to which it pertains. A wide range of impacts is evident, reflecting, among other things, the diversity of pre-improvement road supply and traffic conditions.

Road traffic generation has also been considered in several studies in which the unit of observation is the urban region. Using a cross-section of data for different urban areas, these 'area studies' have attempted to identify how regional VMT is affected by road supply, measured either in terms of route-miles or lane-miles of highway, or some other supply indicator such as the average time cost of travel. In contrast to the facility-specific studies, area studies seek more general relationships. A common way of representing such relationships is with an elasticity—the

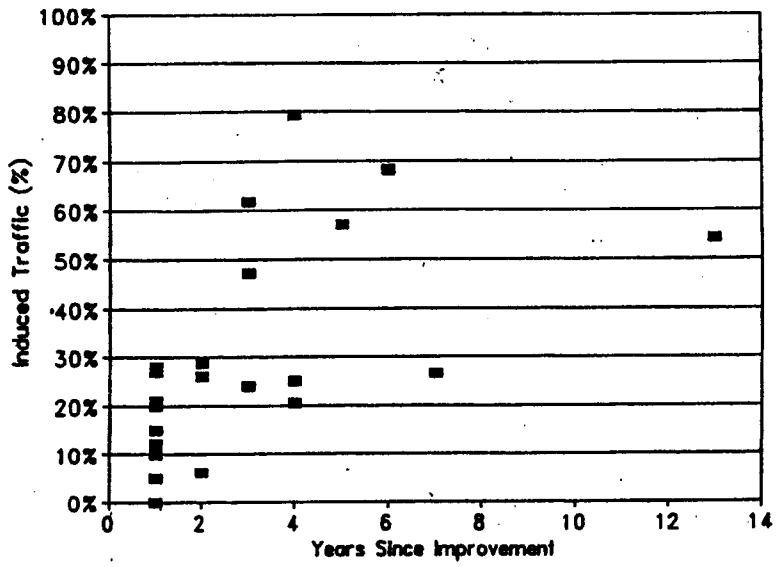

Fig. 1. Estimates of induced traffic from road improvements, various studies.

percentage change in one variable resulting from a 1% change in another. Table 1 summarizes elasticity results from area studies. Each of the reported elasticities represents the percentage change in road traffic—or per capita road traffic, as appropriate—resulting from a 1% change in the supply-side variable employed in the study. Two of the studies, those of Koppelman (1972) and Burright (1984), report elasticities directly, while in the remaining cases the elasticity was calculated by the present authors from information provided in the reference. Table 1 shows wide variation in estimated elasticities. The two highest values, from Kassoff and Gendell (1972) and Newman (1989), are based on univariate analyses that attribute traffic variation to road supply variation without controlling for other relevant variables such as income, automobile operating cost, and population density. The other studies employ multivariate analysis in an effort to isolate the effect of roadway supply, and obtain a weaker relationship.

A third approach to assessing the traffic-inducing impact of road improvements is through the use of regional transportation demand models. Although these models have been used in countless planning studies, in most cases they overlook important feedback effects, such as the impact of congestion delay on trip generation, trip distribution, and mode choice. One exception is the study of Ruiter *et al.* (1979), which was designed specifically to assess the VMT impact of changes in highway supply. By using a regional transportation model incorporating trip generation, mode

Table 1. Elasticities for vehicle travel in urban areas

Source	Supply side variable	Estimated elasticity	Comments
Kassoff and Gendell (1972)	'System Supply Index' based on route-miles per capita	below 0.58	Calculated from Fig. 9 of reference. See text
Koppelman (1972)	Lane-miles of highway	0.13	Calculated from series of regression equations estimated from cross-sectional data
Payne-Maxie Consultants (1980)	Route-miles of beltway	0.12	Calculated from regression results based on cross-sectional data
	Route-miles of freeway other than beltway	0.10	
	Total route-miles of freeway	0.22	
Burright (1984)	Time cost of travel (estimated from average bus speed)	−0.27 (short-run) −0.51 (long-run)	Two-stage least-squares regression. Urbanized land area held constant in short-run case
Newman (1989)	Metres of road per capita	0.70	Comparison of most and least energy-efficient cities

split, trip distribution, and trip re-timing effects to assess the VMT impact of two road projects in the San Francisco Bay Area, they estimated a lane-mile elasticity of 0.38 in one case and a negative impact on daily VMT in the other. The authors ascribe the latter result to the reduction in overall automobile availability as more cars are driven to work.

The studies cited in this section concur that increases in road supply engender increases in traffic, but not on the magnitude of the effect. Elasticity estimates ranging from less than zero to 0.7 are reported in the literature. Moreover, the dynamics of the phenomenon have received virtually no attention. Such wide disagreement over the magnitude of traffic generation effects, and lack of knowledge of their timing, introduces great uncertainty into the appraisal of urban road programs.

3. STATE HIGHWAY VMT MODELS

Methodology and data

To study the relationship between road supply and traffic, we estimate several models based on two panels of area-level data, using observations covering the period 1973 to 1990. One panel consists of 30 California urban counties, where by 'urban' we mean that the county is part of a metropolitan statistical area (MSA) as defined by the U.S. Office of Management and Budget in 1990. The second panel consists of MSAs and consolidated MSAs (CMSAs)—aggregations of counties that form integral metropolitan regions. As of 1990, California had two CMSAs (Los Angeles–Anaheim–Riverside and San Francisco–Oakland–San Jose) and 13 MSAs, which together account for 32 of the state's 58 counties. We exclude one MSA—Yuba City—and its two constituent counties—Sutter and Yuba—from the analysis because of data problems. The remaining 14 metropolitan regions and associated counties are listed in Table 2. The populations of the regions range over two orders of magnitude, from 150,000 to 15 million.

We estimated several equations, all of them variations of the distributed lag fixed effects model:

$$\log(\mathrm{VMT}_{it}) = \alpha_i + \beta_t + \sum_k \lambda^k \log(X_{it}^k) + \sum_{l=0}^{L} \omega^l \log(\mathrm{SHLM}_{it-l}) + \epsilon_{it}, \tag{1}$$

where:

VMT_{it}	is the VMT in region i in year t;
α_i	is the fixed effect for region i, estimated in the analysis;
β_t	is the fixed effect for year t, estimated in the analysis;
X_{it}^k	is the value of explanatory variable k for region i and year t;
SHLM_{it-l}	is state highway lane-miles for region i and time $t-l$;
λ^k, ω^l	are coefficients to be estimated;
ϵ_{it}	is the outcome of a random variable for region i at year t, assumed to be normally distributed with mean 0.

Figure 1 is known as a finite distributed lag model, since it includes SHLM values for a finite number of years prior to t. This lag structure reflects the expectation that the impact of adding lane-miles on VMT occurs gradually, as travelers, households, and other decisionmakers adjust their behavior in response to the added capacity.

The model is log-linear, so coefficients can be read directly as elasticities. There is a single elasticity for each X variable, implying an instantaneous response. On the other hand, since the model includes lagged SHLM terms, it yields time-specific lane-mile elasticities. We maintain the simplifying assumption that all elasticities are constant across regions.

Our state highway VMT data, obtained directly from the California Department of Transportation, is based on traffic counts. Traffic counts are taken on each segment of the system once every three years, on a rotating basis. A few selected segments are counted annually, for the purpose of estimating traffic growth on segments not directly counted in a given year. Thus the reported state highway VMT is based on an assumed traffic volume for each highway segment, which may be estimated or based on a direct measurement. Given the large number of segments

in any given county, the VMT estimate is considered to be reliable, even though the individual segment volume estimates are clearly subject to error.

Our basic set of explanatory variables consists of SHLM, population (POP), and personal income per capita (PIN). SHLM data were developed from the Caltrans TASAS data base, which contains detailed design information for every segment in the state highway system. Population and personal income data were extracted from the County and City Data Book Consolidated File, County Data 1947–1977, and County Statistics File 2.

We considered, but rejected, including a public transit supply variable in the model. Since public transit is clearly a substitute for private vehicle travel, its supply can influence VMT. Unfortunately, regional-level public transit data are not directly available, and transit property data that could be aggregated to a regional level are unavailable for the years prior to 1979. Further, as suggested by Mogridge and others, the impact of road supply on VMT may be mediated, in part, by its impact on transit supply, in which case controlling for it would be inappropriate.

It is important to appreciate the difference between the above model and a standard cross-sectional one. To do so, consider a simplified example. Suppose we have a model similar to eqn 1, but including only one SHLM term, the fixed effects, and no X variables. Assume that we have VMT and SHLM data for two regions and two time periods. Assume initially that the data are as given in Fig. 2(a), the data labels in which consist of the region number (1 or 2) followed by the time period number (1 or 2). In Fig. 2(a), there is SHLM variation between regions, and between time periods, but each region has the same SHLM growth between periods 1 and 2. This makes it impossible to disentangle the lane-mile effect from the regional and time period effects. If, however, the situation is as appears in Fig. 2(b), it becomes possible to isolate the effect of road supply. Since in this case SHLM in region 2 increases more than in region 1, we can (assuming our over-simplified model) ascribe the difference in VMT growth between the two regions to the difference in SHLM growth. Specifically, we obtain:

$$\epsilon_{\text{VMT-SHLM}} = \omega^0 = \frac{\log\left(\frac{\text{VMT}_{22}}{\text{VMT}_{21}} / \frac{\text{VMT}_{12}}{\text{VMT}_{11}}\right)}{\log\left(\frac{\text{SHLM}_{22}}{\text{SHLM}_{21}} / \frac{\text{SHLM}_{12}}{\text{SHLM}_{11}}\right)}. \tag{2}$$

As in the above case, model (1) is estimated by relating differences in VMT growth to differences in SHLM growth, while also controlling for other factors and stochastic effects.

By controlling for fixed effects, model (1) also substantially reduces the potential distortion from simultaneity bias. Such bias will occur if traffic affects road supply, or more generally, when the error term in a regression equation is correlated with an independent variable. In the long run, the causality between VMT and SHLM does in fact run in both directions. However, the protracted

Table 2. California metropolitan areas

Region (classification)	1990 Population (millions)	1990 per capita income ($000)	Constituent counties
Bakersfield (MSA)	0.56	15.3	Kern
Chico (MSA)	0.18	15.4	Butte
Fresno (MSA)	0.66	16.8	Fresno
Los Angeles (CMSA)	14.48	21.0	Los Angeles, Orange, Riverside, San Bernadino, Ventura
Merced (MSA)	0.18	14.1	Merced
Modesto (MSA)	0.38	15.4	Stanislaus
Monterey (MSA)	0.36	18.2	Monterey
Redding (MSA)	0.15	16.7	Shasta
Sacramento (MSA)	1.48	19.5	Eldorado, Placer, Sacramento, Yolo
San Diego (MSA)	2.55	19.7	San Diego
San Francisco Bay Area (CMSA)	6.27	25.1	Alameda Contra, Costa Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma
Santa Barbara (MSA)	0.36	23.1	Santa Barbara
Stockton (MSA)	0.47	15.5	San Joaquin
Visalia (MSA)	0.31	14.3	Tulare

nature of the highway expansion project development and delivery process, the lumpy and durable nature of the projects, and politicized manner in which they are chosen, make it impossible for highway supply to respond to changes in traffic level on a year-to-year basis. In other words, while it is probably true that Los Angeles has a lot of SHLM in part because it has a lot of traffic, it is far less likely that SHLM in the LA region would increase from one year to the next in response to (or anticipation of) a traffic increase there.

To investigate this issue, we ran regressions of SHLM against several factors which will be shown below to be key determinants of VMT. The results, shown in Table 3, reveal that when fixed effects are included, POP and PIN have weak, statistically insignificant effects on SHLM, but that population, along with population density, strongly affect SHLM when the fixed effects are excluded. Since variables that affect VMT also strongly affect SHLM in the model without fixed effects, it is possible that other factors that affect the regional propensity to vehicular travel, and which are absorbed in the stochastic error term, also do so. Thus there may be simultaneity in the VMT model without fixed effects. Conversely, given the insensitivity of SHLM to POP and PIN in the fixed effects model, it is unlikely to be correlated with the error term in the VMT model with fixed effects.

When simultaneity exists, the most common remedy is to instrument the independent variable with an estimator based on exogenous variables that do not directly affect the dependent variable. Unfortunately, in the present case no suitable instrument variable is available. Most of the factors that affect the supply of state highways also exert some direct influence on the demand for vehicular travel, while suitable data are not available for other factors. Thus we use SHLM in

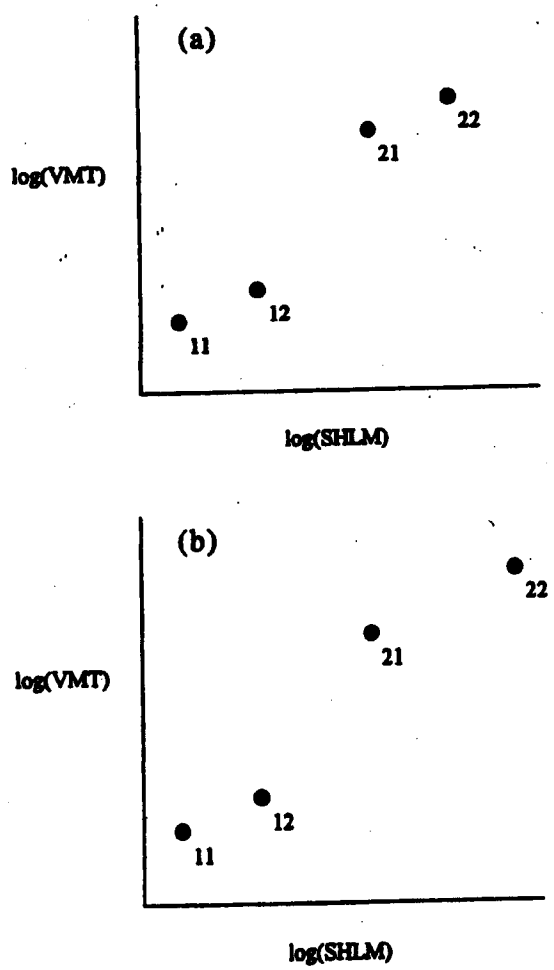

Fig. 2. Observability of lane-mile effect in fixed effects model.

uninstrumented form, despite the potential simultaneity problem (particularly in models without fixed effects). Simultaneity would cause an upward bias in the SHLM coefficients.

Several versions of model (1) are estimated. First, we estimate several unlagged versions, which assume $\omega^l = 0$ for $l > 0$. We consider four versions of the unlagged model, one with both regional and time period fixed effects, one with neither, and two with one set of fixed effects but not the other. We refer to the models with regional fixed effects as *panel models* and those excluding them as *cross-section models*. (As will be shown below, the cross-section models yield interesting results despite being subject to simultaneity bias.) In the latter, we include the variable population density (DENSITY), which, since land area does not vary over time, is perfectly collinear with POP and the regional dummy variables in the panel models. Similarly, in the models without time period fixed effects we include real gasoline price (GPRICE, obtained from the State Energy Price and Expenditure Report (U.S. Department of Energy), and adjusted to constant dollars using the Consumer Price Index), and a time trend variable, T.

We next estimated a series of models in which we allow $\omega^l \neq 0$ for $L \geq l$, and in which we include both regional and time period fixed effects. We term these lag models. In light of the fairly short time series of 18 years, and the strong autocorrelation among lane-mile values for individual regions, we focused on low-order polynomial lag models (Almon, 1965; Greene, 1993). To find the appropriate lag order, we began with a data set excluding the first five years, 1973 to 1977. We estimated unrestricted lagged models (that is, models in which the ω^l can take any values) of orders 1, 2, 3, 4 and 5 on this data set. Among these, we chose the model with the lowest value of the Akaike information criterion (AIC), as suggested by Greene (1993). The AIC is similar to the adjusted R^2 in that it favors models with low sums of squared errors but penalizes for loss of degrees of freedom; it is more appropriate than adjusted R^2 for models estimated using generalized least squares, which we employ in this analysis for reasons discussed below. We next expanded the data set to the maximum number of years possible given the order of the selected lag model, L^*, and verified that the selected model was better than all lower order models based on the larger data set. Finally, we compared the unrestricted model with a series of polynomial lag models of order L^*, with polynomials of degree 0, 1, ..., L^*-1. In a polynomial lag model of degree P, the coefficient on $SHLM_{it-l}$ is assumed to be a Pth-degree polynomial function of l, and the coefficients of this polynomial are estimated in the regression. In effect, these polynomial models impose restrictions on the ω^l coefficients. The higher the degree of the polynomial, the fewer the restrictions.

Initially the ordinary least-squares (OLS) method was used to estimate the models. However, the resulting errors were autocorrelated. To correct for this, we employed the one-step method of Prais and Winsten (1954), in which the autocorrelation is estimated from the OLS residuals, and the model is then re-estimated using GLS with the error structure (Ω matrix) implied by the autocorrelation.

Table 3. Estimation results for log-linear state highway lane-mile model, by geographic unit of analysis

Variables	County level		Metropolitan level	
	Panel model, time fixed effects, P–W* estimates	Cross-section model, time fixed effects, P–W estimates	Panel model, time fixed effects, P–W estimates	Cross-section model, time fixed effects, P–W estimates
Population	−0.002 (−0.09)†	0.88 (56.89)	−0.02 (−0.30)	0.95 (47.60)
Personal income	0.02 (0.77)	0.04 (0.83)	0.07 (1.46)	0.13 (1.90)
Population density	—	−0.44 (−36.45)	—	−0.56 (−19.07)
R^2	0.996	0.868	0.998	0.940
Number of observations	540	540	252	252

Source: Estimated by the authors from data for 30 California metropolitan counties and 14 California metropolitan areas (MSAs and CMSAs) covering the years 1973 to 1990.

*Prais–Winsten estimates.

†t-statistics in parentheses.

Table 4. Estimation results for log-linear state highway vehicle-miles traveled model, estimated at county level

Variables	Regional panel model (regional fixed effects)			Regional cross-section model (no regional fixed effects)	
	Time fixed effects		Time trend	Time fixed effects	Time trend
	OLS*	P–W†	P–W	P–W	P–W
Lane-miles of state highway	0.63 (8.12)‡	0.37 (4.96)	0.28 (3.49)	0.75 (15.00)	0.72 (13.78)
Population	0.37 (10.70)	0.41 (8.67)	0.45 (8.97)	0.32 (6.78)	0.34 (6.99)
Personal income	0.14 (3.50)	0.10 (1.95)	0.20 (4.59)	0.34 (5.56)	0.34 (6.72)
Population density	—	—	—	0.18 (7.03)	0.17 (6.36)
Gasoline price	—	—	−0.09 (−7.09)	—	−0.08 (−5.37)
Time	—	—	0.02 (12.79)	—	0.02 (9.79)
R^2	0.998	0.993	0.992	0.929	0.920
Number of observations	540	540	540	540	540

Source: Estimated by the authors from data for 30 California urban counties covering the years 1973 to 1990.
*Ordinary least-squares estimates.
†Prais–Winsten estimates.
‡t-statistics in parentheses.

Results

Estimation results for the unlagged state highway VMT models, at the county and metropolitan levels, are shown in Tables 4 and 5, respectively. To conserve space, the regional and time period fixed effect estimates are not presented. For purposes of comparison, both OLS and Prais–Winsten estimates are presented for the panel model with time period fixed effects. The substantial differences between them, particularly in the case of the SHLM coefficient, underscore the importance of using the correct error structure when estimating these models.

All explanatory variables have coefficients with plausible signs, and are (with one exception) statistically significant. The explanatory power of the models is, as expected, very high, with R^2 ranging from 0.92 to over 0.99. The R^2 are slightly higher for the metropolitan models, demonstrating that VMT for integral regions can be modeled more accurately than that for individual counties. Estimates of the lane-mile elasticity of VMT are in the ranges 0.3 to 0.7 for the county-level panel and cross-section models, and 0.5 to 0.9 for the equivalent metropolitan-level models.

Table 5. Estimation results for log-linear state highway vehicle-miles traveled model, estimated at metropolitan level

Variables	Regional panel model (regional fixed effects)			Regional cross-section model (no regional fixed effects)	
	Time fixed effects		Time trend	Time fixed effects	Time trend
	OLS*	P–W†	P–W	P–W	P–W
Lane-miles of state highway	0.77 (6.16)‡	0.53 (4.06)	0.43 (3.00)	0.91 (11.70)	0.90 (10.94)
Population	0.54 (4.69)	0.47 (3.40)	0.57 (3.89)	0.16 (2.11)	0.17 (2.17)
Personal income	0.30 (3.52)	0.16 (1.71)	0.22 (2.91)	0.25 (2.53)	0.25 (3.03)
Population density	—	—	—	0.32 (6.16)	0.32 (5.75)
Gasoline price	—	—	−0.10 (−5.26)	—	−0.10 (−4.53)
Time	—	—	0.02 (4.33)	—	0.02 (8.09)
R^2	0.999	0.996	0.995	0.969	0.964
Number of observations	252	252	252	252	252

Source: Estimated by the authors from data for 14 California metropolitan areas (MSAs and CMSAs) covering the years 1973 to 1990.
*Ordinary least-squares estimates.
†Prais–Winsten estimates.
‡t-statistics in parentheses.

Table 6. Akaike information criterion (AIC), various log-linear, distributed lag, models of state highway vehicle-miles traveled, by geographic unit of analysis

Order of lag	Years of data county/metro	Restrictions on lag coefficients	AIC, county	AIC, metro
0	13/13	No restrictions	−1526.8	−699.5
1	13/13	No restrictions	−1535.6	−699.8
2	13/13	No restrictions	−1536.6	−698.8
3	13/13	No restrictions	−1536.2	−695.1
4	13/13	No restrictions	−1535.5	−704.9
5	13/13	No restrictions	−1532.8	−701.8
0	16/14	No restrictions	−1930.9	−753.2
1	16/14	No restrictions	−1940.7	−764.8
2	16/14	No restrictions	−1943.4	−763.6
3	16/14	No restrictions	—	−760.0
4	16/14	No restrictions	—	−767.5
4	16/14	3rd-degree polynomial	—	−769.4
4	16/14	2nd-degree polynomial	—	−771.1
4	16/14	1st-degree polynomial	−1946.1	−771.0
4	16/14	0th-degree polynomial (equal coefficients on all lane-mile terms)	−1946.6	−773.4

Source: Estimated by the authors from data for 30 California metropolitan counties and 14 California metropolitan areas (MSAs and CMSAs) covering the years 1973 to 1990.
Entries in bold indicate preferred models based on AIC.

Thus, cross-section elasticities are considerably greater than panel elasticities, and metropolitan elasticities are somewhat higher than county elasticities.

With regard to the higher cross-section lane-mile elasticities, two explanations are possible. First, it could be that the cross-section models are capturing long-run effects, whereas the panel models reflect short-term responses (Abrahams, 1983). The cross-section model is dominated by persistent differences among the regions. Thus the effects of lane-mile variation observed in the cross-section model have had an extended period of time over which to materialize. Alternatively, the higher cross-section estimates may result from simultaneity bias.

The higher lane-mile elasticities found in the metropolitan models suggest that adding lane-miles in a given county increases VMT throughout a wider region. This will occur if, for example, increasing the capacity of a highway in a given county induces commuting to or through that county from other counties in the region.

As expected, population emerges as a major determinant of VMT. The overall population elasticity (which in the cross-section models includes both the population and the density effects) is in the 0.4–0.6 range. Since the elasticity is less than 1.0, population growth is associated with a reduction in VMT per capita, controlling for all other factors. On the other hand, if lane-mile growth keeps pace with population growth, we find that the VMT per capita would increase, since the sum of the population and lane-mile elasticities is greater than 1.0.

Somewhat surprisingly, the population density coefficient is positive, implying that, all else equal, a region with more land area will generate less VMT. This anomaly probably results from the use of a density variable based on total county land area, which does not adequately measure the density of settled areas within the region.

The income elasticity estimates range from 0.1 to 0.34. Cross-section estimates are somewhat higher than panel estimates, suggesting that the VMT response to income change may have both long-run and short-run elements. The cross-section county estimates are somewhat higher than the metropolitan ones, but the difference is of marginal statistical significance.

Gasoline price is found to have a modest effect on VMT, with an elasticity in the range −0.8 to −0.10 in all cases. There is also evidence of a secular trend towards increased VMT, controlling for the factors already discussed, of about 2% a year.

The results of the lag model selection procedures are summarized in Table 6, which presents the AIC values for the various models tested, with values in bold identifying preferred models. By using the 13-year data set, we found that, among the unrestricted models, the second-order lag model performs best at the county level, while at the metropolitan level the fourth-order model is preferred. Thus we could add one additional year of data to the metropolitan data set and three

Table 7. Estimation results for log-linear, 0th-degree polynomial distributed lag, state highway vehicle-miles traveled model, by geographic unit of analysis

Variable	County panel model, time fixed effects, P–W* estimates	Metropolitan panel model, time fixed effects, P–W estimates
Population	0.46 (9.03)†	0.69 (3.92)
Personal income	0.05 (0.88)	0.21 (1.87)
LM0‡	0.21 (5.33)	0.19 (4.20)
R^2	0.994	0.997
L^*	2	4
Long-run elasticity¶	0.62	0.94
Number of observations	480	196

Source: Estimated by the authors from data for 30 California metropolitan counties covering the years 1975 to 1990 and 14 California metropolitan areas (MSAs and CMSAs) covering the years 1977 to 1990.

*Prais–Winsten estimates.

†t-statistics in parentheses.

‡$LM0_{it} = \sum_{l=0}^{L^*} SHLM_{it-l}$ where $SHLM_{it-l}$ is the lane-miles for region i in year $t-l$.

¶The percentage increase in VMT resulting from a 1% increase in lane-miles, after a sufficient period of time for the full effect to be realized. Equal to the LM0 coefficient times $L^* + 1$, with any differences in table due to rounding.

years to the county data set. In the expanded data sets, the second- and fourth-order lag models again perform best at the county and metropolitan levels, respectively. Finally, among the polynomial lag models, the zero-order model, which restricts the coefficients on all SHLM terms to be equal, yields the best results. (We term this the zero-order lag model.) The better performance of the zero-order lag models reflects the stability and low variability of SHLM for any given region, which makes it difficult to distinguish the predictions of high- and low-degree models. The lower degree models perform better in such circumstances because they absorb fewer degrees of freedom.

Table 7 contains the estimation results for the preferred lag models. Comparing the SHLM coefficients with those of the unlagged models, two principal findings emerge. First, the unlagged models suggest a stronger immediate effect of a lane-mile change. While the unlagged panel model implies that a 1% lane-mile increase will lead to an immediate 0.4–0.5% VMT increase, the immediate impact according to the lag panel model is less than half this amount. Second, the lag estimates imply the ultimate effect of a lane-mile addition, estimated to materialize after about two years at the county level and four years at the metropolitan level, is greater than that indicated by the unlagged panel models, and of comparable magnitude to that estimated in the unlagged cross-section models. This suggests that the high lane-mile elasticity in the unlagged cross-section model is reflecting a long-run effect rather than an upward bias due to simultaneity.

4. TOTAL VMT MODELS

The results above concern VMT on state highways. We now consider the relationship between state highway lane-miles and total VMT. Unfortunately, the quantity and quality of total VMT data are limited. We could locate such data only for the years 1980, 1982, 1986, 1988 and 1989. In addition to reducing the overall volume of data, the lack of observations before 1980 strips our data set of much of the longitudinal variation in SHLM. Furthermore, total VMT is estimated mainly on the basis of gasoline sales rather than vehicle counts, and is therefore of dubious reliability.

Nonetheless, we estimated county and metropolitan models for total, state highway, and off-state highway VMT (derived from the former two variables) using the five-year data set. In all cases, we estimated the zero-order lag version of the panel model, using a second-order lag structure for the county model and a fourth-order structure for the metropolitan model. The results appear in Table 8.

Table 8. Estimation results for log-linear, 0th-degree polynomial distributed lag vehicle-miles traveled model, by road system and geographic unit of analysis

Variable	County RP model, time fixed effects, P–W* estimates			Metropolitan RP model, time fixed effects, P–W estimates		
	Total	Off-state highway	State highway	Total	Off-state highway	State highway
Population	0.81 (5.28)†	1.36 (3.95)	0.60 (5.64)	1.39 (4.19)	1.67 (2.10)	1.06 (3.35)
Per caput income	0.01 (0.09)	−0.02 (−0.05)	0.25 (2.27)	0.81 (4.22)	1.17 (2.54)	0.59 (3.25)
LM0‡	0.37 (3.74)	0.38 (1.70)	0.31 (4.53)	0.08 (1.11)	−0.02 (−0.12)	0.20 (3.04)
R^2	0.997	0.987	0.999	0.999	0.996	0.999
L^*	2	2	2	4	4	4
Long-run elasticity¶	1.12	1.15	0.94	0.39	−0.10	1.01
Number of observations	150	150	150	70	70	70

Source: Estimated by the authors from data for 30 California metropolitan counties and 14 California metropolitan areas (MSAs and CMSAs) covering years the 1980, 1982, 1986, 1988 and 1989.

*Prais–Winsten estimates.

†t-statistics in parentheses.

‡$\mathrm{LM0}_k = \sum_{l=0}^{L^*} \mathrm{SHLM}_{k-l}$ where SHLM_{k-l} is the lane-miles for region l in year $t-l$.

¶The percentage increase in VMT resulting from a 1% increase in lane-miles, after a sufficient period of time for the full effect to be realized. Equal to the LM0 coefficient times L^*+1, with any differences in table due to rounding.

Not surprisingly, the results indicate that SHLM has a stronger and more statistically robust impact on state highway VMT than on off-state highway VMT. In fact, in neither the county nor the metropolitan case is the lane-mile coefficient statistically significant in the off-state highway model. Both county and metropolitan results are therefore inconclusive as to whether adding lane-miles increases or decreases traffic on other roads. The state highway VMT results, on the other hand, are broadly consistent with those estimated from the larger data sets, particularly with regard to the statistical significance and magnitude on the lane-mile coefficients.

The county and metropolitan results differ with regard to the effect of SHLM on total VMT, with the county model yielding a strong, statistically significant relationship and the metropolitan model suggesting a weak, insignificant, one. This difference is clearly connected with the fact that the county-level off-state highway model yields a lane-mile coefficient that is quite high, even though it is statistically insignificant. When both state highway and off-state highway traffic are included in the county model, the magnitude of the estimated off-state highway effect is retained, while its statistical uncertainty is masked. In contrast, in the metropolitan models the significant effect of SHLM on state highway VMT is, when combined with the weak off-state highway relationship, diluted to the point that no significant relationship is found in the total VMT model.

Despite their lack of statistical robustness, these results suggest that increasing SHLM does not reduce traffic on other roads to any great extent, and may even cause it to increase. The latter possibility is not so implausible as it may seem, since local roads and streets serve as complements as well as substitutes to state highways. A large majority of trips involving state highways begin and end on non-state facilities. It appears that this complementary relationship compensates for, or even outweighs, the substitution effect stemming from traffic diversion.

5. IMPLICATIONS

To illustrate the implications of our results, we use them to estimate contributions to VMT growth from different sources during the period 1977 to 1990. We focus on state highway VMT, employing the metropolitan, zero-order lag, panel model.

Since the model is log-linear, growth contributions are most readily presented in logarithmic terms. More specifically, our model is:

$$\log(\mathrm{VMT}_{it}) = \alpha_i + \beta_t + \sum_{k \neq h} \lambda^k \log(X_{it}^k) + \omega \sum_{l=0}^{4} \log(\mathrm{SHLM}_{it-l}) + \epsilon_{it}, \tag{3}$$

from which we obtain:

$$\begin{aligned} \log(\mathrm{VMT}_{it}) - \log(\mathrm{VMT}_{it-m}) &= \beta_t - \beta_{t-m} + \sum_k \lambda^k [\log(X_{it}^k) - \log(X_{it-m}^k)] \\ &+ \omega \left[\sum_{l=0}^{4} \log(\mathrm{SHLM}_{it-l}) - \log(\mathrm{SHLM}_{it-m-l}) \right] + \epsilon_{it} - \epsilon_{it-m}, \end{aligned} \tag{4}$$

which leads to:

$$\begin{aligned} \frac{1}{n} \sum_{i=1}^{n} \log(\mathrm{VMT}_{it}) - \log(\mathrm{VMT}_{it-m}) &= \beta_t - \beta_{t-m} \\ &+ \sum_k \left\{ \frac{\lambda^k}{n} \sum_{i=1}^{n} [\log(X_{it}^k) - \log(X_{it-m}^k)] \right\} \\ &+ \frac{\omega}{n} \left\{ \sum_{l=0}^{4} \left[\sum_{i=1}^{n} \log(\mathrm{SHLM}_{it-l}) - \log(\mathrm{SHLM}_{it-m-l}) \right] \right\}, \end{aligned} \tag{5}$$

where n is the number of regions. Figure 3 identifies the regional average contribution of each independent variable to the regional average growth in log(VMT) between years t and $t-m$. (Since time fixed effects are included in the model, the averaging eliminates the contribution of the error terms.)

Results for three periods—the late 1970s, the early 1980s, and the late 1980s—are shown in Fig. 3. Figure 3 shows that population growth is the most consistent contributor to VMT growth.

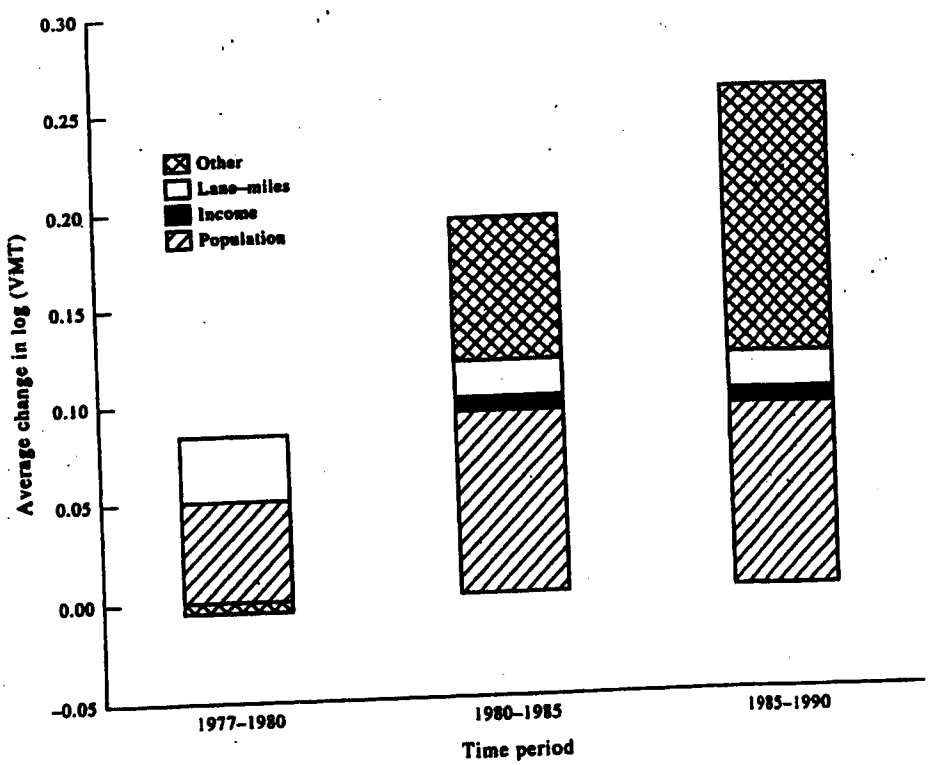

Fig. 3. Sources of VMT growth, California Metropolitan areas.

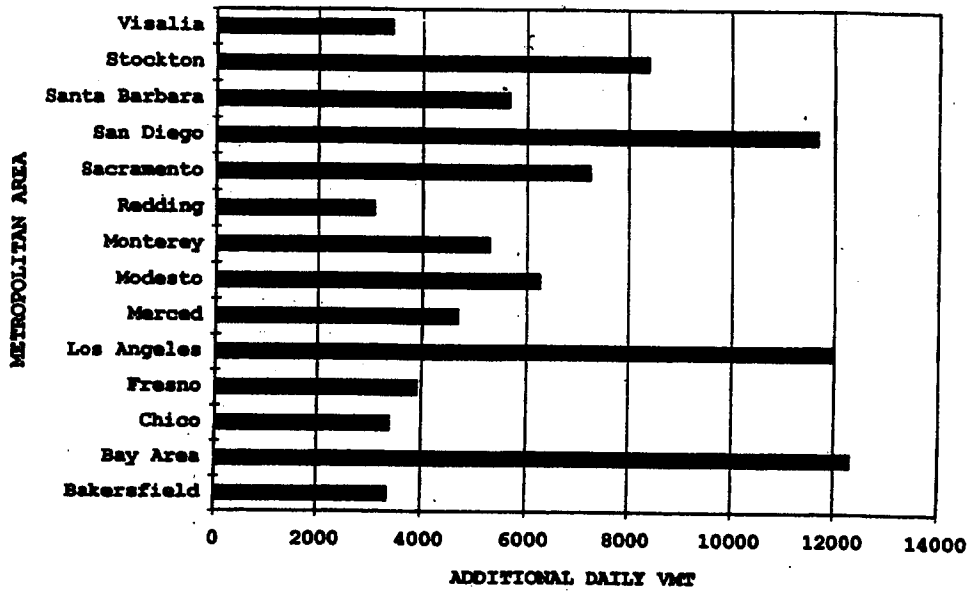

Fig. 4. Estimated additional VMT from a marginal lane-mile, California Metropolitan area.

In later years, 'Other' become more important. This refers to VMT change resulting from the fixed time period effects ($\beta_t - \beta_{t-m}$ in eqn 5). The positive contribution from this term implies that the propensity towards vehicle travel has increased in California, a phenomenon that has also been observed in national statistics (U.S. Department of Transportation, Bureau of Transportation Statistics, 1994, pp. 65–66).

Income growth and highway additions are far smaller contributors to VMT growth. Increases in SHLM caused about a 3.5% increase in VMT in the average region between 1977 and 1980, and 2–2.5% increases in the subsequent two periods. Per capita income change has caused a VMT increase of only 2% over the entire 1977–1990 period, the bulk of it during 1980–1985.

Figure 4 estimates the long-term impact from adding an additional SHLM in different urban regions, also based on the metropolitan, zero-order lag, panel model. The results imply that an additional SHLM in the San Francisco, Los Angeles, or San Diego regions would eventually increase VMT by 10,000 to 12,000 vehicle-miles per day, while in Sacramento and Stockton daily VMT increases of 7000–8000 are predicted. In smaller conurbations, expected traffic generation ranges from 3000 to 6000 daily VMT. Greater quantities of induced traffic are predicted for larger urban regions because such regions have higher ratios of VMT to SHLM.

6. CONCLUSIONS

By using panels of metropolitan and county data, we have analyzed the relationship between highway supply and VMT in California urban areas. Consistent with previous work, we find that increasing highway supply results in higher VMT. However, we find the strength of this effect to be considerably stronger, with our estimates of the long-run elasticity of state highway VMT to SHLM, supported by both the unlagged cross-section models and the lag panel models, in the 0.6–0.7 range for counties and around 0.9 for metropolitan areas. An induced traffic impact of such magnitude must be considered when assessing road capacity enhancements, whether in a broad policy context or on a project-specific basis.

Insofar as the VMT/SHLM ratio is a good indicator of state highway level of service at the regional level, our results suggest that the urban SHLM added since 1970 have, on the whole, yielded little in the way of level of service improvements. On the other hand, one can certainly envision situations where adding lane-miles, by removing some traffic bottleneck, results in both better traffic conditions and a higher VMT/SHLM ratio. Consequently, the normative implications of our results are tentative at best. Definitive evaluations of the costs and benefits of road expansion must be made at a more disaggregate level.

Our results shed light on the time scale of impact of traffic generation. Based on the lag model results, a 1% increase in lane-miles yields an immediate (within the same year) VMT increase of around 0.2%, with the full long-run effect materializing over 2 years at the county level and 4 years at the metropolitan one.

Our most robust results concern the relationship between road supply and traffic on the state highway system. Limited evidence suggests that if increasing SHLM reduces off-state highway traffic at all, the effect is quite weak. The county-level results suggest that the impact may even be positive.

Simple models of the kind presented here cannot supplant the detailed analyses needed to evaluate specific projects. It should not be assumed that the aggregate elasticities obtained in our analysis apply equally to every urban region, let alone to any particular project. They do, however, support important generalizations about supply–demand relationships for urban roads. Ideally, these generalizations will eventually be reconciled with the more detailed predictions of disaggregate, activity-based models that are the focus of so much ongoing research.

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Freeway Expansion and Land Development: An Empirical Analysis of Transportation Corridors

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procedure for this analysis, and Section 6 discusses its results. A summary and conclusion are offered in Section 7.

2. Approach

Our objective is to statistically evaluate the land use impacts of highway capacity expansion projects. To do so, we develop a data set based on a "panel" of corridors in which highway capacity expansions have occurred. The corridors in the panel are located in large urban regions in the state of California. The "panel" includes a number of corridors with a large number of years of information for each. This enables us to make statistically robust estimates of the land use changes that result from expanding the capacity of nearby roads. Furthermore, by having a number of different projects from across the state included in the data, we can be fairly confident that our results are broadly representative of conditions within California's large urban areas.

Different types of land use changes, including residential, commercial, and industrial development, are considered. Much of the previous literature has focused upon one type of land use when examining the outcome of a new highway facility or a capacity enhancement project. We want to ascertain whether one type of land use is affected more than, or in a different way from, another.

In order to empirically investigate the land use consequences of a capacity enhancement project, a broad set of data is needed. First, an accurate representation of the land development activity before and after the project is necessary. Second, we require demographic, socio-economic, and financial variables that can affect land use, so we can be confident that any measured impact of a capacity expansion is not in fact capturing the influence of other, excluded, variables.

Development activity in an urban region is subject to both local and regional influences. For example, growth in single family homes in the Bay Area's Contra Costa county may result from housing demand associated with economic activity in downtown San Francisco, rather than a recently completed capacity enhancement project in a corridor in Contra Costa. Therefore, the information contained in corridor data is partly reflecting what is occurring at the broader regional level and partly due to what is happening in the corridor. It is thus important to distinguish and control for these broader regional influences by normalizing the variables used in the empirical examination. This is explained in greater detail below.

3. Data Description: Variables and Geographic Study Areas

Our analysis is based on a set of corridors located in the four largest urban areas in California. There were many capacity enhancement projects in these regions in the past two decades. Projects are selected from reference 9, an annual publication from California Department of Transportation, which provided the size, cost, and date of completion of highway construction projects. The single most important criterion in selecting a project for inclusion in the data set is that it be a capacity enhancement of a controlled access radial freeway, completed between 1970 and 1988. These years are selected so that information covering a sufficient period on either side of the project completion date is available. Once the projects are chosen, the communities most directly impacted by them are identified. Any community located in the affected corridor, and whose route to the central city of the region would normally include the expanded road section, is chosen.

All corridors are located in one four major metropolitan regions of California: the San Francisco Bay Area (9 counties); Sacramento (6 counties); Los Angeles-Long Beach (3 counties); and San Diego (1 county). Over the past three decades all of these areas have experienced high rates of growth, and had a significant amount of investment in highway infrastructure. Three of the corridors are in the Bay Area, one in Sacramento, and two each in Los Angeles and San Diego. The corridors are identified and described in Table 1. Note that in four of the eight cases more than one capacity expansion occurred over the study period. This complicates the analysis, since for years after the second expansion the impacts of both expansions must be considered. Our procedure for doing this is discussed below.

Four dependent variables are used as to explore the impact of capacity enhancements on land use. All are based on building permit activity, data for which are available at the city level from the U.S. Census. Residential permit activity is measured in terms of the number of housing units for which permits were granted. Commercial and industrial permit activity is quantified based on cost of permitted construction. Note that these variables are all flow variables that measure the rate of development. For example, one dependent variable employed in the analysis is the growth in single family homes as measured by the number of such units for which building permits issued in a given year. This variable measures the addition to the existing stock of single family homes each

year rather than the total number of such homes. To normalize for regional trends, permit activity in the affected corridor is divided by regional permit activity. For example, in the case of single family homes, the dependent variable is the annual permits issued for single family units in the corridor divided by the annual permits issued for single family units in the region

The set of independent variables form several groups. One group consists of socioeconomic variables. It includes population (obtained from the California Statistical Abstract), total personal income (from the U.S. Census Current Population Reports), gasoline price index (from the California Statistical Abstract), construction cost index (from the Engineering News Record), and the "available population capacity" as measured by the difference in the population predicted by planners (obtained from the various regional planning agencies) for the region for the year 2001 and the population in the year of the observation. Where appropriate the corridor variables are normalized by regional variables.

A second group consists of transportation variables. A transit expenditure variable, defined as the sum of local transportation fund (TDA), federal, state, and local capital grants and non-governmental donations, controls for the impact of these expenditures on land use changes, but is found to be statistically insignificant. The other transportation variables – which are the focus of our investigation – are functions of the time since completion of a capacity expansion project. These include dummy variables used to identify when a project was completed: that is, a variable is set to 1 for the year after a project was completed and for each subsequent year, while for all other years it has the value 0. We also include a time variable equal to 0 in the year the project was complete (and all preceding years) and incremented by 1 in each subsequent year. Thus, a project completed in 1985 would have a value for this variable of 0 in 1985 and before, 1 in 1986, 2 in 1987, and so on. When warranted, the square of the time variable is also included. Together, the expansion completion dummy and the time variable(s) define a first or second order polynomial in time since project completion designed to capture the dynamics of the land development response to a road capacity increase.

The use of project completion date as the key milestone for the analysis may be questioned. A capacity expansion could influence land use decisions well before it comes on-line, so long as decision makers are confident that it will occur. It is difficult, however, to relate the knowledge and beliefs of decision makers to project milestones that can be objectively ascertained. The project

completion date is employed in this study because it is a well-defined time by which it can be safely assumed that all key actors know about the expansion. We leave the possibility of using other project milestones as a topic for future research.

Because of gaps in the data and changes in the composition of some of the urban corridors area over the period of analysis, various dummy variables are included in the model. Two of these variables indicate cases in which a new city was incorporated in a corridor sometime during the analysis period. Corrections are necessary in these cases because permit data for unincorporated areas are available only at the county level, so that permits in unincorporated areas affected by the capacity expansion cannot be counted.

Two additional dummy variables are used only for the I-580 corridor (Corridor 1 in Table 1). The City of Pleasanton placed a freeze on land development in 1972, because of inadequate sewage treatment capacity. This event is reflected in the one dummy variable. In 1976 Pleasanton received federal financial assistance for new sewage treatment facilities, and the city terminated the freeze but placed a 2 per cent limit on growth of residential projects that is still in effect. The years during which the limit was in effect are indicated by a second dummy.

4. Graphical Analysis of Capacity Expansion Land Use Impacts

Before undertaking any regressions, we explore the data graphically. Observing land use variables over time and juxtaposing them to the year of completion of a capacity enhancement project provides a first pass at determining if there are any impacts. Results for two of the eight corridors contained in the panel are presented below to illustrate the approach.

Figures 1 and 2 present single family housing permit activity for the two example corridors and their associated urban regions. Figure 1 plots these data for I-580 in eastern Alameda county (part of the San Francisco Bay Area) while Figure 2 does so for I-5 in the San Diego area. In the case of I-580, there is a discernible acceleration in single family housing construction after the completion of the capacity enhancement project. However, this acceleration also coincides roughly with the lifting of the development freeze in this corridor in 1976. Thus the graph sheds little light on the individual contributions of these two events. For I-5, the behavior in the corridor parallels that of the region with no apparent impact from completion of the capacity enhancement project.

Figures 3 and 4 show similar plots for multi-family housing. As in the single family case,

there is a surge in corridor permit activity after completion of the I-580 capacity expansion, while the I-5 data suggest, if anything, the opposite effect. Figure 5 depicts a very sharp increase in commercial permit activity (measured in dollar valuation rather than physical units) after the I-580 expansion, while Figure 6 offers evidence of a short period of accelerated commercial development a short time after I-5 was expanded. The contrast of Figures 5 and 6 illustrates how the dynamics of the (apparent) response of development to a road improvement can vary--a point that is addressed in the statistical model presented below.

Scanning Figures 1-6 it becomes evident that they do not support definitive conclusions as to whether a capacity enhancement project has an impact on land development. The figures suggest impacts in some instances but not in others. Furthermore, even when a capacity expansion appears to have an impact, the net contribution of this event relative to other factors cannot be readily discerned. For example, development constraints resulting from lack of sewage capacity may have influenced activity on the I-580 corridor as much or more than the highway expansion did. It is, therefore, necessary to utilize a more powerful statistical technique that allows us to consider all the influences simultaneously and will yield test statistics that measure the significance of the influences.

5. Statistical Analysis of Land Use Impacts: Procedure

Regressions are estimated using ordinary least squares (OLS) for each of the dependent variables described earlier. A number of different models and functional relationships are investigated and their statistical performance compared. All models are estimated on the data described above, which are organized into a "panel" -- a combination of cross-sectional and time series data. The panel is created by stacking the data by region so the variables vary across regions as well as over time. Models could be estimated separately for each region, but our focus is on relationships that hold across the full sample of expansion projects. Therefore, the empirical investigation concentrates on the entire set of data, using dummy variables to control for persistent differences between corridors.

Several different functional forms, including linear and log-linear models, and combinations of variables are investigated. Statistical testing clearly shows that the log-linear model is superior for all dependent variables. The preferred log-linear model has the form:

$$\ln(L_{ikt}) = \lambda_i + \alpha_{ik} + \sum_j \beta_{ij} \ln(X_{jkt}) + \sum_l \delta_{il} D_{lkt} + \sum_{m=1}^{2} \sum_{n=0}^{N} \gamma_{imn} \Delta t^n_{mkt} + \varepsilon_{ikt} \qquad (1)$$

where:

L_{ikt}	is the normalized permit variable for land use i in corridor k in year t (i=1 for single family housing, i=2 for multi-family housing, i=3 for commercial development, and i=4 for industrial development);
X_{jkt}	are continuous independent variables;
D_{lkt}	are dummy variables;
Δt_{mkt}	is the maximum of the number of years since completion of capacity expansion m and 0;
$\lambda_0, \lambda_i, \alpha_{ik}, \beta_{ij}, \delta_{il}, \gamma_{imn}$	are parameters to be estimated;
ε_{ikt}	is an error term assumed to be normally, identically, and independently distributed.

The coefficients of primary interest in the model are the γ_{imn}. These coefficients specify a polynomial of degree N in Δt that characterizes the impact of the mth (m=1 or 2) capacity expansion in a corridor on the ith type of land use (i=1,2,3, or 4). Consider, for example, the coefficient γ_{110}. This coefficient pertains to the impact of an initial capacity expansion (m=1) on single family housing (i=1). Furthermore, since n=0, the coefficient measures a shift in permit activity that occurs just after the expansion occurs and remains constant through time. Similarly, the coefficient γ_{211}, pertains to the impact of an initial capacity expansion (m=1) on family housing development (i=2). In this case, n=1, so the impact is one whose magnitude (whether positive or negative) increases linearly with time since completion of the expansion project (Δt). In theory, a polynomial of sufficient order can closely approximate any "well-behaved" dynamic response of a land use variable to a capacity expansion. In practice, we found statistically significant coefficients only for n=0,1, and (in the case of commercial development only) 2. This does not mean that responses are in fact characterized by first (or second) order polynomials, but rather that our data set can support only a first (or second) order approximation of the "true" response.

Our use of the m index reflects the expectation that capacity is added to a corridor more than once, the effects of the latter expansions may differ from those of the initial one. The data contain only four corridors where two expansions occurred, but in two cases the later expansion

occurs near the end of the time series (see Table 1). The results for the second capacity expansion are thus based considerable fewer data, and should be considered more tentative than those for the initial (m=1) expansion.

A number of the independent variables in our model are highly correlated. Rather than run many regressions with different combinations of variables and select the "best" one in some ad hoc way, we use principal components analysis to select the subset of variables to be included in the regressions. Principal components is a multivariate statistical technique that analyzes intercorrelations among variables; how variables jointly "hang together." The goal of principal components is to summarize a multivariate data set in a small number of components thereby eliminating variables whose contribution to the explanation of the variation is negligible. This proved to be a useful technique for screening our initial set of independent variables and choosing a subset for the subsequent regressions.

6. Statistical Analysis of Land Use Impacts: Results

The results of four regressions--one for each of the four land use types--are reported below in Tables 2 through 5. Table 2 contains the results for single family housing permits (i=1). The regression equation fits well, in a statistical sense, explaining 81 per cent of the variation in the dependent variable based on the adjusted R^2 statistic. As in most of the models, the response is approximated by a first order polynomial in Δt -- higher order terms are statistically insignificant.

For the single family housing model, three of the four capacity enhancement variables are statistically significant at the 5 per cent level, and the remaining one -- γ_{121} -- is significant at the 10 per cent level. The estimates for γ_{110} and γ_{120} positive and of the same magnitude. The positive value indicates that capacity enhancement leads to an initial upward shift in the corridor share of single family home permit approvals. The estimates of γ_{111} and γ_{121} are also significant but of opposite sign, the former being negative while the latter is positive. As explained above, the former estimate is the more meaningful one since it pertains to the "first" capacity expansion in a corridor. Its negative sign implies that after the initial capacity increase and consequent upward shift in the corridor share of single family housing development, this share decreases with time. However, if there is a subsequent capacity expansion, it causes not only an upward shift in the corridor share of single family housing development (since γ_{120} is positive) but also an upward trend in this share

(since γ_{121} positive).

Table 3 contains the estimates for multi-family housing (i=2) model. The important results are, as before, the γ estimates. The constant response coefficient for the first capacity enhancement, γ_{210}, is positive, significant, and of similar magnitude as that in the single family housing model (γ_{110}). This implies that the first capacity enhancement on a corridor stimulates multi-family permit activity. Unlike the single family case, however, the estimate for γ_{220} is not statistically significant, implying that a second capacity expansion does not immediately stimulate family housing development. The first order coefficients, γ_{211} and γ_{221}, are again of opposite sign, with the more meaningful γ_{211} estimate implying that the initial surge in multi-family housing development attenuates over time. γ_{211} is estimated to be about 60 per cent greater than γ_{111}, suggesting that the pace of multi-family housing development diminishes more rapidly than that of single family home construction.

Our regression results for the corridor share of commercial permit activity are contained in Table 4. They imply that an initial capacity enhancement has a statistically significant, positive, and immediate, impact on the corridor share of new commercial construction (based on the estimate for γ_{310}). Furthermore, the effect rises over time as the γ_{311} is positive and significant, but it does so at a decreasing rate, since γ_{312} is negative. If there is a second enhancement project on the same corridor, its initial impact is negative, but statistically insignificant. The subsequent evolution is similar to that of the first project: growing more positive, but at a decreasing rate.

Finally, the results for industrial permit activity appear in Table 5. The completion of an initial capacity enhancement project has no immediate effect on the pace of land development for industrial use, since the γ_{410} estimate is statistically insignificant. The capacity increase does, however, spur an upward trend in the corridor share of industrial development, since the γ_{411} estimate is positive and significant. The estimated impacts of a second expansion, if one occurs, parallel those of the first: γ_{420} is not significant, implying that there is not an immediate upward shift, but γ_{421} is (marginally) significant, suggesting that the corridor share of industrial permit activity begins to trend upward after the expansion is completed.

7. Summary and Conclusions

Our research has investigated, using a panel of data, the impact of highway capacity

expansion in a number of corridors located in major urban areas of California. The data set contained variation across corridors as well as time and represents as careful an attempt as possible to test land use impact hypotheses in a rigorous statistical way. Four dependent variables are considered, based on construction permits for single and multi-family housing units, for commercial construction, and for industrial development. A number of additional variables are introduced in an attempt to distinguish the impact of a highway capacity increase from land use changes resulting from other factors.

We have found that highway capacity expansion has a strong and statistically significant effect on both residential and non-residential land use. We found that capacity enhancement has the effect of increasing the number of single family housing permits in the affected corridor relative to the level in the region. If a second expansion occurs on the same corridor, its impact is similar to the first. In either case, after an initial upward "shift" in single family home permits in the corridor relative to the region, the share gradually declines. This suggests that development moves forward in time but may not increase in the aggregate. The results for multi-family housing permits are similar. Again, there is a significant upward shift in corridor permit shares that dissipates over time. In the case of multi-family housing, however, a second capacity expansion on the same corridor appears to yield a different impact.

Non-residential land use changes are examined using estimated cost of permitted commercial and industrial construction. The results for these two types of development contrast. Capacity enhancement is found to have an immediate positive impact on commercial but not on industrial land use. For both forms of development, the initial capacity increase is found to trigger an upward trend in the corridor share of permit activity. In the case of commercial development, there is evidence that this trend diminishes over time.

By necessity, our analysis has depicted the land use impacts of highway capacity expansion in considerable detail. We have differentiated among development types, between initial and subsequent capacity expansions, and between impacts that take the form of abrupt shifts and those that evolve over time. Our results suggest that these distinctions are important: highway capacity expansions have different impacts on different types of development, impacts of initial and subsequent expansions differ, and impacts may include both sudden shifts and more gradual trends. However, we also recognize that the statistical analyses on which our findings are subject to

uncertainty, and that some of our more detailed findings, particularly those pertaining to second capacity expansions, rest on small numbers of observations. While we acknowledge uncertainty over these details, our results offer strong support for one overriding conclusion: highway capacity expansion stimulates development activity, both residential and non-residential, in the corridors served by the expanded facilities. The impacts will vary, and the results presented here cannot supplant the detailed analysis required to assess the consequences of individual projects. They do, however, point to the need to consider land use impacts carefully and thoroughly whenever capacity enhancement projects are being contemplated.

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Freeway Expansion and Land Development: An Empirical Analysis of Transportation Corridors

ABSTRACT

We report on an econometric analysis of building activity in corridors located in California urban areas where freeway capacity expansions have occurred over the last two decades. Four different permit types, single family housing, multi-family housing, commercial development, and industrial development are considered. We estimate models relating the corridor share of regional permit activity to several independent variables, including whether the expansion had occurred and, if so, the time since the expansion. The model was estimated on a panel consisting of eight corridors, so that results effect the composite impacts over the set, rather than what occurred in any specific corridor. We find that single family residential development increases sharply immediately after capacity expansions, but the impact attenuates with time. The initial impact of multi-family activity is similar, decays more rapidly. Commercial development also accelerates after a capacity expansion, continuing to do so for a period of several years, albeit at a declining rate. Industrial development is not immediately affected by an expansion, but does appear to trend upward in the years following. Overall, these results imply that expanding highway capacity results in increased traffic-generating activities along the adjacent corridor.

Table 1.
Corridors and Projects Included in Data Set

No	Route	Improved Stretch	Region	Cities Affected	Year Completed
1	I-580	Dublin to San Leandro	Bay area	Castro-Valley, Dublin, Livermore, Pleasanton & San-Leandro	1978 & 1988
2	I-680	Walnut Creek to San-Ramon	Bay area	Walnut Creek	1974
3	SH-101	GG Bridge to Richardson Bridge	Bay area	Mill Valley, Larkspur & Corte Madera	1975
4	I-80	Auburn to Roseville	Sacramento area	Auburn, Loomis, Rocklin & Roseville	1977
5	SH-101	Oxnard to Thousand Oaks	LA area	Camarillo, Oxnard, Port Hueneme, Thousand Oaks & Ventura	1975 & 1988
6	I-5	San-Juan-Capistrano to San-Clemente	LA area	San-Juan-Capistrano & San-Clemente	1973 & 1982
7	I-15	San Marcos to Miramar	San Diego area	Escondido, Poway & San-Marcos	1977 & 1982
8	I-5	Chula-Vista to Imperial-Beach	San Diego area	Chula-Vista, National-City & Imperial-City	1973

Table 2.
Dependent Variable: Corridor Share of Single Family Housing Permits (Housing Units)

PARAMETER	ESTIMATE	STD ERROR	T-STATISTIC	PARAMETER DEFINITION
λ_1	-6.60	2.84	-2.32	Constant for single family housing.
α_{11}	0.51	0.32	1.61	Corridor 1 fixed effect.
α_{12}	-0.74	0.42	-1.76	Corridor 2 fixed effect.
α_{13}	-1.88	0.56	-3.35	Corridor 3 fixed effect.
α_{14}	-0.36	0.43	-0.85	Corridor 4 fixed effect.
α_{15}	-0.33	0.52	-0.63	Corridor 5 fixed effect.
α_{16}	-1.49	0.45	-3.34	Corridor 6 fixed effect.
α_{17}	-0.45	0.25	-1.78	Corridor 7 fixed effect.
α_{18}	0	--	--	Corridor 8 fixed effect (forced to zero).
δ_{11}	0.84	0.21	3.90	Dummy variable for entry of a city in time period.
δ_{12}	0.03	0.21	0.14	Dummy variable for entry of a second city in time period.
δ_{13}	-0.94	0.26	-3.56	Dummy variable set equal to 1 for years in which there was a land development freeze in the I-580 Corridor, 0 otherwise.
δ_{14}	-0.80	0.29	-2.75	Dummy variable equal to 1 for years land development was frozen due to inadequate sewage capacity, 0 otherwise.
β_{11}	0.33	0.24	1.34	Available population capacity of corridor.
β_{12}	-0.52	0.26	-2.04	Gasoline price (constant $).
β_{13}	0.19	0.15	1.26	Income in corridor/Income in region.
λ_{110}	0.40	0.14	2.83	Years after completion of first expansion project =1, otherwise 0.
λ_{111}	-0.04	0.02	-2.54	Time since completion of first expansion project, completion year =0.
λ_{120}	0.40	0.20	1.98	Years after completion of second expansion project =1, otherwise 0.
λ_{121}	0.05	0.03	1.68	Time since completion of second expansion project, completion year =0.

Number of Observations: 192
Adjusted $R^2 = 0.81$
Standard Error = 0.54

Table 3.
Dependent Variable: Corridor Share of Regional Multi-family Housing Permits (Housing Units)

PARAMETER	ESTIMATE	STD ERROR	T-STATISTIC	PARAMETER DEFINITION
λ_2	-6.15	4.08	-1.51	Constant for multi-family housing.
α_{21}	-1.02	0.45	-2.25	Corridor 1 fixed effect.
α_{22}	-0.50	0.61	0.83	Corridor 2 fixed effect.
α_{23}	-1.70	0.80	-2.11	Corridor 3 fixed effect.
α_{24}	-1.60	0.62	-2.58	Corridor 4 fixed effect.
α_{25}	-1.49	0.75	-1.98	Corridor 5 fixed effect.
α_{26}	-3.30	0.64	-5.17	Corridor 6 fixed effect.
α_{27}	-0.86	0.36	-2.38	Corridor 7 fixed effect.
α_{28}	0	--	--	Corridor 8 fixed effect (forced to zero).
δ_{21}	0.79	0.31	2.57	Dummy variable for entry of a city in time period.
δ_{22}	-0.06	0.30	-0.21	Dummy variable for entry of a second city in time period.
δ_{23}	0.12	0.38	0.31	Dummy variable set equal to 1 for years in which there was a land development freeze in the I-580 Corridor, 0 otherwise.
δ_{24}	-0.33	0.42	-0.78	Dummy variable equal to 1 for years land development was frozen due to inadequate sewage capacity, 0 otherwise.
β_{21}	0.32	0.35	0.92	Available population capacity of corridor.
β_{22}	-0.83	0.37	-2.25	Gasoline price (constant $).
β_{23}	0.07	0.22	0.34	Income in corridor/Income in region.
λ_{210}	0.45	0.20	2.21	Years after completion of first expansion project =1, otherwise 0.
λ_{211}	-0.08	0.02	-3.17	Time since completion of first expansion project, completion year =0.
λ_{220}	0.09	0.29	0.30	Years after completion of second expansion project =1, otherwise 0.
λ_{221}	0.17	0.04	3.79	Time since completion of second expansion project, completion year =0.

Number of Observations: 192
Adjusted $R^2 = 0.67$
Standard Error = 0.74

Table 4.
Dependent Variable: Corridor Share of Regional Commercial Building Permits (Dollar Value of Construction)

PARAMETER	ESTIMATE	STD ERROR	T-STATISTIC	PARAMETER DEFINITION
λ_3	-4.09	4.50	-0.91	Constant for commercial development.
α_{31}	-1.34	0.52	-2.58	Corridor 1 fixed effect.
α_{32}	-1.69	0.60	-2.81	Corridor 2 fixed effect.
α_{33}	-2.55	0.78	-3.23	Corridor 3 fixed effect.
α_{34}	-0.91	0.63	-1.45	Corridor 4 fixed effect.
α_{35}	-1.46	0.77	-1.88	Corridor 5 fixed effect.
α_{36}	-3.93	0.74	-5.30	Corridor 6 fixed effect.
α_{37}	-0.12	0.51	-0.23	Corridor 7 fixed effect.
α_{38}	0	--	--	Corridor 8 fixed effect (forced to zero).
δ_{31}	0.58	0.46	1.23	Dummy variable for entry of a city in time period.
δ_{32}	-0.33	0.31	-1.05	Dummy variable for entry of a second city in time period.
δ_{23}	0.96	0.45	2.11	Dummy variable set equal to 1 for years in which there was a land development freeze in the I-580 Corridor, 0 otherwise.
δ_{34}	0.46	0.44	1.04	Dummy variable equal to 1 for years land development was frozen due to inadequate sewage capacity, 0 otherwise.
β_{31}	-0.02	0.38	-0.05	Available population capacity of corridor.
β_{32}	-0.04	0.41	-0.10	Gasoline price (constant $).
β_{33}	-0.11	0.22	-0.51	Income in corridor/Income in region.
λ_{310}	0.59	0.22	2.70	Years after completion of first expansion project=1, otherwise 0.
λ_{311}	0.15	0.06	2.52	Time since completion of first expansion project, completion year =0.
λ_{312}	-0.01	0.003	-2.31	Time since completion of first expansion project, completion year =0, squared.
λ_{320}	-0.45	0.33	-1.35	Years after completion of second expansion project=1, otherwise 0.
λ_{321}	0.26	0.11	2.11	Time since completion of second expansion project, completion year =0.
λ_{322}	-0.01	0.009	-1.26	Time since completion of second expansion project, completion year =0, squared.

Number of Observations: 168
Adjusted $R^2 = 0.74$
Standard Error = 0.74

Table 5.
Dependent Variable: Corridor Share of Industrial Building Permits (Dollar Value of Construction)

PARAMETER	ESTIMATE	STD ERROR	T-STATISTIC	PARAMETER DEFINITION
λ_4	-4.75	6.72	-0.71	Constant for industrial development.
α_{41}	0.29	0.73	0.40	Corridor 1 fixed effect.
α_{42}	-4.51	0.98	-4.57	Corridor 2 fixed effect.
α_{43}	-3.71	1.17	-3.17	Corridor 3 fixed effect.
α_{44}	-1.42	0.89	-1.59	Corridor 4 fixed effect.
α_{45}	-0.14	1.07	-0.12	Corridor 5 fixed effect.
α_{46}	-3.20	1.01	-3.20	Corridor 6 fixed effect.
α_{47}	1.82	0.69	2.64	Corridor 7 fixed effect.
α_{48}	0	--	--	Corridor 8 fixed effect (forced to zero).
δ_{41}	-0.66	0.59	-1.09	Dummy variable for entry of a city in time period.
δ_{42}	0.67	0.42	1.58	Dummy variable for entry of a second city in time period.
δ_{43}	0.23	0.61	0.37	Dummy variable set equal to 1 for years in which there was a land development freeze in the I-580 Corridor, 0 otherwise.
δ_{44}	-0.48	0.61	-0.78	Dummy variable equal to 1 for years land development was frozen due to inadequate sewage capacity, 0 otherwise.
β_{41}	0.06	0.57	0.11	Available population capacity of corridor.
β_{42}	-0.25	0.57	-0.04	Gasoline price (constant $).
β_{43}	-0.09	0.29	-0.32	Income in corridor/Income in region.
λ_{410}	-0.09	0.31	-0.29	Years after completion of first expansion project=1, otherwise 0.
λ_{411}	0.09	0.04	2.19	Time since completion of first expansion project, completion year =0.
λ_{420}	0.53	0.44	1.21	Years after completion of second expansion project=1, otherwise 0.
λ_{421}	0.13	0.06	1.87	Time since completion of second expansion project, completion year =0.

Number of Observations: 135
Adjusted $R^2 = 0.76$
Standard Error = 0.97

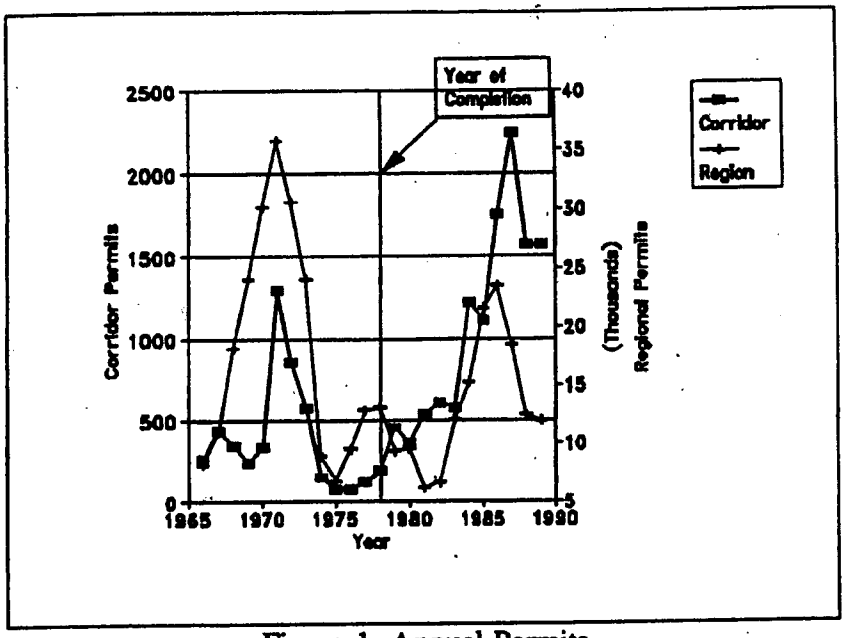

Figure 1. Annual Permits
Single Family Housing Units, I-580 Corridor

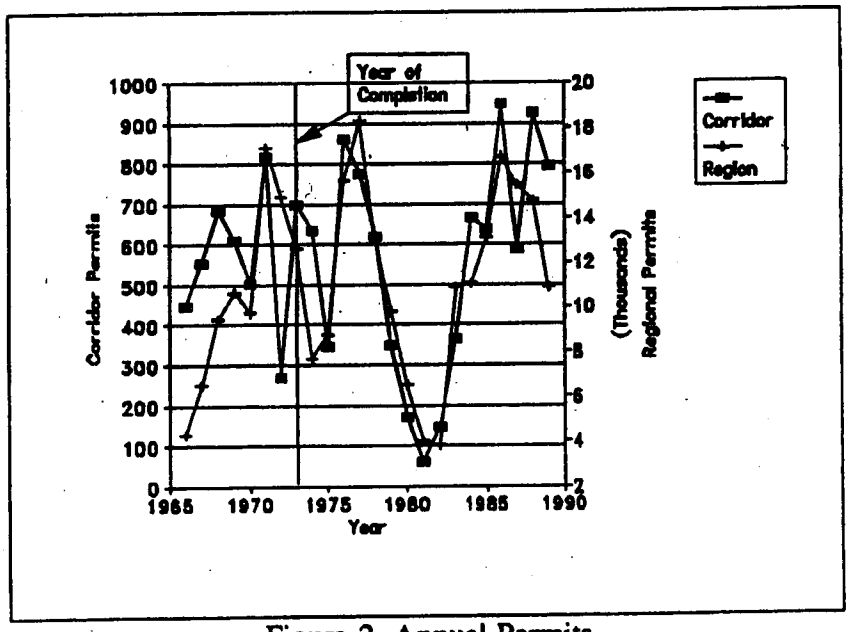

Figure 2. Annual Permits
Single Family Housing Units, I-5 Corridor

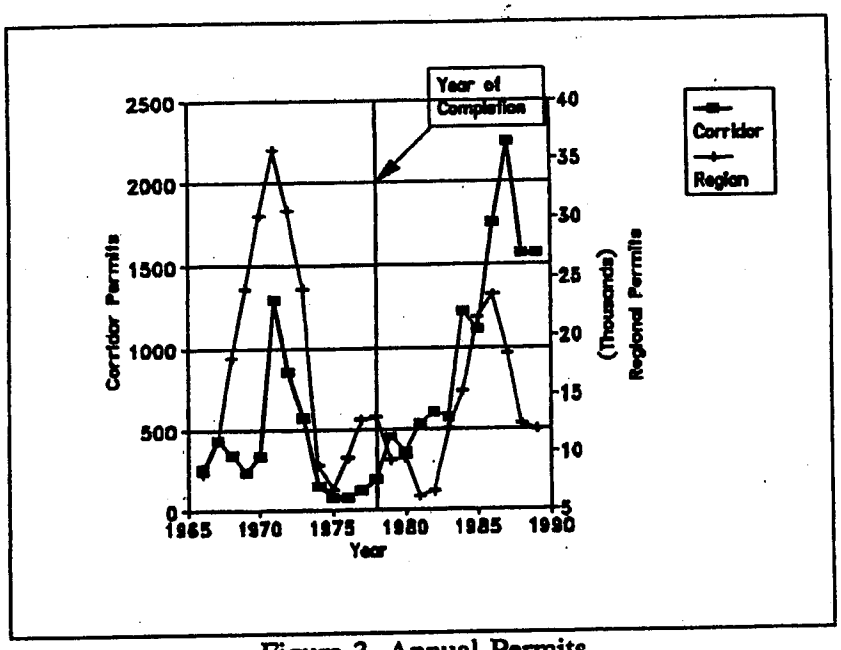

Figure 3. Annual Permits
Multi-family Housing Units, I-580 Corridor

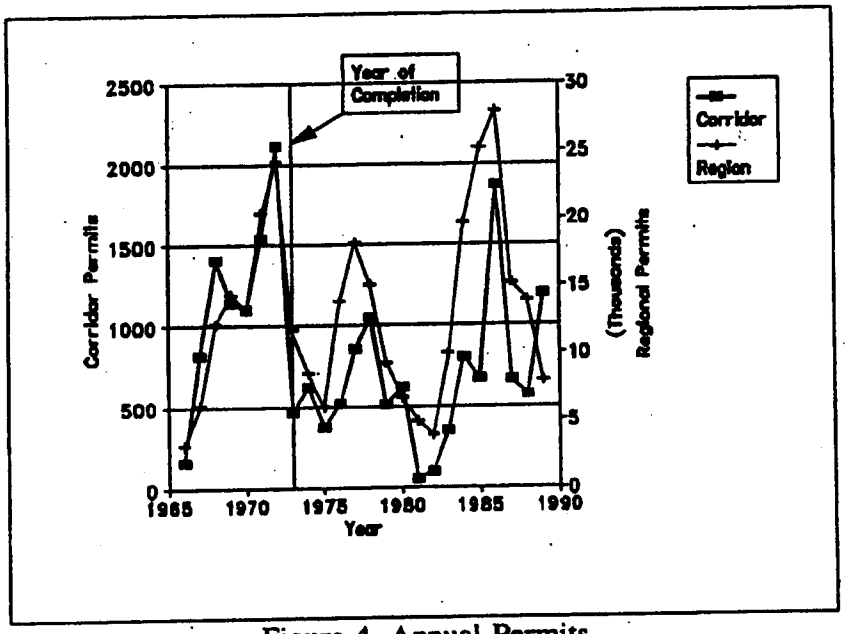

Figure 4. Annual Permits
Multi-family Housing Units, I-5 Corridor

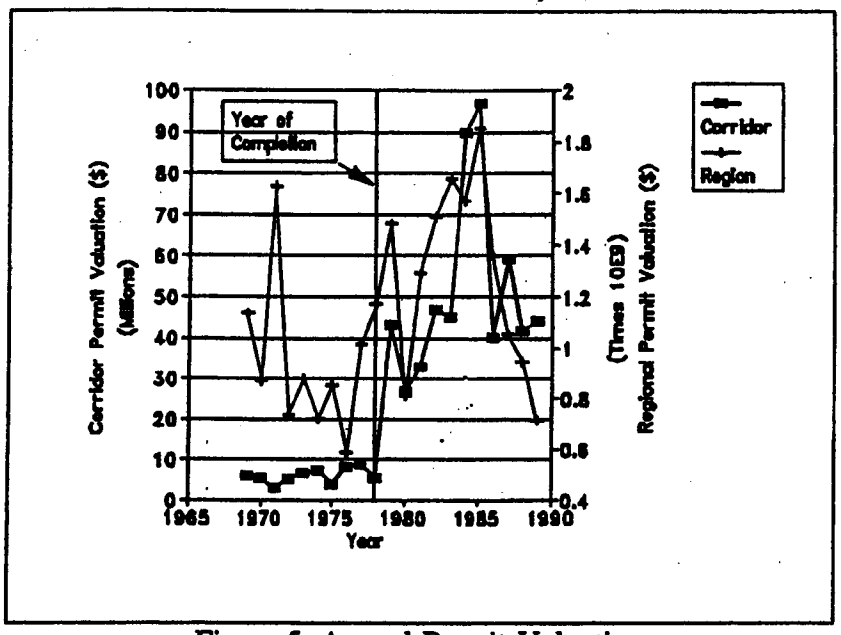

Figure 5. Annual Permit Valuation
Commercial Construction, I-580 Corridor

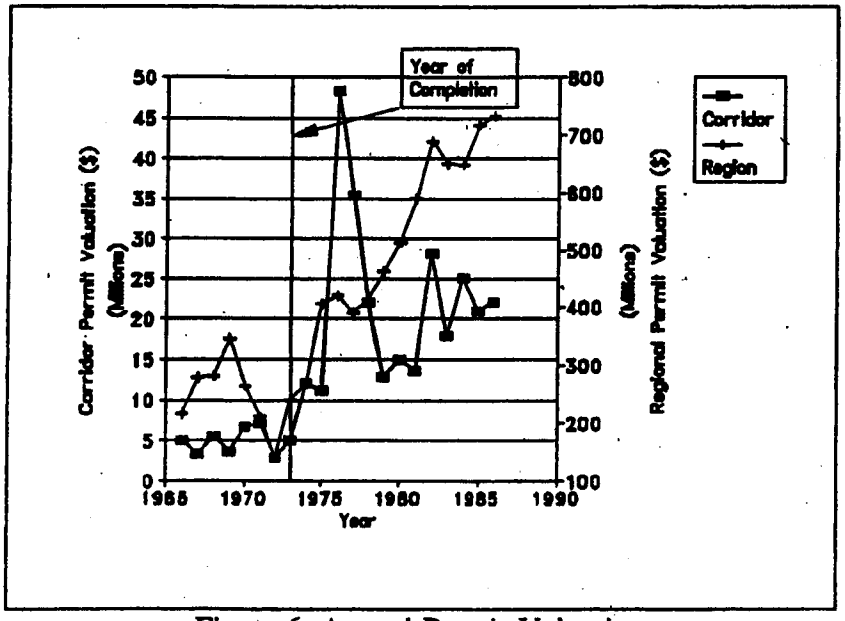

Figure 6. Annual Permit Valuation
Commercial Construction, I-5 Corridor

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ISSUES

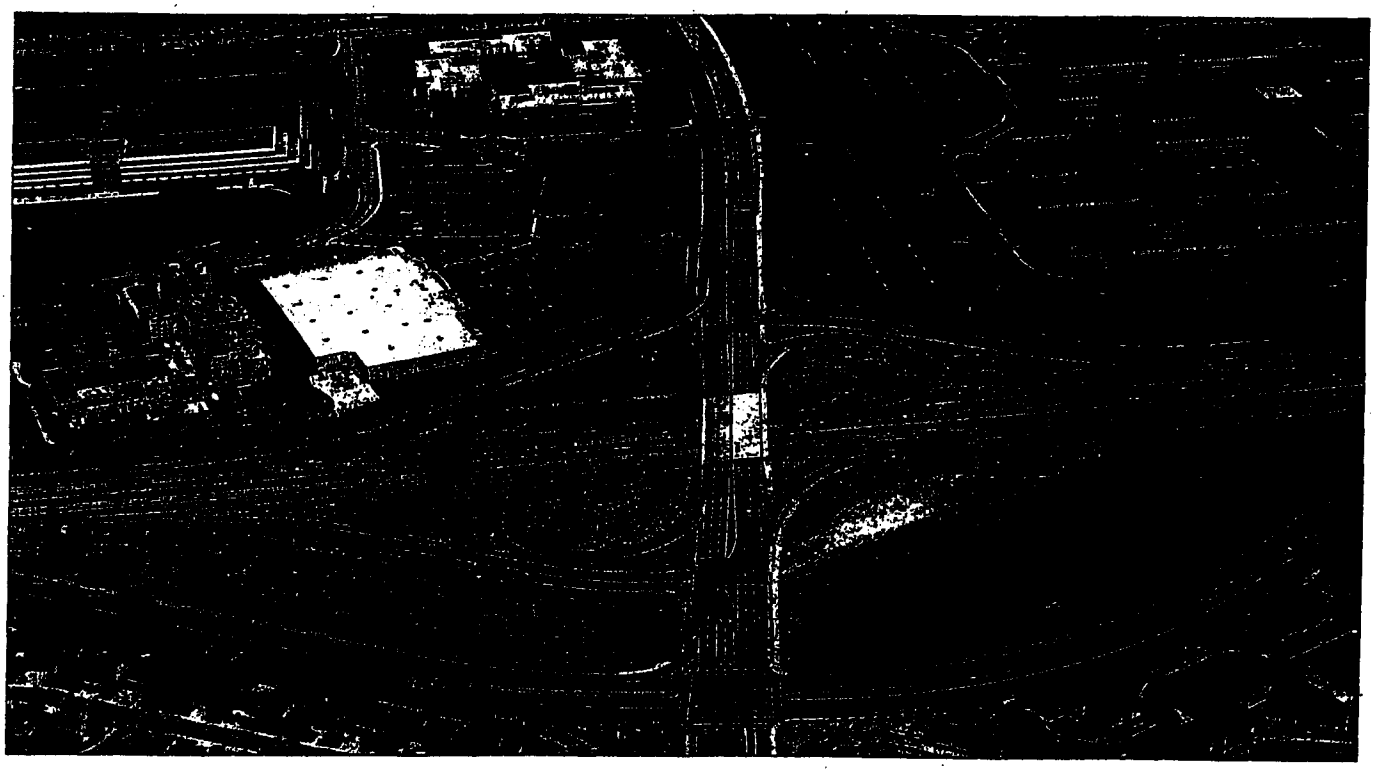
Exhibit O

Research at the University of California Transportation Center

FALL 1995
NUMBER 7

New Highways & Economic Growth: Rethinking the Link

BY MARLON G. BOARNET



A few decades ago, hardly anyone doubted that highways and other public infrastructure induce significant economic growth. Today the link between highways and growth appears tenuous. Some recent studies suggest that increasing the overall stock of highways in the country will cause little, if any, economic improvement. ➤

Marlon G. Boarnet is assistant professor of urban and regional planning at the University of California, Irvine, CA 92717.

The Interstate System, like the railroads before it, ties virtually every place in the country together. Incremental additions to that network will add comparatively small overall economic benefits.

There is no question that highways constitute an essential component of any modern economy. Surely, the National System of Interstate and Defense Highways contributed to post-war economic growth in the United States. But additional highways are not necessarily the path to greater riches in the twenty-first century, as they were in the twentieth.

The difference between the effects of current and past highway construction illustrates the difference between marginal and total economic effects. Most of the Interstate System was completed by the early 1970s. By now it provides a high degree of connectivity across the nation. Like the railroads before it, it ties virtually every place in the country to everywhere else, linking producers to raw materials, customers, and trading partners wherever they may be. Incremental additions to that network will add comparatively small overall economic benefits.

Although nationwide effects of new highway construction are now smaller than they were, effects on the economies of local areas are still important. Here, we focus on such localized effects.

Growth Corridors and Redistributed Growth

Consider what happened when a new highway was extended into the typical suburban fringe area twenty or thirty years ago. Land developers were attracted to the newly accessible sites adjacent to and near the road and built houses, shops, offices, and factories there. The highway became a growth corridor. In some places, such as Route 1 in central New Jersey or Route 128 outside Boston, the corridors even bear the highways' names. But suppose those highways had not been built. The houses and factories that located nearby surely were not created by the road; many would have sprung up elsewhere. Route 1 and Route 128 grew by attracting families and firms that would have settled along some other corridor.

Although researchers have long suspected that such redistribution occurs, it has been difficult to examine this effect in a systematic way. Empirical data have been scarce because highway-project evaluations typically don't look for economic losses outside the immediate project area. Recently, however, we conducted a study that illuminates some important aspects of this phenomenon.

Using a production-function study of California counties from 1969 through 1988, we found that increases in county economic output were higher in counties that also increased their spending for highways. But there was also evidence that county outputs were *lower* in counties that *bordered on* those that increased their highway spending. That is, increased highway spending in one county correlates not only with higher economic output in that county, but also with lower economic output in neighboring counties.

These findings corroborate results of studies done by David J. Forkenbrock and Norman S.J. Foster at the University of Iowa and by Yorgos J. Stephanedes and David Eagle at the University of Minnesota. Forkenbrock and Foster suggested that economic effects of highways are largely a redistribution of economic activity from one location to another. Stephanedes and Eagle found that highway spending in Minnesota increased employment in urban centers there, but the new jobs came largely at the expense of losses in neighboring counties.

The phenomenon is analogous to the action of an air mattress. If you push the mattress in one place, it bulges in another because the volume of air remains constant. With highways, if the volume of economic activity remains constant, there may be large economic gains near the project and losses elsewhere.

Of course, the volume of economic activity was not constant in the early days of Interstate Highway construction. By reducing the costs of shipping and personal travel, the Interstates contributed significantly to post-war economic expansion. But by focusing on the larger macro-economic outcomes, we may have overlooked the ways new highways have contributed to the relocation of local economic activities.

If highways were funded primarily with local money, this locational effect would pose no serious policy issue. However, most highway projects receive large state and federal subsidies. Thus taxpayers in one locality may be paying for highway projects that will ultimately undermine economic growth in their own community.

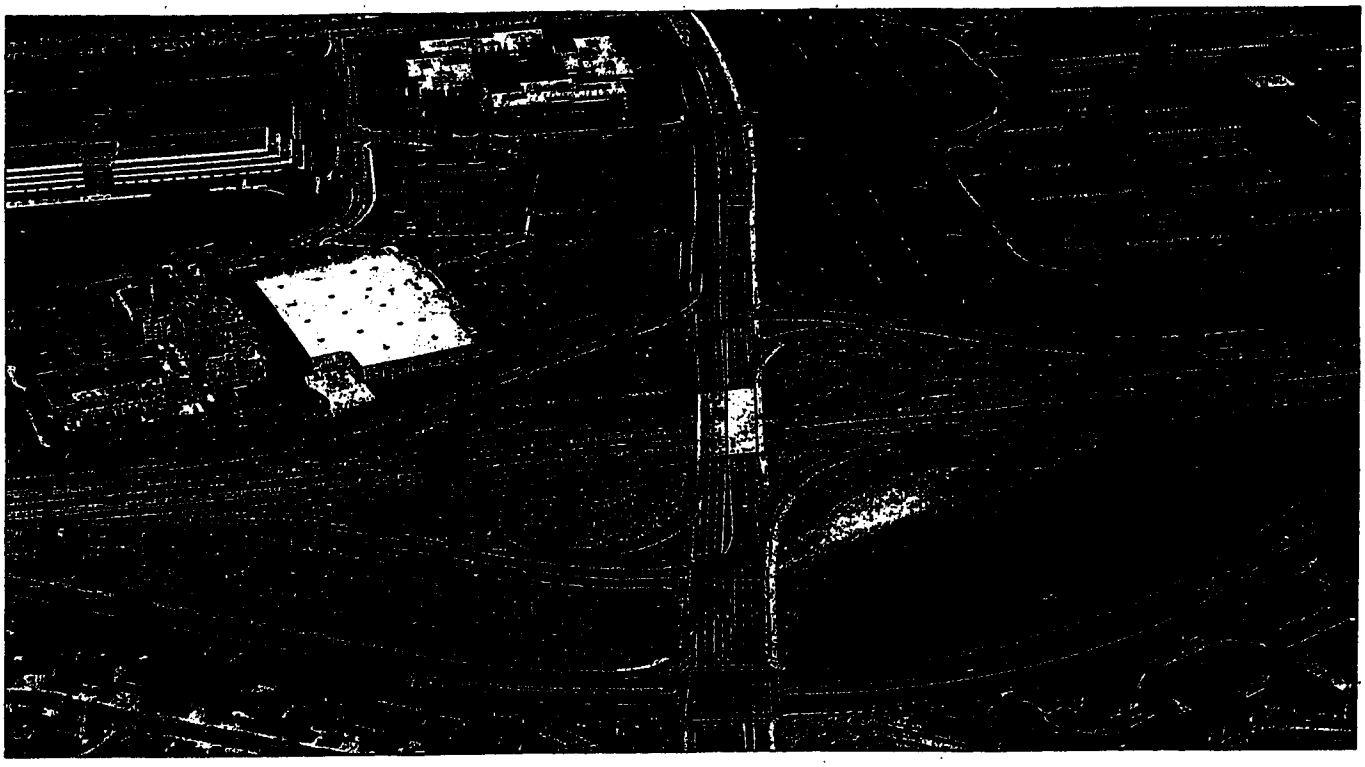
Further, if localities can receive economic benefits from projects that cause corresponding losses in neighboring locations, they may push for highway projects whose overall benefits are less than those projected. That is, by assessing only one locality's economic change, the economic benefits of modern highways may be overestimated. Thus state and federal governments may be funding more highways than a more geographically extensive benefit-cost analysis would justify. Local economic benefits may be offset by economic losses in other localities within the same funding jurisdiction.

The solution calls for either cautious analysis of highway-generated economic benefits or a restructuring of the current funding system—or both. Consider a case for reforming highway funding. ➤

Legacy of a new highway?

New Highways & Economic Growth: Rethinking the Link

BY MARLON G. BOARNET



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Legacy of a new highway?

The Relationship Between Economic Benefits and Highway Funding

Whether a highway project should be funded by federal, state, or local governments depends on where the benefits fall. Large federal subsidies were the correct choice for funding the Interstate Highway System, because it produced far-reaching economic gains by connecting distant locations across the whole country. The system supported economic growth throughout the United States.

Note that there were also winners and losers in the initial round of Interstate Highway building. In many urban areas, the new highways contributed to growth at the periphery that probably came at the expense of more central locations. Yet one could argue that the national benefits, economic benefits included, were large and diffuse enough to offset concerns about the redistributive effects of the initial system. (Of course, some argue the converse—that the redistribution from central cities to suburbs offset national economic gains—but that's a discussion for another day.) .

The ramifications of new highways have changed since the 1950s and 1960s. Now that the Interstate System is almost complete, the task has shifted from constructing that arterial network to maintaining the network and building intricate capillary systems at the peripheries. Accordingly, the newer highways play smaller roles in the national economy. Local economic gains and losses are becoming more important, suggesting that it's now time to change current funding arrangements for new highways.

The Intermodal Surface Transportation and Efficiency Act of 1991 (ISTEA) initiated some changes, but mainly in small and noncommittal ways. ISTEA does include several provisions making it easier for urban areas to construct tollroads and other public-private highway facilities. This reflects a small but important shift toward more cost-recovery in highway finance.

Tollroads encourage cost-recovery in two ways. First, individual highway users are required to pay for installing infrastructure, strengthening the user-fee principle implicit in charges such as the gasoline tax. Second, localities are required to pay larger shares of the costs of tollroads and other public-private highway projects than they pay for conventional roads. The uneven distribution of economic benefits from highways elevates the principal of local finance to the policy agenda. If localities gain an economic benefit from highways, they should be willing to pay for those benefits with local funds. Further, if benefits are gained at the expense of other areas, it is unfair to force the losers to pay for their economic harm. But how far should a system of local finance go?

Federal Role in Highway Funding

Should highway finance return to a system of primarily local funding, an arrangement not seen in the United States since the dawn of the automobile era? No, such drastic change is not warranted. The Interstate Highway System facilitates both passenger and freight movement, thereby boosting our nation's economic vitality. Part of the travel benefit accrues to the whole nation, and national funding is certainly appropriate for that. But it is less appropriate to use federal (and possibly even state) subsidies for economic benefits that are merely redistributed from one local area to another local area.

Local finance is fitting where benefits are localized; state or federal finance is justified for connections to the national network. The appropriate split among local, state, and federal funding depends on the geographic extent of a project's effects. Available evi-

dence suggests that national economic gains from highways are less significant today than are local redistributional effects. If true, the principle of local finance for local benefits will likely lead to higher levels of local highway funding.

ISTEA's public-private tollroad provisions give local governments a new revenue tool to pay for local highway benefits. Note, however, that ISTEA allows federal subsidies as high as eighty percent of the cost for such public-private tollroads. This proportion likely reflects the thinking of a past era when national economic benefits were larger, and may be too high for many local projects today.

Conclusion

Analysis of the link between highway funding and economic growth illustrates the hazards of focusing on the wrong question. For years, analysts debated whether infrastructure investment boosts economic productivity. But the more relevant question asks: How will new highway projects redistribute growth within and across regions?

Federal and state governments should continue funding highways to the extent they will facilitate personal travel and freight shipments throughout national and statewide networks. However, decisions to build highways that will generate primarily local economic development—and the responsibility for funding those economic benefits—are best left to local authorities. ◆

FURTHER READING

Marion Boarnet, "Highway Infrastructure, Economic Productivity, and Geographic Scale: Aggregate Growth Versus Spatial Redistribution," 1995. UCTC No. 255.

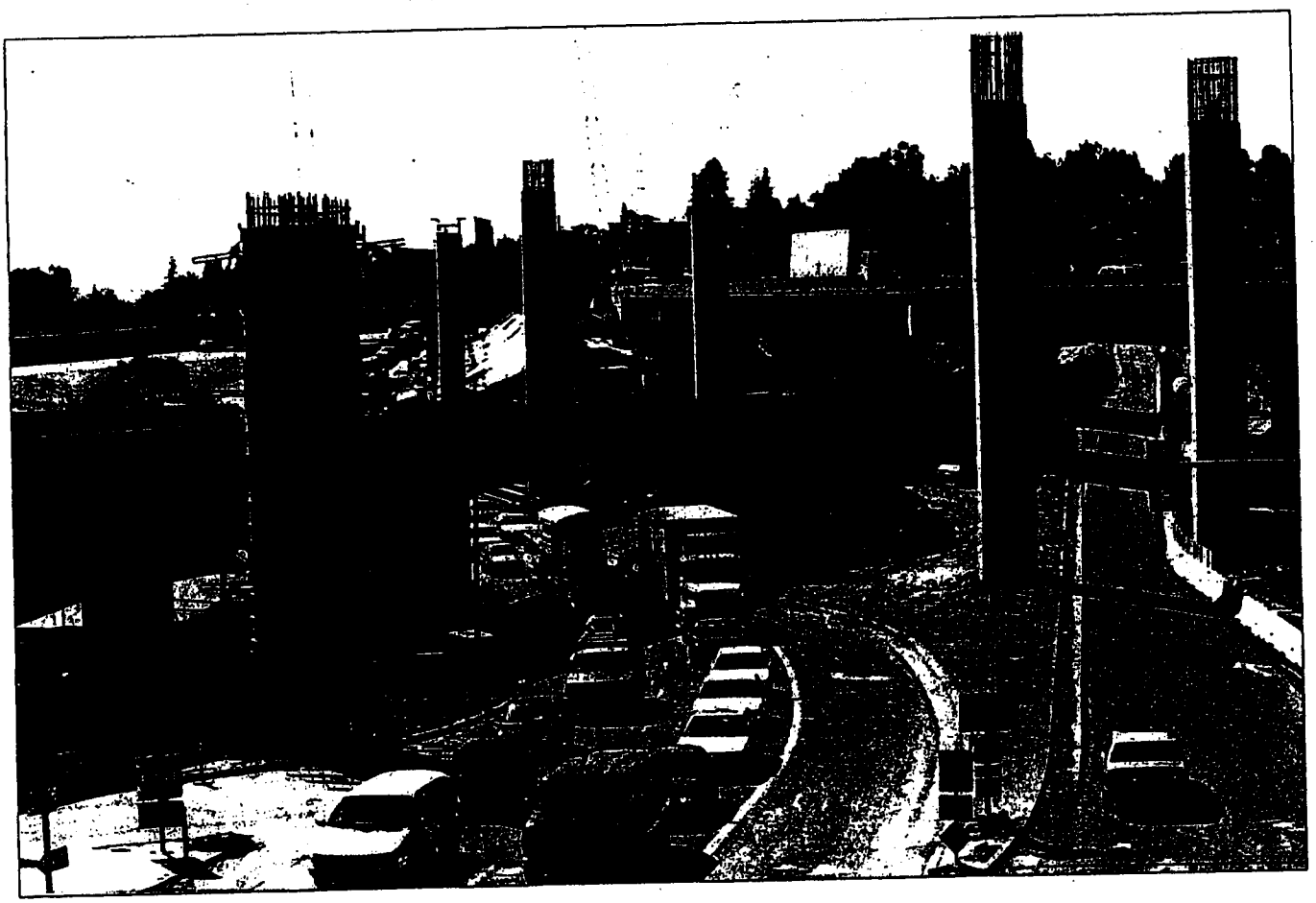
David J. Forkenbrock and Norman S. J. Foster, "Economic Benefits of a Corridor Highway Investment," *Transportation Research A*, Vol. 24A, No. 4, 1990, pp. 303-312.

Edward M. Gramlich, "Infrastructure Investment: A Review Essay," *Journal of Economic Literature*, Vol. XXXII, No. 3, 1994, pp. 1176-1196.

Douglas Holtz-Eakin, "Why a Federal Plan Isn't Needed," *Spectrum —The Journal of State Government*, Vol. 66, No. 4, 1993, pp. 35-44.

U.S. Department of Transportation, *Exploring Key Issues in Public-Private Partnerships for Highway Development*, Searching for Solutions, A Policy Discussion Series, No. 2, 1992.

Yorgos J. Stephanedes and David Eagle, "Highway Impacts on Regional Employment," *Journal of Advanced Transportation*, Vol. 21, 1987, pp. 67-79.



DO NEW HIGHWAYS GENERATE TRAFFIC?

BY MARK HANSEN

Mark Hansen is assistant professor of civil and environmental engineering at the University of California, Berkeley, CA 94720-1710.

Some people seem to think there's a universal Law of Traffic Congestion ruling that traffic expands to fill the space available to it. Thus, they believe it's impossible to relieve highway congestion by building more roads.

Conventional wisdom aside, however, we simply don't know whether new highway capacity affects travel behavior and, hence, traffic volumes. Advocates and opponents of new highway construction have debated this point for many construction projects in recent years—without the hard proof necessary to enlighten their debates.

Established planning procedures assume that most extra traffic on an enlarged road is reassigned from other parts of the network. Revisionists claim there are also sizable numbers of new trips and net increases in vehicle miles of travel (VMT). Thus advocates envision a fixed number of vehicles operating in improved traffic conditions, while opponents foresee more vehicles in conditions not much better, or perhaps even worse, than before.

Everyone recognizes that road construction, particularly in urban areas, is very costly. Even if traffic inducement is omitted from the project analysis, there are difficult trade-offs between the

benefits of reduced congestion and the costs, including severe an uncompensated social and environmental effects in addition to the monetary outlays. If induced traffic sharply reduces the benefits of reduced congestion, the trade-off tilts against urban road projects.

It's clear that traffic has grown steadily in recent years and that urban lane-miles have been carrying a lot of new traffic. Indeed, the ratio of VMT to lane-miles on California and other state highways is larger than ever, and increasing continually. But it remains unclear whether increased road supply has caused that increased travel. To gauge this effect, we must compare the outcomes of different road-supply scenarios. For example, we might compare scenarios with and without a particular project, or, at a more macroscopic scale, scenarios in which higher or lower numbers of lane-miles are constructed.

PREVIOUS RESEARCH

Direct comparison of those kinds are impossible because we can't perform controlled experiments. However, many efforts over the years have tried to measure or forecast the traffic-inducing effect of expanded road capacity. Starting in the 1940s, studies have attempted to measure induced traffic from individual projects. The approach was: (1) to gather time series of traffic counts on a corridor where a new road was being built, including observations both before and after project completion; (2) to estimate how traffic levels would have evolved in the absence of the project (the so-called "counterfactual scenario"); and (3) to estimate induced traffic by comparing the two scenarios.

Various methods have been used to estimate what traffic volumes would have occurred in the counterfactual scenario. In one early study, corridor traffic in the pre-project period closely tracked statewide gasoline sales; post-project gasoline sales were used to project traffic under the no-build scenario. More commonly, studies of individual projects have used "control corridors"—corridors elsewhere in the same region whose traffic is unlikely to be affected by the project. Post-project traffic growth on the new road and on the control corridors are compared to estimate traffic inducement.

Figure 1 summarizes the results of several project-level studies of traffic inducement. Reported levels range from 0 to 30 percent increase one year after expansion and from 20 to 80 percent four years after. It seems that substantial volumes of additional traffic develop in most corridors after capacity is increased. There's also a tendency for traffic to increase over time, a least during the first years following project completion. On the other hand, the level of estimated inducement is highly variable. Because the unit of analysis is a single corridor, it is impossible to determine whether induced traffic represents a net increase in regional VMT or whether it is merely redistributed from other parts of the region.

The relationship between road supply and traffic has also been studied through comparisons of different metropolitan areas. To see the basic logic of these cross-sectional studies, consider two regions, A and B. They are identical in all respects except their road supply and their VMT. If region A has x percent more lane-miles than region B, and if VMT in A is y percent greater than in region B, then it seems reasonable to attribute the VMT difference to the lane-mile difference. If we do so, we can go on ➤

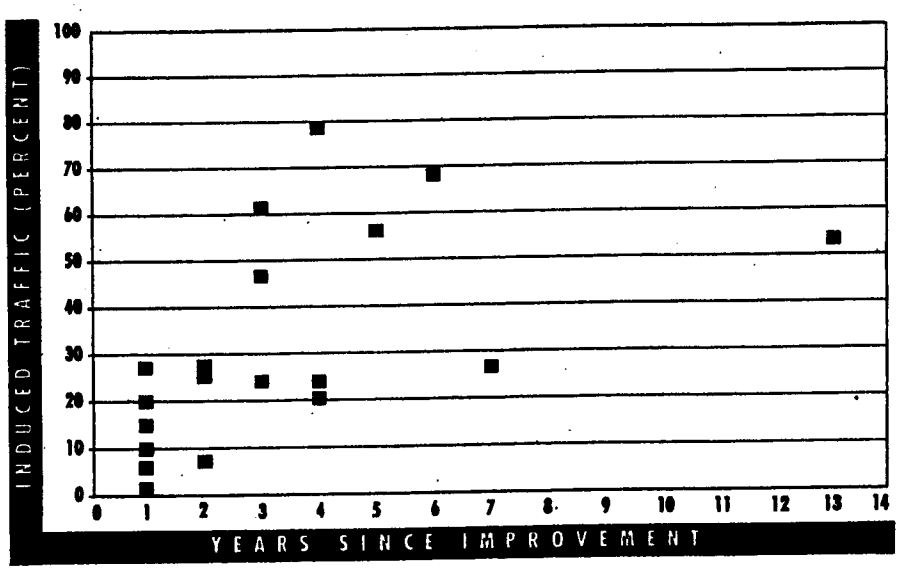


FIGURE 1

Estimates of Induced Traffic associated with Road Improvements

Each mark represents a different study.

Cross-sectional studies cannot deal with the direction of causality. Do roads generate traffic, or does traffic generate roads?

to measure the sensitivity of VMT to lane miles as y/x. The percentage change in one variable that results in a one-percent change in another variable is known as the "elasticity." Thus, y/x is the elasticity of VMT with respect to lane-miles.

Of course, the real world doesn't contain identical regions, so most cross-sectional studies attempt to control for variables, other than lane-miles, that affect traffic. It is difficult to identify these variables. One obstacle is the scarcity of data. The larger the number of variables, the more observations are required before it is possible to isolate the effect of one factor from that of another. Moreover, certain variables that influence VMT may themselves be affected by road supply. For example, some have argued that more road supply discourages transit use, leading to reduced quality of transit service, which in turn further stimulates VMT. If this were true, and if we control for transit service quality, then we would underestimate the effect of road supply on VMT. Similar issues emerge with regard to variables pertaining to urban form and density: To what extent are these variables determined by road supply? To what extent are they independent?

Cross-sectional studies also cannot deal with the direction of causality. Do roads generate traffic, or does traffic generate roads? Common sense suggests that causality runs both ways. If so, analyses that treat road supply as the cause and VMT as the result can yield misleading results. This problem is known as "simultaneity bias."

In light of these problems it's not surprising that cross-sectional studies have yielded widely varying estimates of the elasticity of VMT with respect to road-supply. The values range from as low as 0.13 to as high as 0.70. As a general rule, the studies yielding lower estimates have controlled for more variables. However, for reasons just explained, this does not necessarily mean that their results are more valid.

Regional transportation models are also routinely used to assess the effect of road supply on traffic. However, the vast majority of these studies focus on site-specific situations instead of searching for generalizable relationships. Therefore, they are of limited use. Furthermore, most transportation models are not used in ways that fully reveal whether or how adding capacity can increase traffic. For example, most modeling studies assume that the number of trips to and from places like households and offices are independent of transportation supply. A sizable number also assume that origin-destination trip matrices, and even the modal distribution of trips, are independent of road capacity.

Finally, and perhaps most important, it's far from clear that conventional transportation models, even when enhanced to capture numerous potential links between road supply and traffic, have much predictive power, even if they faithfully replicate baseline conditions. This is because these models make predictions that depend on numerous calibration parameters ("fudge factors") and are valid only if these parameters remain constant over time.

A Panel Study

A group of us at the University of California, Berkeley, have recently been studying the relations between road supply and traffic in urban areas. Our approach differs from those of previous efforts because it relies on time series data for a set of metropolitan areas. This is known as a "panel" data set. Specifically, we used annual data from thirty urban counties in the state of California from 1973 to 1990. The thirty counties constitute fourteen metropolitan areas, ranging in population from 150 thousand to 14 million. We analyzed the data at both the county and the metropolitan levels.

Our analysis focuses on state highway VMT (roughly half of total VMT in the state) and on the relationship of VMT to the supply of state highways, as measured in lane-miles. Because California has a systematic program for counting traffic on state highways, more and better data are available for state-highway VMT than for total VMT, which are based on gasoline sales and available at the county level for only a few recent years. However, we've also analyzed the limited data for total VMT to determine whether induced VMT on the state highway system represents a net increase in traffic or only redistributed travel from other roads.

Panel-data permit a more rigorous analysis than is possible with cross-sectional data for a single year. Cross-sectional studies must explicitly include all regional variables that independently influence traffic, but we can absorb many of these variables into a single region-specific correction factor. Similarly, time-specific variables that affect traffic in all regions, such as the OPEC oil embargo, are captured using a time-specific factor. Statisticians refer to these factors as "fixed effects."

In addition to controlling for a host of region-specific and time-specific variables, by using fixed effects we reduce the potential problem of simultaneity bias. To see how this is so, compare Los Angeles and San Francisco. Los Angeles has more lane-miles, and VMT is greater there. It's likely that over the long run, each of these differences affects the other. Thus a cross-sectional comparison between them is subject to simultaneity bias.

However, in a panel study, the results depend on the correlation between year-to-year variations in traffic and in year-to-year variation in lane-miles. Because road projects require many years to plan and implement, it is virtually impossible for road supply to respond to VMT on a year-to-year basis. So, if lane-miles and VMT grow faster in Los Angeles over a short span of years, this growth is probably not the result of road supply responding to traffic. Therefore, by employing panel analysis, we could treat road supply as a strictly causal variable.

Finally, because our data set covers a considerable number of years, it is possible to explore the dynamics of traffic response to road supply. Both common sense and our research findings suggest that the positive influence of added lane-miles on VMT occurs gradually. Travelers, households, business firms, and others gradually adjust their behavior in response to the added capacity. Some adjustments, such as route shifting, can occur soon after lanes are added; others, such as changes in activity locations, may take several years. To analyze the dynamics of the adjustment process, we relate regional VMT in a given year to regional lane-mileage in several previous years. Models with this feature are known as "distributed lag" models. >

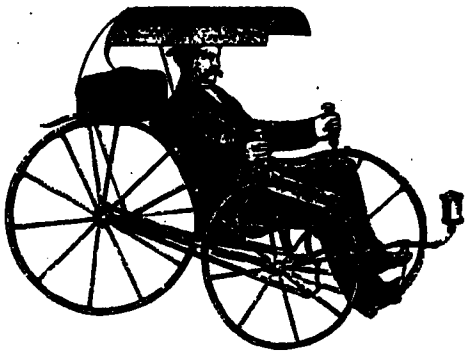
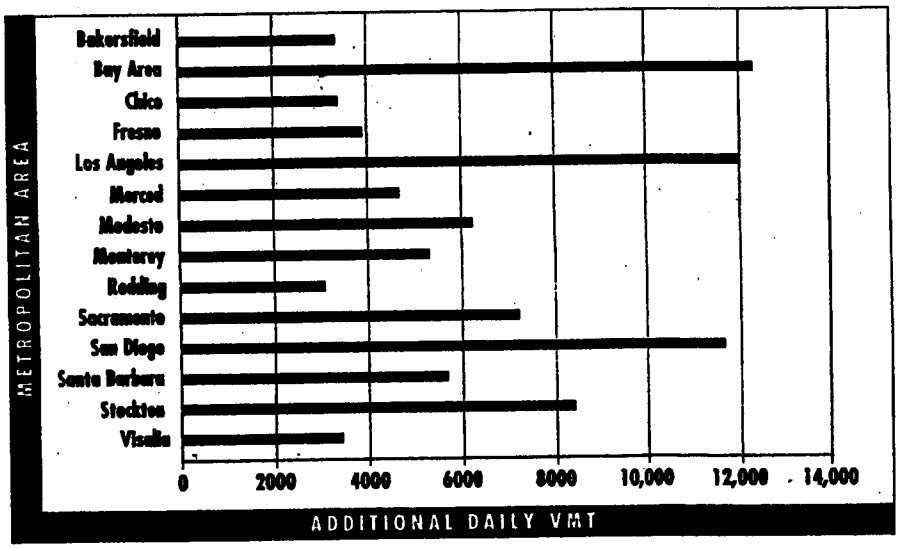


FIGURE 2

Estimated Additional VMT Generated Per Day from One Additional Lane-Mile, California Metropolitan Areas



Lane-Miles Induce New Traffic

Our study, based on such a distributed lag model, found that adding lane-miles does induce substantial new traffic. At the county level we find that a 1.0 percent increase in lane-miles soon induces an immediate 0.2 percent increase in traffic, building to a 0.6 percent increase within two years after the lane-miles are added. At the metropolitan level, the immediate effect is also about 0.2 percent, building to a 0.9 percent increase four years after. Therefore, it appears that adding road capacity does little to decrease congestion because of the substantial induced traffic.

Why is the lane-mile elasticity of VMT higher at the metropolitan level? One explanation is that adding lane-miles in one county induces traffic in neighboring counties since many trips cross county lines. Therefore, future studies of this kind should cover wide geographic areas.

We used our lane-mile elasticity measures to project additional daily VMT expected to result from a marginal lane-mile for the fourteen metropolitan areas in our study (see Figure 2). In the Bay Area, Los Angeles, and San Diego we expect an additional lane-mile to raise VMT by about 12 thousand per day. Among the other regions, the increases range from 3 to 8 thousand. Assuming a capacity of 2000 vehicles per lane per hour, the induced traffic would be equivalent to filling the added lane for six hours per day.

We also estimated the contributions to VMT growth from various sources during three periods: 1977-80, 1980-85, and 1985-90. For each period we calculated the average increase in VMT for fourteen metropolitan areas. We attributed VMT growth to population, per capita income, highway-lane miles, and "other" factors, including declining real prices of gasoline, increasing female employment, declining transit subsidies, and other trends affecting VMT in all regions.

Figure 3 shows the results of this analysis. The most consistent source of VMT growth has been population growth. Most recently, however, "other" factors became increasingly important. Lane-mile growth has become progressively less important, reflecting the continuing decline in numbers of lane-miles added to the system in recent years. Per capita income has played a modest role, reflecting both the recent stagnation in real family incomes and the modest effects that rising incomes among wealthy households have had on car ownership and, hence, on VMT.

Bear in mind that our findings pertain to VMT on state highways only. An obvious question is whether the state highway traffic induced by added lane-miles comes from non-state roads. Our ability to answer this question is hampered by the limited reliability of data on total VMT. Our analysis suggests that state highway lane-miles do not significantly affect VMT on off-state highways. However, because county and local roads are almost always used for to getting on and off state highways, increased state highway traffic can also add to non-state facilities. On balance, it appears that these two effects roughly cancel out. ➢

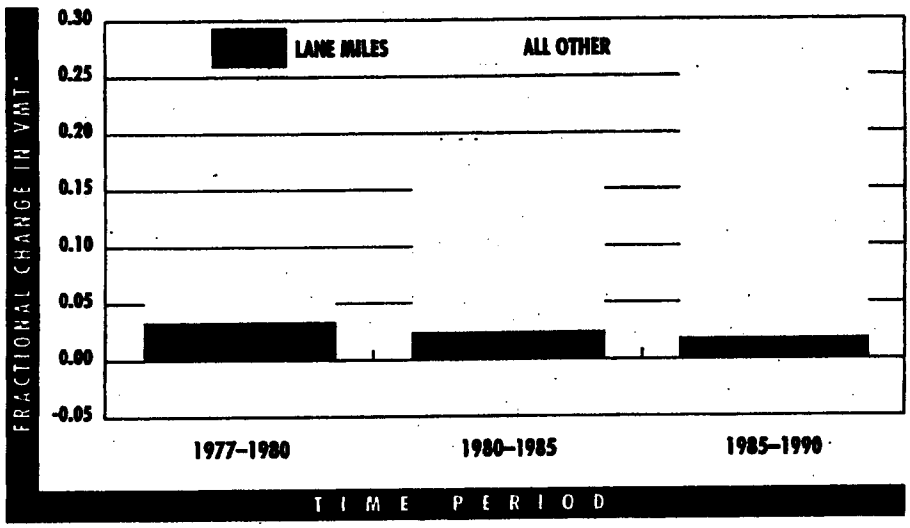


FIGURE 3

Sources of VMT Growth, California Metropolitan Areas, 1977-1990

* *Calculated based on change in natural log of VMT for average urban region in California*

Source: Author's calculations

Conclusion

New roads generate substantial new traffic in metropolitan regions. A 1.0 percent increase in lane miles induces a 0.9 percent increase in VMT within five years. With so much induced traffic, adding road capacity does little to reduce congestion.

However, the aggregate relationships presented here may not hold for an individual highway project. Now, we must seek convergence between macro-studies such as ours and more detailed and elaborate planning models that can predict the effects of specific road improvements. Without further and complementary macro- and micro-analyses, our ability to assess urban transportation improvements will remain limited. But at least in metropolitan areas, it seems that the Law of Traffic Congestion has been upheld. ◆

FURTHER READING

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Exhibit P

Paper No. 001289

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Title: A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region

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A STATISTICAL ANALYSIS OF INDUCED TRAVEL EFFECTS IN THE U.S. MID-ATLANTIC REGION

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Abstract

The hypothesis of induced travel demand is investigated. County level data from Maryland, Virginia, North Carolina, and Washington, DC is used to estimate "fixed effects" cross-sectional time-series models that relate travel levels (measured as daily vehicle miles of travel) to roadway capacity (in lane miles). Individual state models, a combined-state model and a model with data from the Washington, DC / Baltimore metropolitan area are estimated. Results are generally significant and relationships are robust across geographic areas and different specifications. Elasticities of VMT with respect to lane miles are estimated to be on the order of 0.1 to 0.4 in the short run and 0.5 to 0.8 in the long run. A Granger Causality test indicates that changes in lane miles precede changes in VMT. Finally, elasticities are examined under different levels of congestion using population density and VMT per lane mile as proxies. No statistically significant differences between coefficients are found, yielding inconclusive results.

Introduction

Recent work has empirically estimated relationships between lane miles of highway capacity and vehicle miles of travel (VMT). Hansen & Huang (1997) estimated elasticities of VMT with respect to lane miles using data on California counties and metropolitan areas. Noland (forthcoming) estimated nationwide relationships with state level data using a similar approach. Noland & Cowart (1999) also have developed estimates using a database of metropolitan areas. This paper extends this work in two directions. First, it builds on the work of Hansen & Huang (1997) by estimating models with county level data for the Mid-Atlantic region of the country, the states of Maryland, Virginia, and North Carolina and also a separate analysis for the Washington, DC / Baltimore metropolitan area.

Second, this research attempts to analyze differences in elasticity relationships for urban versus rural (and congested versus uncongested) counties. In particular, this analysis attempts to address the question of whether induced demand occurs differentially in areas that are initially low traffic volume (but in some cases high population growth) versus areas that are more heavily congested but that are essentially fully developed. One hypothesis is that areas that are developing will show a bigger difference between short run and long run elasticities than more established areas. This could be because the effect of new roadways may be to spur new development that does not occur immediately, but over a period of years or even decades. In fully developed areas with traffic congestion, the effect of adding roadway capacity on inducing additional travel may be more immediate.

Recent literature on the relationship between roadway capacity and levels of travel appears to be building a consensus on general effects. Short run elasticities (change in travel

with respect to change in roadway capacity) of VMT with respect to lane miles on the order of 0.2-0.6 and long run elasticities of 0.6-1.0 are commonly found. The results of this analysis are similar to other studies. The basic hypothesis that additions to roadway capacity (measured here as increases in lane miles) have a significant positive impact on travel (measured here as daily average vehicle miles of travel, or VMT) cannot be rejected.

The following section provides a discussion of the phenomenon known as induced travel demand, and how this analysis addresses the questions surrounding the issue. This is followed by a description of the methodology and database used in the analysis. This is followed by the results with interpretation of the econometric analysis. A concluding section discusses policy implications and how this could affect the planning of road facilities.

Induced Demand: The Issue and Underlying Economic Theory

The concept of "induced demand" involves the idea that additions to roadway capacity result in, or induce, increases in vehicle travel on the roadway above the level that occurred before the capacity addition. Whether, and to what extent, addition of roadway capacity "induces" additional travel has been a cause of controversy in recent years and is confounded by the fact that other exogenous factors such as increases in population and demographic changes also have been drivers of VMT growth. Planners have historically considered transportation demand as a derived demand for economic activities. This leads to the assertion that capacity increases will be effective at reducing congestion and are necessary to account for exogenous growth in travel. An understanding of the basic economics of induced travel challenges this argument.

The basic theory underlying the concept of induced travel demand is straightforward. The addition of roadway capacity, either through additional miles of roadway or additional lanes on an existing roadway, reduces the time cost of travel. At some level of congestion, any given

driver will choose to avoid dealing with that congestion, either in favor of an alternative route, an alternative mode, changing the departure time of the trip, or avoiding the trip entirely. This is illustrated in schematic form in Figure 1. Since each traveler experiences declining utility with each mile traveled, at some point the cost of travel exceeds the benefit to the driver. Increasing time cost associated with increasing congestion will, in part, determine this point. This is shown as point "a" in the figure. If, however, congestion is relieved through the addition of roadway capacity, the entire cost curve shifts outward (reflecting a shift toward lower travel time cost). This allows higher aggregate levels of travel before a given level of congestion is reached. The effect is shown in the figure as a shift of the time cost curve and a movement of the equilibrium point along the demand curve from point *a* to point *b*. A reduction in time cost from point *p* to *p'* yields an increase in travel level from point *q* to *q'*. In addition, long term responses to increased access can result in changes in land use patterns that may induce more trips and longer trips.

While this underlying economic relationship is conceptually straightforward, there are at least two controversies surrounding its implications for roadway capacity expansion. The first is the specific nature of the relationship between capacity expansion and "induced" increases in travel. The second is whether the existence of this relationship indicates that roadway capacity expansion provides, on net, costs or benefits to society. This analysis focuses on the first of these questions.

While this study does not directly address the second issue, it should be noted that the size and nature of the effect has important implications for whether capacity expansion provides net benefits to society. A large induced travel effect with a VMT elasticity with respect to lane miles near 1.0 indicates that nearly all the congestion benefits of highway expansion are lost to

increased traffic volume (over whatever time period the elasticity applies). On the other hand, it could also suggest that there was considerable "pent up" travel demand that was released when the cost of driving was lowered. Conversely, a small induced travel effect, for example with an elasticity near 0.1, would indicate that most congestion benefits from capacity expansion are retained, and also that there is no significant latent travel demand going unfilled. The timing of the effects is also important. Long-run elasticities that are significantly greater than short run elasticities suggest that initial congestion reduction benefits ultimately pave the way for increased development and other activities that lead to increased travel levels. While short run congestion reduction benefits may occur to existing drivers, long run benefits may accrue more to new drivers and to the owners of land whose access has increased. Cost / benefit analysis of these type economic interactions are far more complicated to derive than a simple elasticity relationship, but ultimately such considerations are critical to assessing the impact of highway projects. The environmental implications of alternative development patterns that could be triggered by roadway capacity expansion is also an important issue and one that could determine whether a specific project provides, on net, costs or benefits to society.

Data and Methodology

Following the approaches of Hansen and Huang (1997) and Noland (forthcoming), the approach taken in this study is to econometrically estimate the relationship between roadway capacity, measured as lane miles, and vehicle travel, measured as average daily vehicle miles of travel at the county level. Other key factors that influence travel are also controlled for. The extent of highway travel in an area is a function of many factors, including population, income, car ownership levels, land use, fuel prices (and other variable costs of travel), and availability of

alternative modes of travel, such as transit. Any attempt to estimate the impact of additions to roadway capacity on travel levels should account for as many of these factors as possible.

The database for this analysis includes county level data for Maryland, Virginia, and North Carolina as well as for the District of Columbia. Virginia does not incorporate a number of its cities into county jurisdictions; data for these cities was unavailable.. Many counties in Virginia are highly urbanized and would be cities in other states, thus this is more of a definitional omission than a real data problem. Some of the cities may contain older, more established neighborhoods that have not had large increases in lane miles (relative to newly developed areas). The Maryland data excludes Baltimore City for which data was not readily available[1].

For each county in each state, the data collected included geographic area, population and population density, income per capita, employment (available as total employment and unemployment rate), and extent of roadway lane miles in different roadway categories. The time series of lane mileage and VMT data varied by state. Virginia and Maryland had data available back to 1970 and 1969, respectively, while data for North Carolina and DC extended back to 1985 and 1984, respectively.

The VMT and lane mile data that states submit to the Federal Highway Administration (FHWA) for use in the Highway Performance Monitoring System were not available (and in most cases are not kept) on a county-by-county basis. Nevertheless, each of the three states collects and tracks this data at a county level. In most cases, however, the data does not cover all roads or travel within each county, and so the state totals do not match the summary statistics

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[1] Data for Baltimore City, which is separate from Baltimore County, is collected and maintained by the

for each state produced by the FHWA. In particular, each of these states only collect data on travel and roadway extent for roads that are state-maintained. In each of the states included in the analysis, this included all interstate lane miles, all state highways, and many (but not all) other primary roads. Data covering some secondary roads was obtained for Maryland and North Carolina but not for Virginia. To maintain consistency, the database used in the analysis contains no secondary road data. There may be some data variation in the percent of roadway coverage in each state, however, but this is not believed to represent a problem since the main issue is that the data for VMT match the data for lane miles in terms of road coverage, which it does.

It should also be noted that the general method of VMT data collection appears to be similar in the three states, although there are some minor differences. In each case, the states collect VMT data primarily through traffic counts on a sample of roadway segments. Each state has a large number of portable "periodic" traffic counting devices, and these are placed on different roadway segments for several days at a time throughout the year in order to obtain the counts. Each state also has dedicated "continuous" counters that are kept permanently in one location, but generally far fewer of these than portable counters used for sampling. A special effort is often, but not always, made to collect data on segments that are being considered for or recently had changes in capacity. VMT samples are aggregated to estimates of total VMT using a fairly standard methodology, involving the development of growth factors for each roadway link, based on VMT changes from previous years' sampling data. Although the basic approach to data collection appears similar in each state, the number of traffic counters and the frequency

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city rather than by the State of Maryland. Historical data were not available from the City.

of sampling each roadway segment varies across the states. This is, then, a source of uncertainty in the accuracy and consistency of the VMT data used in the analysis. For this reason, we chose to estimate separate regression models for each state as well as models including all states together.

For counties in Maryland, VMT data was aggregated to be a total of all state-maintained roads, including interstate, primary, and some secondary roads. FHWA data was used for the District of Columbia for VMT and lane miles.

Vehicle availability was not included in the database since this is nearly universal now in the U.S. (with more than one car per driver nationally), and it is quite highly correlated with the level of population. Fuel prices, although potentially important, were not easily available on a county level, only on a state level. Use of state level data would result in all counties within a state having the same fuel prices for a given year. This variable is therefore fully captured in any regression model including an intercept term for each year of data. Finally, transit data was not available for many counties so it is not included in the analysis. It has been noted by other analysts (e.g., Hansen and Huang, 1997) that the availability of transit itself may be influenced by roadway supply and may represent a joint product with highway travel, in which case controlling for it would be inappropriate.

In all estimated models, a "fixed effects" specification approach has been used. Fixed effects models use cross sectional and/or time series intercepts for each unit of observation in order to capture residual variation that is not accounted for in the set of explanatory variables entered in the model. Econometrically, a "fixed effects" model acknowledges the researcher's lack of information about the unique characteristics of each unit in the data. It can also reduce or eliminate bias associated with correlations across units that would normally be captured in the

error term. The closer the error term is to a random distribution of residual variation, the less bias will be present in the model estimates - in this case the estimates of the relationship between lane miles and VMT. Since the data base used here is a panel data base, our fixed effects models also account for variations across time that might be correlated in the error term for individual counties. Our fixed effects models are thus specified with a separate intercept term for each county and each year of data. For a more detailed discussion of the fixed effects specification see, for example, Kennedy (1992).

A logarithmic specification of the fixed effects model can be written as:

$$\log(VMT_{it}) = \alpha_i + \beta_t + \sum_k \lambda^k \log(X_{it}^k) + \varepsilon_{it}$$

where:

VMT_{it}	is the daily vehicle miles of travel for county i in year t;
α_i	is the fixed effect for county i, estimated in the analysis;
β_t	is the fixed effect for year t, estimated in the analysis;
X_{it}^k	is the value of explanatory variable k for county i and year t;
λ^k	is each of the set of K coefficients to be estimated;
ε_{it}	is the outcome of a random variable for county i in year t, assumed to be normally distributed with mean 0.

This model, and variants of this model that introduce a lag structure, have been used throughout this analysis.

Preliminary Data Analysis

Basic characteristics of the five study areas (and all areas taken together) are shown in Table 1. Several important differences can be seen across the different study areas. While the average geographic area of counties in each study area is quite similar, the average population (and therefore population density) varies considerably. The Washington, DC / Baltimore metropolitan area has about 1,600 persons per square mile, Maryland has about 420 per square mile, Virginia has slightly under 200 per square mile, and North Carolina has less than 150 per square mile. The travel per capita is inversely correlated with population density, with Virginia showing 30 percent to 40 percent more daily travel per capita (on interstates and state-maintained primary roads) than North Carolina and Maryland, with the Washington DC/Baltimore metro area about ten percent below Maryland. This suggests that the more densely populated areas require fewer and/or shorter car trips, which may be due to proximity of destinations and/or greater availability of alternative (non-auto) travel modes.

The average number of lane miles per capita is also greater in the areas with lower population density, with a higher average in North Carolina and Virginia than in the Washington, DC / Baltimore metro area and Maryland. This may reflect the presence of underutilized interstates and major arterials that have been put in place to provide access to the scattered populous of the rural counties in states such as North Carolina. It also may help explain why VMT per capita in densely populated areas is lower – the availability of roadway miles per person is much lower. If true, this would imply that congested conditions limit the VMT of residents in such an area to levels below areas with more roadway capacity available. These relationships are examined more formally in the following section using a multivariate analysis. Finally, the average daily travel (VMT) per lane mile of available roadway is indeed

much higher in the more densely populated areas, again indicating that there is much less available road capacity in the Washington, DC / Baltimore metro area than in Virginia, with North Carolina and Maryland intermediate.

Table 2 lists average annual growth rates of key variables. The growth rates for several key variables are significantly different across the different areas. While the growth rate in VMT is between 3% and 4% per year in all areas, the growth rate in lane miles varies significantly, ranging from 0.38% in Maryland to 0.87% in the Washington, DC / Baltimore area. In North Carolina VMT growth is larger than growth in either population or lane miles, suggesting that average travel per person has increased significantly. However, the average VMT per lane mile in North Carolina counties in 1995 (shown in Table 2) was still quite low compared to Virginia, Maryland, and the Washington, DC / Baltimore area. Clearly, the rapid growth in travel per person in North Carolina has not (yet) resulted in roadway usage levels on a par with the other areas.

The information in these two tables raises several questions and helps set the stage for the following econometric (multiple regression) analysis, and may provide insights that can be used in interpreting the results of that analysis.

Results of Econometric Analyses

Various econometric models were estimated using VMT as the dependent variable and lane miles, population, income per capita as potential explanatory variables. These are reported below, followed by results for several variations that introduce a lag structure and considerations of alternative levels of congestion (or traffic) on the results. Separate regressions were analyzed for five geographic areas: Maryland, North Carolina, Virginia, the Washington, DC / Baltimore extended metropolitan area, and the full database (all three states and DC). The DC / Baltimore

extended metropolitan area is comprised of 16 suburban counties around and between the two cities (but does not include the cities themselves).[2] The main reason for excluding the District of Columbia itself was the lack of data before 1985. Excluding the District allows a more complete time series extending back to 1970. The city of Washington, DC is included in regressions that include all three states together. These are referred to below and in the tables as the "all states" run.

Base Model Results

A summary of basic results for individual areas and all areas together is presented in Table 3. These are all estimated as log-linear models with fixed effects.

The results across the five study areas are significant and robust (i.e, consistent across region and specification). All give statistically significant coefficients for the relationship between lane miles and VMT. The coefficient values range between about 0.3 and 0.6, which is strongly consistent with other studies such as Noland (forthcoming). The DC metropolitan area has the lowest value on the lane mile coefficient. This is a somewhat counterintuitive result since this area represents the most congested subset of the data. This area also has the largest use of alternative modes, such as transit, which would imply that road expansions could have a larger elasticity effect by drawing travelers from other modes. The lower coefficient could also represent a greater relative degree of infill development due to more mature land use patterns, relative to more rural counties. Population growth and per capita income coefficients are

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[2] This area includes the Maryland counties of Anne Arundel, Baltimore, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's. Virginia counties are Arlington, Fairfax, Fauquier, Loudon, Prince William, and Stafford. The City of Alexandria, Virginia is not included due to its jurisdictional definition as a city as opposed to a county.

significant for the DC area (the latter at a 90% level) but are not different in magnitude compared to overall results.

Income per capita is more varied and much less significant across the models. The consistently strong significance for population is not especially surprising, since the number of people living in an area is expected to be a principal determinant of the level of vehicle travel in the area. The generally low value and low significance for income per capita suggests that in most areas, increases in income do not strongly correlate with increased vehicle travel (at least at the county level of analysis). This may also reflect the fact that, quite often, greater distances must be covered in rural areas, which also generally have lower income levels.

These results indicate that after controlling for population and income, a ten percent increase in lane miles correlates with a 3% percent to 6% increase in daily VMT, at least in the mid-Atlantic region. Since these models do not include any lag structure, this result should be interpreted as an average response (i.e., combining short run and long run effects). The high t-statistics and low variation in results by area suggests that the results are quite robust. This is especially true considering the significant differences in the characteristics of the different study areas, as previously discussed.

For the "all states" regressions, the lane mile coefficient is slightly larger than for any of the individual study areas. A 10% change in lane miles correlates with about a 5.6% to 5.9% increase in travel. This could indicate that the cross-sectional variation in the data (actually, cross-regional variation) has a steeper slope than the variation within each state.

Many unmeasured factors have contributed to VMT growth including demographic changes over the last 40 years. One of the more commonly cited factors is the increased number of women in the workplace. Employment growth and growth in vehicle ownership are also

drivers of VMT growth. These variables, are highly correlated with population growth and therefore cannot be included in the models. Models with total employment (by county), but excluding total population, were tested and gave essentially the same results as the models reported here. In any case, the use of a fixed effects approach will control for much of the variation in these unmeasured demographic factors both by county and over time.

First Difference Model Results

Specifications also were tested using a first difference model. The additive difference of the logs of variables (year t minus year t-1) were used, which captures percentage changes through time. A summary of the first difference results is shown in Table 4.

The results of these regressions are somewhat more varied than the base runs, but still significant for lane miles in every study area (the Washington, DC-Baltimore area is significant only at about the 90% confidence interval). However, the coefficient for the change in population was insignificant in most areas. The 'R-squared' values in these runs are quite low[3], although this is not uncommon for first difference runs, which tend to draw out the stochastic component of the change in variables from year to year.

The coefficient on lane miles varies from a low of 0.15 (for the Washington, DC / Baltimore metropolitan area) to a maximum of 0.61 (for North Carolina). This range is slightly broader than, but not inconsistent with, the base run results. The lane mile coefficients for Virginia are similar to those for the Washington, DC / Baltimore metropolitan area, and much lower than for Maryland and North Carolina. These are the two areas that have a coefficient on

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[3] "R-Squared" values do not correspond to R2 as calculated in OLS regressions. See StataCorp (1999) for a discussion of "R-Squared" as defined under the xtreg procedure.

population that is significant, which may explain the difference in the results for lane miles (and may indicate that growth in travel is more population-driven in these areas than in the other states).

Evaluation of Short-run and Long-run Elasticities

A distributed lag model is used to estimate both short-run and long-run elasticity coefficients. This model assumes an exponential distribution on the lag structure, that is the effects are assumed to be strongest in the first year and then decline through time. This would seem appropriate in areas where capacity expansion reduces congestion, resulting in some immediate effects while longer run land use effects may take several years to fully adjust. The approach also implicitly assumes that all variables in the model have the same lag structure with respect to the dependent variable. While these restrictions may introduce some bias into the estimation, the approach is appealing due to its econometric simplicity and ease of interpretation. A one-year lagged dependent variable is introduced into the specification to estimate a distributed lag model. The resulting coefficients of the distributed lag specification can be converted to estimates of short and long run elasticities (Johnston, 1984).

Table 5 presents the results of the distributed lag models. These estimates show a high degree of significance for the lane mile and population coefficients in every study area. Long run elasticities are consistently larger than short run elasticities, as would be expected. The long run elasticities tend to be similar to that found in other research. The "all states" analysis gives a long run elasticity of about 0.7 while the Virginia analysis has a long run elasticity of about 0.8. The other elasticities are about 0.5 – 0.6. Other studies (Hansen & Huang, 1997; Noland, forthcoming) have found results between about 0.6 – 1.0. The short run elasticities for Virginia

and the Washington, DC / Baltimore metropolitan area are relatively small (about 0.13). Noland (forthcoming) found short-run elasticities in a distributed lag model to be between 0.3 – 0.5 (North Carolina and the "all states" analysis are within this range). These differences are difficult to interpret in an aggregate analysis. The key results, however, generally are consistent with prior research.

Issues of Causality and the Granger Test

The type of analysis presented here using aggregate lane mile and VMT data to derive elasticity relationships has been criticized by some as not revealing a causal relationship. That is, does provision of lane miles lead to greater than expected VMT growth or do forecasts of VMT growth lead to growth in lane miles (via the infinite wisdom of planners). The cause and effect relationships are difficult to disentangle, but even if some VMT growth is anticipated, it is unlikely that planners will react either with infinite foresight or in a timely manner. The use of panel data and a fixed effects analysis in the above regressions minimizes the simultaneity bias which, in theory, could be present.

An ideal approach to determining the exogeneity of the relationship is the use of an instrumental variable. Using a database of U.S. urbanized areas Noland & Cowart (2000) use an instrumental variable procedure. They find evidence of a strong causal linkage between lane miles and subsequent VMT growth using urbanized land area as an instrument for lane miles.

For the data set analyzed in this study we were not able to find an adequate instrumental variable for lane miles (i.e., correlated with lane miles but not with VMT). The long time series (30 years) for both Maryland and Virginia, however, allow the use of a Granger Causality test. Maddala (1992) points out that the Granger test is not strictly a test for exogeneity, but rather for the precedence of the variables. The test can be specified by including both a backward and a

forward lag in the regression. If the backward lag is statistically significant while the forward lag is not, then this indicates that the independent variable temporally precedes the dependent variable (i.e., lane miles precede VMT). If the significance is reversed, then the dependent variable precedes the independent variable (i.e., VMT precedes lane miles).

Results for the Granger test are presented in Table 6. A difference model was used due to multicollinearity between the backward and forward lag variables when using level values. This is similar to the difference models shown in Table 4. Analysis of the data for Maryland and Virginia using a one year backward and forward lag and also a two year backward and forward lag are shown. The backward lag terms are statistically significant above the 95% level for three of the models and above 90% for the 2 year lag for Maryland. In all cases the forward lag is not statistically significant.

This result indicates that lane mile growth precedes growth in VMT. However, as mentioned, this is not quite evidence of causality, i.e. that increases in lane miles *cause* increases in VMT, since the results can also be explained by "efficient" planning that correctly anticipates future growth in VMT by building new capacity in advance. On the other hand, such "efficient" planning is not evidenced by the high levels of traffic congestion common in many places within the study area.

Comparison of Models under Different Levels of Congestion

In theory, one would expect induced travel effects to be larger in an area with more initial congestion. Any increase in existing road capacity would give a more than proportional decrease in travel times (in the short-run). On the other hand, congested areas also tend to be fully developed, so one might expect fewer long run impacts from land use changes. To test

these hypotheses, we disaggregated the data based upon relative traffic levels (calculated as traffic per lane mile) as a proxy for congestion and also on the basis of population density. Obviously both these variables are simplistic measures of congestion, since effects can be very time of day specific, but in general, the greater the average level of traffic or the greater the population density, the larger the level of congestion.

For the VMT/lane mile variable, the data was divided into three groups, defined as "low", "medium" and "high" levels of travel per lane mile. The data was divided with "low" being defined as below 2000 daily VMT per lane mile, "medium" being between 2000 and 5000 daily VMT per lane mile, and "high" being above 5000 daily VMT per lane mile. The year 1990 was chosen as the base year for dividing counties into groups. The problem with using earlier years as a basis for making the allocation is that (a), several areas' data extends back only to the mid 1980s and (b) most counties in Virginia and North Carolina fall into the low density category before 1980. The overall split was 20 high congestion counties, 120 low congestion counties, and 80 medium congestion counties.

The population density estimates were split by areas with less than 100 persons per square mile defined as "low", 100 – 500 persons per square mile was "medium", and greater than 500 persons per square mile was "high". A level of 500 persons per square mile might not be considered a high population density, but the vast majority of the counties in the analysis have very low population densities. With this split of the levels there were 16 counties in the "high" category, 66 counties in the "medium" category, and 138 counties in the "low" category.

These estimates were done only for the "all states" model since some of the sub-categories for individual states had very few counties within the cross-section, creating a degrees of freedom concern. Interaction terms were entered for the lane mile variables. Results are

shown in Tables 7 and 8 for a base model and a distributed lag model. The population density model suggests that areas with medium population density have the highest lane mile elasticities. The congestion level model suggests slightly lower elasticities for the least congested areas, as one would expect. However, the coefficient values between the various lane mile interaction terms are not statistically different, as shown by the overlap between the 95% confidence intervals for the lane mile coefficients. The one exception is the base model with congestion level interactions that has a lower coefficient value for areas with low congestion. The results are inconclusive as to whether there are any differences in elasticities due to existing population density and/or congestion effects.

Conclusions and Policy Issues

The results presented indicate a significant relationship between the level of highway capacity, as measured by lane miles, and the level of travel, measured by daily VMT, in the mid-Atlantic region of the U.S. After accounting for other important determinants of travel, most importantly population and income, the estimated elasticity between lane miles and VMT is between 0.3 to 0.6. Breaking this into short run and long run, the average values are in the range of 0.1 to 0.4 in the short run, and 0.5 to 0.8 in the long run. Although there is some variation across study area and specification, there is a considerable degree of consistency in both the significance and the value of the lane mile coefficient across all the models that were estimated. This is perhaps especially interesting given the significant differences in the geographic and population characteristics of the three states, as discussed above in the section on preliminary data analysis.

The results using the entire database ("all states") are generally close to those for the individual states, and there is relatively little difference between the results for each state, especially in the base runs. However, a somewhat surprising result is that the relationship

between lane miles and travel appears to yield a lower elasticity for more urbanized areas (namely the Washington, DC / Baltimore extended metropolitan area), than for the study areas that contain many rural counties (all three of the states).

Use of the Granger Causality test on the data from Maryland and Virginia establish that lane mile growth precedes VMT growth. This adds additional evidence that the induced travel hypothesis is real and significant.

Attempts to measure differences in elasticity estimates between areas with different levels of congestion did not give conclusive results. Using both population density levels and VMT / lane miles as proxies for congestion, no statistically significant differences in lane mile interaction terms could be found. Noland & Cowart (1999) report a similar result for metropolitan areas with different levels of congestion, though they find a slightly larger elasticity for medium sized metropolitan areas. While it was somewhat surprising that the hypothesis that different congestion levels result in different induced travel lane mile elasticities was not shown, it is possible that the proxies selected were not adequate or that the data is too aggregate to disentangle this sort of effect.

These results, and the growing consensus in the literature that highway capacity expansions can elicit behavioral responses is not surprising. The basic economics are straightforward and empirical analyses have not been able to reject the induced travel hypotheses. The implications for those who advocate increased mobility should be reassuring, as the estimated relationship implies that adding roadway capacity reduces the cost of travel and encourages greater overall travel, and hence, mobility. On the other hand, if congestion reduction is of paramount concern, estimates of a long run elasticity greater than 0.5 suggest that most of the congestion reduction benefits of capacity expansion will be lost over time. Given a

desire to both increase mobility and reduce congestion, the key policy question is whether individual demand for mobility is best served by increases in highway capacity or by alternative means, such as provision of alternative modes of travel, demand management policies or urban design changes. Environmental costs may also be more significant when induced travel impacts are measured resulting in major differences in the relative social costs and benefits of alternative mobility enhancing projects.

Acknowledgements and Disclaimer

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Figure 1

Graphic Representation of the Impact of Roadway Expansion on Travel

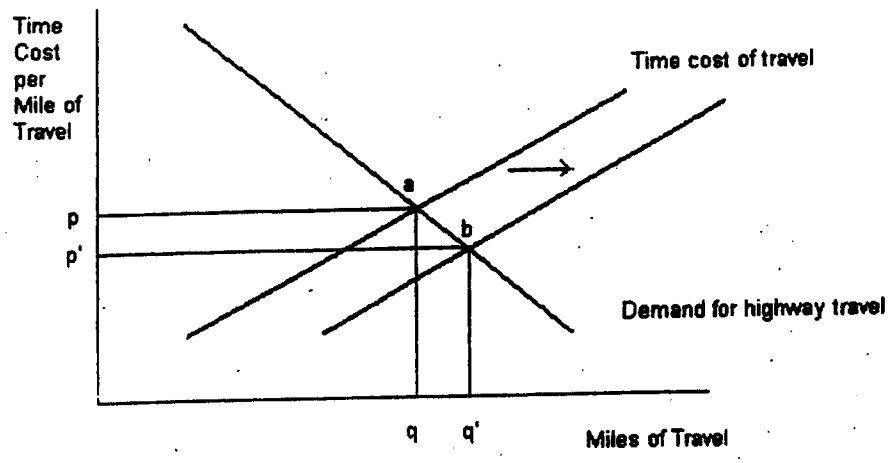

Table 1

Average Values of Key County Variables in 1995

	Units	*Maryland*	*North Carolina*	*Virginia*	*Washington, DC/ Baltimore area*	*All*
Total # of Counties	x	23	100	96	16	220
Average Geographic Area	square miles	421	487	399	417	440
Average Population	people	188,699	71,867	45,582	326,878	74,804
Average Population Density	people/sq. mile	422	148	194	1,155	237
Average Daily VMT	miles/day	3,536,397	1,297,601	1,064,583	5,834,860	1,457,690
Average Daily VMT per Capita	VMT/person	21.62	20.55	29.25	19.77	24.43
Average Lane Miles	miles	624.42	364.60	260.28	683.45	349.45
Average Lane Miles per Capita	lane miles/person	0.0072	0.0087	0.0117	0.0031	0.0098
Average VMT per Lane Mile	VMT/lane mile	4,357	3,055	3,475	8,224	3,392
Average Income per Capita	1998$	24,644	19,846	20,891	29,623	20,865
Average Total # of Jobs	jobs	101,128	43,705	31,481	149,293	47,508

Table 2

Average Annual Growth Rates (by state and area based on years of available data)

	Maryland	*North Carolina*	*Virginia*	*Washington, DC/ Baltimore area*	*All*
Years of Data	1969 - 1996	1984 - 1997	1970 - 1996	1970-1996	1985 - 1995
Population	1.72%	0.96%	1.32%	2.66%	1.10%
Population Density	1.72%	0.97%	1.33%	2.66%	1.11%
VMT	3.46%	3.46%	3.44%	4.16%	3.28%
Lane Miles	0.38%	0.58%	0.61%	0.87%	0.45%
Population per Lane Mile	1.34%	0.38%	0.71%	1.78%	0.65%
VMT per Lane Mile	3.07%	2.86%	2.81%	3.26%	2.82%
Income per Capita	1.50%	1.74%	1.87%	1.76%	1.42%
Jobs	2.52%	1.74%	1.94%	2.93%	1.93%

Table 3

Base Model Results

Dependent Variable	LOG(VMT)									
State	*All States*		*Maryland*		*North Carolina*		*Virginia*		*Washington, DC – Baltimore metropolitan area*	
Years of Data	1985-1995		1969-1996		1985-1997		1970-1996		1970-1996	
N	2420	2420	644	644	1300	1200	2592	2592	432	432
"R-Squared"	0.710	0.713	0.948	0.948	0.856	0.838	0.883	0.884	0.963	0.963
Intercept	4.51	2.21	3.38	3.19	4.85	4.24	4.90	3.89	6.09	5.27
	(9.23)	(3.01)	(7.77)	(4.62)	(7.80)	(4.11)	(20.0)	(9.82)	(13.6)	(5.73)
Log (Lane Miles)	0.587	0.564	0.451	0.451	0.475	0.435	0.506	0.508	0.331	0.327
	(12.4)	(11.9)	(8.01)	(8.00)	(9.79)	(8.02)	(15.5)	(15.6)	(6.17)	(6.10)
Log (Population)	0.520	0.569	0.659	0.655	0.560	0.585	0.507	0.504	0.518	0.502
	(13.6)	(14.3)	(24.2)	(22.0)	(10.7)	(9.39)	(25.7)	(25.6)	(17.0)	(16.0)
Log (Income Per Capita)	-	0.195	-	0.026	-	0.057	-	0.110	-	0.167
	-	(4.18)	-	(0.369)	-	(0.958)	-	(3.25)	-	(1.87)

T-stats are in parentheses

County and time specific constants are omitted for brevity.

Table 4

First Difference Model Results

Dependent Variable	LOG(VMT) Difference*									
State	*All States*		*Maryland*		*North Carolina*		*Virginia*		*Washington, DC – Baltimore metropolitan area*	
Years of Data	1985-1995		1970-1996		1986-1997		1971-1996		1971-1996	
N	2200	2200	621	621	1200	1100	2496	2496	416	416
Adjusted R-Square	0.053	0.055	0.175	0.181	0.129	0.131	0.184	0.186	0.328	0.328
Intercept	0.006	0.005	0.058	0.057	-0.020	-0.027	0.034	0.031	0.068	0.064
	(0.275)	(0.238)	(3.01)	(2.95)	(-0.874)	(-1.11)	(2.72)	(2.43)	(3.97)	(3.26)
Log (Lane Miles Difference)	0.434	0.433	0.517	0.527	0.609	0.612	0.149	0.145	0.153	0.154
	(5.84)	(5.83)	(3.40)	(3.47)	(6.95)	(6.77)	(3.56)	(3.45)	(1.66)	(1.66)
Log (Population Difference)	0.067	0.075	0.114	0.243	0.281	0.372	0.117	0.143	0.347	0.379
	(0.485)	(0.535)	(0.423)	(0.877)	(0.989)	(1.17)	(2.21)	(2.67)	(1.88)	(1.92)
Log (Income Per Capita Difference)	-	0.023	-	0.257	-	0.095	-	0.103	-	0.062
	-	(0.334)	-	(2.03)	-	(1.02)	-	(2.73)	-	(0.454)

T-stats are in parentheses
County and time specific constants are omitted for brevity.

Table 5

Distributed Lag Models with Short-run and Long-run Elasticities

Dependent Variable	LOG(VMT)									
State	*All States*		*Maryland*		*North Carolina*		*Virginia*		*Washington, DC – Baltimore metropolitan area*	
Years of Data	1986-1995		1970-1996		1986-1997		1971-1996		1971-1996	
N	2200	2200	621	621	1200	1100	2496	2496	416	416
Adjusted R-Square	0.826	0.830	0.960	0.960	0.899	0.890	0.965	0.965	0.985	0.985
Intercept	2.72	0.727	1.48	1.28	4.70	4.61	0.489	0.118	1.27	0.754
	(5.97)	(1.07)	(3.62)	(2.04)	(8.28)	(5.09)	(3.31)	(0.531)	(3.59)	(1.26)
Log (VMT) lagged 1 year	0.508	0.504	0.559	0.559	0.187	0.164	0.841	0.840	0.782	0.779
	(28.4)	(28.2)	(16.0)	(16.0)	(8.04)	(6.93)	(77.9)	(77.8)	(24.7)	(24.4)
Log (Lane Miles)	0.355	0.338	0.215	0.215	0.426	0.394	0.128	0.129	0.129	0.130
	(8.40)	(8.00)	(4.09)	(4.10)	(10.2)	(8.60)	(6.78)	(6.86)	(3.64)	(3.65)
Log (Population)	0.175	0.227	0.288	0.284	0.367	0.373	0.086	0.086	0.097	0.095
	(4.80)	(5.87)	(8.55)	(8.05)	(7.61)	(6.54)	(7.03)	(6.99)	(3.69)	(3.58)
Log (Income Per Capita)	-	0.162	-	0.026	-	0.055	-	0.041	-	0.061
	-	(3.91)	-	(0.428)	-	(1.11)	-	(2.22)	-	(1.06)
Short-Run Elasticity	0.355	0.338	0.215	0.215	0.426	0.394	0.128	0.129	0.129	0.130
Long-Run Elasticity	0.722	0.681	0.488	0.489	0.525	0.471	0.808	0.811	0.594	0.586

T-stats are in parentheses

County and time specific constants are omitted for brevity.

Table 6

Results of Granger Test using Difference Model

Dependent Variable: LOG(VMT) Difference				
State	*Maryland*	*Virginia*	*Maryland*	*Virginia*
Years of Data	1970-1996	1971-1996	1970-1996	1971-1996
N	598	2400	552	2208
Adjusted R-Square	0.181	0.190	0.160	0.197
Intercept	0.009	0.038	0.017	0.018
	(0.592)	(6.273)	(0.976)	(2.984)
Log (Lane Miles Difference) –backward lag one year	0.545	0.143	-	-
	(3.450)	(3.356)	-	-
Log (Lane Miles Difference) – forward lag one year	-0.097	-0.039	-	-
	(-0.613)	(-0.876)	-	-
Log (Lane Miles Difference) –backward lag two years	-	-	0.192	0.140
	-	-	(1.792)	(4.365)
Log (Lane Miles Difference) – forward lag two years	-	-	0.079	-0.028
	-	-	(0.660)	(-0.800)
Log (Population Difference)	0.236	0.156	0.231	0.148
	(0.829)	(2.838)	(0.739)	(2.346)
Log (Income Per Capita Difference)	0.257	0.109	0.243	0.106
	(1.981)	(2.861)	(1.732)	(2.621)

T-Stats are in parentheses
County and time specific constants are omitted for brevity.

Table 7

Population Density Level Interaction Models

All States model		
Dependent variable = LOG(VMT)	Population Density interaction	Population Density interaction with distributed lag
N	2420	2200
R-Square	0.711	0.785
Intercept	2.515	0.889
	(3.538)	(1.341)
Log (VMT) lagged 1 year		0.506
		(28.329)
Log (Lane Miles, low population density)	0.402	0.294
	(6.079)	(5.011)
Confidence interval (95%)	0.272 – 0.531	0.179 – 0.409
Log (Lane Miles, medium population density)	0.573	0.323
	(8.496)	(5.447)
Confidence interval (95%)	0.441 – 0.705	0.207 – 0.440
Log (Lane Miles, high population density)	0.404	0.210
	(3.708)	(2.217)
Confidence interval (95%)	0.190 – 0.617	0.024 – 0.395
Log (Population)	0.571	0.229
	(14.260)	(5.914)
Log (Income Per Capita)	0.198	0.157
	(4.186)	(3.744)
Long-Run Elasticity – Lane miles, low population density		0.581
Long-Run Elasticity – Lane miles, medium population density		0.638
Long-Run Elasticity – Lane miles, high population density		0.415

T-stats are in parentheses. County and time specific constants are omitted for brevity.

Table 8

Congestion Level Interaction Models

All States model		
Dependent variable = LOG(VMT)	Congestion Level interaction	Congestion Level interaction, with distributed lag
N	2420	2200
R-Square	0.711	0.785
Intercept	2.728	0.996
	(3.832)	(1.501)
Log (VMT) lagged 1 year		0.507
		(28.416)
Log (Lane Miles, low congestion)	0.240	0.175
	(3.151)	(2.533)
Confidence interval (95%)	0.091 – 0.390	0.040 – 0.311
Log (Lane Miles, medium congestion)	0.530	0.356
	(7.192)	(5.617)
Confidence interval (95%)	0.385 – 0.674	0.232 – 0.480
Log (Lane Miles, high congestion)	0.594	0.310
	(7.846)	(4.676)
Confidence interval (95%)	0.446 – 0.743	0.180 – 0.440
Log (Population)	0.548	0.213
	(13.743)	(5.463)
Log (Income Per Capita)	0.213	0.164
	(4.467)	(3.899)
Long-Run Elasticity – Lane miles, low congestion		0.345
Long-Run Elasticity – Lane miles, medium congestion		0.702
Long-Run Elasticity – Lane miles, high congestion		0.611

T-stats are in parentheses. County and time specific constants are omitted for brevity.

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Exhibit Q

New Highways, Induced Travel, and Urban Growth Patterns: A "Before and After" Test

A final report submitted to
The Environmental Protection Agency

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I. Introduction and Background

A. Induced travel

Background

Several recent studies have demonstrated an association between increases in highway capacity and increases in vehicle miles of travel (VMT). That phenomenon, called induced travel, has increasingly been cited as a basis for rethinking travel demand modeling, land-use/transportation interactions, and the environmental impacts of highway projects. Yet before the policy community can firmly conclude that induced travel is an important phenomenon, one lingering doubt must be addressed. Do new highways really induce additional travel, or are the associations between lane miles and VMT driven by a reverse causal link – namely that new highways are built in anticipation of expected increases in travel demand? The debate remains contentious, in part because the empirical evidence on induced travel is mostly from aggregate data that are better suited to establishing correlations than causality. As Noland and Lem (2000) note, the studies to date, while often supportive of the hypothesis, do little to illuminate the behavioral underpinnings of the phenomenon. Determining causality with data that are aggregated over broad geographic areas, such as counties or states is difficult, and focusing on individual projects can help clarify matters. In this light, we examine three highways in a rapidly growing urban area to pose the following question: Do new highways influence urban development in ways that suggest that they induce new automobile traffic, or are urban growth patterns somewhat impervious to the completion of new highways?

Behavioral impacts of new highways

If increases in highway capacity cause increases in VMT, the behavioral underpinnings can be divided into two broad classes. First, an increase in capacity that reduces congestion and lowers travel times reduces the full cost of travel. This lower price of travel can induce more travel. This is part of the underpinning of Downs' (1962) "law of peak hour expressway congestion".[1] Second, increases in highway capacity that lower travel times can facilitate changes in urban development that are associated with longer trips and thus more VMT (see, e.g., Noland and Lem (2000); Downs (1996); Hills (1996)). The focus of this report is on the second class of behavioral changes of induced travel, caused by increased highway capacity, i.e. the link between highways and urban development. Specifically, this paper is a "before and after" study of the impact on house prices of the construction of toll roads in Orange County, California.

[1] Downs (1962, 1992) also discusses how increases in highway capacity can induce shifts in travel from different times of day, routes, and modes. With the exception of changes in mode, it is not clear that changes in trip scheduling or route will increase VMT, even if those shifts contribute to increases in peak period congestion. For that reason, we follow Noland and Lem (2000), who note that the effect of highway capacity on inducing new or longer trips should be a key focus for research on the link between VMT and highway capacity.

B. Empirical study using the Orange County Toll Roads

Since 1993, fifty-one new centerline miles of toll road have opened in Orange County. Collectively, those roads extend the County's relatively dense highway network into the rapidly growing southern part of the County. (See Figure 1 for a depiction of the highway and toll road network in the County.) The San Joaquin Hills, Eastern, and Foothill corridors (California State Routes 73, 241, 261, and portion of 133) have all been in Orange County's Master Plan of Arterial Highways since the 1970s, but planning for the toll roads began in earnest when the Transportation Corridor Agencies (TCAs) were created in 1986.[2] In 1987, the TCAs determined that state and federal funds would not be sufficient to finance the roads and state legislation passed in that year allowed the roads to be built as toll facilities.

The TCA toll roads were chosen because they provide a rare opportunity to examine a significant expansion of highway capicity in a rapidly growing suburban area, and to test, using readily available data, growth pattern before and after the highways were built. The fact that the TCA highways are toll facilities has some impact on both induced travel and the link between the roads and urban growth. The argument for induced travel in many ways hinges on the fact that virtually all highway construction in the United States for the past several decades has been for roads that do not charge tolls. Highway travel is thus unpriced in the sense that drivers do not pay for the additional congestion that they cause during peak period. Induced demand, as originally popularized by Downs (1962, 1992) is intimately linked to the theoretical proposition that persons will increase their driving on free highways in response to increases in capacity that reduce congestion. A commonly proposed policy solution to the problem of induced demand is to charge for highway travel during peak times – i.e. to impose toll that vary with congestion levels (e.g. Vickrey, 1963; Small, Winston, and Evans, 1989). While the TCA toll roads do not vary the toll with either the time of day or congestion levels, one could argue that the existence of even a flat toll should attenuate the induced demand effect which has been documented in studies (e.g. Hansen and Huang, 1997; Noland, 1998) of free highway capacity.

That argument is well taken, and our response is threefold. First, while the ideal case study for this research would be highways built in growing suburban areas, such cases are rare, and the Orange County case study brings countervailing advantages in data availability and model calibration. The data for much of the empirical work needed for the Orange County case were readily available. Also the population and employment growth model had been tested on Orange County data, such that much work on model validity had been completed in Orange County. Second, there are few suburban areas

[2] A detailed case study of the toll roads, conducted as separate research, revealed that few persons in the County regarded the roads as likely to be built before the creation of the TCAs (Boarnet, DiMento, and Macey, 2002). It is unlikely that land development would have anticipated the roads before the formation of the TCAs in 1986, and more generally the early 1990s, when construction began on the toll road network, is the earliest time that development would likely have anticipated the roads. For a discussion of the history of the toll roads, drawn from archival documents and expert interviews, see Boarnet, DiMento, and Macey (2002).

with current highway investment program's that are comparable in size to Orange County's.

Third, recent theoretical research (Arnott, 1998) suggests that even congestion tolled highway capacity is likely to influence urban growth patterns, although the influence might not be as strong as if the new capacity were unpriced. The implication for this research is that links between highways and urban growth are likely to persist even if the capacity is congestion tolled, and would likely be even more apparent in the case of the flat tolls used by the TCAs.

In the first part of this report, we employ both hedonic regression analysis and multiple sales techniques to examine how the opening of the toll road network alters house prices in nearby corridors. In the second part, we use a census tract population and employment growth model to examine impact of the toll roads on urban development patterns.

Urban economic theory posits that the influence of highway improvements on urban growth patterns acts through land prices. If highways improve accessibility, that accessibility premium will be reflected in higher land prices (and *ceteris paribus*, higher house prices), and higher priced land will be developed more densely. As a first step in better understanding the link between highways and urban development, we examine how the construction of the Orange County toll road network altered house prices in nearby corridors. Understanding the link between house prices, development patterns, and induced travel requires first understanding those related literatures, which we summarize below.

II. Literature Review

A. Induced Travel

Downs (1962) offered one of the earliest theoretical justifications for induced travel, stating the improvements in highway capacity lower the cost of peak hour travel, and thus can create additional peak hour traffic. More recent research has focused on the link between VMT and highway capacity, rather than peak hour traffic. The empirical literature, especially works that have been influential in policy circles, is quite new. Important recent empirical research on induced travel includes the research of Goodwin (1996), Hansen and Huang (1997), and the report of the Special Advisory Commission on Truck Road Assessment (1994). The SACTRA (1994) report examined traffic growth in corridors that had increases in capacity, and also compared actual and forecast travel along new and improved corridors. Both pieces of evidence led SACTRA (1994) to conclude that induced travel is a real phenomenon, concluding that, on average, traffic increased by 77% due to capacity expansion.

Hansen and Huang (1997) used panel data for California counties to examine statistically how VMT is influenced by state highway lane miles, controlling for other factors such as county population and per capita income. They concluded that the elasticity of VMT with respect to lane miles ranged from 0.3 to 0.7 for counties and 0.5 to 0.9 for metropolitan areas. Virtually all elasticity point estimates were significant at conventional (5% or better) levels. Noland (forthcoming) found similar results using the same methodology with data for U.S. states, and Noland and Cowart (forthcoming) also found similar results with data on metropolitan areas from the mid-Atlantic region of the United States. The results have provided support for the idea that induced travel is an important transportation phenomenon, but the issue of causality remains a point of some controversy. As Noland and Lem (2000) note, the research to date provides little information on the underlying behavioral foundations of whether and how increases in highway capacity cause increases in VMT. To increase our understanding of the behavioral links between highway construction and induced travel, this paper focuses on the link between highways and urban growth patterns.

B. Highways and Urban Development

The literature on highways and urban development has focused largely on the question of whether highways contribute to the decentralization of metropolitan areas. The evidence, reviewed by Boarnet and Haughwout (2000), suggests that transportation infrastructure is only one of several factors that influence metropolitan decentralization, although there is debate about the relative importance of transportation versus other factors (see, e.g., the exchange between Cervero and Landis (1995) and Giuliano, (1995)). The empirical literature initially focused on how highways influence the relative

growth of central cities and suburban rings. An often-cited example of this work is the study by Payne-Maxie (1980) that examined the influence of suburban beltways on the growth of suburbs and central cities in fifty-four United States metropolitan areas. The authors conclude that beltways have little impact on overall growth of the metropolitan area, and they also conclude that the intra-metropolitan economic and land use effects that do exist are likely to be transfers from one place to another within the metropolitan area (Payne-Maxie (1980), pp. 114-116). Yet the work by Payne-Maxie (1980), and similar articles on the determinants of decentralization such as Bradford and Kelejian (1973), Mills and Price (1984), and Palumbo, Sacks, and Wasylenko (1990), divided metropolitan areas into two components – central cities and the remaining suburban ring. This geographic focus is relatively crude and allows little analysis of finer scale impacts of highways on metropolitan growth patterns. Partly for that reason, we use data on house sales prices that are matched, via a geographic information system (GIS), to street addresses. This allows a more detailed geographic study of the effect of highways on urban development.

C. Hedonic Price Studies of Highway Access

In the United States, studies of the impact of highways on nearby land and house values date to the beginnings of the Interstate Highway program (e.g. Adkins (1959); Mohring (1961)). The technique of hedonic price analysis was later formalized by Rosen (1974), and there have since been several studies of the impact of highways on house prices. Huang (1994) reviewed the literature on hedonic price studies of the influence of highway access on house prices. He concludes that the early studies, from the 1950s and 1960s, usually showed large land price increases near major highway projects. The later studies, from the 1970s and (less often) the 1980s, typically showed smaller and often statistically insignificant land price effects from highway projects. Giuliano (1989), in reviewing the literature on the effect of transportation infrastructure on urban development, comes to the same conclusion – namely that later studies show a smaller impact of highway access on home values. Both Giuliano (1989) and Huang (1994) argue that, as the highway system was developed in many urban areas, the value of access to any particular highway was reduced because accessibility is now generally good throughout the network in most United States cities. Huang also notes that, for residential properties, noise and other disamenities will reduce the value of locating close to a highway. Langley (1976, 1981), in a study of homes near the Washington Beltway, concluded that house prices increase with distance from the highway out to a distance of 1,125 feet, and then decrease with distance beyond 1,125 feet. Langley interprets this as evidence that the disamenities of highways dominate the value of access for distances of less than 1,125 feet.

The literature on highways and house prices echoes the broader literature on highways and urban growth. Giuliano (1989, 1995), in reviewing both literatures, concluded that the influence of transportation on urban development patterns is growing less important. Yet most of the evidence that led Giuliano to that conclusion is based on data that are aggregated to broad geographic distinctions such as central cities and suburban rings. A more recent hedonic price study, by Voith (1993), found that highway

access (measured by travel time by highway to the downtown) influenced house prices in the Philadelphia area, and that the magnitude of that effect increased during the 1980s. Overall, the literature on house prices and highway access, like the literature on highways and urban development, has often used data that are aggregated to a geographic scale that can obscure fine-grained links between highways and growth patterns. Thus, the link between highways and metropolitan growth, and any ensuing link to induced travel, remains incompletely understood.

D. Population-employment growth model

Population and employment growth models have a long history in regional science and urban economics (Steinnes and Fisher, 1974; Bradford and Kelejian, 1973; Mills and Price, 1984; Carlino and Mills 1987). More recently, the two equation population and employment growth model has been reformulated in an explicitly spatial econometric framework (Boarnet, 1994). The motivation for the spatial treatment is that, within urban areas, the link between population and employment growth extends beyond geographic boundaries. Population changes in a geographic unit depend not only on employment changes within the same jurisdiction, but also on employment changes in a labor market area that typically extends beyond that jurisdiction. Similarly, employment changes depend on population changes in surrounding labor markets. This leads to a spatial structure in the econometric model, and the problem of spatial dependence across observations is more severe for a smaller observations of the sort that are inherent in intra-metropolitan as opposed to inter-metropolitan models.

Boarnet (1994) applied spatial econometrics to a Carlino and Mills (1987) lagged adjustment model of population and employment growth to handle this problem of spatial dependence across observations. The theoretical rationale was that interactions across observations (New Jersey municipalities in the case of Boarnet's 1994 study) are mediated by a commuting relationship. Thus, the link between population and employment is best modeled as a dependence within labor-market areas or commutersheds which, given the small size of New Jersey municipalities, almost certainly were larger than any one municipal observation.

Since then, the model in Boarnet (1994) has been adapted by other authors to study problems that include the employment impacts of urban rail transit (Bollinger and Ihlanfeldt, 1997), the link between urban and rural development (Henry, Barkley, and Bao, 1998), and the influence of highway location on urban growth (Boarnet, 1996). This research is yet another effort to apply the growth model to illuminate another ongoing policy debate – in this case, the chicken and egg problem of highway construction and and urban development. The model is applied to the fast-growing south Orange County, before and after it received a major highway investment in the last decade.

III. Research Strategy

A. House Sales Price Analysis

If the toll roads changed that pattern of accessibility in Orange County, that should be capitalized into house prices. We have data on every home sale in Orange County from 1988 through the early part of 2000. Because these data span a period that ranges from the early planning stages of the toll roads through the opening of most of the network, we expect to see house prices decrease with distance from the toll road in the later years of our data set, but not in the earlier years.

The toll roads are built and operated by the Transportation Corridor Agencies (TCAs), a special purpose government agency formed in 1986 with the sole purpose of building the roads. Portions of the toll road network exist in County planning documents that date to the 1970s. Yet it was not until the TCAs developed a plan to raise money primarily through tolls, first proposed in 1988, that the prospect of the roads became a serious possibility. Even then, construction started on a small, 7.3-mile portion, in 1990, and the rest of the network was built in stages beginning in 1993. The first part of the toll roads, the Foothill Corridor Backbone, was opened in 1993; the San Joaquin Hills Transportation Corridor opened in 1996, and later portions of the Foothill and Eastern Transportation corridors opened in 1999. Figure 1 shows the toll road network. Figure 1 also shows population density (as of 1990) for census block groups in Orange County, so that the toll road and highway networks can be viewed alongside existing development patterns. Table 1 lists each segment with the date that construction started and the date the construction was completed.

Even with some foresight on the part of home buyers, we expect that the market assessment of the likelihood that the roads would be built will rise over the early years of our data, implying that the full value of the toll roads would not be capitalized into house prices in 1988. For example, the San Joaquin Hills corridor was the subject of litigation until 1993. In all, the TCAs have opened fifty-one new centerline miles of toll highway in Orange County. Of those toll roads, the two segments the opened the earliest – the Foothill Corridor Backbone and the San Joaquin Hills Corridor – are the focus of this study, as they were built and opened in essentially the middle of the span of our data, providing a good comparison of accessibility values before and after the segments opened. For those roads, we expect to see no effect of distance to the toll road before some threshold year, but declining house prices with increasing distance from the road after the threshold.[4] Threshold years are chosen to reflect when the housing market most likely viewed the road as being likely to be built. Different threshold years were tested, as is discussed below.

[4] Based on Langley's results (1976, 1981) we exclude homes that are within a 1,125 of the toll road, to avoid confounding the value of access with noise and other disamenities that are experienced close to highways.

B. Population and Employment Growth Model

The second part of the empirical study in this report involves the use of a two-equation population and employment growth regression model to examine the link between highway access and urban growth in south Orange County. The model is briefly reviewed here. (See Boarnet, 1994 for a detailed description.)

The model follows a long tradition of intraurban population and employment location models (e.g. Bradford and Kelejian, 1973; Carlino and Mills, 1987; Mills and Price, 1984; Steinnes and Fisher, 1974). The observations, in the case of the Orange County research are census tracts in the county. The dependent variables are the change in population and employment in each tract.

The independent variables can be grouped into three classes - variables that measure transportation access, variables that measure non-transportation local amenities, and variables that represent the simultaneity between population and employment growth within an urban area. This latter point warrants some further discussion. Population changes within a census tract depend, in part, on employment changes in a surrounding labor market area. Employment changes within a census tract similarly depend on population changes within a surrounding labor market area. Those labor market areas are likely to be larger than census tracts, so that the simultaneity between tract population and employment links tract variables to variables measured over a larger area. The labor market variables are formed by taking weighted sums of values from surrounding census tracts. The formal implementation benefits from the ideas of spatial econometrics pioneered in, e.g., the work of Anselin (1980, 1988).

The motivation for the census tract population and employment growth model has its roots in bid rent theory, as developed, for example, in the well known urban location models of Alonso (1964), Mills (1972), and Muth (1969). For an excellent description, see Fujita (1989). Bid-rent models theorize that persons and firms will choose locations within urban areas based in part on the transportation access and other amenities found at those locations. Population and employment changes are inherently disequilibrium phenomena, as the equilibrium condition in bid-rent models is that persons and firms cannot improve their position by moving. Following Carlino and Mills (1987), the model census tract population and employment growth model links the disequilibrium phenomenon of differential census tract growth to equilibrium bid-rent theory through a lagged adjustment model. The lagged adjustment model assumes that census tracts adjust to equilibrium population and employment levels slowly, and that changes in tract population and employment are adjustments toward equilibrium. See Boarnet (1994) for a full discussion of the development of the model.

The model explains tract population and employment growth as a function of various tract characteristics, including socioeconomic and demographic variables and local amenities. In this research, a major extension from an earlier Orange County case study (Boarnet, 1999) is the inclusion of highway and toll road dummy variables in the transportation access class, which enter both population and employment growth

equations as independent variables in the simultaneous system of equations. The "before/after" test of the impact of toll roads can be constructed by fitting this population and employment growth model on data from two time periods, before and after the opening of the toll roads. The "before" period is defined as the decade from 1980 to 1990, before the toll roads were open and before virtually all of the construction for those toll road began. The "after" period is the years from 1990 to 1997, which saw the development and opening of much of the toll road network. For the "before" period, the toll road dummy variable will measure access to a "phantom" road – a line on a map that represents where each toll road will be built. If the toll roads were built strictly to serve future growth, the toll road dummy variable should behave much the same way in the model in both "before" and "after" period. If, on the other hand, the toll roads alter urban growth patterns, the impact of the toll road should be reflected by changes in toll road dummy variables across the two time periods.

IV. House Sales Price Analysis

A. Data

Dataquick, Inc. provided information about physical characteristics of houses, such as dwelling size, lot size, number of bedrooms, number of bathrooms, and street address, and information on house sales, such as year of sale, price, and loan amount. Geographic Data Technology, Inc. and the California Department of Transportation provided GIS maps of Orange County's street network, which include the center lines of freeways, toll roads, and local roads, as well as the entrance and exit ramps of all grade-separated highways. Two major neighborhood characteristics are used in this study, namely crime rate and school quality. School quality was proxied by average SAT score. Crime rates were calculated based on data from California Department of Justice's Justice Statistics Center (1999) and the California State Department of Finance Demographic Research Unit (1999). SAT scores for Orange County were obtained from the Los Angeles Times (1999).

There are 367,841 records of single-family detached dwelling unit sales in Orange County from 1988 to the first quarter of 2000. We used Arcview-GIS to geocode the home addresses based on the street network map mentioned earlier, and selected only those that were perfectly matched, i.e. the street number is found on a street segment with the exact same name as in the address, and the house is matched to the correct block, side of street, and approximate location within the block. We tested several address matches by comparing the GIS match to published street maps to develop the methods and criteria for an exact GIS address match. See Table 2 for the distribution by year of the number of house transactions and those that were geocoded with a perfect address match. We also used Arcview-GIS to link the locational characteristics to each house. A school district and police department jurisdiction is assigned to each house by joining the house location from the address match to the both the school district and police department jurisdiction base maps. Then, an SAT score and crime rate were assigned to each house transaction based on the year of sale and the school district or police department jurisdiction associated with the house's location.

After the GIS processing of raw data, the data set was filtered for missing data, apparent data entry errors, and non-arms length transactions. We dropped all observations with missing key variables, such as size, lot size, and number of bedrooms and bathrooms. We also dropped observations with inconsistent data, such as a four-bedroom house with floor area less than 500 square feet or houses with more than 10,000 square feet and fewer than 4 bedrooms. As for non-arms length transactions, we dropped all observations with sales price less than $25,000 and observations with loan amounts greater than 125% of the sale price. See Table 2 for the distribution of number of observations by year after the inappropriate data were filtered out. After address matching and filtering inappropriate data, we were left with 275,185 sales in Orange County from 1988 to the first quarter of 2000.

B. Hedonic Price Regressions

We analyzed access to toll roads using a hedonic price analysis for corridors surrounding the two oldest segments of the toll road network – the Foothill Transportation Corridor Backbone (FTCBB) and the San Joaquin Hills Transportation Corridor (SJHTC).[5] The regression specification is shown below.

$$P = \alpha_0 + \alpha_1 SQFT + \alpha_2 Bedroom + \alpha_3 Bath + \alpha_4 Lotsize + \alpha_5 Age + \alpha_6 SATscore + \alpha_7 CrimeRate + a_8 DtrBefore + \alpha_9 DtrAfter \sum_{i=1}^{12} \beta_i YEAR_i + \varepsilon \quad (1)$$

Where P = home sales price
SQFT = size of dwelling, in square feet
Bedroom = number of bedrooms
Bath = number of bathrooms
Lotsize = size of lot, in square feet
Age = number of years since residence was constructed
SATscore = average SAT scores for the school district that contains the home
CrimeRate = total violent and property crimes per 1,000 residents in the municipality where home is located
$YEAR_i$ = Dummy variable for year of sale, ranging from 1988 (index "i" = 1) to 1999 (index "i" = 12); 2000 is the omitted year

We measured the effect of distance from the toll road with two variables, *DtrBefore* and *DtrAfter*. Both variables measure the straight-line distance from each house to the nearest toll road on-ramp.[6] *DtrBefore* measures distance to the nearest toll road on-ramp before a threshold year that was chosen to mark when the toll roads became a serious possibility. *DtrAfter* measures distance to the nearest toll road on-ramp in all years during and after the threshold year. Thus, *DtrBefore* and *DtrAfter* are defined as shown below.

DtrBefore = Dtr*(1 – ThresholdDummy)
DtrAfter = Dtr*ThresholdDummy
Where Dtr = straight-line distance from each house to the nearest toll road on-ramp

[5] The corridors now carry the names of routes of the state highway network. The San Joaquin Hills corridor is the southern extension of State Highway 73, the Foothill corridor is State Highway 241, and the Eastern corridor is a combination of an extension of State Highway 133 and portions of State Highways 241 and 261. To avoid confusion with pre-existing portions of the state highway network, we refer to the corridors by name rather than number, and so will use FTCBB and SJHTC to refer to those two corridors, respectively.

[6] Visual examination of GIS maps confirmed that straight-line distance is strongly correlated with street network distance. This is due in part to the relatively dense network of surface streets in the corridors that we studied. Because we are testing the hypothesis that distance from the toll road is reflected in house values, a good proxy for driving distance will suffice if the hypothesis test is accepted. For that reason, and due to the additional computational difficulty of calculating road network distance, straight-line distance was used for this analysis.

ThresholdDummy = 0 for all home sales that occur before the threshold year; 1 for sales in the threshold year and in subsequent years.

Threshold years are defined both on an *a priori* basis and by analyzing which definitions of threshold years yielded regressions with a maximum log-likelihood value.

The variables in the hedonic regression include structure-specific characteristics (*SQFT*, *Bedroom*, *Bath*, *Lotsize*, and *Age*), neighborhood characteristics (*SATscore*, *CrimeRate*), year dummy variables to control for the real estate cycle, and the toll road distance variables that are the focus of this analysis. The structure-specific and neighborhood characteristics are similar to those used in other hedonic studies (e.g. Dipasquale and Wheaton (1996); Haurin and Brasington (1996); Li and Brown (1980)). The structure-specific variables include all variables in the Dataquick data set that were reported with a frequency and reliability that allowed them to be used in this study.[7] The neighborhood variables, *SATscore* and *CrimeRate*, were included to control for two local characteristics that can affect house prices. Homes were address matched to school districts and municipalities, and then the *SATscore* and *CrimeRate* data for the appropriate year was matched to each sale.

We analyzed sales prices in corridors around the FTCBB and SJHTC both to isolate property markets that were internally homogenous and to focus on areas that would be most likely to experience improvements in accessibility from the toll roads. Initial analyses on the full Orange County data set suggested that the hedonics for different sub-markets behave differently. For example, the price of properties within several miles of the coast is strongly affected by distance from the coast. Also, the markets in the northern and southern half of the county behave differently both in relation to the time-series properties and in relation to specific hedonic characteristics. Lastly, we expected accessibility from the toll road to be reflected primarily in prices of homes along the toll road corridors.

The corridor around the FTCBB was chosen to include all homes that were closer to a FTCBB on-ramp than to any other toll road or highway on-ramp. There were only 123 home sales within 1,125 feet of the FTCBB, out of 29,197 sales in the FTCBB corridor, and so whereas for other corridors we explicitly excluded homes with 1,125 feet of an on-ramp we did not exclude those few homes for the FTCBB. Unlike other corridors, we did not impose a maximum distance cutoff for the FTCBB. The FTCBB corridor is somewhat more isolated from the rest of the highway network. Of the sales within the FTCBB corridor, approximately 95% of were within three miles of an on-ramp. The corridor for the SJHTC included all homes more than 1,125 feet from a SJHTC on-ramp and less than two miles from a SJHTC on-ramp. The two mile limit was imposed to isolate areas near the SJHTC and to avoid places that might be close enough to the parallel Interstate 5 that improvements on that highway would confound the

[7] For example, the variables that denote swimming pools, view properties, and garages were missing in well over half of the observations.

analysis.[8] Also, homes that were closer to an on-ramp on Interstate 5 than to a SJHTC on-ramp were excluded from the analysis, to reduce the potentially confounding influence of the parallel Interstate 5 corridor.

C. Structural Tests

The literature on hedonic price analyses includes both linear and log-linear specifications. Huang (1994) concludes that there is no single dominant hedonic price specification, and we followed common practice by using a Box-Cox test to examine the relative performance of linear and log-linear specifications of the regression in Equation (1). In the log-linear specification, the log of all variables was used in the regression. Because the year dummy variables take on a value of zero, the Box-Cox regressions were run separately for each year. Homes with *Age* equal to zero were dropped from the log-linear specifications and thus from the Box-Cox tests.

To compare the performance of linear and log-linear specifications, we normalized the original data by their geometric means. Pindyck and Rubinfeld (1991) showed that MLE and OLS yield the same results with normalized data. The OLS results of the normalized data for linear and log linear forms can therefore be compared directly, and the best-fitting model with the highest adjusted R^2 is chosen as the preferred specification. For the FTCBB, the linear specification is preferred in all years other than 1989. For the SJHTC, the linear specification is preferred in seven of thirteen years – 1991 through 1996 and 1998. Based on these results, we used linear specifications for both the FTCBB and the SJHTC. Because the log-linear specification requires excluding new homes (which have *Age* equal to zero) – and because new homes are approximately one-fifth of all sales in the SJHTC corridor – we felt that the linear specification should be preferred even in the case of the SJHTC, for which the Box-Cox test gave more ambiguous results about the appropriate specification.

We first chose threshold years to reflect the time when the housing market was most likely to view the completion of the two segments of toll road as a certainty. The results are shown in Table 3. For the FTCBB, we chose two thresholds – one year before construction began (1989) and the year construction began (1990). The SJHTC was the subject of litigation until early 1993, and so we chose 1993 as the threshold for that corridor.

D. Regression Results and Discussion

Looking first at the structure-specific variables variables, Table 3 shows that larger homes sold for a higher price, homes with more bedrooms sold for less in both the FTCBB and SJHTC corridors, more bathrooms increased sales price, older homes sold

[8] The Interstate 5 corridor parallel to the SJHTC was improved substantially in the mid-1990s, and thus we wish to attempt to isolate areas where the effect of the SJHTC is likely to dominate the effect of improved accessibility on Interstate 5.

for less near the FTCBB and for more near the SJHTC.[9] Homes in school districts with higher SAT scores sold for more in the SJHTC corridor but for less near the FTCBB. Higher crime rates had no significant impact on sales prices near the FTCBB but were associated with higher sales prices near the SJHTC. Both the SJHTC and the FTCBB corridors are in low-crime, upper income areas with good schools. The "wrong signs" on the *SATscore* and *CrimeRate* variables likely reflect the small variation in those variables in the corridors that we examined and the fact that variations in those variables are correlated with other, unmeasured aspects of geographic desirability. Lastly, distance from the coast (in feet) was included for homes in the SJHTC corridor, and as expected the effect is negative – homes sold for more than $60,000 less with each mile from the coast.

The year dummy variables show the time pattern of home prices in southern California. Home prices appreciate rapidly in the late 1980s, lost value in the recession years of the early 1990s, and began to appreciate again in 1995 for the FTCBB corridor and 1997 for the SJHTC corridor.

The distance variables show the expected pattern – a negative gradient appears after the threshold year for both the FTCBB and the SJHTC. Specifically, the coefficients on *DtrBefore* are insignificant and the coefficients on *DtrAfter* are significantly negative in all three regressions. After the threshold year, home prices decrease, *ceteris paribus*, by approximately $1.30 per foot (almost $7,000 per mile) from the FTCBB, and by approximately $4.50 per foot (or almost $24,000 per mile) from the SJHTC.

E. Selection of Threshold Year

While the results in Table 3 suggest that the toll roads created an accessibility premium, and by inference could have contributed to changing development patterns, we prefer to also analyze different threshold years. We defined threshold years for both the FTCBB and SJHTC that ranged from 1989 to 1998. This allows us to examine every possible threshold year without choosing the endpoints of our data.[10] We ran the regression in equation (1), allowing the threshold year to take on values from 1989 through 1998, and then chose the threshold year that yielded the largest log-likelihood

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[9] The negative coefficient on *Bedroom* is indicative of a higher-priced, luxury home market, with larger homes that have relatively few bedrooms. Local real estate experts and persons familiar with the Dataquick data agreed that house prices in south Orange County are more influenced by dwelling size than by the number of bedrooms, and that the negative coefficient on *Bedroom* was not surprising. The positive effect of *Age* near the SJHTC was likely due to the generally young age of homes in the area. For example, real estate experts suggested that new homes, when sold in a resale market, often show price increases due to improvements such as landscaping that are not reflected in the price of the new home.

[10] Choosing endpoint years would create a considerably unbalanced test, as the number of observations in the endpoint year would be substantially smaller than the number of observations in all other years, creating some concern that statistical results could be driven by those differences in the number of observations. Also note that, given the span of the data, it is unlikely that the effect of the toll roads would be first felt at either endpoint year. Lastly, note that given that the data for 2000 include only the first couple of months, we regard 1999 as the endpoint year for the data for purposes of this analysis.

value. This allows the data to suggest which threshold year gives the best explanatory power. Log-likelihood values for threshold years for the corridors are shown in Table 4.

The log-likelihood surface is quite flat, suggesting that the choice of threshold year has little impact on the overall explanatory power of the hedonic regression. Of course, the choice of threshold year can matter somewhat more for hypothesis tests on the *DtrBefore* and *DtrAfter* variables, and so it is reassuring that the maximum likelihood technique gives results that are generally consistent with the results in Table 3.

For the FTCBB, the maximum log-likelihood value is attained when the threshold year is 1993. Table 5 shows the coefficients and t-statistics for the *DtrBefore* and *DtrAfter* variables for each threshold year, so that one can see how the hypothesis tests are affected by the choice of threshold year. For a threshold year of 1993, the coefficient on *DtrBefore* is insignificant and the coefficient on *DtrAfter* is significantly negative – consistent with the FTCBB creating a negative house price gradient with distance from the toll road. Note that the magnitude of the accessibility affect is larger for a threshold year of 1993 than for threshold years of 1989 or 1990. Also note that, from Table 5, the hypothesis of an insignificant *DtrBefore* coefficient and a negative *DtrAfter* coefficient is confirmed for any threshold year on or before 1993. Construction on the FTCBB began in 1990, and the first segment of that portion of toll road opened in 1993, so the significantly negative coefficient on *DtrBefore* for later threshold years likely reflects that the accessibility of the FTCBB is captured in both the *DtrBefore* and *DtrAfter* variables for years after 1993. Overall, the results in Table 5 strongly support the hypothesis that the FTCBB created an accessibility premium that previously did not exist in that corridor.

For the SJHTC, the results in Table 4 show that 1997 is the threshold year that maximizes the regression log-likelihood value. The SJHTC opened in November of 1996. Looking at the results in Table 5, the coefficients on *DtrBefore* and *DtrAfter* are the opposite of our hypothesis for a 1997 threshold – *DtrBefore* is significantly negative in that year and *DtrAfter* is not significant. Looking at how the coefficients and hypothesis tests vary with different threshold years, the coefficient on *DtrBefore* is generally insignificant for thresholds before 1994, while *DtrAfter* is generally significantly negative. The exception is a significantly negative *DtrBefore* for a 1990 threshold. For 1994 and later threshold years, the pattern is reversed, with *DtrBefore* being significantly negative while *DtrAfter* is not significant. We believe these results reflect, at least in part, the effect of substantial improvements that were completed in the nearby Interstate 5 corridor in the mid-1990s.

The interchange between Interstates 5 and 405 – a major peak hour traffic bottleneck in this region – was substantially improved and capacity in the interchange was increased during the mid-1990s. The Interstate 5 corridor is an alternative commute route for many residents in the SJHTC corridor. To the north and east of the SJHTC corridor, homes further from the SJHTC are closer to Interstate 5. Thus one explanation for the insignificant coefficient on *DtrAfter* for later threshold years is that the expected negative price gradient with distance from the SJHTC is confounded with the negative price gradient, in the opposite direction, from the improved Interstate 5 corridor. Overall,

the approximately contemporaneous improvements in the parallel Interstate 5 corridor make it more difficult to isolate an accessibility premium associated with the SJHTC than with the FTCBB. Also, the improvements in the Interstate 5 corridor suggest that earlier threshold years, before the Interstate 5 improvements were completed, might better isolate the premium from the SJHTC. Lastly, if home buyers anticipated the completion of the SJHTC, a threshold as late as 1997 could include some portion of the accessibility premium in the *DtrBefore* coefficient. For all these reasons, we believe earlier threshold years give more reliable information on the effect of the SJHTC, and for threshold years before 1994 the results are generally consistent with what was found for the FTCBB.

F. State Route 22: The Controlled Corridor

Lastly, to verify our method, we use our technique to examine a corridor that had no substantial capacity improvements during this time period. We chose the State Route (SR) 22 corridor in northern Orange County. According to Caltrans, the SR-22 had no important increases in capacity during the study period. We ran the regression in equation (1) on sales farther than 1,125 feet from the SR-22, but less than two miles from SR-22, defining *DtrBefore* and *DtrAfter* based on threshold years as was done for the FTCBB and SJHTC. Of course the threshold years do not reflect real changes in capacity, and so we expect there to be no meaningful difference in the coefficients on *DtrBefore* and *DtrAfter*. We examined the SR-22 to verify that the "before and after" test does not generate differences in price gradients for corridors where no difference should exist.

In Table 3, we chose 1993 as a threshold year for the SR-22, as that year is approximately in the middle of the data. The coefficients on *DtrBefore* and *DtrAfter* are both insignificant, implying no difference in the effect of distance from the highway before and after the admittedly arbitrarily chosen threshold year. In Table 5, we show the coefficients and t-statistics for *DtrBefore* and *DtrAfter* for threshold years that range from 1989 through 1998. The coefficients on both distance variables are insignificant for all threshold years, providing robust evidence that the "before and after" test gives no evidence of a change in price gradient for an unimproved corridor. This provides some reassurance that the changes in price gradient for the FTCBB and the SJHTC are associated with the construction of those toll road segments, and not with any statistical artifact of the analytical technique.

G. Multiple Sales Price Analysis

An alternative method of analyzing house price changes is to develop indices based on multiple sales of the same property (e.g. Bailey, Muth, and Nourse (1963); Case, Pollakowski, and Wachter (1991)). The advantage of this technique is that it controls for any time-invariant characteristics of the property or location, including characteristics that cannot be measured in the data set. When applied to an event study such as the construction of the toll roads, it is typical to develop multiple sales price indices for two areas – an area near the toll road (a treatment group, borrowing terminology from standard research design literatures) and an area more distant from the

toll road (a control group). For an example of this technique applied to the Miami rail transit system, see Gatzlaff and Smith (1993).

The treatment and control groups must be chosen by the researcher, and should be as similar as possible for all characteristics other than the event being examined. For our purposes, this implies choosing areas near the toll road corridor and more distant from the corridor that are otherwise similar. Choosing areas near and very distant from the toll road, while that clearly creates a stark difference in toll road accessibility across the two groups, also risks comparing areas that are not otherwise similar. In particular, the toll road corridors generally run through middle and upper income areas in the rapidly growing suburban fringe of south Orange County. Past research has demonstrated that prices indices in different locales appreciate differently, in ways that appear to be linked to characteristics of the neighborhood (Case and Mayer (1996); Case and Shiller (1994); Mayer (1993); Smith and Tesarek (1991)). For example, preliminary analysis of our data suggested that south Orange County emerged earlier and more strongly from the depressed real estate market of the early and mid-1990s. For those and other reasons, we chose control and treatment groups that are relatively close to each other, so that the two groups would likely differ only in access to the toll roads.

For both the FTCBB and the SJHTC, the treatment group is homes between 1,125 feet and one mile from the nearest toll road on-ramp. The control group is homes between two and three miles from the nearest toll road on-ramp. More dramatic variation in distance from the toll road, and thus toll road access, would have allowed a more stark comparison, but given the development patterns in Orange County we felt that choosing homes further than three miles from the toll road risked comparing control and treatment groups that were not sufficiently similar.

For both the FTCBB and SJHTC, we developed multiple sales price indices for homes in the nearby (1,125 feet to one mile) and more distant (two to three miles) corridors. Given that the FTCBB and SJHTC were constructed and opened during the span of our data, we expect nearby homes to get a larger accessibility premium and thus appreciate faster than homes in the more distant corridor.

Following Gatzlaff and Smith (*33*), the regression for developing the sales price index is shown below.

$$\ln(P2_i/P1_i) = \beta_1(Y88_i) + \beta_2(Y89_i) + \ldots + \beta_3(Y00_i) + \epsilon \qquad (2)$$

where P1 = first sale for the same property
P2 = second sale for the same property
Y88 = dummy variable equal to –1 if first sales was in 1988,
1 if second sale was in 1988,
0 otherwise
dummy variables for Y89 through Y00 correspond to the years 1989 through 2000, and are defined similarly to Y88
ϵ = regression error term

Sales price indices for the nearby (1,125 feet to one mile) and more distant (two to three miles) corridors around the FTCBB are shown in Table 6. The indices for the FTCBB are graphed in Figure 2. Note that the nearby index appreciates more rapidly during the last few years of our study period. This is consistent with the toll road creating an accessibility premium that caused nearby houses to appreciate more rapidly during the study period.

The price indices in Table 6 are derived from the regression coefficients, shown in Appendix 1. Because the coefficients are point estimates, the price indices and similarly the change in price indices for the nearby and more distant corridors are also estimated from the data. We examined whether the change in the regression coefficients from 1988 through 2000 was significantly different across the two corridors. In Table 7, we show the change in the regression coefficient from 1988 to 2000 (the coefficient on the 2000 dummy variable minus the coefficient on the 1988 dummy variable) and the standard error of that change. We also show the 90 percent and 95 percent confidence intervals for the change in coefficients from 1988 to 2000 for both the nearby and the more distant corridors. Note that the 90% confidence intervals for the change in year coefficients do not overlap, implying that the changes in the year coefficients, and hence house price appreciation, is significantly different for the nearby and more distant FTCBB corridors at the 90 percent confidence level.

Also in Table 6, we show the price indices for the nearby (1,125 feet to one mile) and more distant (two to three miles) corridors around the SJHTC toll road. A graph of those price indices is shown in Figure 3, and the coefficients from the estimating equation for the nearby and more distant SJHTC corridors are shown in Appendix 2. Note from Table 6 and Figure 3 that the index for the nearby corridor is higher than the index for the more distant corridor until 1996. In 1996 and later years, the more distant corridor has a higher price index. In Table 7, we show the change in the regression coefficient from 1988 to 2000 for both the nearby and more distant corridors, the standard error of that change, and the 90 and 95 percent confidence intervals for the change in year coefficients over the study period. The 90 percent confidence intervals for the nearby and more distant corridors for the SJHTC overlap, implying that there is no statistically significant difference in appreciation of homes across the nearby (1,125 feet to one mile) and more distant (two to three miles) corridors around the SJHTC from 1988 to 2000.

Overall, the results from the multiple sales price method show evidence that the FTCBB positively influenced the appreciation of nearby homes, but give no similar evidence for an effect of the SJHTC on home price appreciation. It is important to note that the multiple sales price method is especially limited when applied to the SJHTC corridor. The multiple sales price technique requires that the two corridors (nearby and more distant) be identical on all characteristics other than access to the toll road. For the SJHTC that assumption is problematic. The SJHTC is approximately four to five miles from the Coast, such that homes south of the SJHTC are almost certainly influenced by the desirability of Coastal locations. Similarly, homes in the "more distant" corridor to

the north of the SJHTC are within a few miles of the I-5 corridor, and could have benefited from the improvements in capacity on that corridor that occurred at roughly the same time that the SJHTC opened. Overall, we find it very difficult to believe that the nearby and more distant corridors around the SJHTC provide a good "controlled experiment" that holds factors other than toll road access constant. In that regard, the FTCBB provides a more clean experiment, and we also prefer to give more weight to the hedonic regressions for both the FTCBB and the SJHTC, since the hedonic analysis allows some ability to control for potentially confounding factors. We conclude that the multiple sales price technique for the SJHTC illustrates the difficulty of finding good "control" and "experimental" corridors around that toll road, and we are persuaded by the evidence from the cross-sectional regressions and the multiple sales price technique for the FTCBB that the toll roads created an accessibility premium that is reflected in home sales prices beginning approximately in the mid-1990s.[11]

[11] As in the cross-sectional regression analysis, we also used the multiple sales price technique to examine price indices in nearby (1,125 feet to one mile) and more distant (two to three mile) corridors around the SR-22. As we expected, the price indices for the nearby and more distant corridor for the SR-22 tracked each other very closely and the change in the year dummy variables for the nearby and more distant corridors were not statistically significantly different from each other. The SR-22 does not have the confounding influences of coastal access and proximity to other parallel and improved corridors, and so the results of the multiple sales price technique applied to the SR-22 suggest that there is no change in accessibility premium associated with that road during the study period, as expected since that corridor had no important capacity improvements from 1988 to 2000.

V. Population and Employment Growth Model

The second component of the empirical study in this report involves the simultaneous population and employment growth regression model that was developed by the principal investigator (Boarnet, 1994 and 1999). The model and the empirical study based upon it have been extended to examine the link between highway access and urban growth in south Orange County by expanding the period of study to cover the period after the toll roads were opened and including highway access variables as explanatory variables for growth. We also improved the performance of the original model by testing various alternative specifications as well as by improving the definitions of the variables. The results of this case study can provide additional evidence to buttress our conclusion about induced travel demand that we have drawn in the previous sections.

We review the original model in the next section. Then, we describe extensions and changes that we made to the model in section B. Data sources are discussed in section C, and econometric results in section D. Finally, we conclude with a discussion of the results in section E.

A. Overview of Population and Employment Growth Model

The derivation of the two-equation population and employment growth model can be found in Boarnet (1994 and 1999). The original system of population and employment growth equations is given by.

$$\Delta \mathbf{POP}_t = \mathbf{X}_{t-1}\beta_1 + \alpha_1(\mathbf{I}+\mathbf{W})\mathbf{EMP}_{t-1} + \frac{\alpha_1}{\lambda_e}(\mathbf{I}+\mathbf{W})\Delta\mathbf{EMP}_t - \lambda_p \mathbf{POP}_{t-1} + \mathbf{u} \tag{3}$$

$$\Delta \mathbf{EMP}_t = \mathbf{Y}_{t-1}\beta_2 + \alpha_2(\mathbf{I}+\mathbf{W})\mathbf{POP}_{t-1} + \frac{\alpha_2}{\lambda_p}(\mathbf{I}+\mathbf{W})\Delta\mathbf{POP}_t - \lambda_e \mathbf{EMP}_{t-1} + \mathbf{v} \tag{4}$$

where
$\Delta\mathbf{POP}_t$ = population growth from time period *t-1* to *t*
$\Delta\mathbf{EMP}_t$ = employment growth from time period *t-1* to *t*
$\mathbf{POP}_t$ = population in time period *t*
$\mathbf{EMP}_t$ = employment in time period *t*
X = a matrix of location characteristics that affect population growth
Y = a matrix of location characteristics that affect employment growth
I = (n x n) identity matrix
W = (n x n) weight matrix
u and v = a vector of i.i.d. normal disturbances

In both equations, the subscripts *i*, referring to a census tract on which a labor market is centered, are suppressed. The matrices **X** and **Y** capture various characteristics of census tracts at the beginning of the period of study. These include variables that may affect population and employment growth, such as demographic characteristics, housing stock, location-specific amenities, etc. In addition, the land use variables, such as amount of residential land, commercial and office, etc., were included to reflect such location characteristics as constraints imposed by local government's zoning regulations. Lastly,

places dummy variables were used to control unobserved characteristics of municipalities and census defined places. Together, these variables determine how persons and firms locate within a metropolitan area. The lists of variables are given in Tables 8 to 10.

The weight matrix **W** reflects the relationship between a census tract on which the labor market is centered and neighboring census tracts, determined to be within the same labor market. The five specifications of **W** are described briefly here. See Boarnet, Chalermpong, and Geho (2002) for more detailed discussion.

(0, 1) neighbor matrix
Element w_{ij} equals one if tracts i and j border each other and zero otherwise.

(0, 1) neighbor matrix (normalized)
Similar to (0, 1) neighbor matrix but the elements are row normalized

(0, 1) distance-based matrix
Element w_{ij} equals one if the distance between the centroid of tracts i and j is less than 10 miles and zero otherwise

Weighted inverse distance-based matrix
Element w_{ij} equals $(d_{ij})^{-\alpha}$, where d_{ij} is the distance between tracts i and j, and α is set equal to 0.67 as was used in Boarnet (1992).

Tract-to-tract flow matrix.
Element w_{ij} equals the commute (journey-to-work) flows between tracts i and j. The tract-to-tract flows data were obtained from the STP154 from the Bureau of Census.

Given the definition of **W**, population (employment) growth can be explained, partly, by the initial level of population (employment) in the labor market, defined by **W**.

B. Specification Issues

Periods of analysis

To examine the growth impact of toll roads, we applied the population and employment growth model reviewed in the previous section to the periods "before" and "after" the toll roads were opened. The years between 1980 and 1990 are the "before" period, and the years from 1990 to 1997 are the "after" period for purposes of fitting the population-employment growth model. Note that there is little reason to suspect that land markets anticipated the construction of the toll roads much before 1990, since the TCAs had no viable funding mechanism until 1988, and the house price analysis in the previous section shows no evidence of the roads producing an accessibility premium that is reflected in house prices until, at the earliest, 1990. In the house price analysis, the evidence for an accessibility premium is not consistent until 1994.

Highway access dummy variables

To explicitly account for the impact of highway accessibility on population and employment growth, we included a dummy variable that reflects the presence of highways as an additional independent variable in the matrices of location characteristics (X and Y) in both equations. More importantly, we also included a similar dummy variable for toll roads. These dummy variables take a value of one if a census tract contains (at least) one centerline of highway (or toll road), and zero otherwise. As mentioned earlier, the toll road dummy variable, which is the key to the empirical test, is included in both "before" and "after" growth model even though the toll roads exist only in the "after" period. The statistical significance of the toll road dummy variable in each period from these estimations reflects the impact of the new highways on development patterns in southern Orange County. If, for example, the coefficient of the toll road dummy variable is statistically and positively significant in both periods, we may interpret this result as evidence that the toll roads were constructed in anticipation of the growth. On the other hand, if the coefficient is not significant in the "before" period, but becomes significant in the "after" period, we may conclude that the toll roads trigger the growth. The empirical results will be discussed more fully in section D.

Land use variables

We used measures of land use as independent variables in the regression, in part to proxy for local attitudes toward development. These variables are based on the 1990 land use classification developed by Aerial Information Systems, Inc. Ideally, the land use variables should reflect the initial development condition of census tracts. Therefore, the 1990 data may not be suitable for the "before" period of study, which began in 1980. However, we used these variables in some of our specifications in the "before" period as the proxy for the land use variables in the desirable year that we lack.

In the original specification, we use the amount of land devoted to certain uses as explanatory variables. For example, an amount of agricultural and vacant land may reflect the potential for development and population and employment growth. A large amount of land occupied by single-family detached housing units may signify residential zoning, and therefore may indicate an openness to further population growth. Reasoning that the *amount* of land devoted to certain activities may not fully capture development potential, we explored another specification of these variables, i.e., the ratio of the amount of land devoted to certain uses relative to the total land area in a given census tract. In this way, a census tract with a large fraction of vacant land may be more likely to experience faster growth. A census with high fraction of commercial or retail land use may have strong agglomeration economies and may therefore experience higher employment growth.

In the other strand of specifications, we omitted the land use variables altogether. This specification is used to test the explanatory power of the land use variables.

Additional explanatory variables

We attempt to explain the impact of agglomeration benefits on employment growth with the proportion of employment by industrial sector in each tract. However, the data on employment at such a disaggregate level is quite limited, and we could only acquire the retail employment data by census tract. Yet, we feel that it is important to include some proxy for agglomeration in the growth equations. Therefore, the ratio of retail employment to total employment in the initial year of each period (1980 in the "before" and 1990 in the "after" periods) was included as an exogenous variable in the employment equation's location characteristics matrix, **Y**.

Alternative definitions of dependent and explanatory variables

We also estimated a version of the model using population and employment densities. Reasoning that the growth relationship may be in the form of density, we hypothesized that the change of population (employment) density in a given tract depends on the initial population (employment) density of the labor market, and so on. However, the results obtained when using this definition of dependent and explanatory variables yielded poor results, prompting us to abandon this specification.

Improving the performance of the model

Following earlier studies (Boarnet, 1994, 1999), we employed several demographic, socioeconomic, and housing variables, to construct the location characteristics matrices, **X** and **Y**. These include proportion Hispanic and Black persons, percentage of housing stock built prior to 1940 and 1960, and several land use variables, defined as total tract area in a given use. We also included dummy variables for census places to control unobserved characteristics within places, such as crime, property tax rates, and school quality. See Tables 8 through 10 for the list of variables. In addition to these variables, we made several changes to the specification of the model to improve its performance. These are discussed below.

In the original specification, we attempt to explain the growth of dependent variables (population and employment) by the level of those variables at the beginning of the study period. This is according to the theoretical model discussed earlier. In this case, the dependent variable is an absolute growth over the period, i.e., population (employment) growth between 1980 and 1990 for the "before" period and 1990 and 1997 for the "after" period. The independent variables are the initial level of the dependent variables for each period, i.e., population (employment) in 1980 for the "before" period and 1990 for the "after" period.

To control for the impact of regional economy, we also examined an alternative definition of dependent variables that we call "growth fraction". Growth fraction is defined as the share of total growth in the county and is therefore a relative measure of growth that isolates the county-wide trend. For example, the population growth fraction is defined as population change in a census tract divided by total population change in the

county over a study period. If the toll road has no impact on population and employment growth, we should not be able to explain the variation of growth fraction by the presence of the toll road.

C. Data

The data that we used to estimate the population-employment growth equations include employment and population, housing stock age, demographic and land use data, as well as the five specifications of weight matrices. The entire analysis is based on 1980 census tracts; for the "after" period (1990 to 1997), the 1990 tract definitions were converted to 1980 tract definitions, to allow consistency in the model specification across time periods. Since we used the same geographic unit of observation, i.e., the 1980 census tract, the weight matrices that reflect spatial relationship between census tracts are the same in both "before" and "after" periods.

We obtained additional data that were used to estimate the population-employment growth equations for both periods from two different sources. First, the Southern California Association of Governments (SCAG) provided employment and population data for 1997 as well as 1980 and 1990 retail employment. Since the data are available by 1990 census tract, similar procedures as those in the original case study were used to convert the data into 1980 census tract for consistency and comparability between the 1980-1990 and 1990-1997 analyses. Second, GDT, Inc. provided GIS maps (similar to the one used in previous sections) for ArcView spatial analysis. The procedure yielded highway and toll road dummy variables. Of the 415 census tracts in Orange County, 162 tracts contain at least one highway centerline and 16 tracts, mostly in the southern part of the County, contain at least one toll road centerline.

D. Regression Results and Discussions

The estimation results of population-employment growth equations are presented in Tables 11 through 26. There are four tables for each specification. The first two tables are a system of population-employment growth equations for the "before" period (1980-1990) and the second two are for the "after" period (1990-1997). In each table, there are five columns, each one for a specification of the neighbor weight matrix, **W**.

Without Land Use Variables Specification

Tables 11 through 14 show the regression results of the specification, in which land use variables were not used. We used the original definition of the variables, i.e., the level of population and employment. Due to the poor performance of this specification (without land use variables), especially in the employment equations, we decided to use land use variables in the rest of our specifications.

Level I Specification

In the regression results reported in Tables 15 through 18, population and employment variables are in levels or absolute changes. This specification is called

"Level I". Land use variables are in the absolute amount of land devoted to certain activities. The major differences are the inclusions of percentage of retail employment, toll road and highway dummy variables. These are the key difference from the original work that will be present in the rest of the specifications. Another difference is the exclusion of residential land use variables (lu1110, lu1120, and lu1140) from the population equation. We reasoned that since the land use data is from 1990 (the last year of the "before" period), the amount of residential land at the end year may not be a good explanatory variable over the ten year period prior to that year.

In general, the performance of this family of specifications is good. Note the substantial improvement over the "without land use" specification in employment equations. In both systems of equations (before and after), land use variables are generally highly significant in all equations. In the 1980's system, the coefficient of 1980 population has the wrong sign, as the lagged adjustment model requires a negative coefficient on that variable for the system to be dynamically stable. The issue of stability in lagged adjustment models has received considerable attention, much of which is beyond the scope of this research. Various studies have found coefficients that do not imply dynamic stability, but the robust results reported in this study for coefficients on the toll road variable provide reason to believe that issues of model specification will not influence the conclusions of this research. For a further discussion of stability in population and employment growth models, see Boarnet, Chalermpong, and Geho (2002).

The coefficient on the toll road dummy variable in the population equation is positively significant at a 95% significance level for all specifications of **W**. This coefficient, however, is negatively significant in the family of employment equations. The coefficients on the highway dummy variable are not statistically significant in both the population and employment equations for any specifications of **W**. Turning to the 1990's system, we found the general pattern of coefficients similar to the 1980's period. An important difference is that the coefficient on the toll road dummy variable switched sign in all employment equations except for the flow matrix specification for **W**. The statistical significance of this variable, however, decreased. On the other hand, the coefficients on the toll road dummy variable are still positive and statistically significant in all specifications of **W**. The significance level of this variable also increased in all population equations.

Level II and Level III Specifications

We report the estimation results of two alternative specifications, closely related to the previous one, in Tables 19 through 26. In the first alternative specification – Level II, reported in Tables 19 through 22, the only difference is that we left out all land use variables but the ones that reflect the amount of developable land – agriculture and vacant land. In the other specification – Level III, reported in Tables 23 through 26, we included commercial and industrial land use variables (lu1210 through lu1340) as a ratio of land devoted to those uses divided by total land in the census tract. The estimation of both of

these specifications, Level II in particular, produced poor fit in the employment equations.

E. Interpretation of the Regression Results

We originally intended to choose a preferred specification from the four different specifications in Tables 11-26. A decision about which specification should be preferred can be based on various regression diagnostics, including the R-squared, the signs of the coefficients on the lagged values of population and employment (which relate to the structure of a lagged adjustment model that forms the basis for equations 3 and 4, as discussed in Boarnet, 1994 and Boarnet, Chalermpong, and Geho, 2002), the performance of the different W matrices, and other diagnostics that can be applied to the regressions. Preliminary analyses suggested that determining a preferred specification would be complicated, and more detailed analysis was beyond the scope of this research. Thus, the interpretations offered here are based on all the regression results.[12]

The coefficients on the toll road variables display a remarkably stable pattern across all four specifications. Hence, a decision about preferred specification is unlikely to affect the interpretation offered here. Summarized briefly, the coefficient on the toll road dummy variable in the population change regression is typically positive and significant in both the "before" (1980-1990) and "after" (1990-1997) time periods. The coefficient on the toll road dummy variable in the employment change equation is typically negative and significant in the "before" (1980-1990) time period, but that same coefficient is typically insignificant in the "after" (1990-1997) time period. The toll road corridors were, *ceteris paribus*, areas of high population growth both before and after the toll roads were built. Yet the corridors were areas of low employment growth before the toll roads were built, while those same corridors showed employment growth that, controlling for other factors, did not differ from the county average after the toll roads were built.

This provides evidence that the toll roads changed the pattern of employment growth in Orange County. Note that the model in equations (3) and (4) is a simultaneous model, such that employment growth is estimated based on, among other things, population growth in a surrounding labor market area. Thus the finding that the toll roads influenced employment growth holds while controlling for the pattern of population growth. The influence of the toll roads on employment growth which can be inferred from the regression results is not simply due to the fact that employment followed population to the growing corridor areas. The influence inferred from the changing sign and significance on the toll road dummy variable in the employment equation can be credited to the toll roads even after controlling for contemporaneous population growth.

Interpreting further, one might conclude that the toll roads were located in areas of pre-existing high population growth, which suggests that the roads were placed where growth would occur in the future. Yet once the roads were built, there is evidence that

[12] In later work, we have examined in more detail various specification issues related to the model in equations (3) and (4). See Boarnet, Chalermpong, and Geho (2002).

the existence of the toll roads exerted an independent effect on employment growth in the census tracts that contained the toll highways. Thus even if, as the regressions suggest, the toll roads were built in areas that were growing rapidly for other reasons, the construction of the roads appears to have altered the growth pattern, and in particular the employment growth pattern, in the toll road corridors.

VI. Conclusion

The empirical analysis of house sale prices provides evidence that the construction of the first two portions of the Orange County toll road network created accessibility premia that are reflected in home sales prices analyses. The evidence is especially strong in that regard for the FTCBB, and the evidence suggests that the accessibility premium for that road shows up with increasingly large magnitudes up until the time that the first portion of the FTCBB opened. This is consistent with what standard urban and land use theory would predict. While the evidence of an accessibility premium is less strong for the SJHTC, we conclude that much of the ambiguity in the statistical results for that corridor is caused by other confounding factors that are correlated with distance from the SJHTC toll road. It is encouraging that the hedonic regressions, which allow some ability to control for confounding influences, give evidence of the appearance of an accessibility premium after the litigation over the SJHTC had concluded.

The population-employment growth regressions provide evidence that the toll roads altered the pattern of employment growth nearby. The toll road corridors were, controlling for other factors, low employment growth areas before the roads were built, while employment growth in the corridors typically did not differ from other areas in the county (again controlling for other factors) after the toll roads were built. Coupled with the evidence from the house price analysis, this is strong support for the hypothesis that the toll roads altered urban growth patterns in Orange County.

The implication for induced travel is that the evidence from Orange County suggests rather strongly that new highways change the geographic pattern of accessibility. Overall, our results are consistent with recent research that has suggested that induced travel is a real phenomenon, and our results are consistent with the hypothesis that changes in development patterns are one cause of induced travel.

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SunPower, MMA Renewable Ventures Dedicate 621-Kilowatt SunPower Solar Electric System at AC Transit

Solar Power Will Save AC Transit $5 Million in Utility Costs

OAKLAND, Calif., Aug. 2 /PRNewswire/ -- AC Transit; SunPower Corp. (Nasdaq: **SPWR**), a Silicon Valley-based manufacturer of high-efficiency solar cells, solar panels and solar systems; and MMA Renewable Ventures, a third-party financer and operator of renewable energy generation facilities and subsidiary of Municipal Mortgage & Equity (NYSE: **MMA**), today dedicated AC Transit's new 621-kilowatt solar electric system. The system, located on AC Transit facilities in Hayward and Oakland, is expected to generate approximately 767,000 kilowatt hours of power each year.

Over the 30-year life of the system, AC Transit expects to save $5 million in utility costs as a result of the clean, renewable solar power that the system will generate. It will offset the production of more than 14.5 million pounds of carbon dioxide emissions -- equivalent to planting 2,000 acres of trees or removing 1,400 cars from California's highways.

"AC Transit is committed to reducing emissions of greenhouse gases and improving the quality of life for the entire region in which we operate," said AC Transit General Manager Rick Fernandez. "While installing a solar system to power our facilities makes a great deal of financial sense, it will also provide more than enough power to offset the 189,000 kilowatt hours per year required to operate AC Transit's hydrogen production facility, and help lower the overall amount of energy we use from conventional sources."

MMA Renewable Ventures will finance and own AC Transit's solar power systems under the SunPower Access(TM) program, which allows SunPower customers to purchase solar-generated electricity from a SunPower financing partner as an alternative to outright purchase of the solar power systems. AC Transit will pay MMA Renewable Ventures for the solar electricity generated over a long-term power purchase agreement. At the end of the term specified under the agreement, AC Transit will have the option to renew the agreement, transfer the equipment to a new site, or purchase the system outright from MMA Renewable Ventures.

"AC Transit selected an innovative financing structure to effectively meet its financial goals and environmental objectives," said Matt Cheney, chief executive officer of MMA Renewable Ventures. "With its forward-thinking approach and commitment to clean energy, AC Transit is demonstrating that solar power is an affordable option for public agencies concerned with reducing carbon emissions."

"AC Transit is an environmental leader that is doing its part to address our ongoing energy challenges," said Howard Wenger, SunPower vice president. "By generating solar power, AC Transit is reducing demand from the utility grid, reducing operating costs, and improving air quality for its community. This energy solution saves money while helping the environment."

A large portion of the installation cost of these solar systems was covered by a $1.9 million incentive from Pacific Gas and Electric Company,

under California's Self Generation Incentive Program. Through this program, PG&E can provide almost $950 million in incentives over the next 10 years to help customers buy their own solar systems. PG&E also recently announced a $3 million greening initiative for the city of Oakland. The Greening of Oakland partnership, which combines and integrates new and already-available initiatives, will leverage PG&E's expertise in clean energy, energy efficiency and economic development for the benefit of residents and businesses in the City of Oakland.

AC Transit's new solar power system is the latest in a number of programs that the agency has initiated to promote a clean environment. Since 2000, the agency has been developing the most comprehensive hydrogen fuel cell demonstration project in the world, featuring zero-emission hybrid-electric, hydrogen fuel cell buses; a fleet of fuel cell passenger vehicles; on-site hydrogen production and fueling; on-site fleet maintenance; ongoing, outside evaluation; and public education and safety training. Installed exhaust after-treatment traps on AC Transit's fleet have cut particulate pollution and the agency uses ultra-low sulfur fuel, which results in a 76 percent average reduction in hydrocarbon emissions while averaging a 29 percent reduction of carbon monoxide and particulate matter emissions. AC Transit is the only transit agency that belongs to the California Climate Action Registry, created in 2001 by the State as a way for each industry to monitor its own greenhouse gas emissions.

About AC Transit

AC Transit is one of the largest transit agencies in California, serving over 64 million passengers a year throughout a 360-square-mile region. For nearly 45 years, AC Transit has been recognized as a national leader in the transit industry. AC Transit has captured the American Public Transportation Associations' "Best of the Best" Roadeo Award for a record six times in eight years. The Environmental and Energy Study Institute (EES) of Washington, D.C. named AC Transit a "National Clean Bus Leader" for its advanced environmental technology initiatives. Additional information about AC Transit's environmental programs is available at **http://www.actransit.org/environment.**

About MMA Renewable Ventures

A wholly-owned subsidiary of Municipal Mortgage & Equity, LLC ("MuniMae," NYSE: MMA), MMA Renewable Ventures finances, owns and operates renewable energy and energy efficiency assets in the United States. The Company provides leases, Power Purchase Agreements (PPAs) and other customized financial solutions to help its customers manage energy costs. MMA Renewable Ventures is dedicated to delivering competitively priced, clean energy and energy savings to customers, strong partnership options for project developers, and exceptional opportunities for institutional investment in the clean energy sector. For more information about MMA Renewable Ventures, visit **http://www.mmarenewableventures.com.**

About SunPower

SunPower Corporation (Nasdaq: **SPWR**) designs, manufactures and delivers high-performance solar electric systems worldwide for residential, commercial and utility-scale power plant customers. SunPower high-efficiency solar cells and solar panels generate up to 50 percent more power than conventional solar technologies and have a uniquely attractive, all-black appearance. With headquarters in San Jose, Calif., SunPower has offices in North America, Europe and Asia. For more information, visit **http://www.sunpowercorp.com.** SunPower is a majority-owned subsidiary of Cypress Semiconductor Corp. (NYSE: **CY**).

Forward Looking Statement

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation reform Act of 1995. Forward-looking statements are statements that do not represent historical facts. We use words such as "will," "expect," and similar expressions to identify forward-looking statements. Forward-looking statements in this press release include, but are not limited to, the company's plans and expectations regarding the quantity of power generated by the installed solar energy system, lower conventional energy usage by AC Transit, savings on monthly electric bills, and offset production of carbon dioxide. Such statements are based on our current expectations as of the date of this press release, which could change or not materialize as expected. Our actual results may differ materially due to a variety of uncertainties and risk factors described in our Annual Report on Form 10-K for the year ended December 31, 2006, our Quarterly Report on Form 10-Q for the quarter ended April 1, 2007, and other filings with the Securities and Exchange Commission. You should also carefully review the reports that we file with the Securities and Exchange Commission, including without limitation such Form 10-K and Form 10-Q. Except as required by law, we assume no obligation to update any such forward-looking statements.

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Exhibit S

Chapter 1

JOBS-HOUSING BALANCE: EXECUTIVE SUMMARY

INTRODUCTION AND OVERVIEW

The WRCOG-OCCOG Interregional Partnership (IRP) is a voluntary compact between local elected officials representing the Western Riverside Council of Governments (WRCOG) and the Orange County Council of Governments (OCCOG). Other affected governmental agencies and non-governmental organizations also participate in the partnership. The IRP was formed in 2001 to address the imbalance of jobs and housing that has developed between Western Riverside County and Orange County over the last five to ten years.

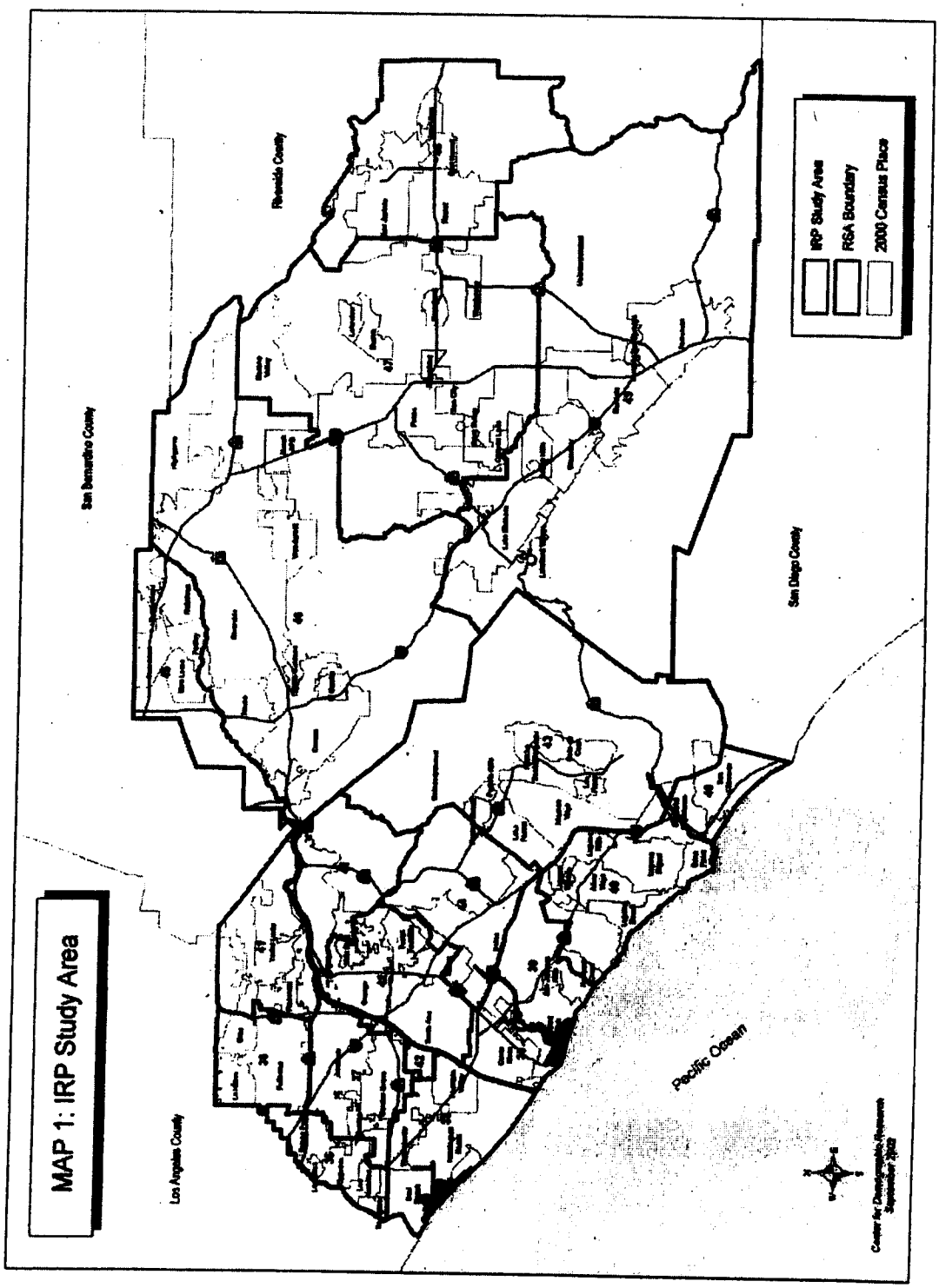
Centered on State Route 91, this two county commute corridor extends from north-central Orange County to the cities of Corona, Riverside and Moreno Valley as shown in Map 1. The jobs-housing imbalance between Orange County and Western Riverside has developed in large part because of an adequate supply of relatively affordable housing has not been built to match the employment growth in Orange County, combined with relatively low cost and plentiful single-family housing development in Western Riverside County. The increasing number of commuters on the SR-91 indicates that this trend has increased in recent years and is a problem that needs attention.

Jobs-housing balance is a condition that results in an adequate supply of housing (and therefore workers) being located within a reasonable commute distance of compatible employment opportunities. The benefits of a jobs-housing balance includes reducing demands on the highway system, improving air quality, and reducing time spent commuting to and from work.

The primary goal of the WRCOG-OCCOG IRP is to foster a more sustainable land use pattern providing appropriate employment closer to where people live and more affordable housing closer to employment in jobs-rich areas throughout the study area. By doing so, workers would have the option of living closer to work, and the need for long distance inter-regional commuting would be reduced. In addition, the WRCOG-OCCOG IRP will develop and promote strategies that mitigate the impacts this jobs-housing imbalance has on congestion along the SR-91 Corridor.

The Partnership has developed a three-year work program that will culminate in a Jobs/Housing Balance Action and Implementation Plan and Evaluation Program. The project is funded through a grant from the California Department of Housing and Community Development as part of the State's Jobs-Housing Balance Grant Program, with matching in-kind services from WRCOG and OCCOG.

PROJECT BACKGROUND AND OVERVIEW



PROJECT BACKGROUND AND OVERVIEW

PURPOSE OF REPORT

This Existing Conditions Report serves three main purposes in the WRCOG-OCCOG IRP: to document existing conditions, document current programs and provide information for future strategy development.

Document Existing Conditions: The Existing Conditions Report is the first milestone in the IRP Work Program. Its purpose is to present information that will be used to identify and evaluate jobs-housing balance issues. Information is presented at a regional, subregional and study area scale. Economic and transportation perspectives have also been included to create a broad context for the project.

Opportunities and constraints to housing production and employment growth are also described. These opportunities and constraints include an examination of land use characteristics and transportation facilities. Maps and tables depict the current land uses and measure transportation demand as well as analyze the existing employment potential, housing demand, new housing production, planned transportation improvements and current transportation performance, and the relationship between housing availability and employment opportunities at various geographic scales. The following areas and chapter descriptions address the documentation of existing conditions:

- **Defining the Interregional Commuting Problem**
  Chapter 2, *Defining Jobs-Housing Balance,* describes the history of the jobs-housing problem between Orange County and Western Riverside County and recent initiatives that have been launched to address the problem. The chapter continues with a list of the benefits associated with achieving a jobs-housing balance and the impacts that result from a continued imbalance.

- **Regional Scale**
  Chapter 3, *A Regional Perspective on Jobs-Housing Balance*, was prepared by Mark Pisano for the ULI-USC Lusk Center Growth Summit. Mr. Pisano notes that in order to achieve regional mobility and air quality goals, SCAG has planned for the implementation of jobs/housing balance strategies in the 2001 Regional Transportation Plan (RTP). One strategy reduced population and employment growth forecasts, which leads to shifts in the location of the population and employment. SCAG reduced the population and household projections for Riverside and San Bernardino counties, reduced employment projections for Los Angeles County, and added population and households to Orange County. These shifts helped to achieve a better regional jobs/housing balance. See Chapter 3, *Regional Perspective on Jobs-Housing Balance* for more details.

- **Subregional Scale**
  Chapter 4, *An Economic Perspective on Jobs-Housing Balance*, prepared by John Husing and Alonzo Pedrin for the Orange County Transportation Authority and the Riverside County Board of Supervisors, looks at the economic interactions between Orange and Riverside Counties, and takes an in-depth look as housing supply and affordability, job creation and workforce employment, and home-work mobility. The report concludes that the "jobs-housing gap that is expected to persist in each respective

County (in absolute terms) indicates the need to facilitate more efficient home-work mobility between both economic subregions." The authors further note in their summary comments that the prospect of producing a sufficient internal supply of critical resources (be it local jobs or resident workers) in Orange and Riverside Counties to sustain vibrant economic growth is not likely without relying on neighboring subregions in the Southern California economy. They suggest that an "opportunity exists to explore mutually beneficial solutions, and forge cooperative relationships, that seek to coordinate resources available to each county in order to sustain economic growth in both Counties."

- **Interregional Commute**
  Long commutes to work are the most obvious symptom of an imbalance of jobs and housing. Chapter 5, *Interregional Commuting*, presents the key findings of the Western Riverside Resident Telephone Survey which was conducted by Godbe Research & Analysis for the WRCOG-OCCOG IRP Project. The Survey was designed to look at commuter behavior and opinions on housing affordability and housing preferences, the first two keys to understanding why people live in Western Riverside County and commute to jobs in Orange and Los Angeles Counties. The survey results paint a convincing portrait that SR-91 commuters' strong preference for a single-family detached home, coupled with the greater availability and affordability of this type of housing in Western Riverside County, has tempted many former Orange County and Los Angeles County residents to move to Western Riverside County and endure the commute to their work place in Orange County or Los Angeles County.

  Despite their high levels of frustration with the commute, the vast majority of SR-91 commuters indicated that they were simply not prepared to make the trade-offs necessary to live near their current employer. They also expressed a high level of satisfaction with living in Riverside County. On the other hand, developing more jobs in Western Riverside County that are comparable to those currently filled by SR-91 commuters is a strategy that the survey suggests could be effective in enticing a substantial number of SR-91 commuters to work locally rather than commute. Seventy-two percent of SR-91 commuters indicated that they would be interested in working locally if they could have a comparable job that paid the same as their current job. If the job involved a 10 percent pay reduction, 38 percent stated that they were still interested. The survey also suggested several short-term opportunities to deal directly with traffic congestion associated with SR-91 commuters.

- **Study Area Perspective**
  Chapter 6, *Population, Housing, and Employment Growth in IRP Study Area*, was prepared by Dr. William Gayk, Center for Demographic Research at Cal State Fullerton, for this WRCOG-OCCOG IRP Existing Conditions Report. Dr. Gayk notes that of the forecasted increase of 415,000 housing units in the IRP study area, two-thirds are projected for Western Riverside County; in actual numbers, for each housing unit added in Orange County, two are projected to be added in Western Riverside County. Additionally, the number of new jobs in Orange County (531,000) will exceed those in Western Riverside County (311,000), despite the higher levels of population and housing growth. Thus, he concludes, that the jobs to housing balance between the two areas will not substantially improve even though the jobs to housing ratio in Western Riverside County will continue to increase.

Document Current Programs to Resolve Issues: A number of current programs address the causes and effects of the existing jobs-housing imbalance. These programs range from activities to attract employment to predominantly residential communities such as Western Riverside County, to housing programs in job-rich areas like Orange County. This report identifies these existing programs in Chapter 7.

Provide Information for Future Strategy Development: The information provided in the Existing Conditions Report will be used to put the issues into context, and to develop the strategies that will address the jobs-housing imbalance between Western Riverside County and Orange County both in the short and the long term.

ISSUES TO BE ADDRESSED BY THE WRCOG-OCCOG IRP

The WRCOG-OCCOG Interregional Partnership will identify issues related to jobs-housing balance, recommend strategies and model approaches to address the issues, and promote adoption of its recommendations into jurisdictional and agency plans and programs. Evaluation will occur ob both policy and technical level. At this point, the following issues have been identified:

Housing Supply and Affordability: To improve the jobs-housing balance between Orange County and Western Riverside additional housing opportunities need to be provided in Orange County. From a geographic perspective, the bulk of future housing planned within Orange County is relatively convenient to new employment centers envisioned. The future housing supply and its affordability, however, will continue to pose a challenge given the type of housing product emphasized (detached) and suburban densities planned. Increasing the supply of housing at prices that reflect the broad cross-section of employment opportunities remains a fundamental challenge.

Overall, Riverside County should not encounter supply constraint problems but can expect diminishing capacity for additional housing in close proximity to Orange and San Diego Counties (gateway markets). Diminished capacity in gateway markets will impact sub-market affordability and increase demand for new housing along the I-15 Corridor, central Riverside County, and planned communities in the greater Prado Basin area of San Bernardino County. Near exclusive emphasis on low-density detached product as the principal form of housing will contribute to increased work-trip congestion outside existing gateway market areas.

Job Creation-Workforce Employment: Concurrent with providing additional housing opportunities in Orange County to improve the jobs-housing imbalance, Western Riverside needs to provide additional employment opportunities. Western Riverside is currently housing-rich and jobs-poor subregion with fewer than one job for each household in the County.

The Inland Empire accounted for 36.0 percent of total job gains (excluding losses) realized in Southern California between 1990 and 2001, with Riverside County representing 53.0 percent of these gains. Despite cost savings related to land and facilities (fixed) and employee wages (labor), incremental job growth (relative to population growth) continues to lag behind incremental growth within coastal employment centers of Southern California. While the local employment base will expand substantially, the workforce population will increase at a faster rate due to in-migration and a large number of children entering the workforce. Strong business

preference for coastal market settings indicates the need for increased and sustained business attraction efforts.

Despite relatively high cost, Orange County accounted for over 28.0 percent of total job gains realized in Southern California between 1990 and 2001. In addition, periodic and temporary oversupplies of industrial and office space have tended to spur fixed cost adjustments and renew coastal market preferences. The County's attraction as an employment and business center will continue to challenge its ability to provide enough local housing to match demand associated with employment gains.

In order for Western Riverside County to become more economically diverse and create jobs closer to home for local residents, it will need to continue to encourage commercial and industrial development to grow and/or relocate within its borders. Economic development not only provides jobs for local residents, it also contributes significantly to establishing the tax base necessary to provide new and/or improved infrastructure and public services to support development.

Home-Work Mobility: A fundamental requirement for sustained economic growth over the next 10 to 20 years is the ability to facilitate movement between home and work. Providing a greater supply of jobs in proximity to working residences describes an optimal solution for Riverside County. Providing a greater supply of affordable homes in proximity to worker jobs describes an optimal solution for Orange County. Theoretically, each optimal solution is possible. Realistically, economic and political impediments are likely to restrict a wholesale increase in the housing stock of Orange County, and limit changes in preference that now favor coastal settings to conduct business despite cost advantages inherent to inland locations. As result, the jobs-housing gap expected to persist in each respective County (in absolute terms) indicates the need to facilitate more efficient home-work mobility between both economic sub-regions.

Much of the discussion of interregional commuting to date has been based on anecdotal information, not prepared in the context of overall travel. Initial data collection efforts coordinated through this study are designed to provide a clearer picture of evolving trends. Three primary data sources will be used to better define and document interregional commuting: a random home telephone survey of Western Riverside County residents, a mail-out survey of auto drivers on the SR-91 and the home-to work travel information from the 2000 Census. The telephone survey information is summarized in Chapter 5 of this report.

SUMMARY OF SIGNIFICANT FINDINGS

Based on data from the 2000 U.S. Census; an evaluation of land use, economic, and transportation data from both counties; and a telephone survey of Western Riverside residents conducted for this study, the following major findings have been identified:

Labor and Land Availability Are The Key Issues for Future Prosperity: In the coming years, the major issues impacting the prosperity of Orange and Riverside Counties will largely be those associated with the availability of labor and land. In many respects, the two Counties face issues that are mirror images of one another.

Orange County has a well-educated labor force, rapidly rising home prices, numerous high-end businesses and more jobs than local workers to fill them. The County's lack of available residential and commercial land is pushing home values and industrial lease rates to very high levels. Over time, these facts will influence the number of people who will be able to find and afford housing in the County. Ultimately, the County's lack of resident-workers may be the limiting factor on its long-term economic growth.

Riverside County has a young and rapidly growing population, a modestly educated labor force, and numerous blue collar and entry-level firms. However, the County has many fewer jobs than resident-workers despite the Inland Empire economy's recent rapid growth. Riverside County's wealth of undeveloped residential land is permitting the construction of thousands of homes across a wide price range. It is similarly accommodating very large reasonably priced industrial buildings. As a result, workers are migrating to the County as are numerous manufacturing and distribution firms. Riverside County and the inland area are just entering the later stage of their development cycle. While the gap between the number of resident-workers and local jobs is closing, the area will remain "job poor-labor rich" for years. Recently, the character of the County's "local job: resident-worker" gap has changed as increasing numbers of highly skilled, upper middle class workers have begun migrating inland to its new upscale neighborhoods. As Riverside County continues moving through the later stage of the economic development cycle, its surplus of resident-workers plus this growing base of skilled workers should allow the County to achieve full economic maturity by adding high-end elements to its residential, retail, and employment activities.

Labor Rich/Labor Poor: Looking ahead, the changing demographic structure in both Counties will affect the future availability of workers to them. From 1990-2001, Orange County got older as its 65 and over group grew by 27.0% while its population grew just 18.1%. The opposite occurred in Riverside County where its retirement group increased just 19.5% while its population went up 26.3%. These facts were partially being driven by housing prices as older persons tend to have more wealth, some of it in expensive real estate. Younger persons have little wealth and the need for lower priced homes. For the two Counties, these age group facts imply that, over time:

- Orange County will likely have fewer working age people as a share of its population. Its challenge will be to find workers to fill its available jobs. The bad news is that challenge is worsening as the number of jobs per dwelling and per 1,000 people keeps rising.

- Riverside County will have more working age people as a share of its growing population. Its challenge will be to find more jobs for these workers. The good news is that the number of jobs per dwelling and per 1,000 people are both rising, indicating that it is catching up. In a sense, this is bad news for Orange County as it means a lower percentage of inland residents will need to commute. That said, Riverside County will not reach an equilibrium between resident-workers and local jobs for decades.

NEXT STEPS

As noted earlier, the Existing Conditions Report is the first product in the IRP work program. Other steps and products to follow include:

Identify and Refine Strategies: Strategies to improve the balance of jobs and housing in the study area and mitigate traffic and environmental impacts will be evaluated in light of information brought out from this study. The WRCOG-OCCOG IRP Technical Working Group, which includes staff representatives from local jurisdictions, economic development groups, transportation agencies and other various affected or interested agencies, will be key players in the development of strategies and in the evaluation process.

Refine Study Work Program: In initiating the IRP Project, the partners developed a three-year work program based on an understanding of the issues at that time. The additional information presented in this report will provide insight that will be used to re-evaluate the scope and work program.

Chapter 7

EFFORTS DIRECTED AT ADDRESSING THE IMBALANCE CURRENT

State, local, regional and private agencies in both Riverside and Orange counties have programs designed to improve mobility and address the imbalance of jobs and housing.

STATE AND REGIONAL BALANCED COMMUNITY PROGRAMS

State Demonstration Grant Program

In July 2000, AB 2864 (Torlakson) established the state funded Inter-Regional Partnership program to improve the balance of jobs and housing in urbanized areas throughout California.

State Policy and Project Goals: In establishing the demonstration program, the State issued the following Policy Goals for Interregional Partnerships (IRP):

- Encourage higher rates of housing construction in jobs-rich areas.
- Encourage job development in close proximity to the current and future labor force.
- Mitigate the negative impacts of jobs-housing imbalances.
- Encourage integrated planning, incorporating housing, transportation, and the environment.
- Encourage transit-oriented development.

In addition, the State has prepared the following IRP Project Goals for those projects that it funds:

- Develop implementation plans to reduce jobs-housing imbalances.
- Develop strategies and models to mitigate jobs-housing imbalances.
- Encourage meaningful collaboration between local governments, regional and sub-regional planning organizations, private sector housing and business organizations, and public interest organizations and the general public.
- Promote regional planning and collaboration among cities and counties.
- Develop State and sub-regional geographic inventories of areas with jobs-housing imbalances.

IRP Jobs-Housing Balance Grants: The California Department of Housing and Community Development (HCD) appropriated funds to facilitate work between two or more councils of governments (COGs) or other interregional agencies to mitigate the causes and effects of inter-regional employment and housing imbalances. These projects would be carried out in partnership with the State and Federal governments.

This one-time funding allocation will to be used to develop and implement plans that promote and accommodate housing development in areas rich in jobs and job-creation in predominantly residential communities. Funded activities must be completed by June 20, 2004 and require a 25 percent local match. This Western Riverside-Orange County IRP is one of these projects.[1]

IRP Pilot Project: AB 2864 also funded an Inter-Regional Partnership State Pilot project, which builds on an Interregional Partnership begun in 1998 among the Association of Bay Area Governments, the San Joaquin Council of Governments, and the Stanislaus Council of Governments in the San Francisco Bay and the Central Valley areas. A primary element of the Pilot Project is the creation of Jobs-Housing Opportunity Zones in the IRP region. A range of incentives will be offered in each zone to encourage the appropriate development. As of July 2002, nine of a possible ten zones have been selected. To date, nearly all of these sites are job-development, not housing zones.

Southern California Region

The Southern California Association of Governments (SCAG) region is comprised of the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The region encompasses a population exceeding 15 million persons in an area of more than 38,000 square miles.[2] The Southern California Association of Governments (SCAG) functions as the Metropolitan Planning Organization for the region. As such, SCAG is researches and draws up plans for transportation, growth management, hazardous waste management, and air quality.[3]

Several years ago SCAG attempted to develop a "growth policy forecast" that would move the six-county region towards a long range projection that increased jobs in housing rich areas, and vise-versa.[4] That proposal was abandoned because criticism that government should not try dictate area land uses through policy. As part of the Regional Transportation Plan Update, SCAG us again addressing jobs-housing balance issues on a regional level.

Regional Transportation Plan: The Regional Transportation Plan (RTP) is a multi-modal, long-range planning document prepared by the Southern California Association of Governments (SCAG), in coordination with federal, state, and other regional, subregional, and local agencies in southern California.

The RTP includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight, and finances. The RTP is prepared every three years and reflects the current future horizon based on a 20-year projection of needs. The RTP's primary use is as a regional long-range plan for federally funded transportation projects. It also serves as a comprehensive, coordinated transportation plan for all governmental jurisdictions within the region.

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[1] www.hcd.ca.gov/ca/irpgjhb
[2] www.scag.ca.gov/about/about.htm
[3] www.scag.ca.gov.about/about.htm
[4] IRP

CURRENT EFFORTS

Each agency responsible for transportation, such as local cities, the County, and Caltrans, has different transportation implementation responsibilities under the RTP. The RTP relies on the plans and policies governing circulation and transportation in each County to identify the region's future multi-modal transportation system.

Transportation Demand Management (TDM): TDM strives to manage the demand on the highway system by reducing the number of vehicles on the road. SCAG recommends increased outreach to the general public to increase awareness of and participation in the regional rideshare program.[5]

- Vanpooling is considered one of the most cost-effective TDM strategies for long-distance commuters. SCAG seeks to formalize and expand the existing partnership among public and private sector stakeholders to improve delivery of vanpool services region-wide. The goal is to facilitate a regionally coordinated marketing strategy among the public and private sector that would enhance vanpool programs, increase ridership and unify the current limited and fragmented outreach efforts.[6] Similarly, carpooling can reduce demand and can utilize dedicated HOV lanes.

- Telecommuting is the most popular program that an employer can offer employees to reduce vehicle trips yet it is one of the least frequently offered programs by employers. SCAG intends to pursue an aggressive education and public outreach program aimed at employers to promote the benefits of telecommuting and to provide recommendations on how to implement a telecommuting program at the worksite.[7]

- Park-and-ride facilities could play and important role in supporting commuter rail, heavy and light passenger rail transit, busway, HOV, express bus service and local bus systems. However, lack of dedicated resources for marketing, maintenance, and operations have adversely affected the available capacity and utilization of park and ride facilities within the SCAG region. SCAG plans to fully integrate park and ride facilities into existing transportation and planning and programming processes. SCAG seeks to develop region-wide policies and programs pertaining to the operation, maintenance and expansion of park and rides facilities as well as regionally coordinated public outreach efforts and data management.[8]

- Electronic workplaces and electronic commerce will continue to evolve with the revolution in communication and computing technology. SCAG is currently developing a number of efforts aimed at tracking e-commerce and assessing the issues and likely benefits of mobility and air quality based upon changes in travel behavior.[9]

Integrated Land Use, Transportation and General Planning: SCAG has initiated the Growth Visioning for Sustaining a Livable Region Program to inform, engage and facilitate consensus on a vision and strategy for addressing the challenging consequences of anticipated growth in the region.[10] Growth Visioning is the current process instituted by SCAG to promote informed

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[5] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[6] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[7] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[8] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[9] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[10] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.

civic dialogue to help the region come together to address its shared challenge of creating a vision of future growth that promotes prosperity, social equity, and environmental sustainability.[11] A major target is to arrive at a common ground preferred growth vision, along with an associated growth forecast, in time to influence the next round of housing allocation and transportation plan decisions the region will face in 2004.[12] An even larger target is to marshal the vast resources of the region into long-term sustainability and livability based on a deliberate vision.[13] Growth Visioning provides the arena to develop consensus and cooperation among local governments, regional institutions, and the public.[14] There is clear evidence that people will be more likely to support what they help to create.[15] This is particularly true where there is vast difference in viewpoints and perceived implications – as is certainly the case with growth related issues.[16] There is no mandate to implement a vision, other than what is endorsed by the participants.[17]

The three "Growth Strategies" under development and review by the Growth Visioning Subcommittee are Smart Growth (Urban Form Scenarios), Livable Communities, and Jobs-Housing Balance.[18]

- **Smart Growth** is well-planned, efficient development that channels projected population and employment growth into existing areas and designated growth corridors that are best suited to accommodate growth.[19]

- **Livable Communities** are neighborhood level strategies that encourage efficient growth patterns and promote alternatives to the use of the automobile. Efforts focus on creating a mix of homes, shops, work places, parks, and civic institutions in communities and neighborhoods that are linked through pedestrian and bicycle facilities and are in proximity to transit routes. Livable Communities promote in-fill development to revitalize underutilized and vacant sites. Under the strategy of "livable communities," SCAG and other policy leaders are placing a growing emphasis on new land use and transportation policies that will accommodate future growth while addressing automobile traffic and air quality concerns. Because many impacts of the livable communities strategies are realized at a neighborhood or community scale, it is difficult to quantify benefits at a regional scale. To this end, SCAG is refining its regional modeling to address land use/transportation and air quality interactions as well as developing performance measures for livable communities.[20]

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[11] www.scag.ca.gov/livable/gvision.htm
[12] www.scag.ca.gov/livable/fullreport.pdf (The Planning Center)
[13] www.scag.ca.gov/livable/fullreport.pdf (The Planning Center)
[14] www.scag.ca.gov/livable/gvision.htm
[15] www.scag.ca.gov/livable/fullreport.pdf (The Planning Center)
[16] www.scag.ca.gov/livable/fullreport.pdf (The Planning Center)
[17] www.scag.ca.gov/livable/fullreport.pdf (The Planning Center)
[18] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[19] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.
[20] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.

- SCAG is focusing its **Jobs-Housing Balance** efforts on coordinating with the subregions and local governments to ensure that local plans are consistent with the regional growth forecast and assisting communities and subregions in accessing new Jobs-Housing incentive funds from the State Department of Housing and Community Development. Additionally, SCAG is looking into establishing incentives and performance indicators as well as implementing a legislative strategy.[21]

As part of SCAG's Growth Visioning Program, Western Riverside Council of Governments (WRCOG) will have an opportunity to test SCAG's growth strategies during 2003. As one of fourteen subregions in the program, WRCOG will have the opportunity to create its own alternative growth scenarios as well. The WRCOG-OCCOG Interregional Partnership potentially provides an opportunity to test these strategies and alternative growth scenarios within a two-county framework.

Western Riverside Region

Western Riverside Council of Governments (WRCOG)

The Western Riverside Council of Governments (WRCOG) is a joint powers authority with a membership of 14 cities and the County of Riverside. The purpose of the WRCOG is to unify western Riverside County so that it can speak with a collective voice on important subregional and regional issues. Working together and sharing resources through WRCOG is cost-effective by reducing duplication of effort, and the consensus achieved by member entities allows western Riverside County to more effectively advocate its positions and augment its standing within the region. The WRCOG, which is comprised of members representing 15 local jurisdictions in western Riverside County, is an important mechanism for the collective examination of issues that are subregional or regional in nature and transcend individual political boundaries.

WRCOG's mission is *"To provide a voluntary forum to facilitate local governments to plan, coordinate, advocate, and when appropriate, implement cooperative programs of a regional nature within western Riverside County, in order to maintain and enhance the quality of life for residents..."*

WRCOG activities (issues such as air quality attainment strategies, providing subregional input to the Southern California Association of Governments in its development mandated regional plans, review of selected legislation pertaining to regional/subregional issues, liaison with the private sector, and developing demographic data for use by members on a range of studies and planning activities) are not being collectively addressed by any other agency representing the collective interests of the cities of western Riverside County and the County of Riverside. Focusing these issues in one forum with diverse representation strengthens western Riverside County's voice in the region and state.

[21] SCAG Regional Transportation Plan Update (Draft). December 4, 2002.

Transportation Programs in Western Riverside County

Riverside County's transportation system is composed of numerous state highways (both freeways and arterial highways), as well as numerous County and city routes. The transit system includes public transit systems, common bus carriers, AMTRAK (intercity rail service), MetroLink (commuter rail service), and other local agency transit and paratransit services. In addition, the County transportation system includes general aviation facilities, limited passenger air service within the County, freight rail service, bicycle facilities, and other services for non-motorized forms of transportation (multipurpose trails).

Increasing mobility is recognized as an important priority by all of Western Riverside's local governments. Traditional sources of public revenues are insufficient to fund the transportation improvements necessary to sustain regional mobility. The current residents of Western Riverside County already contribute to the maintenance and expansion of the regional transportation system through participation in a variety of traditional funding programs including provision of a local sales tax to support transportation improvements.

Transportation Uniform Mitigation Fee (TUMF) Program: The Transportation Uniform Mitigation Fee (TUMF) program is intended to provide additional funding to construct transportation improvements that provide additional capacity to accommodate for the traffic generated by the development of Western Riverside County. By collecting a fee generated entirely from new development in the region, developers and, in turn, new county residents will effectively contribute their "fair share" toward sustaining the regional transportation system. The TUMF, effective in early 2003, will provide a legal revenue stream to address the serious funding shortfall for regional transportation facilities identified on the Regional System of Highways and Arterials (RSHA) and coerce new development to pay its fair share to accommodate added traffic.

Measure A Local Sales Tax: The Measure A half-cent sales tax has funded improvements on numerous state highways and local roads. Measure A dollars are spent in accordance with a voter-approved expenditure plan that was adopted as part of the election in 1988. The current Measure A expires in 2009 and in November of 2002, voters extended the program another 30 years (to 2039). Metrolink, which is largely funded by Measure A, has been a great asset to Riverside County. Other transit services are being provided through transit agencies, primarily the Riverside Transit Agency. In addition to the General Plan Circulation Element, the County of Riverside supports several transportation plans and programs that are necessary to manage current traffic demands in and plan for the County's future transportation needs.

Congestion Management Program: The Riverside Congestion Management Program (CMP) is updated every two years in accordance with Proposition 111. The CMP was established in the State of California to more directly link land use, transportation, and air quality and to prompt reasonable growth management programs that would more effectively utilize new and existing transportation funds, alleviate traffic congestion and related impacts, and improve air quality.

The Circulation Element describes how the future transportation system will function. This is important for congestion management, since deficiencies along the CMP system must be mitigated when they occur. The ability to address such deficiencies now, instead of when they occur, is critical. Understanding the reason for these deficiencies and identifying ways to reduce

the impact of future growth and development along a critical CMP corridor will conserve scarce funding resources and help target those resources appropriately.

Transit Programs: The Riverside Transit Agency (RTA) operates fixed bus routes providing public transit service throughout a 2,500-square-mile area of western Riverside County. RTA's fixed routes have been designed to establish transportation connections between all cities and unincorporated communities in western Riverside County. RTA currently carries approximately 18,000 passengers per day. RTA also provides service to San Bernardino and Orange Counties. SunLine Transit Agency (SunLine) provides public interest transit services for the Coachella Valley and Yucca Valley areas.

The *Transit Oasis Strategy* is an initiative in transportation choices for Western Riverside County. This document was endorsed by the Riverside County Transportation Commission in March 2002 as a framework for further development of the system. The system is designed to connect centers of activity in both the cities and unincorporated areas with express transit, either along Metrolink lines or along new express transit corridors. These new corridors include freeways with existing or proposed High Occupancy Vehicle (HOV) lanes.

This express transit system would be implemented gradually over time, as Western Riverside County grows. It is conceived as a flexible, cost-effective system that can adapt to development as it occurs. Transit technologies have not been determined, but would likely consist of rubber-tired vehicles running on preferential lanes, in addition to the Metrolink portions of the systems.

RTA is currently evaluating the potential of Bus Rapid Transit (BRT) as a viable transit mode in Western Riverside County. BRT combines the quality of rail transit and the flexibility of buses at substantially lower costs than rail. BRT would give priority treatment to buses on urban roadways and would be expected to include some or all of the following features: Exclusive rights of way such as dedicated bus lanes, stations instead of stops, platform rather than curb loading, higher operating speeds, shortened headways, expedited fare collection, real-time passenger information, even more attractive vehicles are all part of the concept[22].

Initial thoughts are that the Magnolia Avenue corridor is best suited for a BRT project because of its ability to link residents from several communities to jobs, shopping, entertainment, etc. However, similar corridors will be evaluated. The overall goal of the project is to produce a BRT demonstration project that implements technologies and operating procedures best suited for the local environment, meets ridership and cost forecasts, and generates interest and enthusiasm in Riverside County. (Source- RTA, July 2002)

Community and Environmental Transportation Acceptability Process (CETAP): The transportation element of the Riverside County General Plan update, CETAP, will identify four possible new highway routes as well as public transit opportunities. A series of alternatives for new multi-modal transportation facilities are being evaluated as part of the CETAP planning process for two corridors within Riverside County: the Hemet to Corona/Lake Elsinore Corridor, and the Winchester to Temecula Corridor. Decisions identifying the alternatives to move forward in both corridors will be made later this year.

[22] Riverside Transit Agency, July 2002.

Economic Development Efforts in Riverside County

Riverside County Economic Development Agency: The County of Riverside markets their strategic location for business as a result of many incentive zones throughout the county, the diverse and accessible transportation network, and the high quality of life.[23] Specifically, Riverside County has six redevelopment project areas throughout the county. The Redevelopment Agency utilizes tax increment and bond proceeds to finance public improvements, business assistance and housing in accordance with California redevelopment law.[24] Businesses located within the project areas may qualify for construction of public improvements, tax and fee assistance. The redevelopment project areas offer a variety of opportunities for industrial, commercial, aviation, and residential development.[25] The County of Riverside's Economic Development Agency offers a fast track program to assist qualified businesses with land-use and permit approvals, employee recruitment & training, a rapid response program to assist companies or individuals confronting career transitions, and environmental health and safety advisory services.[26]

Workforce Development: The Riverside County Economic Development Agency has Workforce Development Centers located throughout the County. Its purpose is to provide human resource assistance in the recruitment, selection, and hiring processes including conducting job fairs and making available interview space. The Centers also offer information on training reimbursement and tax incentive programs as well as information on employment, training, and education.[27]

Regional Occupation Programs (ROPs) provide industry-specific training for high school students and adults wishing to enter the workforce rather than attend college. Each program has an industry specific advisory group certifying that there is a demand for a specific skill set or skill ladder. The ROPs have also shown the ability to react rapidly when a firm or group of firms has developed the need for specialized training of their own workers.

University Extension Programs offer specialized training to workers performing highly technical tasks as well as those moving into management.[28]

Inland Empire Economic Development Partnership (IEEP): The Inland Empire Economic Development Partnership is a clearinghouse for regional economic thinking, networking and action. Its Executive Committee, Board of Directors and Policy Council include Presidents, CEOs, Senior Partners, Owners and Elected Representatives of corporations, professional firms, entrepreneurial enterprises, colleges, universities, cities and counties. In order to coordinate efforts to advance the Inland Empire economy, this organization allows the members to network, coordinate joint business recruitment, expansion and retention efforts; and consider economic policy issues and economic trends. The Partnership maintains an up to date database on buildings and sites available in the region.[29]

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[23] www.rivcoeda.org/html/Economic/strategictext.html
[24] www.rivcoeda.org/html/Economic/strategictext.html
[25] www.rivcoeda.org/html/Economic/strategictext.html
[26] www.rivcoeda.org/html/Economic/busservtext.html
[27] WRCOG
[28] WRCOG
[29] www.ieep.com/about.htm

Southwest Riverside County Economic Alliance: The Southwest Riverside County Economic Alliance is a partnership among the County of Riverside, and the communities of Lake Elsinore, Murrieta, and Temecula. They are working in partnership to aggressively promote the business development and economic opportunities of the region, its outstanding quality of life, strong industrial base and strategic access to Southern California business markets.

Valley Economic Development Corporation: The Valley Economic Development Corporation is a public/private partnership dedicated to building opportunity for business through business retention and attraction with specific emphasis on elevating the standard of living within the cities of Hemet and San Jacinto and the surrounding unincorporated mid-county regions of Riverside County. Assistance is provided in the following areas: site location through a network of area real estate brokers and consultants, help with government permitting and approval process, providing information on and assistance with employment, training and labor.

Economic Development Corporation of Southwest Riverside County: The Economic Development Corporation of Southwest Riverside County is a dynamic taskforce of volunteer business and community leaders whose mission is to resolve the countless problems and needs of businesses in the southwest areas. Members include CEOs of local companies, manufacturers, financial and business professionals, economic development experts, government officials, and interested citizens. The EDC is committed to the region's long-term, sustainable economic health. Its goal is to help build an economic base that provides high-quality jobs and a desirable lifestyle for area residents.

University Research Park: The University of California, Riverside in partnership with the Riverside County Economic Development Agency and the City of Riverside has created the University Research Park. The Park will provide new and mid-sized technology-based companies with the competitive advantage necessary to succeed in today's markets. The focus within the Park is on companies in biotechnology, information technology, electronics, and environmental technology; linking the strengths of existing companies, the competitive resources within the City and County of Riverside, and the prestigious academic and research programs of the University of California, Riverside.[30]

***Connecting Research & Economic Development* (CORE 21)**: Core 21 is a partnership of universities, colleges, entrepreneurs and service providers. Its mission is to promote regional economic development through research, education, and the transfer of technology from laboratory to private industry. Participating educational institutions include:

- California Baptist College
- California State Polytechnic University, Pomona
- California State University, San Bernardino
- Claremont Colleges
- Loma Linda University

[30] www.ci.riverside.ca.us/devdept/econdev//researchpark.htm

Matching Workers and Companies: Several internet sites exist to try to match local employer needs with local resources. Commuters are being alerted to this initiative through billboards, radio commercials, and mailings that accompany utility bills in new neighborhoods.[1] The internet sites include:

> ***ietechjobs.com*** is a website directed to technicians, scientists, engineers, and professionals. It allows direct postings by both commuters and companies. The site will soon be available to thousands of graduates with technical majors from the Inland Empire's 16 universities.
>
> ***Rivcoeda.org*** is maintained by the Riverside County Economic Development Agency and directed at both commuters and firms in the County. It matches local workers with a database of job openings. Several thousand skilled workers now use the system.
>
> ***CallPoint*** is a telephone-based service to help companies recruit, train, and hire workers in a timely manner. A phone-based program, an employer calls CallPoint with a labor need. CallPoint then attempts to locate a qualified candidate and conducts the initial screening and interviews. The employer will conduct the final interviews and hiring. CallPoint may also assist finding training for these employees.

International Trade Organizations

Riverside Community College (RCC) - Center for International Trade Development (CITD): The center helps Riverside firms compete in the global marketplace by providing export counseling and seminars. CITD provides international assistance and resources to potential and existing businesses and individuals. CITD services include: trade leads, up-to-date international trade library, foreign market data, technical assistance, trade seminars, and a "Basics of Exporting" workshop.

World Trade Center of the Inland Empire: The World Trade Center of the Inland Empire a private/public partnership partially funded by the City of Riverside, assists and mentors Riverside businesses to expand their global business presence. Services include: protocol assistance, customized market research, licensed procedures, trade missions, credit reports/profiles and individual trade consulting. Staffed by international experts, the trade center provides Riverside businesses with import and export assistance, as well as networking, technical procedures and export strategies.

Inland Empire International Business Association (IEIBA): As a 150 member non-profit international trade promotion organization, IEIBA supports and encourages export and import trade. It takes an active role with the business community, the media, and the government regarding issues that are vital to the Inland Empire's world trade growth. IEIBA conducts monthly networking and educational programs and an annual World Trade Conference during World Trade Week in May. IEIBA also provides support and internships for students of four area colleges and universities.

Inland Empire Small Business Development Center (SBDC) - Inland Empire International Trade (IEIT): Managed by the Inland Empire Small Business Development Center, this program is a cooperative effort to create new jobs through dynamic expansion of exports from the Inland Empire region. IEIT assists firms in successfully entering emerging foreign markets.

The staff utilizes various federal, state, and international databases with regard to international trade information and trade leads. IEIT services include: sales lead generation, marketing, sources of financing, logistics, and training.

Policies and Issues Related to Development from the Riverside County Integrated Project (RCIP)

The Riverside County Integrated Project (RCIP) is a three-part program that includes the General Plan, the Community and Environmental Transportation Acceptability Process (CETAP), and the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). In this project, the County will simultaneously prepare environmental, transportation, housing and development guidelines for the first half of the twenty-first century. The following excerpts from the Integrated Plan provide examples of the constraints facing future development in areas of the region.

Efficient Use of Land: New growth patterns no longer reflect a pattern of random sprawl. In order to efficiently use land, growth must be focused into strategically located centers or into existing developed areas, thus minimizing development pressures on rural, agricultural, and open space areas. This will also help to preserve the unique rural character of the county and its rich open spaces. Grouped with this focused growth is the need to reorganize patterns of development in order to accommodate a range of uses, styles, and densities; is adaptive to transit; and is internally and externally networked to a multi-modal transportation system.

Open Space: The residents of Riverside County value the unusually rich and diverse natural environment with which we are blessed and are committed to maintaining sufficient areas of natural open space to afford the human experience of natural environments as well as sustaining the permanent viability of the unique landforms and ecosystems that define this environment. Poorly planned growth and development would threaten to eliminate or degrade this essential feature of the County. Preserved multi-purpose open space is viewed as a critical part of the County's system of public facilities and services required to improve the existing quality of life and accommodate new development. Strategies and incentives for voluntary preservation on private land are an integral part of the County's policy/regulatory system and are referred to nationwide as model approaches.

Habitat Preservation: Riverside County is known for its extraordinary environmental setting, which provides recreational, ecological, and scenic value. To address the issues of wildlife and habitat health and sustainability, the county has participated in the development of two multiple species habitat conservation plans (MSHCP). These MSHCP'sare intended to encompass the reserve areas and replace the implementation measures of the single-species habitat conservation plans formerly adopted by the county. These MSHCPS are stake-holder driven, comprehensive, and multi-jurisdictional, and focus on the conservation of both species and associated habitats, in order to address biological and ecological diversity conservation needs in Riverside County. These plans are two of several large multi-jurisdictional habitat-planning efforts within Southern California that have been developed under the overall goal of maintaining biological diversity within a rapidly urbanizing region. The MSHCPS will allow the county and other local jurisdictions the ability to manage local land use decisions and maintain economic development flexibility, while providing a coordinated reserve system and implementation program that will facilitate the preservation of biological diversity as well as maintain the region's quality of life.

Riverside County's policy is to promote compact development in strategically located activity centers, along with infill opportunities within existing urban areas, in order to minimize development pressures on vacant land on the urban fringe. In a limited capacity, infill projects throughout will also contribute to the County's future housing stock. County policy recommends that growth be concentrated near or within existing urban and suburban areas to maintain the rural and open space character of Riverside County to the greatest extent possible. Under the newly updated General Plan land use designations, higher density residential areas are sited near employment nodes, commercial cores, and major transportation corridors, and in conjunction with resort, recreation and tourist areas.

With its proximity to surrounding counties, infrastructure capability, and available land, it is anticipated that the majority of growth will occur within the sphere of influence areas of incorporated cities, and in areas for which Specific Plans or tract maps have been prepared. These properties include vacant and undeveloped lands presently in the unincorporated County that are adjacent to, or within service hookup distance from public sewer, water and street systems.

Smart Growth Case Study

WRCOG received grant funding from SCAG to produce a case study evaluating the extent of the inroads that New Urbanism & Smart Growth have made in western Riverside County. The project, begun in 2001, surveyed the 14 jurisdictions in the subregion. The County of Riverside was excluded from the report because reliable data for unincorporated portions of Riverside County could not be acquired for most indicators.

The Case Study employed thirteen (13) specific indicators and a rating system to measure and assess the quantity and quality of on-going urban growth in this area were used. The results provide valuable insight into the current state of housing policies in the WRCOG subregion.

Compact Residential Development: The compactness of residential development indicated either dense or more spread-out development patterns. Compact residential development occurs when at least 10 percent of residentially designated land is zoned for medium density (8 to 15 units per acre) and 10 percent is designated for higher density development (over 15 units per acre).

The Case Study found out that 154,000 acres within the 14 cities in the subregion are zoned for residential uses, either developed or vacant. Of this, 11 percent is zoned for medium and higher density residential development. Three cities had 20 percent or more of their residential land zoned for medium and higher density development; seven cities had 8 percent or less.

For current development, the existing average residential density in the subregion is about 2.4 dwelling units per acre. Some jurisdictions prefer to maintain the characteristics of a more rural lifestyle with an equestrian emphasis, and as such, have low percentages of the residential land designated for medium to high densities. Some jurisdictions "under build" in higher density zones (develop projects that are of lower density than allowed), and because of this, will not achieve General Plan "build-out" densities.

As the subregion evolves, it will likely increase densities for residential uses in some areas, providing more opportunities for housing to lower income families, first-time homebuyers, the elderly and others on fixed incomes, single parent households, and people interested in alternative housing choices to the typical single-family subdivision.

Certain barriers to implementation face the subregion, however. They include difficulty in the entitlement process, more stringent multi-unit construction requirements, and reluctance on the part of financers and developers to pursue higher density attached housing as a result of construction defect litigation. Continued "under building" and the public desire to maintain the "rural" characteristic of the community will also impact the ability to implement compact residential development.

Minimum Lot Size for Single-Family Residences: Small, compact lot patterns make more efficiently functioning communities. Jurisdictions that require at least a portion of a project's single-family homes to be smaller lot sizes will see results in more compact development, less land consumption, and more efficient service by transit, utilities, and delivery operations.

The Case Study found permissible lot sizes among the cities ranged from 3,500 to 10,000 sq.ft., averaging at 6,000 sq.ft. Some WRCOG cities have adopted a Smart Growth-friendly Traditional Neighborhood Development zoning ordinance or overlay to allow for the creation of smaller single-family lot sizes in some areas.
Although few regulatory barriers to small lot subdivision exist in the WRCOG subregion, opposition is primarily based on the thinking that blames small lots for lowering property values.

Mixed Use Policies, Ordinances, & Incentives: Mixing urban land uses in close proximity allows people to live, work, shop, and enjoy recreational activities within walking distance, employing a compact environment that reduces dependency on cars to satisfy life's basic, everyday needs. Development may be characterized as "mixed use" if it combines more than one use or purpose within a shared building or compact project area.

The Case Study found that of the 14 cities in the subregion, seven have no policies, ordinances, or incentives pertaining to mixed use while seven have supportive mixed use policies in their general plans. Three cities without General Plan policies will permit mixed use on a case-by-case basis. Three cities provide specific incentives for mixed-use development.

Although jurisdictions in the subregion are generally transitioning towards support for mixed-use in their zoning regulations, only a few representative projects have been proposed here. Interviews with planning officials indicated that most cities, generally, are waiting for developers to step forward and propose local mixed-use projects. Many entrenched barriers, both real and perceived, however, impede implementing mixed-use projects. As a result, the subregion continues to generally exhibit a development pattern that segregates land uses. Applying even the most lenient definitions, the number of active mixed-use projects in the subregion is probably between three and six. An equal number or projects are being proposed, according to surveys. Several more ambitions projects are in the conceptual stage, such as Specific Plans for portions of the cities of Lake Elsinore and Banning.

Infill Policies & Incentives: Infill development is the building of homes, businesses, and public facilities on unused land within existing urban areas. These sites maximize the use of existing infrastructure and are usually relatively close to employment and services. Residential infill is flexible in nature, encouraging a variety of designs such as second units, townhouses, bungalows, studios, and co-housing.

The Case Study found that of the 14 cities in the study, nine have policies, ordinances, or incentives pertaining to infill development in their General Plans. One jurisdiction provides specific incentives for infill development, if intended for housing projects.

Responses to the WRCOG questionnaire indicated an on-going transition in the subregion toward the support of infill. Reports from Planning Departments in the Western Riverside County suggest an increasing number of infill-related public counter inquiries and project submittals, in comparison to previous years. Nearly all redevelopment agencies are looking at ways to expand infill programs. Only a few representative projects, however, have been proposed.

Because infill issues are closely linked with those of mixed-use, they face many of the same barriers: social, economic, and attitudinal impediments; and financial, regulatory, and legislative barriers.

Housing Affordability: Affordable housing is typically considered to be that which can be purchased for 30 percent or less of the gross household income. This requires a wide range of housing types and prices to accommodate the various income levels in the subregion. A median priced home is one that is priced below half of the homes in the area, and above the other half.

Generally, the farther land is from urban centers, the less it costs, making it attractive to developers. This is currently the situation in western Riverside County, where housing attracts buyers living in less affordable areas in Southern California.

The Case Study found that most General Plans in Western Riverside County contain a goal regarding the provision of a variety of housing types that are affordable to all income levels in the jurisdiction. In communities where the median income is high, housing costs are also generally higher.

Although the percent of households able to purchase a home has declined throughout the state, the WRCOG subregion remains very affordable by Southern California standards. In a regional context, the Inland Empire remains very affordable, with 47 percent of all households able to purchase a median priced home. Statewide, housing affordability is 32 percent, while the national rate is 54 percent. The percentage of households that can afford the median priced home in the subregion's cities ranges from less than 30 percent to 64 percent for new homes, and 53 percent to 78 percent for existing homes.

Renting in the subregion is a way of life for almost 40 percent of the households. The percentage that can afford the median priced unit within the subregion, based on median household income, ranges from 66 percent to 82 percent of households. This indicated that while the affordability for median rents is high in the subregion, there remains a need for more housing for lower income households.

Barriers to providing more affordable housing to lower income households include lack of commitment by the state government to housing programs, federal programs, and policies that do not meet the needs of California, local government preferences for commercial and other revenue generating development, construction defect litigation, and negative public perceptions.

Accessory Dwelling Units: Accessory dwelling units (ADUs) are small second-unit cottage or apartment residence sharing the same lot with the primary house. Offering affordable opportunities for independent living, these units increase density while maintaining the general character of single-family neighborhoods.

The case study found that all 14 cities in Western Riverside County have policies and ordinances regulating accessory units. One city has a pro-active incentive program to establish ADUs. Five cities are supportive of ADUs, especially granny flats, subject to a few restrictions in their zoning codes. Several cities generally tend to discourage ADUs through zoning regulations.

Barriers to ADUs are typically rooted in the widespread misperceptions that second units tend to become a problem in the neighborhood due to substandard levels of workmanship and increased traffic and parking.[31]

Orange County

Orange County Council of Governments (OCCOG)

OCCOG is a voluntary advisory association representing local governments and agencies throughout Orange County seeking cooperative subregional and regional planning, coordination and technical assistance on issues of mutual concern. OCCOG's member ship is unique among other council of governments. The membership includes the 34 cities of Orange County, the County of Orange as well as local member agencies such as sanitation districts, transportation organizations, water districts and local universities.

The purpose of OCCOG is to unify Orange County so that it can speak with a collective voice on important subregional and regional issues. OCCOG's activities include air quality attainment strategies, providing subregional input to the Southern California Association of Governments, review of selected legislation pertaining to regional/subregional issues, liaison with the private sector, performing regional housing needs assessments and developing data for use by members on a range of studies and planning activities.

OCCOG's primary goal is to work with existing resources to consolidate, collaborate and find new ways to do needed activities for less and to eliminate duplication of effort.

OCCOG Initiatives

OCCOG has focused on smart growth related issues for the past five years. The agency has produced three reports centered around smart growth activities and Phase I activities resulted in

[31] WRCOG Smart Growth Case Study: Western Riverside County. Revision 2 – May 29, 2002.

the report: "Smart Growth Strategies to Accommodate Orange County's Future." The report analyzed Orange County's growth patterns during the past 50 years, discussed future growth trends, and questioned whether accommodating future growth utilizing current planning practices would be successful. The report was released in January 1999.

Phase II of the design competition was released in August 2000, "Here Comes the Neighborhood." The report highlighted how ten Orange County jurisdictions are accommodating growth, redeveloping their communities and otherwise improving livability.

Phase III sought to generate ideas and designs to accommodate growth from professionals and students from across the nation and throughout the world through an Interdisciplinary Smart Growth Design Competition. The competition was an important part of OCCOG's efforts to help communities and local governments define their own development goals and prepare for the future. The basic goals of the competition were to visualize and present new ways to accommodate growth, provide new and replicable concepts of urbanization for areas with similar growth issues, stimulate a discussion of responsible growth patterns, provide conservation methods for water, power and other resources, and provide new ideas for government officials, policy-makers, developers, and property owners to consider for improving and sustaining Orange County's quality of life.

Transportation Programs in Orange County

Orange County Transportation Authority: The Orange County Transportation Authority (OCTA) has a 20-year blueprint for meeting the challenges of managing a transportation system that will preserve the quality of life in the County. The program is called FastForward: Transportation Plan for the Next Generation. The plan calls for $15 billion worth of transportation improvements with funding identified for about $13 billion worth of projects. Measure M will play a critical role in funding about 28 percent of the projects that flow through OCTA during the next 10 years. Measure M, the half-cent sales tax, was approved by voters in 1990 and is dedicated to transportation improvements in Orange County. Freeway improvements are the cornerstone of the Measure M plan, with 43 percent of the total program, earmarked for these improvements.

Metrolink: Metrolink computer rail system was made possible by the rapid implementation of a capital improvement plan made up of Measure M funds and Propositions 108 and 116 funds. The plan included construction of 30 miles of a second main track through the county; improvements to existing train stations in Fullerton, Anaheim, Santa Ana, Irvine and San Juan Capistrano; construction of new stations in San Clemente, Orange and Anaheim Canyon; and purchase of locomotives, train cars and ticket vending machines. The $115 million Commuter Rail Endowment Fund (CURE), established with Measure M, funds operation of the commuter rail service in Orange County.

Commuter rail service includes three routes:

- Orange County line: Operating from Oceanside to downtown Los Angeles, The Orange County Line includes 19 trips each weekday between Orange County and Los Angeles, including two reverse-commute roundtrips that offer service from Los Angeles to employment centers in Orange County.

- Inland Empire – Orange County Line: Serves passengers going from San Bernardino and Riverside to Orange County. The Inland Empire-Orange County Line service includes 12 trips each weekday.

- The 91 Line: Also serves Orange County via Riverside, the Fullerton station and Los Angeles.

Ridership of both routes continued the upward growth trends recorded over the past year. The Orange County Line ridership grew to 5,922 average daily passengers, an increase of 3% over the first quarter of 2001. The Inland Empire-Orange County Line ridership grew by 7% to 3,000 compared to first quarter of 2001.

High Occupancy Vehicle System: Orange County's HOV system consists of freeway lanes dedicated solely to vehicles carrying two or more passengers. Orange County has one of the most sophisticated HOV systems in the country. With the exception of the SR-22 and SR-133, Orange County freeways will have at least two HOV lanes each, one in each direction of travel, by the year 2002. The HOV system also includes a series of direct HOV connectors that link carpool lanes with other freeways and some local streets. For example, the I/5-I/405 and I-5/SR-55 and I-5/SR-57 transitways allow high occupancy vehicles direct connections between freeways. In the future, express bus service will be expanded to use the transitway system. HOV Utilization/Rideshare Marketing: One of the goals of the HOV system is to encourage fewer vehicle trips by increasing the rate of carpooling. Since the completion of the three corridors (SR-55, I-405, SR-57), the average number of passengers per vehicle has increased from 1.14 to 1.22 on freeways countywide. However, SCAG's RTP calls for continued investment in rideshare marketing programs in order to increase the number of carpool trips by 8,000 per year on a regionwide basis. The FastForward baseline program identifies a $900,000 contribution to regional rideshare programs over two years to support this goal.

The Three-Plus HOV Option: As traffic volumes increase, HOV lanes will become more and more congested during peak commute periods although they may flow freely at other times. One option to ease HOV congestion requires raising the minimum HOV lane occupancy requirement to three-plus per vehicle. This decision would have to be made by Caltrans and the Federal Highway Administration. Most likely, this policy change would be considered on a regional basis to maintain consistency among HOV facilities.

High Occupancy Toll Lanes: High Occupancy Toll (HOT) lanes are made available, for a fee, to single occupant vehicles. Carpoolers pay a lesser fee or ride free in HOT lanes. Tolls are adjusted to keep lanes moving during peak travel times. Orange County is home to a unique HOT lane project, the privately funded SR-91 Express Lanes, stretching from the Riverside County line to SR-55. Implementing HOT lanes allows commuters the choice to realize the travel time savings for a fee. They also produce revenue that can be used for transportation improvements. HOT lanes are a possibility for mixed flow or HOV lanes with the exception of those facilities that are already tolled.

Bus Rapid Transit: Continuing with OCTA's commitment to explore new transportation alternatives, Bus Rapid Transit, also know as BRT, is an important consideration for improving mobility around the county. BRT combines the flexibility of a bus system with some of the features that are typical of rail transit. BRT operates with signal priority allowing for faster travel times. It can travel either in dedicated lanes or in mixed traffic. All BRT features are designed to increase travel speed, passenger comfort, and convenience.

Light Rail Transit (LRT): A component to the mix of transportation priorities is the addition of light rail. The initial proposal calls for building the first phase of a light rail system during the next ten years. OCTA is working with cities along the proposed corridors to gain their support and study the feasibility of the routes while pursuing financial participation to build the system.

The CenterLine: As part of Measure M, voters mandated $340 million for a countywide "advanced rail transit" system. An 87-mile rail network was identified in 1991, and a central corridor traversing 28 miles through the heart of the county, was identified in 1994. This project, known as The CenterLine, would connect major employment and business centers in Orange County's most heavily traveled corridor. It is proposed to run between Fullerton Transportation Center and the Irvine Transportation Center through the cities of Anaheim, Santa Ana and Orange. Refinements are currently in process for the 28-mile corridor with a supplemental draft environmental impact report due for release this winter. Subsequently, the schedule calls for selection of a locally preferred alternative with elevated street level designs and a decision on where the initial segment of the line will be built. Refinements are the result of OCTA responding to community input and concerns from the cities along the corridor.

SR-91 Improvement Plan: Completed in early 2000, the Riverside Freeway (SR-91) Improvement Project added one carpool lane in each direction between Orange Freeway (SR-57) and Los Angeles County line, reconstructed the Riverside, Orange Freeway interchange with direct carpool lane connectors, and added a collector/distributor road system at Harbor Boulevard and Lemon Street. This road system runs parallel to the freeway and directs motorists in the area on and off the freeway at a single point. The 11.5 mile project, combined with a stretch of private carpool lanes, now provides uninterrupted carpool lane travel on the SR-91 through Orange County from the Riverside County line to the Los Angeles County line. Measure M provided 80 percent of the funding for this $180 million project with the balance coming from the cities of Anaheim and Fullerton and state and federal funds.
Long Range Plan: The OCTA Long-Range Transportation Plan is developed in three levels, or "Tiers." Tier 1 is the baseline projects that have been approved and are being implemented. Add another layer and the result is the Balanced Plan. The Balanced Plan includes baseline projects along with other improvements that are fundable within the 2030 horizon. This is the financially constrained element. Lastly, there is the preferred plan. This is the needs-based element that is unconstrained financially. Many of these projects have only been defined at a very high, conceptual level.

The financially constrained portion of the long-range plan, the Balanced Plan, includes the wide spectrum of revenues that fund transportation improvements. The Balanced Plan represents an estimated $24.6 billion investment. OCTA revenues account for about 64 percent of the total. The balance of revenues are from the State of California Department of Transportation and the Federal Highway Administration and Federal Transit Administration discretionary funds, Transportation Corridor Agencies, local jurisdictions, and private sources.

OCTA's long-range transportation plan goals include improving mobility to enhance the movement of people and goods in and through the county. Also, focusing on the sustainability of the transportation system and minimize the negative environmental impacts of improvements, while ensuring that transportation plans reflect local priorities. Furthermore, providing safe, reliable and cost-effective transportation projects and services that meets the needs of residents, visitors, workers and those with special needs remains a continued priority. Lastly, the development of transportation solutions that complement the land-use plans of local communities is a goal of the long-range plan.

OCTA's Priorities Related to the SR-91 Corridor

Improve SR-91 Corridor Travel: An important component of OCTA's ten-year plan is increasing mobility along the Riverside freeway (SR 91). This transportation corridor continues to experience congestion and long drive times between Orange and Riverside Counties. To address this priority, a multi-model approach consisting of bus and rail transit, along with freeway improvements is under consideration.

Fix Freeway Bottlenecks: Even with an expanded network of freeways, HOV flyover lanes, and new interchanges designed to improve traffic flow, there is still work to be done to relieve freeway bottlenecks. Caltrans and OCTA have identified key freeway sections along with specific on- and off-ramps that are experiencing backups and delays. OCTA's priority will be to focus on cost-effective solutions to alleviate these delays.

Encourage Carpooling on Toll Roads: Another priority is to explore ways to encourage carpooling on toll roads to more evenly distribute traffic across available freeway and toll road capacities. Ideas include working with Transportation Corridor Agencies to encourage car and van pooling through marketing or by offering subsidies or other incentives.

Expand Metrolink Service: One of Measure M's, Orange County's transportation sales tax, biggest success stories outside of freeway improvements is the growth of Metrolink commuter rail service in Orange County. The Authority's priority for the next ten years is to continue expanding service between Los Angeles, Riverside, and Orange Counties. Focal points include the addition of extra trains and off-peak commute times, and making Metrolink Orange County's backbone rail service.

Add Express Bus Service: New express bus service for Orange County commuters is planned to run both within the county as well as between Orange and neighboring counties. Under consideration is the use of commuter buses to bring 'business class' accommodations to routes leading to major employment centers. This is where 'state-of-the-are commuting' meets the discretionary rider who would prefer to let the Authority do the driving.

Provide Bus Rapid Transit Service (BRT): Continuing with the Authority's commitment to explore new transportation alternatives, Bus Rapid Transit, also known as BRT, is an important consideration for improving mobility around the county. BRT combines the flexibility of a bus system with some of the features that are typical of rail transit. BRT operates with signal priority allowing for faster travel times. It can travel either in dedicated lanes or in mixed traffic. All BRT features are designed to increase travel speed, passenger comfort, and convenience.

Economic Development Programs in Orange County

Orange County Business Council: The Orange County Business Council's purpose is to increase countywide income, create higher paying jobs, and create general prosperity throughout the county. Orange County must support industry clusters with the greatest growth potential. This support requires attraction, retention, and expansion efforts, as well as supporting improvements in infrastructure, business environment, workforce development and access to capital. There are three steps utilized to improve the results of current economic development efforts: research, consensus-building, and capacity building. It is necessary to support high-quality research, which identifies trends and challenges, to develop broad based and inclusive consensus based upon objective data, and to develop strategic capacity to effect change.

- ***Workforce Development:*** Workforce Development was identified by business leaders as their top priority during OCBC's Strategic Planning process with McKinsey & Co. in 1999. As the Orange County economy continues to thrive, business owners face increasing challenges in recruiting and retaining their best employees.

  OCBC's Workforce Development Initiative addresses the top concerns of Orange County's technology industries in meeting their immediate workforce development needs and helps students pursue career opportunities in these fields and in other fast-growing industries. A primary objective of OCBC's Workforce Development Initiative is to ensure that Orange County's current and future workforce, as well as those considering coming to Orange County to work, understand Orange County's career opportunities and the benefits of the Orange County lifestyle.

Orange County Workforce Investment Boards: The Workforce Investment Act (WIA) passed in 1998 to replace the Job Training Partnership Act (JTPA), has provided the opportunity for Orange County to respond to change. The legislation mandates that the education and training community make our workforce development system more market-driven and more employer needs-based. At the same time, Workforce Investment Boards (WIBs), must coordinate workforce activities at a regional level, and must have at least 51 percent of their Board members be from the local business community.

To improve the responsiveness of federal training to businesses, WIA mandates that states create business-driven state and local WIBs to oversee and implement workforce development services. WIBs are the centerpiece of the reformed WIA workforce investment system. As WIA replaced JTPA, WIBs have replaced private industry councils (PICs). Orange Country has three WIBs: The City of Anaheim WIB, the City of Santa Ana WIB, and the Orange County WIB, covering the rest of the county. The fundamental advance that WIA and the WIBs make possible is that each region such as Orange County is now locally planned, managed, and administered. This is accomplished by a customized workforce development system that is unique to Orange County, relying on training needs defined by Orange County employers and taking into account local industry growth patterns in the planning and implementation of training programs.

WIBs deliver their services through "One-Stop Centers," which help coordinate activities related to the recruitment and training of job seekers and provide services to local business. Partners that are represented at the One-Stop Centers include the Orange County Community Development Council, Center for Employment and Training, Community Resources Care

Center, Goodwill Industries, Southern California Indian Center, Youth Employment Services, Boys and Girls Clubs, Senior Citizen Centers, and various culturally identified organizations.

Orange County Community Indicators: The purpose of the 2001 Orange County Community Indicators Report is to gather relevant information and present it in a useful and thought-provoking format. The report is intended to raise awareness and spark discussion among governmental, business, and community organizations. It uses a range of indicators to track broad, countywide economic, social and environmental trends.

- Orange County Executive Survey, 2002: The Orange County Executive Survey (OCES) is a research project undertaken collaboratively by the University of California Irvine and members of the business and governmental community. The survey provides executives and planners with systematic, objective information concerning the future of business in the Orange County region.

  The 2002 OCES found Orange County remains an attractive place to do business. Its location, desirability as a place to live, customer base and growth contribute most to the assessment. The high cost of housing for employees, rising energy costs, the high cost of labor and difficulties in hiring are frequently cited by executives as significant impediments to doing business in Orange County.

Affordable Housing Programs in Orange County

Orange County has a regional housing needs goal to produce 75,500 housing units between 1998 and 2005; almost 25,000 of those units should be affordable to low and very low income households. The County of Orange has taken significant steps in recent years to address what has been recognized as an affordable housing crisis in the County. Steps have included the following:

- In 1999 the Board of Supervisors (BOS) approved the Orange County Affordable Housing Strategy and directed the County's Housing & Community Development Department to begin implementation of its 4 major program areas: rental housing; homeownership; special needs housing; and leadership/education. The county adopted a regional approach by offering to match any Orange County city's funding of a qualified affordable rental housing. In the past two years the BOS has approved 20 affordable housing projects consisting of over 1600 units located throughout the county; with the exception of 6 units, all are new construction. In addition, the county has implemented multiple homebuyer assistance programs including a program targeting moderate-income workers in the County.

- Development of Affordable Housing was designated as one of the top 3 Strategic Financial Priorities of the Orange County Board of Supervisors in 2001, and $34.8 million in general revenues over 4 years were allocated to address this need.

- The County's Housing Element was adopted in 2001 and includes the creation of a Housing Opportunities Overlay zone designed to encourage infill housing as well as the redevelopment of obsolete commercial strips and underutilized residential properties into affordable housing. In addition, the Incentives Development Agreement Program

identifies affordable housing as a public benefit to be included in the negotiation of development agreements.

Affordable Housing Programs

Orange County Affordable HomeOwnership Alliance: The Orange County Affordable HomeOwnership Alliance (OCAHOA) is a collaboration of business and civic leaders to develop viable solutions to increase the availability and supply of quality affordable housing for working families. Partners of OCAHOA include the Orange County Business Council, Merrill Lynch, Fannie Mae, the Building Industry Association, Wells Fargo, the Enterprise Foundation, the County of Orange and GMAC Commercial Mortgage.

Orange County Affordable HomeOwnership Alliance: The Orange County Affordable HomeOwnership Alliance partnering with the Orange County Business Council, the Building Industry Association, the Enterprise Foundation, Fannie Mae, Wells Fargo, and Merrill Lynch continues to explore ways to increase the availability and supply of good affordable housing for working families in Orange County.

As part of a commitment to maintaining strong job growth and attracting and retaining business, OCBC is working through OCAHOA to extend homeownership to all segments of the population, including working families. A number of factors, including community opposition to growth, limited land supply, and a state tax policy which inadvertently discourages new housing, have created a housing environment which makes homeownership difficult for many Orange County residents. The Alliance's focus on homeownership, advocacy, and research strengthens efforts to illuminate and alleviate these problems.

Urban County Program: Orange County administers the federal Community Development Block Grant (CDBG); HOME Investment Partnership; and Emergency Shelter Grant Programs on behalf of 16 cities and the unincorporated areas. Over the last few years, about 60% of the Urban County CDBG funds have been directed to housing and homeless programs. Cities with populations over 50,000, excepting the City of Yorba Linda which elects to participate in the Urban County program as a Metro City, qualify as entitlement jurisdictions eligible to receive CDBG funds directly from HUD.

Redevelopment Funds: The County has 2 redevelopment project areas. With the exception of housing set-aside funds, funds received by the redevelopment agency are committed to bankruptcy debt. In 2001 the county successfully sponsored legislation that allowed its redevelopment agency to spend its housing set-aside funds anywhere in the county, including incorporated cities, if the affordable housing project met specific criteria. The county recently approved its first project, located in the City of Laguna Beach, using county redevelopment funds.

Southern California Home Financing Authority (SCHFA) Program: SCHFA, a joint powers authority comprised of Orange County and Los Angeles County, issues Single Family Mortgage Revenue Bonds and Mortgage Credit Certificates to assist first-time homebuyers in home purchases anywhere in the county.

Section 8 Housing Choice Vouchers: Four Housing Authorities administer the federally funded Section 8 rental assistance program in Orange County: the Anaheim Housing Authority; the Garden Grove Housing Authority; the Santa Ana Housing Authority; and the Orange County

Housing Authority (OCHA). OCHA serves 31 of the county's 34 cities as well as the unincorporated areas. During the last few years, OCHA has expanded its program to serve 37% more households, almost 9,600 total, as a result of successful applications to HUD for additional vouchers. Countywide, the four housing authorities serve about 20,000 households. In addition, administrative savings from OCHA have been invested in a number of affordable housing developments.

Homeownership Incentive for the Recruitment/Retention of Employees (HIRE) Program: The HIRE program is a collaboration of the County of Orange Housing & Community Development Department (H&CD); California Housing Loan Insurance Fund; Century Housing; and the Orange County Affordable Homeownership Alliance (OCAHOA). Created in late 2001, the program provides very favorable financing to assist those who work in Orange County and wish to buy a home in the county. Unlike most homebuyer assistance programs, the borrower does not need to be a first time buyer and household income can go as high as 140% of the county's median income. Century Housing provided $500,000 for the pilot project, which capitalizes about $25 million. OCAHOA and H&CD are marketing the program to businesses in the county who might be interested in replicating the program for their employees once funds for the pilot project are exhausted.

Extra Credit Teacher Home Purchase Program: In 2001, the county applied for and received a $7.5 million allocation from the California Debt Limit Allocation Committee to implement a program designed to assist credentialed teachers in purchasing homes in exchange for agreeing to teach in low-performing schools. In the first year of operation, the county assisted 29 teachers in purchasing homes through this program.

Notice of Funding Availability (NOFA): During the last few years, the County has issued NOFA's announcing the availability of over $25 million in funding for affordable rental housing where at least 20% of the units are affordable to those at 60% of area median income. Projects could be located anywhere in the county as long as the project met the NOFA's criteria. During the last 2 years, the BOS has approved 20 affordable housing projected consisting of over 1600 units, all but 6 of which are new construction. Projects are located throughout the county including in new master planned communities such as Talega and Ladera, as well as in cities in north county as well as south county. In addition, the BOS has made available two county owned sites for development as affordable housing.

Special Needs Housing: The County has taken a lead role in addressing the needs of the homeless as well as people with special needs such as the elderly and disabled. The county, with the support of the cities, coordinates the countywide application to HUD for federal homeless assistance funds each year. Over the last 4 years, the county has been awarded over $25 million in McKinney Act Homeless Assistance funds. The County's Homeless Prevention Manager has developed numerous collaborations with partners including school districts and the Prop 10 Children and Families Commission to address the needs of the homeless. In addition, for the last 4 years, the county has administered a cold weather shelter program between December 1 and March 31.

Countywide Map of Potential Housing Sites: In 2002, County H&CD contracted with the Center for Demographic Research (CDR) at CSUF to create a consolidated map that shows all the sites identified in each city or county jurisdiction's housing element as potential sites for meeting the jurisdictions RHNA goal. CDR expects to complete this project by the beginning of 2003.

CURRENT EFFORTS

Leadership/Education: Over the last few years, the county has helped lead and/or support a number of initiatives designed to provide forums and a clearinghouse for information about the need for affordable housing as well as resources available to address this need. In partnership with nonprofits, cities, business and others, the following has been implemented:

- Meetings of city and county housing staffs are held on a quarterly basis to discuss topics such as current housing efforts; housing legislation at the state and federal levels; and funding opportunities.
- Training programs on affordable housing development and finance are hosted by the county each year and open to city staffs and nonprofit developers.
- Legislative/regulatory review workshops are sponsored by the county periodically to develop comments on pending legislation, or plan changes for low income housing tax credits, to ensure Orange County's needs are addressed.
- Consolidated affordable housing resource guides have been developed and are periodically updated to provide single source documents that list all the homebuyer assistance programs offered by jurisdictions throughout the county; and all the deed-restricted affordable rental housing in the county.

The Orange County Affordable Housing Collaborative was formed and meets about 3 times per year to discuss affordable housing issues and develop strategies to advance affordable housing initiatives. The Collaborative formed from a Future Search conference on affordable housing held in October 1999, and brings together representatives of business, labor, nonprofit service providers, builders, lenders, and city staff and officials.

Exhibit T

PURPOSE AND NEED STATEMENT
For The
RIVERSIDE COUNTY INTEGRATED PROJECT

BANNING/BEAUMONT TO TEMECULA CORRIDOR, WINCHESTER TO TEMECULA STUDY AREA (December 20, 2000)

INTRODUCTION

Community and Environmental Transportation Acceptability Process (CETAP)

The Banning/Beaumont to Temecula transportation corridor is part of the CETAP process being undertaken jointly by the County of Riverside and the Riverside County Transportation Commission (RCTC). CETAP is one component of the Riverside County Integrated Project (RCIP), which also includes the Riverside County General Plan update and a Multi Species Habitat Conservation Plan for western Riverside County. The purpose of the RCIP is to integrate the processes of planning land uses, transportation improvements and preserving habitat for endangered species. A primary objective of the RCIP is to accommodate projected population growth within Riverside County by focusing development within areas that will be readily accessible, will provide a good quality of life for future residents, and will minimize environmental impacts, including impacts to sensitive habitats and endangered species.

Due to the fast pace of development in Riverside County, opportunities are being lost to preserve land for habitat conservation and regional transportation facilities. Therefore, an important goal of CETAP is to complete environmental documentation by year 2002 sufficient for use in preserving right-of-way for regional transportation facilities. These facilities are intended to address the mobility needs for both people and goods, with the potential for incorporating the needs for both highways and transit, as well as utilities, where appropriate.

Through early CETAP planning studies,[1] four major transportation corridors have been identified for more detailed analysis, including Banning/Beaumont to Temecula (focusing on the study area from Hemet to Temecula), Hemet to Corona/Lake Elsinore Corridor, Riverside County to Orange County, and Moreno Valley to San Bernardino County. Working Paper No. 3 (TransCore, November, 1999) and Working Paper No. 7a (TransCore, October, 2000) provide background information on the Banning/Beaumont to Temecula corridor and document the socioeconomic and transportation conditions within the corridor.

CETAP Within the Context of the Riverside County Integrated Project

CETAP is one of three major elements of the Riverside County Integrated Project. The other two elements involve a new General Plan and the development of a Multi-Species Habitat Conservation Plan (MSHCP). The General Plan revolves around the development of land use

[1] Like the other two components of the RCIP, the CETAP planning effort has been a stakeholder driven process involving a CETAP Advisory Committee whose membership includes representation from government, environmental organizations, and the building industry. The CETAP planning process is documented in a series of working papers prepared by the RCIP consulting team.

plans that are coordinated with habitat and land conservation, transportation needs, and needs for other public facilities and infrastructure. A document entitled *Vision for Riverside County* was approved by the Riverside County Board of Supervisors in March 2000 as a general guide for the development of the General Plan. Since that time, three alternative land use scenarios have been developed: a Trends Alternative (Alternative 1, maintaining the planning status quo), a Sphere Alternative (Alternative 2, reflecting land use plans within the city sphere areas), and the Vision Alternative (Alternative 3, reflecting planning in response to the Vision document). Alternative 3 has been identified as the preferred alternative for further development in the General Plan. It includes a concept of creating mixed use nodes of development within the county unincorporated areas (in addition to what could occur in the cities) to promote a land use arrangement that allows more efficient transportation service in the county.

In conjunction with the work on the General Plan, CETAP evaluated five different land use scenarios for Western Riverside County to determine the extent to which reshaping land use could potentially affect the need for transportation improvements. The five scenarios tested included:

- Lower growth scenario (assumed a 30 percent lower growth for year 2020 than currently projected)
- Dispersed scenario (more development in the unincorporated areas than currently projected)
- Nodal scenario (includes assumption of extensive transit service among the nodes)
- City focus scenario (concentrates more of the development within the cities)
- Higher jobs scenario (assumes substantially more jobs in Riverside County than those assumed in the existing demographic forecast)

The results of the analysis are documented in an October 3, 1999 memorandum from TransCore to the CETAP Advisory Committee. The results indicated that only the lower growth scenario and the higher jobs scenario had significant effects on area roadways. The higher jobs scenario tended to reduce traffic on inter-county roadways and increase traffic on roadways within the interior of Western Riverside County. The lower growth scenario tended to reduce year 2020 traffic volumes by 5 to 15 percent, depending on location. Given that many of the roadways are expected to double in traffic volume over the next 20 years, even the lower growth scenario still predicts a high rate of traffic growth in the future. The other scenarios generally affected the traffic forecasts by only about one to three percent on any given facility.

A Circulation Element is being developed as part of the General Plan. The Circulation Element cannot be evaluated until the General Plan land use plans are further reviewed and documented. Once this occurs, the land use plans will be analyzed using the SCAG transportation model, and the Circulation Element will be refined to provide a transportation system that is consistent with the land use plans. The circulation system will become an important supporting system to the current and future backbone network of freeways, major arterial roadways, and transit systems in the County.

The MSHCP is in the process of defining and analyzing a set of alternatives as well. Three different conservation alternatives have been defined, each of which assumes different levels of coverage of threatened and endangered species, requiring different quantities of acreage for conservation. CETAP is coordinating with the MSCHP in terms of defining alternatives that will help to avoid, minimize, and mitigate impacts potentially created by transportation alternatives. Maps of the MSHCP alternatives are available on CD-ROMs, available from the RCIP project team (call 909-684-7802).

In addition to the coordination with the General Plan and MSHCP, CETAP has been in the process of developing a long term concept for transit service in Western Riverside County. This has been termed the "Transit OASIS" concept, because it creates a framework for how to build an effective transit system over time, in a way that integrates with land use planning and development in the County. An OASIS reflects the idea of a land use node that is connected by transit to other land use nodes. Several of the major features of this concept involve the following elements:

- **High-speed linkages or "express routes" between major nodes of activity** in Riverside County and adjacent counties along a "spine network."
- **Local circulator vehicles** at about 10-minute intervals within each node. These circulators would carry passengers within the nodes and connect them to the express network.
- **Building on the Transit OASIS theme where these local circulators and express systems meet.** They are intended to be places of significant activity, places where people want to work, live, relax, and conduct their business.

The Transit OASIS concept is in draft form, and its development is being continued and coordinated with the land use plans. A separate brochure is available providing an overview of the Transit OASIS Concept[1].

Location of the Banning/Beaumont to Temecula Corridor

The Banning/Beaumont to Temecula corridor is defined as representing the north-south travel demand in the area connecting Banning/Beaumont, Hemet, San Jacinto, Murrieta, and Temecula. It also encompasses the unincorporated areas of Gilman Hot Springs, Lakeview/Nuevo, Juniper Flats, Green Acres, Homeland, East Hemet, Valle Vista, Soboba Hot Springs, Winchester, Menifee, Murrieta Hot Springs, Rancho California, and others. The Cities of Banning and Beaumont are located along the I-10 corridor approximately 13 miles north of the City of Hemet. The City of Hemet is located along the intersection of the SR-79 and SR-74 junction. Approximately 16 miles south of Hemet is the Murrieta/Temecula area located adjacent to I-15 in the vicinity of the I-215/I-15/SR-79 junction.

This corridor represents one of the primary options for travel from I-10 south to San Diego. There is also a high amount of interaction between these cities for commercial, agricultural, and recreational uses. This interaction is expected to increase as population in the corridor is expected to grow by 130 percent and employment by 230 percent over the next 20 years.

[1] The Transit OASIS: An Initiative in Transportation Choices in Riverside County, Draft, TransCore and The Mission Group, September 21, 2000.

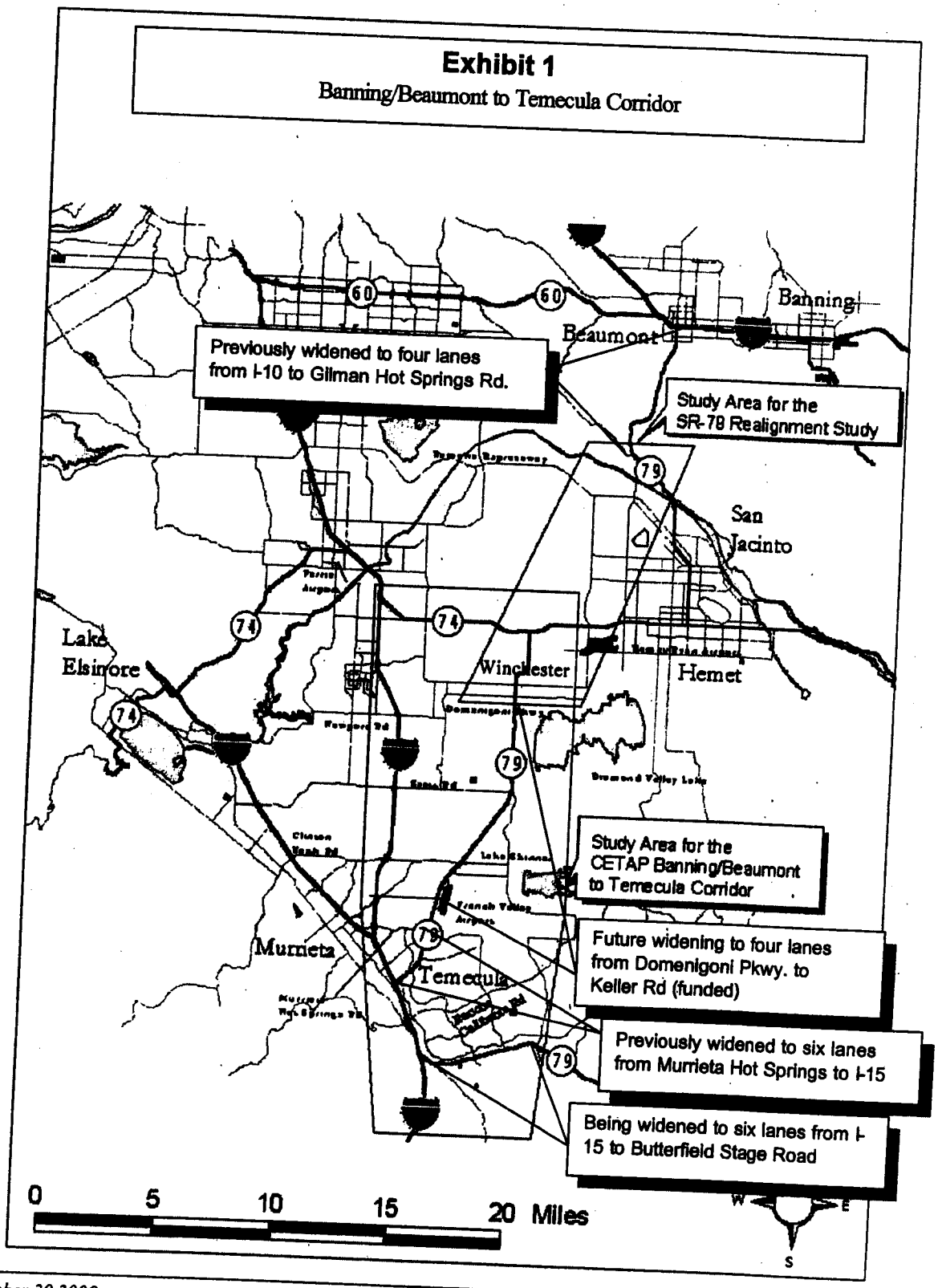


Exhibit 1
Banning/Beaumont to Temecula Corridor
Banning
Beaumont
San Jacinto
Lake Elsinore
Winchester
Hemet
Murrieta
Temecula
60
74
79
Previously widened to four lanes from I-10 to Gilman Hot Springs Rd.
Study Area for the SR-79 Realignment Study
Study Area for the CETAP Banning/Beaumont to Temecula Corridor
Future widening to four lanes from Domenigoni Pkwy. to Keller Rd (funded)
Previously widened to six lanes from Murrieta Hot Springs to I-15
Being widened to six lanes from I-15 to Butterfield Stage Road
0 5 10 15 20 Miles
W
E
S

For CETAP, the focus is on the southern portion of the corridor, from SR-79 at Domenigoni Parkway near the City of Hemet to I-15 south of Temecula (Exhibit 1). For the portion of the corridor north of Domenigoni Parkway, RCTC and Caltrans initiated a separate study to develop a realignment alternative for SR-79 from Lamb Canyon to SR-79 south of Hemet. This effort is developing a Project Study Report (PSR) to select a preferred alignment to close the gap between the Lamb Canyon portion of SR-79 and the portion south of Domenigoni Parkway and to take through traffic out of downtown Hemet. No construction dollars have yet been identified for this project. A preliminary planning study of SR-79 alignments was begun in 1997 and completed in 1999. As with CETAP, this study is being conducted in accordance with the NEPA/404 integration process.[1] The proposed corridor study to be conducted under CETAP will extend from the southern end of the SR-79 realignment study to I-15 south of Temecula. The two studies will be coordinated so that the alternatives are compatible, but will not pre-determine a preferred alternative in either corridor. The memo by TransCore, dated June 19, 2000, titled "Explanation of Planning and Project Development Activities in the SR-79 Corridor", addresses the timing of activities for the CETAP and the SR-79 projects and explains their relationship to one another. The other related transportation projects in the Banning/Beaumont to Temecula Corridor include:

- Widening of two sections of SR-79 to six lanes in the City of Temecula – The section from I-15 to Murrieta Hot Springs Road was widened in 1995. The southern section from I-15 to the city limits (toward Anza) is in the process of being widened.
- Widening of SR-79 through Lamb Canyon to four lanes – This project was completed in 1996.
- Widening of SR-79 from Domenigoni Parkway to Keller Road. Caltrans is nearing the completion of an environmental document to clear the widening of this portion to a four-lane divided highway. The widening is funded with state dollars, and construction is expected within the next four years. This project will be assumed to exist in the analysis of alternatives for CETAP.

NEED FOR ACTION

The proposed action is the environmental clearance of at least one multi-modal transportation facility within the study area to allow agencies to proceed with the acquisition and/or protection of right-of-way for a preferred alternative. As part of this action, it is the intent to secure concurrence from appropriate local, regional, state, and federal agencies to allow the preferred alternative to be constructed at the time funding becomes available. However, construction-level environmental clearance, including applicable permits, would be obtained at a future date. Even though actual construction of transportation facilities in this corridor may be a number of years away, there is an urgent need and unique opportunity to make these decisions in conjunction with decisions being made on habitat conservation and land use within the RCIP process. It is important to make these decisions concurrently, and to have certainty as to the ability to construct the needed transportation facilities so that land development can take place in an orderly, efficient, and predictable manner, minimizing the impacts on habitat, aquatic resources,

[1] The NEPA/404 integration process is a joint effort among Caltrans, FHWA, the U. S. Army Corps of Engineers, the U. S. Environmental Protection Agency, the U. S. Fish and Wildlife Services, and other transportation and resource agencies to integrate the NEPA and federal Clean Water Act Section 404(b) alternatives processes. The commitment by these agencies to coordinate these processes is documented in a Memorandum of Understanding approved in 1994.

communities, and other elements of the environment. This section describes the need for the proposed action.

The Banning/Beaumont to Temecula corridor serves a population base of nearly 300,000 (source: Western Riverside Council of Governments and SCAG). Approximately 75 percent of the corridor is located within rural, agricultural, or undeveloped areas. The other roughly 25 percent falls within the incorporated areas of Banning/Beaumont, Hemet/San Jacinto, and Murrieta/Temecula. The Cities of Temecula and Murrieta were both incorporated within the last 10 years and have proceeded to grow rapidly over that period. Combined, the cities account for over 100,000 population and over 30,000 jobs. Development also has been occurring rapidly within the unincorporated portions of the corridor.

Exhibit 2 shows the year 2000 and projected 2020 population and employment for cities within the study area and for the unincorporated areas of Riverside County, as provided by the cities to the Western Riverside Council of Governments (WRCOG). The table shows the growth for cities as a whole, not just the portion of the cities located within the immediate study area. The shaded rows highlight the cities most closely associated with this corridor. The growth projection shows increases in population in the range of 35 percent to over 300 percent and increases in employment in the range of 60 percent to nearly 300 percent. The greatest percent increase is in the City of Beaumont. The Cities of Murrieta and Temecula also show significant growth. The corridor also serves a substantial part of Western County's unincorporated area, where population and employment are expected to nearly double over the next 20 years.

Transportation infrastructure improvements are necessary within the Banning/Beaumont to Temecula corridor to address needs for mobility, access, goods movement, and to address projected freeway and arterial congestion. One of the principal objectives of the planning being conducted within the RCIP is to foster an environment in which more jobs can be created for Riverside County residents. This objective is reflected in the *Vision for Riverside County*[1] and in the transportation strategy prepared for CETAP and approved by the Riverside County Transportation Commission and the Board of Supervisors in January, 2000. Achieving this objective is key to many aspects of the vision for the county, including building a strong economic base to support public facilities for County residents and allowing the County to support the acquisition of land to be reserved for threatened and endangered species. Example statements of this objective are cited below:

- We acknowledge gainful employment as one of the most basic community needs and value a growing and diversified job base within which our residents may find a wide range of income opportunities in the agricultural, commercial, industrial, office, and institutional sectors (*Vision for Riverside County*, page 5)

[1] Vision for Riverside County, prepared by RCIP advisory committees and approved by the Board of Supervisors in December, 1999.

Exhibit 2
Current and Projected Population and Employment for Cities in Western Riverside County
(source: Western Riverside COG and SCAG)

	Population			Employment		
	2000	2020	% Increase	2000	2020	% Increase
Banning	26,063	[illegible]	[illegible]	[illegible]	13,081	80%
Beaumont	12,2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	290%
Calimesa	7,440	24,002	223%	1,345	4,520	236%
Canyon Lake	9,148	10,562	15%	1,973	2,800	42%
Corona	122,384	149,575	22%	45,000	71,725	59%
Hemet	61,08[illegible]	[illegible]	36%	[illegible]	[illegible]	50%
Lake Elsinore	30,365	70,665	133%	7,821	23,015	194%
Moreno Valley	147,511	208,284	41%	29,860	62,351	109%
Murrieta	47,99[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	218%
Norco	25,754	30,005	17%	9,184	10,918	19%
Perris	33,797	90,273	167%	11,058	28,501	158%
Riverside	259,917	349,643	35%	120,915	196,445	62%
San Jacinto	26,958	[illegible]	[illegible]	[illegible]	[illegible]	158%
Temecula	54,1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	74%
Unincorporated	342,568	663,182	94%	100,307	183,206	83%
Total	1,207,393	2,058,750	71%	397,376	725,383	83%

- Clusters of similar businesses and industries are created within areas designated for job generating uses and our expanded educational institutions provide preparation and training for the new jobs created in these clusters (*Vision for Riverside County,* page 8)
- Jobs/housing balance is significantly improved, not only at the Countywide level, but within subregions of the County as well (*Vision for Riverside County*, page 15)
- Place significant investment in attracting jobs to Riverside County (part of overall transportation strategy recommended by the CETAP Advisory Committee and approved by RCTC and the Board of Supervisors in January 2000).

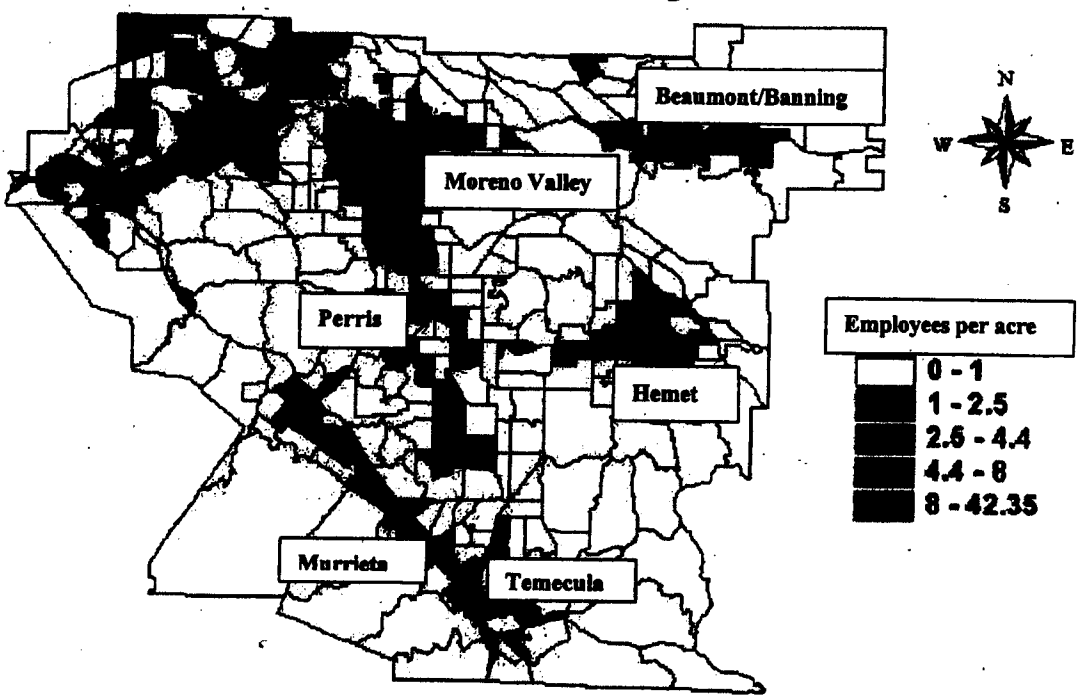
Currently, Western Riverside County has approximately 0.25 jobs per resident. By comparison, Orange County has approximately 0.48 jobs per resident. Current demographic forecasts approved by the Southern California Association of Governments (SCAG) indicate that Riverside County will add approximately 0.39 jobs per additional resident. Orange County is projected to add 1.3 additional jobs per additional resident.[1] These ratios are being adjusted downward in the 2001 update of the Regional Transportation Plan, but will likely be in the same general range.

Some of the main areas where job growth is anticipated in Western Riverside County over the next 20 years are in Hemet, Temecula, Murrieta, Banning/Beaumont, and the I-215 corridor from Moreno Valley to Murrieta. Exhibit 3 illustrates forecast employment densities for year 2020 for Western Riverside County. The densities are expressed in employees per gross acre, with the darker shades being the higher densities. Adequate transportation infrastructure is needed to

[1] 1998 Regional Transportation Plan, Southern California Association of Governments

support the job growth in these areas. The particular need in the Banning/Beaumont to Temecula corridor is for high-speed access to Interstate 10 and Interstate 15, allowing for better access to markets, customers, and suppliers in San Diego, Mexico, the Coachella Valley, and points to the east along Interstate 10. Without improved access, the ability to create jobs that are needed to support many elements of the County's vision will be hindered. This will also lead to a pattern of County residents commuting out of the County for employment to an even greater degree than they do today.

Exhibit 3. Employee Density, Year 2020
(Source: SCAG – note that densities are in gross acres for each zone, and only a portion of each zone may be developed for employment)



Several specific areas should be particularly noted in terms of potential impacts on the transportation system:

- Substantial increases in population and employment are projected throughout the corridor. From 1994 to 2020, population in this corridor will increase by 130% and employment by 230%. This growth is projected to result in a tripling of traffic on SR-79 in the City of Temecula and significant increases on SR-79 to the north as well. Build out of this corridor, though many years away, will result in even greater projected traffic volumes in the SR-79 corridor. It is estimated that 44,000 dwelling units are included in the approved specific plans for the combined Southwest and SR-74/79 planning areas. These dwelling units represent almost 150,000 in population growth at build out. Each dwelling unit generates an average of

10 vehicle trips per day[1]. In addition, there are 350 acres of commercial use and 800 acres of industrial/business park use in the approved specific plans for this corridor[2]

- Traffic forecasts are in excess of 100,000 vehicles per day on State Route 79 at build out within the City of Temecula[3]. This is beyond the capacity of any roadway that has signalized at-grade intersections (the capacity of a six-lane arterial roadway, such as SR-79 in Temecula, is approximately 54,000 vehicles per day – see table in Appendix A).
- Expanded use of and access to Diamond Valley Lake for recreational purposes will increase traffic on SR-79. Diamond Valley Lake is expected to have 4 million visitors per year, when the recreational facilities are fully operational[4].
- Continued growth in the San Diego region will increase the demand for goods movement in the corridor as well as increasing the number of trips to that region daily for employment and commerce. Population in the San Diego region is expected to increase by 44 percent from 1995 levels to over 3.8 million persons in 2020. Employment is expected to increase by 45 percent to over 1.7 million jobs.[5].
- If SR-79 reaches the forecast projections of 100,000 vehicles per day near I-15, vehicles can be expected to divert to other local streets, to avoid the interchange traffic for access to Murrieta, the I-215, and I-15.

Improvements to the transportation infrastructure within the Banning/Beaumont to Temecula corridor in Riverside County are needed to address the following issues:

- Need for improved access to the freeway system for commercial/industrial development within the corridor, allowing for the creation of jobs that will support the County economy and improve the job/housing balance in the County
- Traffic delays during the peak period resulting in increased travel times on major freeways and local arterials;
- Existing and projected traffic congestion for facilities in the corridor;
- Increasing traffic congestion on existing deficient regional facilities resulting in the spread of congestion to nondeficient regional transportation facilities;
- Congestion spreading to the local street network and impacting mobility, safety, and the quality of life of residents in western Riverside County;
- Fast-paced development is utilizing land that may be needed for regional transportation facilities.

Existing Traffic and Projected Travel Demand

Transportation engineers describe the quality of traffic flow in terms of a "level of service" scale, from A to F. Level of service (LOS) "A" means very good traffic flow; level of service "F" means very poor flow. Caltrans policy for urban areas is to design freeways and arterials to accommodate projected traffic volumes 20 years after completion at a level of service (LOS) no less than "E." Exhibit 4 shows existing and projected year 2020 daily traffic volumes and number of lanes on freeways and other major highways within the corridor. The highest volumes are located in the areas in or around cities and developed areas. The SR-79 reaches its highest volume at 34,000 vehicles per day east of the I-15. The I-15 reaches a peak of over 130,000 vehicles per day, also in the Temecula area.

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[1] Trip Generation, Institute of Transportation Engineers, 6th Edition, Washington D.C., 1999.
[2] Specific Plans approved by Riverside County and contained in the RCIP and County database.
[3] Traffic forecasts by TransCore using the SCAG travel demand forecasting model for Riverside County
[4] Draft EIR for Diamond Valley Lake (previously known as East Side Reservoir), 1993.
[5] San Diego Association of Governments

Exhibit 3.
Existing and Projected Daily Traffic Volumes and Number of Lanes on Highway Facilities Within the Banning/Beaumont to Temecula Corridor

Route	From	To	Existing Daily Volume	Existing # of Lanes	Existing LOS	2020 Daily Volume	2020 # of lanes funded	2020 LOS
I-15	S.D. Cnty Line	So. Jct. Rte 79	84,700	8	A	138,000	8	D
I-15	So. Jct Rte 79	Rancho California Rd	91,800	8	A	195,000	8	F
I-15	Rancho California Rd	Jct. Rte 79	111,200	8	B	217,000	8	F
I-15	Jct. Rte 79	Jct. Rte 215	131,600	8	D	254,000	8	F
I-15	Jct. Rte 215	Murrieta Hot Springs Rd.	79,600	6	C	141,000	6	F
I-15	Murrieta Hot Springs Rd.	California Oaks Rd.	83,700	6	C	159,000	6	F
I-15	California Oaks Rd.	Clinton Keith Rd.	80,600	6	C	146,000	6	F
I-215	Jct. Rte. 15	Murrieta Hot Springs Rd.	52,100	4	B	112,000	4	F
I-215	Murrieta Hot Springs Rd.	Los Alamos Rd	50,000	4	B	124,000	4	F
I-215	Los Alamos Rd	Clinton Keith Rd.	48,500	4	B	119,000	4	F
I-215	Clinton Keith Rd.	Scott Rd.	45,900	4	B	130,000	4	F
I-215	Scott Rd.	Newport Rd.	41,900	4	A	115,000	4	F
I-215	Newport Rd.	McCall Blvd	41,900	4	A	105,000	4	F
I-215	McCall Blvd	Ethanac Rd.	40,800	4	A	119,000	4	F
I-215	Ethanac Rd.	So. Jct. Rte 74	41,400	4	A	118,000	4	F
I-215	So. Jct. Rte 74	No. Jct. Rte. 74	61,200	4	D	135,000	4	F
SR-79	No. Jct. Rte. 15	Borel St.	34,000	6	C	58,000 to 100,000	6	F
SR-79	Borel St.	Simpson Ave.	12,100	2	B	55,000	4	F
SR-79	So. Jct. Rte. 15	Butterfield Stage Rd.	18,200	2	F	37,000	6	A/B
SR-74	So. Jct. Rte. 215	Ethanac Rd	19,400	4	A	28,000	4	C
SR-74	Ethanac Rd	So. Jct. Rte. 79	23,400	4	B	39,000	4	F
Scott Rd	I-215	Antelope Rd	8,600	2	A/B	27,000	2	F
Scott Rd	Antelope Rd	Menifee Rd	4,500	2	A/B	22,000	2	F
Scott Rd	Menifee Rd	SR-79	1,650	2	A/B	18,000	2	F

Year 2020 traffic projections shown in Exhibit 4 for facilities in the Banning/Beaumont to Temecula Corridor indicate that many of these facilities, including SR-79, SR-74, I-215, and I-15, will be operating at deficient LOS as defined by Caltrans. Most are projected to be operating at LOS F.

I-15 is a critically important goods movement corridor, linking San Diego and Mexico with the Inland Empire and the greater Los Angeles region. Trucks make up approximately 15 percent of the traffic volume on I-15. One of the major reasons for the high level of traffic demand on I-15 near Temecula is the convergence of major roadways (I-15, I-215, and SR-79). The I-215 and SR-79 terminate within three miles of each other at the I-15. With the I-15 already carrying heavy volumes as the main north-south freeway for this portion of western Riverside County, the problems are intensified by the convergence of these roadways in the same area. I-15 is an 8-lane to 10-lane freeway in this area and can accommodate the current volumes of traffic; however, LOS F conditions will occur in 2020. Relief of future traffic congestion on I-15 through Temecula will be a consideration in the development of alternatives for this corridor.

As a six-lane facility, SR-79 east of I-15 in Temecula (Winchester Rd) is currently carrying 34,000 vehicles per day. With few other existing east-west roadways in the City of Temecula, mobility is severely hampered for motorists during the peak periods. This specific lack of east-west mobility will increase pressures on existing east-west facilities and unnecessarily increase travel on north south facilities. This will exacerbate both the local and regional traffic problems as traffic volumes on both the SR-79 and I-215 corridors increase.

The City of Temecula estimates that 25 percent of the workers living in that City travel to jobs in the San Diego region. As the San Diego region expands northward, this trend is expected to continue. Likewise, as growth moves northward from the Temecula/Murrieta area, the amount of travel through the cities to the San Diego region will increase.

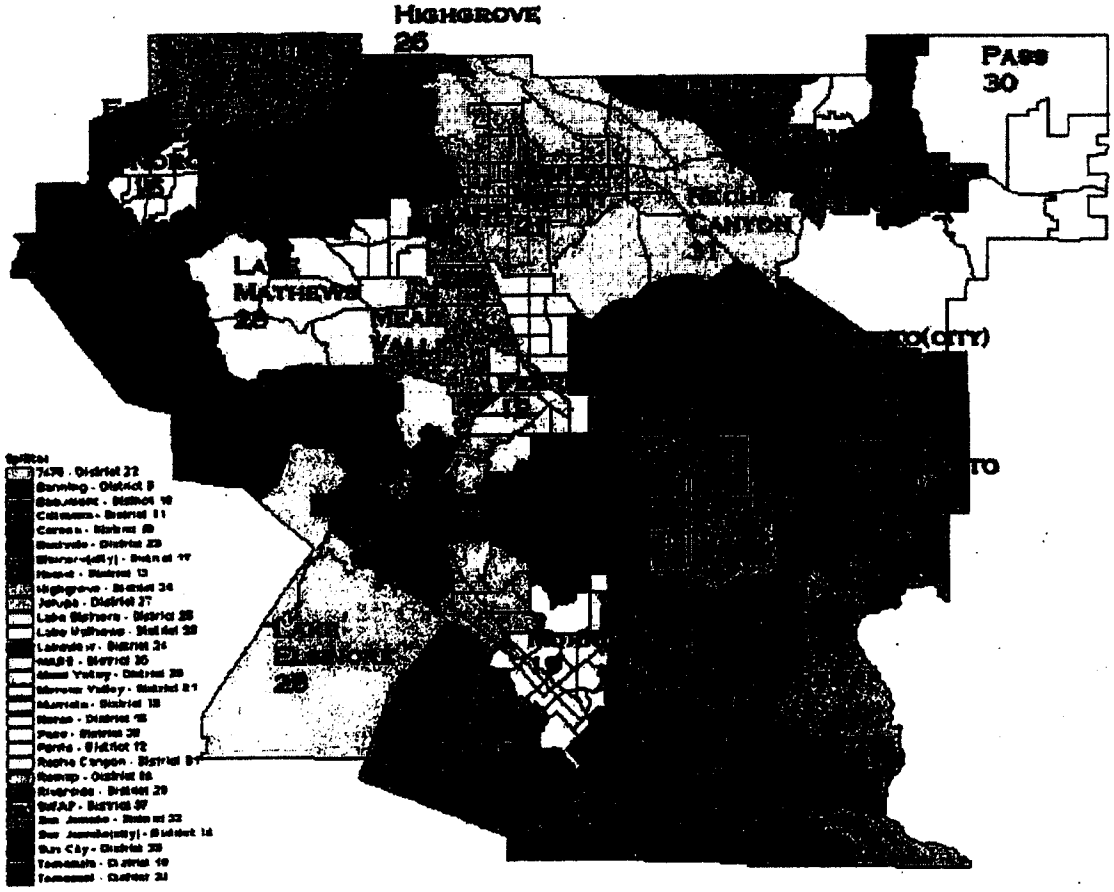
Exhibit 5 indicates the number of trips expected in year 2020 between various areas within the corridor. The rows represent trips <u>from</u> the indicated areas. The columns represent trips <u>to</u> the indicated areas. The areas are identified by either city or by Area Plan within the unincorporated areas of Western Riverside County. Area Plans represent designated geographic planning areas within the County unincorporated area. The location of the cities and area plans can be identified in Exhibit 6. For example, Exhibit 5 indicates that there are 1398 daily trips from the Southwest Area Plan zones (AP SWAP) to Hemet. There are a similar number in the reverse direction, from Hemet to the SWAP area plan (1387). The number of trips in one direction between two areas will be similar to, but not necessarily the same as the number of trips in the opposite direction, because many trips have multiple stops. The trips reflected in Exhibit 5 represent all trip purposes considered in the SCAG model used for the year 2020 forecasts. Approximately 1.6 million trips per day are expected within the cities and area plans in the Banning/Beaumont to Temecula corridor. These are distributed across a broad area. Many of these would be considered local trips, as indicated by the number of trips that stay within the boundaries of an area plan or city. The traffic forecasts are the best way to gauge future travel demand on any given facility. Typically the demand on that facility will be a combination of longer distance trips and shorter, more local trips.

Additional growth in the corridor is expected beyond 2020. A preliminary analysis of this potential additional growth to a buildout level was conducted based on the "vision plan" for land use (Alternative 3) being developed as part of the General Plan land use plan. Based on this analysis, the following can be estimated.

Exhibit 4. Projected Daily Trips in Year 2020 to and from Various Cities and Areas within the Corridor

To / From	Banning	Beau-mont	Cal-mesa	Perris	Hemet	San Jac	Temecula	Murrieta	AP 74/79	AP Lkview	AP San Jacinto	AP Sun City	AP Remap	AP SWAP	Total
Banning	72,177	31,794	3,476	474	1,285	991	195	133	427	363	739	252	32	165	112,503
Beaumont	31,649	59,012	12,513	637	2,269	2,033	223	137	642	620	1,344	355	19	201	111,654
Calimesa	3,525	12,588	22,199	231	458	330	94	62	185	149	259	110	10	72	40,272
Perris	480	646	237	98,685	2,153	807	1,247	1,641	5,233	11,899	841	17,819	38	947	142,673
Hemet	1,270	2,281	444	2,140	123,105	32,639	1,076	729	15,074	1,898	39,988	3,253	265	1,387	225,549
San Jacinto(city)	1,001	2,069	322	822	32,895	27,895	272	193	1,601	1,000	18,647	554	61	273	87,605
Temecula	184	224	99	1,198	1,091	257	156,666	39,770	1,916	311	510	5,387	1,041	43,531	252,185
Murrieta	131	156	69	1,614	772	182	39,923	75,502	1,581	338	306	10,055	181	18,345	149,155
AP 74/79	423	660	170	5,233	15,228	1,594	1,948	1,598	22,744	4,258	2,604	11,582	79	3,591	71,712
AP Lakeview Nuevo	378	641	158	11,905	1,924	978	329	333	4,280	12,122	765	3,319	17	313	37,462
AP San Jacinto	753	1,382	255	863	40,095	18,588	528	312	2,625	737	48,511	890	288	604	116,431
AP Sun City	314	384	122	17,855	3,347	590	5,527	10,175	11,619	3,367	901	88,271	84	5,499	148,055
AP Temescal Canyon	36	50	22	856	101	38	271	294	102	104	52	372	12	145	2,455
AP Remap	26	29	12	56	284	62	1,061	189	87	15	295	76	2,143	1,387	5,722
AP SWAP	164	215	67	926	1,386	258	43,909	18,451	3,644	311	578	5,486	1,395	40,830	117,620
Total	112,511	112,131	40,165	143,495	226,393	87,242	253,269	149,519	71,760	37,492	116,340	147,781	5,665	117,290	1,621,053

Exhibit 5. Location of Cities and Area Plans in Western Riverside County



- The number of residences in buildout (including all the cities in the corridor and the unincorporated area in the corridor) is estimated to be 35 percent greater than for year 2020.
- Employment in buildout is estimated to be 40 percent greater than for year 2020. .

This means that, over the length of the corridor, the traffic volumes on facilities in the corridor at buildout could be as much as 35 to 40 percent greater in the buildout condition than those shown in Exhibit 4. Some sections could see even greater than a 35 to 40 percent additional increase, while other areas could see less of an increase beyond 2020. These numbers should be viewed as order-of-magnitude only, and additional analysis will be conducted of the actual buildout land use scenario, once it has undergone further review, later in CETAP.

PURPOSE OF THE ACTION

The purpose of the proposed action is to is to provide improvements to the transportation infrastructure system within the Banning/Beaumont to Temecula corridor to provide access to support development of the employment base in Western Riverside County, to help alleviate existing and future traffic congestion, to accommodate projected traffic demand, and accommodate the need for the overall efficient movement of people and goods. The intent is for these improvements to be multi-modal in nature and for right-of-way to be reserved to accommodate the long term needs for highway, transit, trails, and utilities, as appropriate. The objectives that support this overall purpose include:

- promote the economy of Riverside County as well as the local economies within the corridor by fostering the access that will allow for the creation of jobs and improvement of the job-housing balance in this portion of the County.
- improve the projected future LOS and reduce the amount of congestion delay on the freeway system and the arterial network, particularly the sections predicted to be most congested in the future, such as I-15 and Winchester Road in the City of Temecula;
- implement strategies to reduce the projected length of time that these freeway facilities will operate at LOS F;
- implement strategies to increase the efficiency and reduce the travel time for moving people and goods throughout the corridor, particularly for goods movement between I-10 in the Banning/Beaumont area and I-15 to and from San Diego;
- expand the available route choices for moving people and goods throughout the corridor;
- expand the available transportation mode choices for moving people within the corridor;
- provide efficient access and reduced travel times to and from employment and commercial areas in the corridor, including French Valley Airport, Hemet-Ryan Airport, Diamond Valley Lake and commercial areas in the cities of Hemet, Murrieta, and Temecula;
- preserve right-of-way for a preferred alternative and secure concurrence from appropriate local, regional, state, and federal agencies to allow the preferred alternative to be constructed at the time funding becomes available.

The goal of CETAP is to accomplish these objectives to the extent possible within the financial and physical constraints that currently exist in Riverside County.

REGIONAL PLANNING CONTEXT

The current Regional Transportation Plan (RTP), adopted by the Southern California Association of Governments (SCAG) in 1998, illustrates the local desire to implement transportation improvements. These improvements are intended to satisfy future traffic demand in western Riverside County and achieve SCAG's long-range transportation planning goals to reduce traffic congestion and improve air quality within the region. The RTP is based on an analysis of conditions within Southern California 20 years into the future, and includes the study area for the Banning/Beaumont to Temecula area. The RTP is updated every three years.

The RTP, developed in accordance with established federal requirements and policies, sets fourth a multi-modal, financially feasible planning strategy for southern California, including Riverside County. In addition, the RTP presents transportation policies and improvements necessary for achieving mobility goals over the next 20 years, taking projected population growth and economic factors into account. The federal Clean Air Act requires the RTP to be in conformity with the State Implementation Plan (SIP) for Air Quality. The SCAG RTP conformity finding was issued by FHWA and FTA in June 1998.

The RTP may be amended to substitute new or revised transportation improvements, in any location, to better accomplish future mobility goals. The alternative ultimately selected through the RCIP/CETAP process to achieve the above stated purpose will be included in the RTP.

A new RTP is in the process of development by SCAG. The Riverside County Transportation Commission has provided candidate projects to SCAG for consideration in the RTP. Funds have not yet been identified for many of these projects, but they include potential highway projects and transit services that could reasonably be anticipated, given historical agency budgets. These are identified only for purposes of the Regional Transportation Plan, and many will require additional planning, project development, and environmental clearance activities. The listing of possible projects for Riverside County is included in Appendix B.

The transportation model being used to generate travel forecasts for the Hemet to Corona/Lake Elsinore Corridor is the RIVSAN model, part of the family of models developed by SCAG for purposes of analyzing the transportation network in Riverside and San Bernardino Counties. The RIVSAN model includes the same geographic region as the SCAG regional model and is based on the same socioeconomic data, but refined to look at the Inland Empire in greater detail.

FACTORS TO BE CONSIDERED IN THE ANALYSIS AND SELECTION OF ALTERNATIVES

The consideration of all project alternatives will be balanced with respect to achievement of the project objectives, contribution toward attainment of regional goals for air quality improvement, potential to impact the natural and urban environment, feasibility and cost. An extensive set of evaluation criteria will be used as the basis for comparing the benefits, impacts, and costs of the alternatives.

Tim's Alternatives, 7/11/07

Alternative	Levee Segment Treatments			
	NCC (*project- level* analysis)	Sac River Reaches 1-4b (*project-level* analysis)	Sac River Reaches 4b-20 (*program-level* analysis)	PGCC (*program-level* analysis)
Alt 1, Proposed Project – Adjacent Setbsck	Cutoff wall	Adjacent setback levee	Adjacent setback levee (+ canal relocation, potential borrow sites, habitat offsets)	Whatever
Alt 2, Raise in place plus 1,000-foot setback	Cutoff wall (same as Alt 1)	1,000-foot setback levee	Raise/improve existing levee, and possibly remove waterside encroachments (+ same canal relocation, same potential borrow sites, similar habitat offsets)	Whatever (same as Alt 1)
Alt 3, Adjacent Setback plus 500-foot setback	Cutoff wall (same as Alt 1)	500-foot setback levee	Adjacent setback levee (+ same canal relocation, same potential borrow sites, same habitat offsets) (same as Alt 1)	Whatever (same as Alt 1)
No-Project Alt	No improvements	No improvements	No improvements	No improvements

Exhibit U

ATSConsulting
acoustics, transportation + strategy

HUGH SAURENMAN, PHD, PE – PRESIDENT

Education

Ph.D., Mechanical Engineering, Tufts University, Medford, MA, 1975
M.S., Mechanical Engineering, Tufts University, Medford, MA, 1969
B.S., Engineering, Harvey Mudd College, Claremont, CA, 1967

Registration and Professional Affiliations

Registered Professional Engineer (Mechanical): California #18313
Member, American Society of Mechanical Engineers
Member, Acoustical Society of America
Member, Institute of Noise Control Engineering

Professional Experience

Dr. Saurenman is a nationally known expert in issues related to transportation noise and vibration control. He has played an integral role in the development of transportation infrastructure and improvement of transit systems throughout the country and around the world. Recent experience includes being the project manager for noise and vibration for the environmental review, design, and construction of rail, highway, and bus projects in Los Angeles, San Francisco, Sacramento, Vancouver, BC, Phoenix, Tucson, San Jose, San Diego, Albuquerque, and Portland. For all his projects, Dr. Saurenman strives to prepare comprehensive and defensible analyses and to find cost-effective and practical solutions to minimize adverse effects on adjacent communities.

He has been responsible for creating many of the procedures used to predict noise and vibration and has authored or been a key contributor to industry-standard reference documents. These resources are widely used by transit agencies and their consultants to evaluate and control noise and vibration impacts from transit projects. Examples include the Federal Transit Administration, Federal Railroad Administration, and Urban Mass Transit Administration (UMTA was the forerunner to FTA) manuals for noise and vibration. The guidebooks are based on state-of-the-art testing, extensive data analysis, and in-field experience and provide easy to understand evaluation procedures and sensible mitigation strategies.

Dr. Saurenman is, and has been, involved in helping rail transit agencies better understand existing noise and vibration issues and to develop programs to improve their operations and guide future system development. Recent projects of note include a comprehensive review of various track designs for the Bay Area Rapid Transit District with the goal of optimizing the noise and vibration control for a proposed rail extensions and a research project on how atmospheric conditions in the Phoenix area affect propagation of highway noise.

With 30 years of acoustical consulting experience, Dr. Saurenman has a broad understanding of transit and environmental noise and vibration, advanced measurement techniques and equipment, and methods to minimize impacts and improve operations.

Representative Publications

Handbook of Acoustical Measurements and Noise Control, 3rd Edition, Chap. 46 "Rail Transportation Noise and Vibration" (with C. E. Hanson and D. A. Towers), C. M. Harris, editor; McGraw-Hill Inc.; 1991.

Handbook of Urban Rail Noise and Vibration Control, (with J. T. Nelson and G. P. Wilson); U. S. Department of Transportation Report No. UMTA-MA-06-0099-82-1; February 1982.

Transit Noise and Vibration Impact Assessment, (with C. E. Hanson, D.A. Towers, G. S. Anderson, Y. Kimura and W. Robert); U.S. Department of Transportation Report No. DOT-T-95-16; April 1995.

Representative Project Experience

Co-Principal Investigator: TCRP Research Project D-12, Ground-borne Noise and Vibration in Buildings Caused by Rail Transit (study of human response to rail transit generated building vibration), 2005-current.

Project Manager: Noise and Vibration Assessment for BART Walnut Interlocking, Environmental Assessment: 2005, Final Design: 2006.

Project Manager: Noise and vibration analysis for Albuquerque Modern Streetcar EIS, 2006.

Project Manager: Noise and vibration analysis for Tucson Modern Streetcar EIS, 2006.

Project Manager: Noise and vibration analysis for Phoenix Northwest Corridor Light Rail Project EIS, 2006.

Project Manager: Assessment of potential for streetcar vibration to interfere with sensitive equipment, University of Arizona, 2005.

Project Manager: Evaluation of noise and vibration issues on the Santa Clara Valley Vassona Line, 2006.

Project Manager: Noise assessment for Perris Valley Line commuter rail project, Riverside County Transportation Commission, 2005.

Project Manager: Detailed vibration assessment and conceptual design of vibration mitigation measures, Richmond-Airport-Vancouver light rail extension, Vancouver, BC., 2005.

Project Manager: Noise and vibration analysis and mitigation program for the Silicon Valley Rapid Transit Project, Conceptual Engineering Phase, Santa Clara Valley Transportation Authority; 2003-2005.

Principal Investigator: SPR-555, Evaluate the atmospheric effects of highway noise propagation, Arizona Department of Transportation; 2003-2004.

Project Manager: On-call noise and vibration services (under General Engineering Consulting contract), Sacramento Regional Transit, 2001-2006.

Project Manager: Noise and vibration analysis for Los Angeles-Pasadena Gold Line (Phase 1), (construction management team and directly for Gold Line Construction Authority); 1999-2006.

Project Manager: Noise and vibration assessment (EIS/EIR) for the Exposition Corridor LRT project; Los Angeles County Metropolitan Transportation Authority; 1999-2004.

Project Manager: Noise and vibration consulting (final design of surface sections) for the Mission Valley East Light Rail Line; Metropolitan Transit Development Board, San Diego; 1999-2001 (also for EIS/EIR, 1992-1996).

Project Manager: Analysis of potential noise impacts (EIS/EIR) from the Alameda Corridor East project construction of approximately 20 freight railroad/highway grade separations; San Gabriel Valley Council of Governments, CA; 1999 and 2006.

Exhibit V

Jared M. Ikeda, Landscape Architect

Jared Ikeda is a land use planner and licensed Landscape Architect with more than thirty-five years of professional experience in preparation of land use planning studies, community planning, environmental studies, landscape development plans, and recreation planning. He has been involved in a broad range of studies and projects for both public and private sector clients and has participated in and directed all phases of land planning, investigative studies and landscape development. He has been responsible for project management, supervision, and coordination of multi-disciplinary teams, as well as serving as a specialist. Several relevant project descriptions of his experience are described here.

San Juan Capistrano Master Open Space Plan - City of San Juan Capistrano, CA.

Client: Urban Design Group.

A Principal Planner for the preparation of the San Juan Capistrano Master Open Space Plan. This study was a result of the passage of a $21 million dollar bond issue by the City to purchase 160 acres of key open space within the City for recreational and agricultural use. However, as part of a consultant team, the study approach was to evaluate all the open space resources within the City and determine how best 160 acres could be utilized in concert with other open space and their uses throughout the City. Mr. Ikeda's role in this citywide study has been to assist in the public participation program, computer mapping, and preparation of the final report. This project received an Honor Award from the Orange County Chapter of the American Planning Association for best comprehensive plan in 1992.

Interstate 10, Central Phoenix, AZ

Client: Arizona Dept. of Transportation

Directed the urban design, landscape architecture, irrigation engineering and water conservation plan of the new Interstate 10 as it crosses Central Phoenix for the Arizona State Department of Transportation. The plan features native plant materials and a special water management system to conserve water, and integration of art and sculptural elements into sound walls and open spaces of the right of way acquisition.

Sand Canyon Road Open Space Study, Irvine, CA.

Client: The Irvine Co.

Directed an open space study of Sand Canyon Road for the Irvine Company. Sand Canyon Road is a major arterial road traveling through land being proposed for development by the Irvine Company. The objective of the plan was to create a scenic highway connecting various parks and open space features.

Pacific Coast Highway/Colony Cove Slope Stabilization, San Clemente, CA.

Client: Ed Almanza & Associates

Prepared photo-realistic simulations of a slope stabilization proposal of a severely eroding cliff in San Clemente. The bluff had been a safety hazard for both passing motorists on Pacific Coast Highway and residents living at the top of the cliff. As part of a mitigated negative declaration, the City requested that photo-realistic simulations be prepared of a proposed simulated rock wall and landscaping solution. The photo-realistic simulations were prepared using a combination of AutoCAD and Photoshop computer software.

Santa Ana River Trail Master Plan, Southern California

Client: County of Orange and San Bernardino

Served as Principal-in-Charge for the preparation of Santa Ana River Corridor, Trail System Master Plan. This study coordinated the planning and precise alignment for a

coast to crest, hiking, riding, and bicycle trail through Orange, Riverside and San Bernardino Counties. Mr. Ikeda also prepared the earlier Santa Ana River Greenbelt study for Orange County.

Pacific Crest National Scenic Trail, Southern California

Client: Federal Bureau of Land Management

Directed the preparation of a trail management plan for the Southern California segment of the Pacific Crest National Scenic Trail for the Bureau of Land Management. The management plan included the identification of typical problems affecting the use and enjoyment by the trail user, and recommendations on physical improvements and design considerations as well as land use and visual management regulations.

Experience

Principal: Ikeda Consulting, 2005 to Present
Monterey County Redevelopment Agency, 2004-2005
Senior Admin Analyst: County of Monterey, Environmental Resource Policy – Monterey County General Plan Update, 1999-2004
Lecturer: Cal Poly Pomona, Dept of Landscape Architecture 1997-1999
Vice-President/Officer-in-Charge EDAW Inc., Irvine Office: 1980 to 1987
EDAW, Inc. 1969 to 1989

Education

Bachelor of Science in Environmental Design with major in Landscape Architecture, California State Polytechnic University, Pomona, 1968.

Honors

Best Comprehensive Plan, Orange Co. Section, American Planning Association, San Juan Capistrano Master Open Space Plan, 1992
Distinguished Alumnus Award, 1983, School of Environmental Design, California State Polytechnic University, Pomona.
Merit Award, American Society of Landscape Architects, Santa Ana River Open Space Study, 1973

Lectures & Publications

Mr. Ikeda has served as a guest lectureur at UCLA, UC Irvine, and Cal Poly Pomona. Mr. Ikeda has also served as Chairman of a panel on Computers and Landscape Architecture for the Southern California Chapter of the American Society of Landscape Architecture. Contributor to *"Design with Digital Tools"* McGraw Hill, 2000

Active Registration

Landscape Architect, California, # 1368

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Approve B. Caltran September 2008 me

Memorandum

To: CHAIR AND COMMISSIONERS

CTC Meeting: September 24-25, 2008

Reference No.: 2.1a.(1)
Action Item

From: CINDY McKIM
Chief Financial Officer

Prepared by: Rachel Falsetti
Division Chief
Transportation Programming

Subject: **STIP AMENDMENT 08S-004**

RECOMMENDATION:

The California Department of Transportation (Department) recommends the California Transportation Commission (Commission) approve State Transportation Improvement Program (STIP) Amendment 08S-004. This item was noticed at the Commission's August 2008 meeting.

ISSUE:

The Department, in conjunction with the Orange County Transportation Authority (OCTA), proposes to amend the STIP to split the Route 74 Widening project (PPNO 4110) into two segments.

Action Update: This Amendment has been revised to update information in Paragraph 3 of the Background section.

BACKGROUND:

The project proposes to widen Route 74, in and near San Juan Capistrano, by adding one lane in each direction. This will eliminate traffic bottlenecks between Calle Entradero and the San Juan Capistrano city limits and will improve the general traffic flow within the project limits.

The limits of the project extend approximately one mile inside and one mile outside the city limits of San Juan Capistrano. The segment outside the city limits (the Orange County segment) has obtained environmental clearance and is ready for construction. Environmental clearance for the segment within the city limits has been delayed due to the need for additional environmental studies. Orange County would like to proceed with construction of the segment outside the city limits. Therefore, it is proposed to split the project into two segments, a city segment and a county segment, as follows:

- PPNO 4110 (city segment) – In Orange County, in the city of San Juan Capistrano from Calle Entradero to the San Juan Capistrano city limit – widen from two to four lanes.

- PPNO 4110A (county segment) – In Orange County, near San Juan Capistrano, from the San Juan Capistrano city limit to Antonio Parkway/La Pata Avenue – widen from two to four lanes.

~~Orange County anticipates requesting an allocation of $10,000,000 programmed in the Regional Improvement Program (RIP) for Construction, the county segment (PPNO 4110A), at the September 2008 Commission meeting. OCTA and the County are currently preparing an agreement to fully fund the city segment. The agreement is expected to be executed in September 2008.~~

OCTA is also requesting a concurrent allocation of $10,000,000 programmed in the Regional Improvement Program (RIP) for Construction, for the county segment (PPNO 4110A). Orange County has committed to providing funds for the city segment to ensure the city segment remains fully funded, consistent with the current cost estimate shown on the attached project programming request for PPNO 4110. OCTA and the County are executing a cooperative agreement to outline the County's financial commitment. The agreement is expected to be executed in early October 2008.

RESOLUTION:

Resolved, that the California Transportation Commission amend the 2008 State Transportation Improvement Program (PPNO 4110) to reflect the changes proposed in the attached project programming requests.

Attachments

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

General Instructions

☐ New Project	☑ Amendment (Existing Project)			Date:	07/22/08
Caltrans District	**EA**	**PPNO**	**MPO ID**	**TCRP No.**	
12	08692	4110	0RA120535		

County	Route/Corridor	Project Sponsor/Lead Agency	MPO	Element
ORA	74	Caltrans	SCAG	CO

Project Title

Widen Route 74 from 2 to 4 Lanes

PM Bk	PM Ahd	Project Mgr/Contact	Phone	E-mail Address
1	1.9	Ahmed Abou-Abdou	(949)724-2768	

Location, Project Limits, Description, Scope of Work, Legislative Description

In San Juan Capistrano from Calle Entradero to City/County Line. Widen from 2 lanes to 4 lanes.

Component	Implementing Agency	AB 3090	Letter of No Prejudice
PA&ED	Caltrans	☐	☐
PS&E	Orange County	☐	☐
Right of Way	Orange County	☐	☐
Construction	Orange County	☐	☐

Legislative Districts

Assembly:	73	**Senate:**	33, 38
Congressional:	44		

Purpose and Need

Project Need: To improve the traffic flow within the project limits. **Project Purpose**: Currently, the traffic demand exceeds traffic capacity. The roadway operates at a level of service E. The traffic forecast for the year 2025 is 65,000 average annual daily traffic (AADT), the peak hour traffic is 6,000 vehicles. Based on the traffic forecast, the roadway will operate at a level of service F in the year 2025. The proposed project is consistent with the Route Concept Report (RCR) approved on February 11, 1986. For the segments from PM 0.5 to PM 4.6, the RCR recommends adding one lane in each direction to provide a four lane conventional highway. The Orange County Transportation Authority (OCTA) has adopted a Master Plan of Arterial Highways (MPAH) that specifies the number of lanes and right of way requirements for roadways within the county. On the MPAH, Route 74 is designated as a primary highway. Primary highways are four lanes wide divided by a median.

Project Benefits

This project will improve traffic flow in this segment of highway by adding one lane in each direction. The project will widen Ortega Highway, eliminating a bottleneck, from Calle Entradero to City/County line from a 2-lane facility to a 4-lane facility.

Project Milestone			Existing	Proposed
Project Study Report Approved				02/15/97
Begin Environmental (PA&ED) Phase			/ /	07/01/99
Circulate Draft Environmental Document	**Document Type**	EIR	/ /	12/01/08
Draft Project Report			/ /	12/01/08
End Environmental Phase (PA&ED Milestone)			/ /	07/01/09
Begin Design (PS&E) Phase			/ /	07/01/09
End Design Phase (Ready to List for Advertisement Milestone)			/ /	08/01/11
Begin Right of Way Phase			/ /	07/01/09
End Right of Way Phase (Right of Way Certification Milestone)			/ /	07/01/11
Begin Construction Phase (Contract Award Milestone)			/ /	01/01/12
End Construction Phase (Construction Contract Acceptance Milestone)			/ /	02/01/14
Begin Closeout Phase			/ /	02/01/04
End Closeout Phase (Closeout Report)			/ /	09/01/17

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

Date: 07/22/08

County	CT District	PPNO	TCRP Project No.	EA
ORA	12	4110		08692

Project Title: Widen Route 74 from 2 to 4 Lanes

Existing Total Project Cost									Implementing Agency
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	
E&P (PA&ED)	5,638							5,638	Caltrans
PS&E	4,440	2,960						7,400	Orange County
R/W SUP (CT)	225	1,400						1,625	
CON SUP (CT)		2,300						2,300	
R/W		19,110						19,110	Orange County
CON		23,400			17,140			40,540	Orange County
TOTAL	10,303	49,210						78,513	
Proposed Total Project Cost									
E&P (PA&ED)	5,513							5,513	
PS&E			2,870					7,870	
R/W SUP (CT)			1,300					1,300	
CON SUP (CT)									
R/W									
CON								17,140	
TOTAL	5,513							37,823	

Fund No. 1:	RIP - State Cash (ST-CASH)								Program Code
Existing Funding									20.XX.075.600
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	Funding Agency
E&P (PA&ED)									Orange County Transportation Aut
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		10,000						10,000	
TOTAL		10,000						10,000	
Proposed Funding									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Fund No. 2:	IIP - State Cash (ST-CASH)								Program Code
Existing Funding									20.XX.025.700
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	Funding Agency
E&P (PA&ED)	5,513							5,513	Caltrans
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	5,513							5,513	
Proposed Funding									Notes
E&P (PA&ED)	5,513							5,513	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	5,513							5,513	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

Date: 07/22/08

County	CT District	PPNO	TCRP Project No.	EA
ORA	12	4110		08692

Project Title: Widen Route 74 from 2 to 4 Lanes

Fund No. 3: Loc Funds - Local Transportation Funds (LTF)

Program Code: LOCAL FUNDS

Funding Agency: Orange County Transportation Auth

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)	125							125
PS&E	4,440	2,960						7,400
R/W SUP (CT)	225	1,400						1,625
CON SUP (CT)		2,340		1,560				3,900
R/W		19,110						19,110
CON		13,400		17,440				30,840
TOTAL	4,790	39,210		19,000				63,000

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								
PS&E			2,870					2,870
R/W SUP (CT)			1,386					1,386
CON SUP (CT)					1,560			1,560
R/W			8,716					8,716
CON					17,440			17,440
TOTAL			12,972		19,000			31,972

Notes

Fund No. 4:

Program Code:

Funding Agency:

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON								
TOTAL								

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON								
TOTAL								

Notes

Fund No. 5:

Program Code:

Funding Agency:

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON								
TOTAL								

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON								
TOTAL								

Notes

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

General Instructions

☐ New Project	☑ Amendment (Existing Project)			Date:	07/22/08
Caltrans District	**EA**	**PPNO**	**MPO ID**	**TCRP No.**	
12	08691	4110A	0RA120535		

County	Route/Corridor	Project Sponsor/Lead Agency	MPO	Element
ORA	74	Caltrans	SCAG	CO

Project Title

Widen Route 74 from 2 to 4 Lanes

PM Bk	PM Ahd	Project Mgr/Contact	Phone	E-mail Address
1.9	3	Ahmed Abou-Abdou	(949)724-2768	

Location, Project Limits, Description, Scope of Work, Legislative Description

In County of Orange from City/County line to Antonio/La Pata. Widen from 2 lanes to 4 lanes.

Component	Implementing Agency	AB 3090	Letter of No Prejudice
PA&ED	Orange County	☐	☐
PS&E	Orange County	☐	☐
Right of Way	Orange County	☐	☐
Construction	Orange County	☐	☐

Legislative Districts

Assembly:	73	Senate:	33, 38
Congressional:	44		

Purpose and Need

Project Need: To construct access improvements required for the adjacent development such that they are compatible with the long term transportation plan for Ortega Highway as envisioned by the agencies and minimize throwaway cost. **Project Purpose**: The existing Ortega Highway within the project limits has one signalized intersection at Antonio Parkway/La Pata Aveune. There are driveway openings to the adjacent Ranch property. However, these access points are not adequate to accomodate the entitled development around the area. The existing Antonio Parkway/La Pata Avenue intersection requires additional capacity for turn movement. New intersections need to be added and the driveway openings need to be modified. To minimize throwaway cost, these improvements must be constructed to their ultimate configurations where Ortega Highway will be a four lane facility.

Project Benefits

This project will construct access improvements required for the adjacent development such that they are compatible with the long term transportation plan for Ortega Highway and widen the roadway from 2 to 4 lanes as envisioned by the agencies and minimize throwaway cost.

Circulate Draft Environmental Document	**Document Type**	EIR	/ /	
Draft Project Report			/ /	
End Environmental Phase (PA&ED Milestone)			/ /	04/01/08
Begin Design (PS&E) Phase			/ /	01/18/08
End Design Phase (Ready to List for Advertisement Milestone)			/ /	09/01/08
Begin Right of Way Phase			/ /	04/01/08
End Right of Way Phase (Right of Way Certification Milestone)			/ /	08/01/08
Begin Construction Phase (Contract Award Milestone)			/ /	10/01/08
End Construction Phase (Construction Contract Acceptance Milestone)			/ /	10/01/10
Begin Closeout Phase			/ /	10/01/10
End Closeout Phase (Closeout Report)			/ /	10/01/13

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STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

Date: 07/22/08

County	CT District	PPNO	TCRP Project No.	EA
ORA	12	4110A		08691

Project Title: Widen Route 74 from 2 to 4 Lanes

Existing Total Project Cost									Implementing Agency
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	
E&P (PA&ED)	5,638							5,638	Orange County
PS&E	4,440	2,960						7,400	Orange County
R/W SUP (CT)	225	1,400						1,625	
CON SUP (CT)		2,340		[illegible]				[illegible]	
R/W		119,110						[illegible]	Orange County
CON		23,400		17,440				40,840	Orange County
TOTAL	10,303	48,210		119,000				785,513	
Proposed Total Project Cost									
E&P (PA&ED)	125							125	
PS&E	4,305							4,305	
R/W SUP (CT)	225							225	
CON SUP (CT)		[illegible]						[illegible]	
R/W		119,110						[illegible]	
CON		23,400						[illegible]	
TOTAL	4,655	38,250						[illegible]	

Fund No. 1:	RIP - State Cash (ST-CASH)								Program Code
Existing Funding									20.XX.075.600
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	Funding Agency
E&P (PA&ED)									Orange County Transportation Aut
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		10,000						10,000	
TOTAL		10,000						10,000	
Proposed Funding									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		10,000						10,000	
TOTAL		10,000						10,000	

Fund No. 2:	IIP - State Cash (ST-CASH)								Program Code
Existing Funding									20.XX.025.700
Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total	Funding Agency
E&P (PA&ED)	5,513							5,513	Caltrans
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	5,513							5,513	
Proposed Funding									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST

DTP-0001 (REV. 3/08)

Date: 07/22/08

County	CT District	PPNO	TCRP Project No.	EA
ORA	12	4110A		08691

Project Title: Widen Route 74 from 2 to 4 Lanes

Fund No. 3: Loc Funds - Local Transportation Funds (LTF)

Program Code: LOCAL FUNDS

Funding Agency: Orange County Transportation Auth

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)	[illegible]	[illegible]						[illegible]
PS&E	[illegible]	2,060						[illegible]
R/W SUP (CT)	[illegible]	[illegible]						[illegible]
CON SUP (CT)		[illegible]		[illegible]				
R/W	[illegible]	[illegible]						[illegible]
CON		[illegible]						
TOTAL	4,790	35,210	[illegible]	[illegible] 10,000	[illegible]	[illegible]	[illegible]	[illegible]

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)	125							
PS&E	4,305							
R/W SUP (CT)	225							
CON SUP (CT)		2,340						
R/W		10,510						
CON		13,400						
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Notes

Fund No. 4:

Program Code:

Funding Agency:

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PS&E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R/W SUP (CT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CON SUP (CT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R/W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CON	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								[illegible]
PS&E								[illegible]
R/W SUP (CT)								[illegible]
CON SUP (CT)								[illegible]
R/W								[illegible]
CON								[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Notes

Fund No. 5:

Program Code:

Funding Agency:

Existing Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PS&E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R/W SUP (CT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CON SUP (CT)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R/W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CON	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL								

Proposed Funding

Component	Prior	08/09	09/10	10/11	11/12	12/13	13/14+	Total
E&P (PA&ED)								[illegible]
PS&E								[illegible]
R/W SUP (CT)								[illegible]
CON SUP (CT)								[illegible]
R/W								[illegible]
CON								[illegible]
TOTAL								

Notes

"Carmen Borg"
<Borg@smwlaw.com>
02/13/2009 02:14 PM

To <lower74EIR_D12@dot.ca.gov>
cc "Laurel L. Impett" <Impett@smwlaw.com>
bcc
Subject Ortega Hwy Comments 28 of 34

28 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

Carmen Borg, AICP
Urban Planner
Shute, Mihaly & Weinberger
396 Hayes Street
San Francisco, CA 94102
415-552-7272
The information contained in this email message is privileged, confidential, and protected from disclosure. If you are not the intended recipient, any dissemination, distribution, or copying is strictly prohibited. If you think that you have received this email message in error, please email the sender at borg@smwlaw.com or telephone at (415) 552-7272. B. (Caltrans September 2008 memo).pdf

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Appendix C Caltrans I-5 SR-74 Interchange DEIR EP

INTERSTATE 5/STATE ROUTE 74 (ORTEGA HIGHWAY INTERCHANGE IMPROVEMENT PROJECT

ORANGE COUNTY, CALIFORNIA
DISTRICT 12 – ORA – 5, KP 15.07/15.90 (PM 9.36/9.88)
DISTRICT 12 – ORA – 74, KP 0.00/0.32 (PM 0.0/0.20)
EA 0E3100

Draft Environmental Impact Report/Environmental Assessment

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by the Department under its assumption of responsibility pursuant to 23 U.S.C. 327.

March 2008

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Caltrans; Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Draft Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Orange County, California. The document describes why the project is being proposed by the Department in cooperation with the City of San Juan Capistrano, alternatives for the project, the existing environment that could be affected by the project, potential impacts from each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this Draft EIR/EA. Additional copies of this document, as well as supporting technical studies, are available for review at the following locations:
  - Caltrans District 12, 3337 Michelson Drive, Suite 100, Irvine, CA 92612
  - San Juan Capistrano Regional Library, 31495 El Camino Real, San Juan Capistrano, CA 92675
  - San Juan Capistrano City Hall, 32400 Paseo Adelanto, San Juan Capistrano, CA 92675
- We welcome your comments. If you have any comments regarding the proposed project, please attend the Public Hearing on Tuesday, April 29,2008 and/or send your written comments to the Department by the deadline.
- Submit comments via postal mail to: Smita Deshpande, Environmental Branch Chief, Attn: Scott Shelley, Caltrans District 12, Environmental Planning, 3337 Michelson Drive, Suite 380, Irvine, CA 92612-0661.
- Submit comments via e-mail to: 5-74_interchange_EIRD12@dot.ca.gov
- Submit comments by the deadline: Monday, May 12, 2008.

What happens next:

After comments are received from the public and reviewing agencies, the Department and FHWA may: (1) give environmental approval to the proposed project, (2) undertake additional environmental studies as necessary, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the Department could design and construct all or part of the project.

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Parsons Transportation Group, Attn.: Amy Walston, Principal Environmental Planner, 2201 Dupont Drive, Suite 200, Irvine, CA 92612; (949) 263-9322 ext 271, or use the California Relay Service 1 (800) 735-2929 (TTY) or 711.

It should be noted that at a future date FHWA or another federal agency may publish a notice in the *Federal Register*, pursuant to 23 United States Code (U.S.C.) §139(l), indicating that a final action has been taken on this project by FHWA or another federal agency. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the federal laws pursuant to which judicial review of the federal agency action is allowed). If no notice is published, then the lawsuit or claim can be filed as long as the periods of time provided by other federal laws that govern claims are met.

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SCH# 2006051132
12–ORA–5-PM 9.36/9.88
12–ORA–74-PM 0.0/0.20
EA 0E3100

Interstate 5/State Route 74 (Ortega Highway) Interchange Improvement Project

In the County of Orange, within the City of San Juan Capistrano, improvements are proposed at the Interstate 5/State Route 74 (Ortega Highway) interchange, located on Interstate 5 from Kilometer Post (KP) 15.07 (Post Mile [PM]9.36) to KP 15.90 (PM 9.88), and on Ortega Highway from KP 0.00 (PM 0.0) to KP 0.32 (PM 0.20).

DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S.C. 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation

3-17-08
Date of Approval

Cindy Quon
District 12 Director
California Department of Transportation

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Summary/

Table of Contents

Summary

The California Department of Transportation (Caltrans; Department), in participation with the City of San Juan Capistrano (City) proposes to improve the existing Interstate 5 "San Diego Freeway" (I-5)/State Route 74 "Ortega Highway" (SR-74) interchange, which is located in San Juan Capistrano, California. The I-5/Ortega Highway Interchange Project (project) is needed to facilitate traffic flows and ease congestion along Ortega Highway and the I-5 freeway on-/off-ramps, accommodate an expected increase in regional traffic, and accommodate increased traffic generated by planned development east of the interchange along Ortega Highway. Caltrans, as the lead agency for this project, has prepared this Environmental Impact Report/Environmental Assessment (EIR/EA) in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

Overview of the Project Area

The existing I-5/Ortega Highway interchange is located in an urbanized area of the City just east of its downtown area, and it provides the primary entrance to the City. The area surrounding the interchange is characterized by commercial, retail, hotel, and community facility uses. The limits of the project on I-5 are between Post Mile (PM) 9.36 and PM 9.88, and on Ortega Highway between El Camino Real (PM 0.0) and approximately 394 feet (ft) east of Los Cerritos Avenue (PM 0.20). The project regional location and vicinity are depicted in Figures ES-1 and ES-2, respectively.

Additional cumulative development in the project vicinity consists of twenty-two development projects in the City of San Juan Capistrano and seven Caltrans roadway projects. Table ES-1 lists the Caltrans roadway projects in the project vicinity. Section 2.4 (Cumulative Impacts) provides a full list of all cumulative development projects (including the Caltrans roadway projects) in Table 2.4-1 and discusses the potential cumulative effects of this project and concurrent cumulative development.

Table ES-1
Caltrans Roadway Projects in the Project Vicinity

Caltrans Roadway Projects		
Related Project Name	**Description**	**Project Type**
Caltrans EA 0G940K	Soundwalls approximately 660 ft (201 m) long from El Camino Real to Avenue Ramona in San Clemente.	Transportation
Caltrans EA 0E5700	This road project is located on Interstate 5 (I-5) (PM 8.58/9.35) at the Camino Capistrano interchange approximately 0.7 mile south of the I-5/Ortega Highway interchange. This project proposes to install an auxiliary lane and to widen the I-5/Camino Capistrano southbound off-ramp. This project also proposes to widen Camino Capistrano near the ramp intersection in the city of San Juan Capistrano.	Transportation

Table ES-1
Caltrans Roadway Projects in the Project Vicinity

Caltrans Roadway Projects		
Related Project Name	**Description**	**Project Type**
Caltrans EA 086900	State Route 74 Lower Ortega Highway Widening (EA 086900) proposes to widen State Route 74 (SR-74) from two lanes to four through lanes from Calle Entradero [Kilopost (KP) 1.7/Postmile (PM) 1.0] in the City of San Juan Capistrano (City) to the City /Orange County line (KP 3.0/PM 1.9). The existing SR-74 alignment consists of four through lanes from I-5 to approximately 330 feet (ft) [100 meters (m)] east of Calle Entradero where it transitions to two through lanes.	Transportation
Caltrans EA 0G6300	The Middle Ortega Safety Project (EA 0G6300) is located on Ortega Highway (PM 5.2/13.1) This project proposes to restore the eroded and damaged shoulder; replace all of the existing traffic stripes with inverted thermoplastic traffic stripes; and where conditions allow, create a 1-ft soft barrier on Ortega Highway beginning at PM 5.2 and extending to PM 13.1. This project is completely within state right-of-way (ROW).	Transportation
Caltrans EA 0F5100	The San Juan Creek Scour Project will repair streambed scouring that has exposed and endangered the existing I-5 support columns.	Transportation
Caltrans EA 043214	Upper Ortega widening is located on Ortega Highway (PM 13.30/16.28) from Trabuco Road to the Orange/Riverside County line. This project will widen the roadway for safety purposes along portions of the Cleveland National Forest.	Transportation
SR-74 /Antonio Parkway/La Pata Avenue	This is an intersection improvements project that is currently under construction.	Transportation

Purpose and Need

The proposed project is intended to facilitate traffic flows and ease existing and future congestion along Ortega Highway and the I-5 freeway on-/off-ramps. Ortega Highway at the I-5 interchange has been identified by the Department and the Orange County Transportation Authority (OCTA) as a "Choke Point," where substantial delay and congestion occur, necessitating improvement to alleviate the problem.

The I-5 Ortega Highway interchange currently experiences congestion during the morning and afternoon peak periods, resulting in unacceptable Level of Service (LOS) F conditions. Without any improvements to the interchange, traffic congestion would increase and LOS would further degrade in the future. Although the current year (2006) calculated theoretical LOS values range from LOS A through LOS E, the actual delays currently experienced in the project study area are equivalent to LOS F conditions due to

current traffic operational deficiencies resulting from closely spaced intersections (i.e., traffic queue blockage between intersections). Such operational problems are apparent from the existing traffic queue lengths, which exceed the available vehicle storage space for various turning movements within the interchange area. Approximately 99,000 vehicles per day (vpd) use this interchange, which represents an increase over year 2004 conditions, which were approximately 71,000 vpd.

With the planned development east of the project area, year 2030 traffic at the I-5/Ortega Highway interchange is projected to reach approximately 121,000 vpd. Without any improvements, the interchange will experience more congestion, continued safety deficiencies leading to higher accident rates, and further degradation of traffic operations at the interchange. The proposed project would improve the I-5/Ortega Highway interchange to alleviate existing and future traffic congestion and delays within the interchange and improve safety.

Proposed Action

Two interchange improvement alternatives have been proposed to meet the project purpose and need. In addition, a no build alternative is under consideration. All three alternatives are evaluated in this Environmental Impact Report/Environmental Assessment (EIR/EA). The potential interchange improvement alternatives are as follows.

No Build Alternative: No changes to the existing roadway configuration are anticipated for the analysis of this alternative. Ortega Highway and the surrounding land uses in the interchange area would continue to exist and operate as they do today. Currently, Ortega Highway consists of two westbound and two eastbound lanes from the I-5 freeway to Via Cordova with additional turn lanes for the I-5 on- and off-ramps. There is also a dedicated right-turn lane on each side of the highway between the I-5 freeway northbound ramps and Rancho Viejo Road. From Via Cordova to the Riverside County line, SR-74 consists of one lane in each direction. The portion of Ortega Highway west of the I-5 freeway is not part of SR-74 and is operated by the City of San Juan Capistrano. There are currently seven lanes across the bridge that include dual 10-ft left-turn lanes, an 11-ft inside lane, and a 12-ft outside lane in the eastbound direction, and a 10-ft left-turn lane, an 11-ft inside lane, and a 12-ft outside lane in the westbound direction. Figure ES-3 displays the existing conditions associated with the No Build Alternative.

It is anticipated that I-5 may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Currently, the Ortega Highway overcrossing over I-5 does not provide enough span length (horizontal clearance) to accommodate the future widening of I-5.

If the No Build Alternative is selected in lieu of one of the proposed build alternatives, the purpose and need for the project would not be achieved, and impacts related to increased traffic congestion, the inability of the interchange to accommodate projected year 2030 traffic levels, ongoing traffic safety issues, nonstandard design features, and air quality effects (because of increased traffic congestion) would be exacerbated in the project area. In addition, the Ortega Highway overcrossing over I-5 would exist as it is currently designed and would not provide the required span length to accommodate the

future widening of I-5; therefore, the Ortega Highway overcrossing would ultimately need to be reconstructed as a separate project if the I-5 widening project is implemented.

Alternative 3 (Locally Preferred Alternative) – Reconfigured Del Obispo Street Intersection and Single Cloverleaf Interchange: This alternative realigns Ortega Highway west of the I-5 southbound ramps and widens the I-5 southbound off-ramp (refer to Figure ES-4). Proposed improvements would realign Del Obispo Street and Ortega Highway so that the eastern branch of Ortega Highway curves into Del Obispo Street, which would form a new intersection south of the existing intersection. A new curved roadway would also be constructed, which would connect the current El Camino Real/Ortega Highway intersection with this new intersection. In addition, Ortega Highway would be widened and restriped east of the proposed northbound I-5 freeway ramps to accommodate the eastbound and westbound through/turn lanes and to allow for lane widening to standard widths.

The east side of the interchange would feature a partial cloverleaf ramp configuration. The current I-5 northbound off-ramp would be realigned to the east to provide room for a loop ramp in the southeast quadrant of the interchange. This loop ramp would be used for eastbound traffic to access northbound I-5 without having to make a left turn onto the current northbound on-ramp, which would be retained for westbound traffic turning right. The current intersection would be simplified by the removal of this left-turn movement, and it would be moved east, which would increase the spacing between it and the intersection of Ortega Highway and the southbound I-5 ramps. In addition, the northbound on-ramp would be modified to accommodate an acceleration lane for the proposed loop on-ramp. A retaining wall would be placed along the outside of the reconfigured northbound off-ramp to minimize right-of-way (ROW) impacts on the adjacent business park.

The Ortega Highway/I-5 freeway overcrossing would be replaced to allow for additional full-width standard[1] lanes (8 total) as well as a longer span length to provide additional space underneath to accommodate the proposed northbound loop on-ramp and for possible future widening of the I-5 freeway. The increased span length would result in a deeper bridge section, thus requiring the bridge profile to be raised to maintain the minimum required vertical clearance.

It is anticipated that the I-5 freeway may be widened in the future (as a separate project) by providing one additional high-occupancy vehicle (HOV) lane in each direction. Alternative 3 has been designed to accommodate this future widening. The cloverleaf on-ramp proposed as part of Alternative 3 was designed such that a reduction of the ramp radius would not be required to provide room for the additional I-5 HOV lanes. In the event that the I-5 freeway is widened in the future, the acceleration lane for the proposed loop on-ramp may be revised to accommodate the future freeway HOV lanes while still meeting minimum radius standards for the loop portion of the ramp. Similarly, the proposed northbound on-ramp would require minimal modification to accommodate additional I-5 freeway HOV lanes.

[1] *Full-width standard* is defined as a 12-ft lane.

After comparing and weighing the benefits and impacts of all of the feasible alternatives, the project development team has identified Alternative 3 as the "Locally Preferred Alternative," subject to public review. Alternative 3 has been identified as the Locally Preferred Alternative because of its smaller direct impact footprint and associated smaller amount of property acquisition required for ROW, as compared to Alternative 5. Furthermore, Alternative 3 would not require property acquisition and relocations of buildings on the San Juan Elementary School site, which would provide a lower project cost associated with property acquisition and avoid temporary inconveniences to the school during the construction period that would result from relocation and reconstruction of the school buildings.

Alternative 5 – Double Cloverleaf Interchange: Alternative 5 provides a double cloverleaf design with dual-lane loop on-ramps located in the northwest and southeast quadrants of the interchange (refer to Figure ES-5). The southbound and northbound off-ramps would be realigned to terminate at the intersections of Del Obispo Street and Los Cerritos Avenue, respectively. Del Obispo Street would be widened and realigned to meet the new southbound off-ramp configuration. Furthermore, Ortega Highway would be widened and/or restriped to accommodate the additional eastbound and westbound through/turn lanes and to allow for lane widening to standard widths.

The current southbound freeway on-ramp would be maintained at its current location for traffic making right turns from eastbound Ortega Highway to the I-5 freeway. Similarly, the current northbound on-ramp would be maintained for traffic making right turns from westbound Ortega Highway to the I-5 freeway; however, the northbound on-ramp would be modified to accommodate construction of the northbound loop on-ramp, as previously discussed under Alternative 3.

To minimize ROW impacts, retaining walls would be placed along the outside of the proposed southbound and northbound off-ramps. A portion of the existing 16-ft soundwall that currently protects portions of the San Juan Elementary School buildings, playground, and baseball fields would remain in place, but a portion of the barrier must be removed and replaced to accommodate the new I-5 southbound ramp configuration. South of the remaining portion of that soundwall, a new 10-ft soundwall is proposed to be constructed along the ramp shoulder to Ortega Highway. The new 10-ft soundwall along the ramp shoulder would also shield the line of sight from heavy-duty truck exhaust stacks. To be effective, the new soundwall would be designed to connect to, or overlap, the existing soundwall at this location.

If it is determined that conditions have substantially changed during the future final design phase of the project, there is a possibility that the proposed new soundwall could be determined to be infeasible, unreasonable (not cost-effective), or ineffective to achieve the desired level of noise reduction. The final decision regarding the soundwall will be made during the project design phase and after the public involvement process.

It is anticipated that the I-5 freeway may be widened in the future (as a separate project) by providing one additional HOV lane in each direction. Alternative 5 has been designed to accommodate this future widening. Similar to Alternative 3, Alternative 5 would replace the Ortega Highway/I-5 freeway overcrossing to allow for additional lanes and

full-width (12-ft) standards, as well as to provide additional span length for the possible future widening of the I-5 freeway. The bridge span and cloverleaf on-ramps were designed such that ramp acceleration lanes could be moved to provide room for additional I-5 lanes while still meeting minimum radii standards for the loop portion of the ramp. The increased bridge span length would result in a deeper bridge section, thus requiring the bridge profile to be raised to maintain the minimum required vertical clearance.

Joint CEQA/NEPA Document

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA), and it is subject to state and federal environmental review requirements; therefore, project documentation has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Department is the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the Department under its assumption of responsibility pursuant to 23 United States Code (U.S.C.) 327.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is often the case that a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an EIR/EA, as is the case for this project.

Following receipt of public comments on the Draft EIR/EA, the Department will be required to take actions regarding the environmental document. The Department will determine whether to certify the EIR and issue Findings (and possibly a Statement of Overriding Considerations) under CEQA and whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) under NEPA.

Coordination with Public and Other Agencies

Agency Coordination

On May 31, 2006, a Notice of Preparation/Notice of Initiation of Studies (NOP/NOIS) was submitted to the California State Clearinghouse Office (SCH). The SCH circulated the NOP to and solicited comments from appropriate state agencies during a 30-day comment period. During this review period, the NOP was posted on the Office of Planning and Research CEQAnet online database. In addition, copies of the NOP/NOIS were mailed out to local agencies and interested parties.

Agency coordination was also conducted for this project through notification/ correspondence letters. The list of agencies contacted for scoping was developed through consideration of the resources that may be affected by the project. Chapter 5 provides a list of the agencies contacted, as well as a summary of each correspondence.

Table ES-2 lists the permits, reviews, and approvals that would be required for project construction.

Table ES-2
Probable Permit Requirements

Agency	Permit/Approval	Purpose	Authority
California Department of Fish and Game	1602 Agreement	Regulates work within channel of Horno Creek	California Fish and Game Code, Section 1602
U.S. Army Corps of Engineers	Nationwide Permit	Required for work within "waters of the United States"	Federal Clean Water Act, Section 404
San Diego Regional Water Quality Control Board	Water Quality Certification	Required to ensure consistency with federal clean water requirements	Federal Clean Water Act, Section 401
State Water Resources Control Board	General Construction Stormwater Permit	Entails preparation of a Storm Water Pollution Control Plan to control discharges	Caltrans' Statewide National Pollutant Discharge Elimination System (NPDES) Permit
Orange County, Certified Unified Program Agency, Environmental Health Division	Underground Storage Tank Permit	Review and approval for removal of underground storage tanks	California Code of Regulations, Title 23
Orange County, Certified Unified Program Agency, Environmental Health Division	Well Permit	The County issues permits for wells and certain test borings as specified	County Ordinance No. 2607

Public Scoping

Three public meetings were held since project initiation in July 2000. The first two meetings, which were held on December 11, 2000, and October 8, 2003, served as public information conducted to solicit public feedback on the proposed project. The third public meeting, which was held on June 8, 2006, served as a public scoping meeting for the EIR/EA where comments were received from the public. Chapter 5 provides a description of each public meeting conducted for the project.

On May 31, 2006, an NOP/NOIS, which included an invitation to the June 8, 2006, public scoping meeting, was circulated to the public. The NOP/NOIS and public scoping meeting invitation was mailed to all property and business owners located within ½ mile of the project site, as well as other parties who had previously shown interest in the project. The notice also provided a description of the project, summaries of each alternative being considered, and contact information for questions or comments. Comment cards were attached to notices that were distributed to the recipients on the mailing list.

A newspaper advertisement announcing the public scoping meeting was also published on June 5, 2006, in local newspapers. The advertisement was available in both English and Spanish.

Copies of this Draft EIR/EA have been made available for public review at the following locations:

Caltrans District 12 3347 Michelson Drive	San Juan Capistrano Library 31495 El Camino Real	San Juan Capistrano City Hall 32400 Paseo Adelanto

Suite 100
Irvine, CA 92612

San Juan Capistrano, CA 92675 San Juan Capistrano, CA 92675

Summary of Project Impacts and Mitigation

It was determined that the appropriate environmental document to satisfy NEPA is an Environmental Assessment (EA). An Environmental Impact Statement (EIS) was not required because no issues are anticipated to have the potential to significantly affect the quality of the human environment. This determination was made after consideration of both the context in which the action takes place and the intensity of effects per section 1508.27 of the Council on Environmental Quality (CEQ) regulations. Also under NEPA, there must be evidence in the document that avoidance and minimization of impacts have been considered.

Tables ES-3 and ES-4 provide a summary of the impacts that have been determined for the proposed project. These are organized into Temporary Impacts (Table ES-3) and Permanent Impacts (Table ES-4). Also provided in the tables is a listing of the proposed avoidance, minimization, and mitigation measures intended to avoid, reduce, or mitigate impacts where possible. Impacts are characterized in terms of degree (prior to mitigation) and residual impact (after mitigation) so that the effectiveness of the mitigation measures in reducing the impacts may be understood. For this combined NEPA/CEQA document, NEPA and CEQA findings are shown separately. The term "beneficial effect" means a change producing a beneficial consequence and applies to both NEPA and CEQA. The term "no effect" means essentially no change from either existing conditions or the No Build Alternative, and it applies to both NEPA and CEQA. Where no entry is provided in the table for a given alternative, it should be presumed by the reader that the effect would be essentially the same as the No Build Alternative.

"Carmen Borg"
<Borg@smwlaw.com>
02/13/2009 02:14 PM

To <lower74EIR_D12@dot.ca.gov>
cc "Laurel L. Impett" <lmpett@smwlaw.com>
bcc
Subject Ortega Hwy Comments 29 of 34

29 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

Carmen Borg, AICP
Urban Planner
Shute, Mihaly & Weinberger
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D Appendix Good Planning + Safe Growth

December 2, 2004

APA Calls for Good Planning and Safe Growth to Reduce Pedestrian Fatalities

WASHINGTON, DC — The American Planning Association (APA) today outlined three critical steps the country must take to reduce the number of pedestrian fatalities in its major cities. APA's recommendations were made in response to the findings of *Mean Streets 2004*, a report published by the Surface Transportation Policy Project (STPP) that shows pedestrians are dying in record numbers on the streets of our major metropolitan areas.

The measures APA recommends involve tapping the knowledge, experience and perspective planners offer to ensure good planning and drive safe growth and smarter development; urging federal and state governments to align resources with local priorities and needs; and ensuring that the transportation law up for reauthorization by Congress is a catalyst for further improvements and transportation choice, not just road construction.

"All too often we are designing hazards into our streets or going back and adding new hazards to our existing streets," said APA Executive Director Paul Farmer, AICP. "We know what the solution is and how to design complete streets that serve all users — walkers, drivers and bikers alike.

"The problem, however, is giving up our 50-year-old habit of building communities that move cars forward at all costs," Farmer continued. "Planning is the key to achieving the safe growth citizens want rather than the unsafe growth we've been forced to accept."

The *Mean Streets 2004* study ranks every major metropolitan area according to pedestrian safety. The study also found a connection between pedestrian safety and the development pattern of a community. The most dangerous metro areas identified in the report share several common characteristics including low-density development served largely by wide, high-speed arterial highways.

"Sprawl and leapfrog developments are making our fast growing and rapidly expanding cities danger zones for pedestrians," Farmer said.

He added that planners can make a difference given their knowledge, comprehensive perspective and experience. Planners are trained to help stakeholders work together to meet the challenges of growth and change. They know that streets are not just transportation connections but central to how we live, work and recreate.

Among metropolitan areas where plans and implementation of those plans have helped reduce the number of pedestrian fatalities are Salt Lake City, Utah; Portland, Oregon; and Phoenix, Arizona. Other metro areas that have actively planned for, and implemented, measures to ensure the safety of pedestrians and bicyclists include Chicago; West Palm Beach, Florida; and Arlington, Virginia.

Farmer also said that in order to achieve safer streets, states need to spend more of their transportation funds on pedestrian safety improvements. Currently less than 1 percent of transportation funds are used to ensure a safe walking environment

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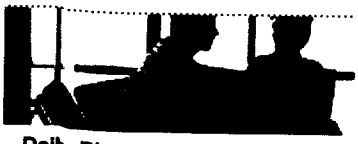

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although 11 percent of all traffic-related deaths are pedestrians. States also need to fully utilize federal transportation enhancement funds. During the past 12 years, $1.69 billion of these funds have remained unused — enough money to build a sidewalk extending from New York City to Los Angeles and back again.

Changes needed to improve the federal Transportation Equity Act, Farmer said, include adding a "safe routes to school" program, protecting the act's Transportation Enhancements program, establishing a new core program for safety, and bolstering the capacity for good planning nationwide.

Click here for additional information, including an Internet link to the *Mean Streets 2004* report.

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Subject Ortega Hwy Comments 30 of 34

30 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage. -1

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

Carmen Borg, AICP
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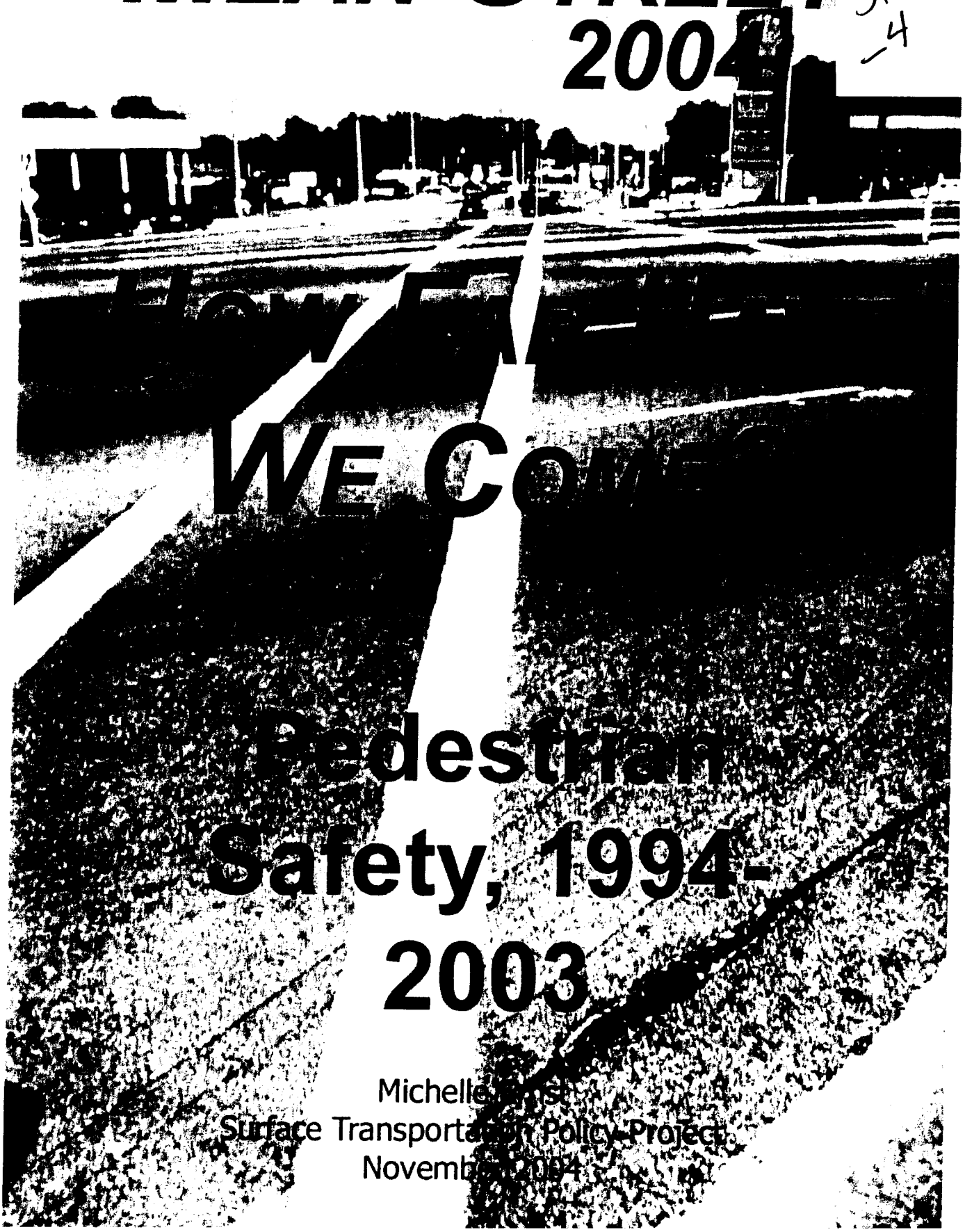

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Pedestrian Safety, 1994-2003

Michelle [illegible]
Surface Transportation Policy Project
November 2004

MEAN STREETS 2004

HOW FAR HAVE WE COME?

A Publication of the Surface Transportation Policy Project

Acknowledgements

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This report, as well as state-by-state fact sheets based on this report, is available online at http://www.transact.org.

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Executive Summary

America's streets are growing meaner for pedestrians

The Surface Transportation Policy Project has been reporting on pedestrian fatalities in the United States for ten years now. Our first report, produced with Environmental Working Group and published in 1996, examined pedestrian fatalities for the period 1986 through 1995. Since that first Mean Streets was published, STPP has issued three updates, each looking at a two-year period. This year, STPP is taking the opportunity with the publication of our fifth edition of Mean Streets to reflect on the trends in pedestrian safety over the past decade.

A total of 51,989 pedestrians have died over the ten years from 1994 through 2003. In raw numbers, pedestrian fatalities have declined over this period by approximately 12.8 percent. This is good news, except when you consider that the rates of walking have declined even faster. The U.S. Census Bureau's decennial data on commuting provides the most reliable benchmark of walking over time. According to that data set, the percentage of commuters who walked to work declined by 24.9 percent from 1990 to 2000.

In fact, walking is by far the most dangerous mode of travel per mile. Although only 8.6 percent of all trips are made on foot, 11.4 percent of all traffic deaths are pedestrians. And while the 2001 fatality rate per 100 million miles traveled is 0.75 for public transit riders, 1.3 for drivers and their passengers, 7.3 for passengers of commercial airlines[1], the fatality rate for walkers is an astonishing 20.1 deaths per 100 million miles walked.

	Fatality rate per 100 million miles traveled
Public transit	**0.75**
Passenger cars and trucks	1.3
Commercial airlines[1]	**7.3**
Walking	**20.1**

Yet, across the country, there is some decidedly good news for pedestrian safety. Many metropolitan areas, some prompted by STPP's Mean Streets reports, have taken steps to make their regions more walkable. Upon his election in 1999, Salt Lake City Mayor Rocky Anderson elevated pedestrian safety and walkability to among his adminstration's highest priorities. His safety campaign and other efforts have proven effective, with pedestrian fatalities in the Salt Lake City area declining by more than 44 percent. Unfortunately, not all areas have followed Salt Lake City's lead. Pedestrian safety continues to worsen in many metro areas. This report takes a hard look at the

[1] This figure is unusually high because it includes airline passengers who died during the September 11, 2001 terrorist attacks. Fatality rates in previous and more recent years range from 0 to 1.2.

trends across the country and identifies the metro areas where the streets have grown meaner, as well as those where the streets have become friendlier to walkers.

The Pedestrian Danger Index (PDI) shows where it is most dangerous to step out of your door to take a walk. It looks at the rate of pedestrians deaths, relative to the amount that people walk in a given metro area. In order to assess whether pedestrian safety has improved or worsened over the past ten years, STPP calculated a PDI for the period 1994 to 1995 and for the period 2002 to 2003, and looked at the change in those two figures. According to this analysis, pedestrian safety has improved markedly in the following large metropolitan areas: Salt Lake City; Portland; Austin; New Orleans; Los Angeles; Dallas-Ft. Worth; Norfolk-Virginia Beach; San Francisco; Hartford; and Phoenix. In contrast, the large metropolitan areas which have seen their streets grow meaner are: Orlando; Richmond, VA; Memphis; Denver; Grand Rapids, MI; Columbus, OH; Pittsburgh; Buffalo; West Palm Beach; and Tampa-St. Petersburg-Clearwater. (Please note that the Pittsburgh area ranks very low in its PDI.)

Metropolitan Area	1994-1995 PDI	2002-2003 PDI	PDI Change
Metro areas with the greatest improvements in pedestrian safety			
Salt Lake City-Ogden, UT MSA	106.2	59.3	-44.2%
Portland-Salem, OR-WA CMSA	**64.3**	**43.0**	**-33.1%**
Austin-San Marcos, TX MSA	77.0	61.9	-19.6%
New Orleans, LA MSA	**101.9**	**82.5**	**-19.1%**
Los Angeles-Riverside-Orange County, CA CMSA	101.3	82.5	-18.6%
Dallas-Fort Worth, TX CMSA	**123.1**	**103.7**	**-15.8%**
Norfolk-Virginia Beach-Newport News, VA-NC MSA	46.6	40.5	-13.3%
San Francisco-Oakland-San Jose, CA CMSA	**56.7**	**49.4**	**-12.9%**
Hartford, CT NECMA	56.9	49.5	-12.9%
Phoenix-Mesa, AZ MSA	**133.2**	**117.2**	**-12.0%**
Metro areas with the greatest declines in pedestrian safety			
Orlando, FL MSA	111.8	243.6	117.9%
Richmond-Petersburg, VA MSA	**41.4**	**70.5**	**70.4%**
Memphis, TN-AR-MS MSA	111.6	159.1	42.6%
Denver-Boulder-Greeley, CO CMSA	**46.3**	**64.9**	**40.0%**
Grand Rapids-Muskegon-Holland, MI MSA	55.0	75.8	37.8%
Columbus, OH MSA	**30.1**	**40.9**	**35.9%**
Pittsburgh, PA MSA	21.6	29.3	35.8%
Buffalo-Niagara Falls, NY MSA	**41.5**	**55.8**	**34.5%**
West Palm Beach-Boca Raton, FL MSA	163.5	209.9	28.3%
Tampa-St Petersburg-Clearwater, FL MSA	**169.8**	**215.3**	**26.8%**

America's meanest streets

4,827 people died in the year 2003 while walking down the street in the United States, down slightly from the toll of 4,919 in 2002. An estimated 70,000 pedestrians were injured in traffic crashes during each of those two years. In addition to the ten-year pedestrian safety

trend analysis, this report looks at where Americans are dying as pedestrians, what makes the streets dangerous for those on foot, and how the states are responding to those dangers.

The PDI shows that the most dangerous places to walk are metropolitan areas marked by newer, low-density developments, where wide, high-speed arterial streets offer few sidewalks or crosswalks. The most dangerous metropolitan area for walking in 2002/2003 was Orlando, followed by Tampa, West Palm Beach, Miami-Ft. Lauderdale, Memphis, Atlanta, Greensboro, NC, Houston, Jacksonville, FL, and Phoenix.

Lack of investment

Unfortunately, few federal transportation dollars are being spent on pedestrian safety in many of the metro areas most in need of improvement. In a separate analysis, STPP reviewed expenditures of federal transportation funds over the last twelve years (fiscal years 1992 through 2003), and found that in four of the top ten areas – Columbus, Denver, Memphis and West Palm Beach – showing the greatest declines in pedestrian safety, state spending of federal dollars on creating a safe walking environment actually declined over time.

During the most recent spending period (under the federal surface transportation law, which covered fiscal years 1998 through 2003), funds expended in six of these metropolitan areas was well below the national average of 82 cents per person each year. In fact, spending in the ten areas listed above was still below the national average, at 73 cents per person for pedestrian facilities or safety programs.

Because state Departments of Transportation typically control the vast majority of federal funds (94 cents of every federal transportation dollar), federally-funded roads have tended to be designed and built with little regard to local needs. This often results in wide, high-speed arterials (the type of roads that the state DOTs are most familiar with) running through towns and neighborhoods. Unfortunately, these are the same roads which are the most deadly for pedestrians.

STPP's analysis shows that the states are not investing enough of their federal transportation dollars to protect people who walk. While 11.4 percent of all traffic deaths are pedestrians (12.9 percent if bicyclists are included), less than one percent (0.9 percent) of federal transportation construction, operations, and maintenance funds are spent to ensure a safe walking environment. No state spends more than 2.5 percent of their federal transportation funds on sidewalks, crosswalks, traffic calming, speed humps, multi-use paths, or safety programs for pedestrians or cyclists. This is in spite of a more than 40

percent increase in federal transportation dollars to the states in the last six years, and regulations that make it easier to use what were once "highway funds" on a wider variety of transportation projects, including transit improvements and pedestrian facilities that support transit and other users.

In addition, over the past 12 years the states have lost the opportunity to spend $1.69 billion on bicycle and pedestrian projects available through federal law. The program, Transportation Enhancements, is designed to support bicycle and pedestrian projects, among other investments. Many states have chosen to leave this money on the table rather than do the projects that could make walking and bicycling safer for everyone.

Communities with streets built for speed, not people

Rather than investing in pedestrian safety, many state departments of transportation often choose to build roads that turn out to be dangerous for people on foot. In looking at the types of roads on which pedestrians are killed, STPP's analysis found that 14.6 percent of pedestrians deaths occur on Interstates, freeways, and expressways, 31.1 percent on other principal arterials, 20.8 percent on minor arterials, 11.9 percent on collectors, and 21.6 percent on local roads. The deadliest roads tend to be high-speed arterials, with few accommodations or protections – such as sidewalks or crosswalks – for pedestrians.

Overall, the nation's transportation networks have been largely designed to facilitate high speed automobile traffic, treating our communities and pedestrian safety particularly as an afterthought. Streets designed with wide travel lanes and expansive intersections have been the norm or local zoning and parking requirements that don't account for pedestrians and public transportation riders is too often standard practice. Private sector actors routinely design malls, shopping centers and housing for automobile access, without suitable facilities for pedestrians, bicyclists or transit users. Importantly, communities with a good design and a focus on features that support travel options from the start don't have to be fixed later, reducing the dangers to pedestrians today and into the future.

People at higher risk

For the first time, the federal fatality statistics include a look at the racial and ethnic background of those killed. While the record is not complete (race data is not available for 27 percent of deaths, and

ethnicity data is not available for 28 percent of deaths), it does show that ethnic and racial minorities are over-represented in pedestrian deaths. African-Americans make up 19 percent of pedestrian deaths, even though they represent just 12.7 percent of the total population.

Children also face higher risks as pedestrians. Pedestrian injury is the third leading cause of unintentional injury-related death among children ages 5 to 14. This is true even though the evidence shows that fewer children are walking. Only about 14 percent of children's trips to school are made on foot, down from 50 percent in 1969. Forty percent of parents asked about the barriers to children walking to school cited traffic as a major concern. About 70 percent of children's trips are made in the back seat of a car.

The health risk of walking less

While walking presents some dangers, not walking may hold more hazards. As children have been walking less, the percentage of children who are obese or overweight has soared. The same is true for adults: the portion of people who walk to work dropped by 25 percent between 1990 and 2002, at the same time that the percentage of the population who are obese jumped 70 percent. The Surgeon General's Call to Action on the obesity epidemic calls for providing safe and accessible sidewalks, walking, and bicycle paths. Physical inactivity is also associated with a heightened risk for many diseases, including heart disease, diabetes and pancreatic and breast cancer.

The medical costs of physical inactivity are estimated at about $76 billion per year. Meanwhile, the federal transportation program, which weighs in at about $46 billion per year, spends less than one percent of that – about $240 million annually – on creating safer places to walk and bicycle.

Automobile-oriented transportation networks are sometimes so seamless that commuters can go directly from the garages of their homes to the basements in their worksites without so much as a short walk. The same attention needs to be directed to making other trips more seamless, including the pedestrian, bicycle and transit facilities that both encourage walking and make walking safer. This means wider sidewalks (if there are sidewalks at all), improved lighting, safe crossings and attractive transit wait areas can combine to improve the experience of walking. Community designs that emphasize other travel options – walking, biking and transit – are needed to support additional activity and better health.

Recommendations for state and federal action

Americans strongly support greater investment and commitment to pedestrian safety. More than two-thirds (68 percent) of Americans favor putting more federal dollars toward improving walkability, even within a constrained budget.[2] The effort to create a better walking environment would be much more effective if local, state and federal transportation agencies embraced walking as a transportation priority by taking the following actions:

Design-Related

- **Fix What We Have** to correct the many deficiencies that now exist in the nation's transportation infrastructure, by developing pedestrian action plans, adopting *"fix-it-first"* policies, establishing *Safe Routes to School* programs, ensuring a "fair share" commitment of transportation funds to pedestrian safety needs and giving more funding to local agencies who own most of the federal-aid and other system roads.
- **Complete Streets** so that transportation projects at every level of government – Federal, State and local – provide appropriate facilities and accommodations to serve pedestrians, bicyclists and transit users.

Operations

- **Tame Motor Vehicle Traffic** by ensuring safer motor vehicle operation, removing unsafe drivers from the roads and deploying new technologies to enhance enforcement such as photo speed enforcement and so-called red-light cameras.
- **Promote Walking** by emphasizing the public health, economic development, and transportation benefits of walking, including more focused attention and greater resource commitments to encourage people of all ages to walk more.

[2] *American's Attitudes Toward Walking and Creating Better Walking Communities*, April 2003. Conducted by Belden Russonello & Stewart Research and Communications for the Surface Transportation Policy Project. <www.transact.org/report.asp?id=205>

Introduction

In 2003 4,827 Americans died while crossing the street, walking to school or work, going to a bus stop, or strolling to the grocery, among other daily routines. The National Highway Traffic Safety Administration (NHTSA) estimates that 70,000 more were injured; on average a pedestrian is killed or injured in a traffic crash every 7 minutes. These seemingly safe, everyday acts ended the lives of more than 450 children under the age of 16 in 2003. This report analyzes ten years of data from the Fatality Analysis Reporting System (FARS) maintained by NHTSA to determine which metropolitan areas and states have grown more dangerous for walkers, as well as which have become safer for pedestrians. The report also uses the most recent two years of FARS data to learn where pedestrians are dying, and why. Finally, it looks at the investment in pedestrian safety through analysis of state spending patterns of federal highway funds, which are recorded in the Fiscal Management Information System (FMIS) maintained by the Federal Highway Administration.

4,827 pedestrians were killed in 2003; 461 of those killed were children under the age of 16

During the two-year period 2002 through 2003, raw pedestrian fatalities declined by 13.5 percent over the two-year period 1994 and 1995, over the ten-year period. Likewise, the pedestrian fatality rate declined from 2.14 deaths per 100,000 persons during the 1994-1995 period, to 1.68 deaths per 100,000 persons in the 2002-2003 period, a drop of more than 21 percent. This is undoubtedly a significant decrease in pedestrian deaths. That being said, the improvement must be taken with a grain of salt, and considered relative to the evidence suggesting that fewer people are walking regularly. U.S. Census Bureau figures on how Americans travel to work shows that the share of work trips made on foot declined by 24.9 percent in the last decade. In 1990, nearly 4.5 million Americans walked to work. Ten years later, in 2000, that figure declined to 3.8 million. In fact, applying STPP's methodology for the PDI (which examines per capita pedestrian fatalities relative to the amount of walking) at the national level, America's streets actually got meaner over the last decade, with the national PDI growing from 54.8 during the 1994-1995 period to 57.5 in the 2002-2003 period.

Photo by Dan Burden

In what may be a vicious circle, the decline in walking can be attributed to the decline in safe, convenient

and inviting places to walk, to underinvestment in safe pedestrian facilities, and to the increasing number of Americans living in places where walking is more dangerous. More and more Americans are living in sprawling suburban and exurban areas where walking is difficult at best. From 1990 to 2000, according to the Census, the number of people living on the edge of metropolitan areas grew by 18 percent. These areas are generally characterized by wide arterial streets with fast-moving traffic, few sidewalks or crosswalks, and stores, shops, and offices accessible only by car. These are also the environments that this report shows are the most deadly for walkers.

The Trend in Pedestrian Safety in America's Metro Areas

The streets in some metro areas have grown safer for pedestrians over the last decade. Yet, in many of America's sprawling metro areas, the streets are getting meaner for pedestrians. Even as walking declines in these areas, the pedestrian fatality rate per capita has increased or stayed constant. These two factors are combined as STPP's Pedestrian Danger Index (PDI), a measure of the average yearly pedestrian fatalities per capita, adjusted for the number of walkers.[3] The PDI gives us a measure of pedestrian fatalities that controls for exposure to walking[4], and allows for a comparison of the risk to pedestrians across metro areas, and across time.

In order to examine how pedestrian safety has improved or worsened in metro areas over the last decade, STPP has calculated a PDI for each metro area for the period 1994 to 1995 and also for the period 2002 to 2003, and calculated the change in these values for each metro area. A positive value indicates that pedestrian safety has declined, while a negative value indicates an improvement in pedestrian safety.

Streets get meaner in sprawling metro areas

Altogether, 30 of the nation's 50 largest metropolitan areas saw their streets grow meaner to pedestrians in the last decade.

The ten metro areas (over 1 million population) which have seen the greatest declines in pedestrian safety over the past decade are Orlando, Richmond, VA, Memphis, Denver, Grand Rapids, MI, Columbus, OH, Pittsburgh, Buffalo, West Palm Beach, and Tampa-St. Petersburg-Clearwater. Table 1 below lists all of the large metro areas with worsening pedestrian safety.

Metropolitan Area	PDI Change
Orlando, FL MSA	**117.9%**
Richmond-Petersburg, VA MSA	70.4%
Memphis, TN-AR-MS MSA	**42.6%**
Denver-Boulder-Greeley, CO CMSA	40.0%
Grand Rapids-Muskegon-Holland, MI MSA	**37.8%**
Columbus, OH MSA	35.9%
Pittsburgh, PA MSA	**35.8%**
Buffalo-Niagara Falls, NY MSA	34.5%
West Palm Beach-Boca Raton, FL MSA	**28.3%**
Tampa-St Petersburg-Clearwater, FL MSA	26.8%

[3] The number of walkers acts as a measure of exposure to the risk of being killed as a pedestrian. It is derived from the 2000 Decennial Census Journey-to-Work data on the share of workers walking to work.

[4] The Census Journey-to-Work data is limited in that it provides information only on the mode people choose most often to travel to and from work. A better measure of exposure would include all types of trips (including to the store, to school, to the subway, etc.), as well as trips taken by the non-usual mode. Unfortunately a good, nationwide source of that data at the metro area level is not available.

Table 1. Large Metro Areas with Worsening Pedestrian Safety

Metropolitan Area	1994-1995 PDI	2002-2003 PDI	Change
Orlando, FL MSA	**111.8**	**243.6**	**117.9%**
Richmond-Petersburg, VA MSA	41.4	70.5	70.4%
Memphis, TN-AR-MS MSA	**111.6**	**159.1**	**42.6%**
Denver-Boulder-Greeley, CO CMSA	46.3	64.9	40.0%
Grand Rapids-Muskegon-Holland, MI MSA	**55.0**	**75.8**	**37.8%**
Columbus, OH MSA	30.1	40.9	35.9%
Pittsburgh, PA MSA	**21.6**	**29.3**	**35.8%**
Buffalo-Niagara Falls, NY MSA	41.5	55.8	34.5%
West Palm Beach-Boca Raton, FL MSA	**163.5**	**209.9**	**28.3%**
Tampa-St Petersburg-Clearwater, FL MSA	169.8	215.3	26.8%
Detroit-Ann Arbor-Flint, MI CMSA	**90.9**	**111.3**	**22.4%**
San Antonio, TX MSA	67.3	82.1	22.0%
Jacksonville, FL MSA	**99.6**	**120.7**	**21.2%**
Minneapolis-St Paul, MN-WI MSA	32.6	39.4	20.9%
Rochester, NY MSA	**29.6**	**34.8**	**17.7%**
Houston-Galveston-Brazoria, TX CMSA	105.5	121.9	15.5%
Oklahoma City, OK MSA	**75.3**	**85.4**	**13.5%**
Milwaukee-Racine, WI CMSA	32.3	36.1	11.6%
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA	**43.3**	**48.3**	**11.4%**
Kansas City, MO-KS MSA	90.8	100.3	10.4%
San Diego, CA MSA	**62.9**	**68.7**	**9.2%**
Charlotte-Gastonia-Rock Hill, NC-SC MSA	95.3	103.9	9.0%
Raleigh-Durham-Chapel Hill, NC MSA	**73.8**	**80.2**	**8.7%**
St Louis, MO-IL MSA	89.9	95.0	5.7%
New Haven-Bridgeport-Stamford-Waterbury-Danbury, CT NECMA	**47.2**	**49.8**	**5.7%**
Sacramento-Yolo, CA CMSA	93.2	95.9	2.9%
Greensboro--Winston-Salem--High Point, NC MSA	**119.3**	**122.5**	**2.6%**
Louisville, KY-IN MSA	76.9	78.1	1.5%
Washington-Baltimore, DC-MD-VA-WV CMSA	**58.8**	**59.2**	**0.7%**
Seattle-Tacoma-Bremerton, WA CMSA	42.8	43.0	0.6%

Streets get safer in metro areas committed to pedestrian safety

Though nationwide pedestrian safety has declined over the past decade, there are a number of bright spots across the country, metro areas where pedestrian fatalities have declined relative to the rate of walking. Table 2 below lists the large metro areas in which pedestrian safety has improved in the last ten years.

Table 2. Large Metro Areas with Improving Pedestrian Safety

Metropolitan Area	1994-1995 PDI	2002-2003 PDI	Change
Salt Lake City-Ogden, UT MSA	**106.2**	**59.3**	**-44.2%**
Portland-Salem, OR-WA CMSA	64.3	43.0	-33.1%
Austin-San Marcos, TX MSA	**77.0**	**61.9**	**-19.6%**
New Orleans, LA MSA	101.9	82.5	-19.1%
Los Angeles-Riverside-Orange County, CA CMSA	**101.3**	**82.5**	**-18.6%**
Dallas-Fort Worth, TX CMSA	123.1	103.7	-15.8%
Norfolk-Virginia Beach-Newport News, VA-NC MSA	**46.6**	**40.5**	**-13.3%**
San Francisco-Oakland-San Jose, CA CMSA	56.7	49.4	-12.9%
Hartford, CT NECMA	**56.9**	**49.5**	**-12.9%**
Phoenix-Mesa, AZ MSA	133.2	117.2	-12.0%
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA	**37.9**	**33.4**	**-11.8%**
Indianapolis, IN MSA	80.9	71.5	-11.6%
Miami-Fort Lauderdale, FL CMSA	**184.7**	**166.3**	**-9.9%**
Cleveland-Akron, OH CMSA	33.2	30.2	-9.0%
Las Vegas, NV-AZ MSA	**124.7**	**115.0**	**-7.8%**
Atlanta, GA MSA	156.6	144.4	-7.8%
Nashville, TN MSA	**100.0**	**93.0**	**-7.0%**
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA	26.4	25.4	-3.8%
Cincinnati-Hamilton, OH-KY-IN CMSA	**35.3**	**34.6**	**-1.9%**
Chicago-Gary-Kenosha, IL-IN-WI CMSA	53.3	53.3	-0.1%

Where Pedestrians Are Dying

In addition to looking at the trend in pedestrian safety over time, STPP also examined how metro areas compare to each other in the most recent time period, 2002 through 2003. Once again, we used the PDI to evaluate the risk of pedestrian death relative to the amount of walking in each metro area.

According to the Pedestrian Danger Index, the top ten most dangerous large metro areas for walking in 2002-2003 were: Orlando; Tampa-St. Petersburg-Clearwater; West Palm Beach-Boca Raton; Miami-Ft. Lauderdale; Memphis; Atlanta, Greensboro-Winston Salem-High Point, NC; Houston-Galveston-Brazoria; Jacksonville; and Phoenix-Mesa. Orlando's pedestrian death rate of 3.15 deaths per 100,000 persons is remarkable given that its walk-to-work rate, 1.3 percent, is well below the national average. This combination of a high death rate, and low rate of walking, gives Orlando the top PDI ranking among large metro areas.

	Metro Area	Pedestrian Danger Index
1	Orlando, FL	243.6
2	**Tampa-St Petersburg-Clearwater, FL**	**215.3**
3	West Palm Beach-Boca Raton, FL	209.9
4	**Miami-Fort Lauderdale, FL**	**166.3**
5	Memphis, TN-AR-MS	159.1
6	**Atlanta, GA**	**144.4**
7	Greensboro--Winston-Salem--High Point, NC	122.5
8	**Houston-Galveston-Brazoria, TX**	**121.9**
9	Jacksonville, FL	120.7
10	**Phoenix-Mesa, AZ**	**117.2**

The most dangerous metro areas, all located in the South or West, tend to be marked by lower density development patterns, which include wide, high-speed arterials that are particularly hazardous for walking. Most experienced rapid population growth in the latter half of the 20th Century when development was designed to facilitate fast-moving automobile traffic and new growth tended to follow new highways away from the central city. In fact, a report from Smart Growth America found that 50 percent fewer commuters walk to work in sprawling areas like the ones listed above.[5] And the PDI indicates that when they do walk to work, they face a higher level of risk. Table 3 below lists the nation's 50 largest metro areas, ranked according to their PDI.

[5] According to that report, about 2 percent of commuters walk to work in sprawling metro areas, compared to 3.1 percent in less sprawling metro areas. Reid Ewing, Rolf Pendall, and Don Chen. *Measuring Sprawl and Its Impact*. October 2002. <www.smartgrowthamerica.org/sprawlindex/sprawlindex.html>

Table 3. The Most Dangerous Large Metro Areas for Pedestrians (over 1 million residents)

	Metro Area	Average Annual Pedestrian Deaths per 100,000 Capita (2002-2003)	Percent of Workers Walking to Work (2000)	Pedestrian Danger Index
1	**Orlando, FL MSA**	**3.15**	**1.3%**	**243.6**
2	Tampa-St Petersburg-Clearwater, FL MSA	3.69	1.7%	215.3
3	**West Palm Beach-Boca Raton, FL MSA**	**2.86**	**1.4%**	**209.9**
4	Miami-Fort Lauderdale, FL CMSA	2.94	1.8%	166.3
5	**Memphis, TN-AR-MS MSA**	**2.07**	**1.3%**	**159.1**
6	Atlanta, GA MSA	1.83	1.3%	144.4
7	**Greensboro--Winston-Salem--High Point, NC MSA**	**1.90**	**1.6%**	**122.5**
8	Houston-Galveston-Brazoria, TX CMSA	1.97	1.6%	121.9
9	**Jacksonville, FL MSA**	**2.02**	**1.7%**	**120.7**
10	Phoenix-Mesa, AZ MSA	2.44	2.1%	117.2
11	**Las Vegas, NV-AZ MSA**	**2.74**	**2.4%**	**115.0**
12	Detroit-Ann Arbor-Flint, MI CMSA	2.03	1.8%	111.3
13	**Charlotte-Gastonia-Rock Hill, NC-SC MSA**	**1.26**	**1.2%**	**103.9**
14	Dallas-Fort Worth, TX CMSA	1.53	1.5%	103.7
15	**Kansas City, MO-KS MSA**	**1.36**	**1.4%**	**100.3**
16	Sacramento-Yolo, CA CMSA	2.08	2.2%	95.9
17	**St Louis, MO-IL MSA**	**1.54**	**1.6%**	**95.0**
18	Nashville, TN MSA	1.40	1.5%	93.0
19	**Oklahoma City, OK MSA**	**1.44**	**1.7%**	**85.4**
20	Los Angeles-Riverside-Orange County, CA CMSA	2.11	2.6%	82.5
21	**New Orleans, LA MSA**	**2.24**	**2.7%**	**82.5**
22	San Antonio, TX MSA	1.94	2.4%	82.1
23	**Raleigh-Durham-Chapel Hill, NC MSA**	**1.84**	**2.3%**	**80.2**
24	Louisville, KY-IN MSA	1.34	1.7%	78.1
25	**Grand Rapids-Muskegon-Holland, MI MSA**	**1.56**	**2.1%**	**75.8**
26	Indianapolis, IN MSA	1.20	1.7%	71.5
27	**Richmond-Petersburg, VA MSA**	**1.31**	**1.9%**	**70.5**
28	San Diego, CA MSA	2.33	3.4%	68.7
29	**Denver-Boulder-Greeley, CO CMSA**	**1.54**	**2.4%**	**64.9**
30	Austin-San Marcos, TX MSA	1.29	2.1%	61.9
31	**Salt Lake City-Ogden, UT MSA**	**1.09**	**1.8%**	**59.3**
32	Washington-Baltimore, DC-MD-VA-WV CMSA	1.76	3.0%	59.2
33	**Buffalo-Niagara Falls, NY MSA**	**1.51**	**2.7%**	**55.8**
34	Chicago-Gary-Kenosha, IL-IN-WI CMSA	1.67	3.1%	53.3
35	**New Haven-Bridgeport-Stamford-Waterbury-Danbury, CT NECMA**	**1.35**	**2.7%**	**49.8**
36	Hartford, CT NECMA	1.24	2.5%	49.5
37	**San Francisco-Oakland-San Jose, CA CMSA**	**1.61**	**3.3%**	**49.4**
38	Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA	1.87	3.9%	48.3
39	**Portland-Salem, OR-WA CMSA**	**1.28**	**3.0%**	**43.0**
40	Seattle-Tacoma-Bremerton, WA CMSA	1.36	3.2%	43.0
41	**Columbus, OH MSA**	**0.97**	**2.4%**	**40.9**
42	Norfolk-Virginia Beach-Newport News, VA-NC MSA	1.08	2.7%	40.5
43	**Minneapolis-St Paul, MN-WI MSA**	**0.96**	**2.4%**	**39.4**
44	Milwaukee-Racine, WI CMSA	1.00	2.8%	36.1
45	**Rochester, NY MSA**	**1.23**	**3.5%**	**34.8**
46	Cincinnati-Hamilton, OH-KY-IN CMSA	0.80	2.3%	34.6
47	**New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA**	**1.94**	**5.8%**	**33.4**
48	Cleveland-Akron, OH CMSA	0.65	2.1%	30.2
49	**Pittsburgh, PA MSA**	**1.05**	**3.6%**	**29.3**
50	Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA	1.02	4.0%	25.4

Florida's Older Pedestrians

Five of the six most dangerous metro areas for walking are in Florida, known as a haven for retirees. Is there a connection? An analysis of the pedestrian fatality statistics by STPP reveals that the portion of elderly people dying as pedestrians in Florida is not out of line with the national average. Seventeen percent of pedestrian deaths in Florida in the years studied were elderly people (70 years and older), the same as the national average of 17.0 percent. Almost half of the states had rates higher than Florida's. In fact, over one-quarter of all pedestrian deaths in North Dakota, Hawaii, Vermont, Maine, West Virginia, and Massachusetts were elderly.

The PDI was developed by STPP to allow a fair comparison of metro areas according to their risk to pedestrians, relative to how much an ordinary person walks in that metro area. However, in some communities, even those which are not rated as the most "dangerous" according to the PDI, pedestrian deaths represent an unusually high portion of all traffic deaths.

The New York metropolitan area, with an average of 386 pedestrian deaths annually, has the highest absolute number of pedestrian deaths of any metropolitan area in the U.S. However, with nearly 20 million people now residing within its boundaries, the pedestrian fatality rate per 100,000 persons averages 1.9. And with the highest portion of commuters walking to work of any large metropolitan area, the relative risk to pedestrians in the New York metro area is the fourth lowest in the country.

	Metro Area	Number of Ped Fatalities (2002)	Number of Ped Fatalities (2003)	Percent of Traffic Deaths that Were Pedestrians
1	New York-Northern New Jersey-Long Island, NY-NJ-CT-PA	395	377	28.3%
2	**Miami-Fort Lauderdale, FL**	**119**	**119**	**22.8%**
3	San Diego, CA	74	62	22.5%
4	**San Francisco-Oakland-San Jose, CA**	**118**	**110**	**21.7%**
5	Los Angeles-Riverside-Orange County, CA	355	369	21.3%
6	**Tampa-St Petersburg-Clearwater, FL**	**97**	**88**	**21.1%**
7	Detroit-Ann Arbor-Flint, MI	119	105	20.2%
8	**Buffalo-Niagara Falls, NY**	**17**	**18**	**19.9%**
9	Chicago-Gary-Kenosha, IL-IN-WI	155	157	19.1%
10	**Seattle-Tacoma-Bremerton, WA**	**45**	**55**	**18.5%**

Even so, pedestrians make up a high percentage of all traffic deaths in New York – 28 percent, more than twice the national average. In communities with such a high portion of pedestrian deaths, pedestrian safety merits proportional public safety attention. The table above lists the metro areas with the highest percentage of pedestrian deaths.

Streets Designed for Speed, Not People

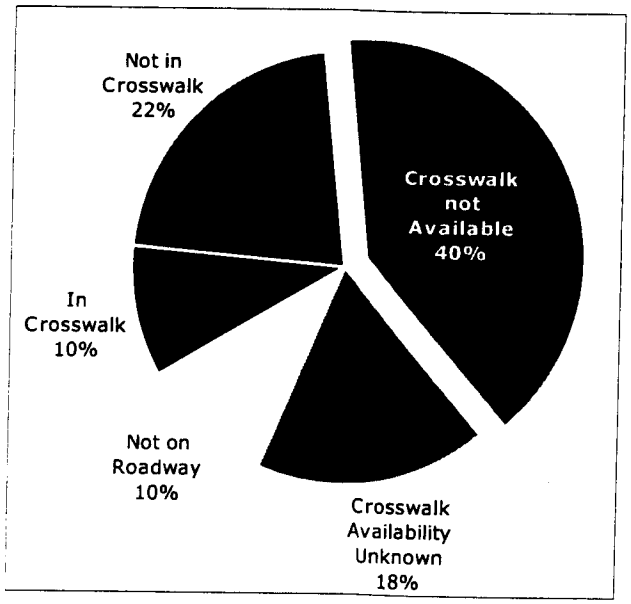
Perhaps the best way to understand why these metropolitan areas are so hazardous is to take a closer look at the types of streets where most pedestrians are killed. Wide roads, speeding traffic, and a lack of crosswalks or sidewalks can make walking a deadly activity. A 2002 report from the Federal Highway Administration (FHWA) states that while 95 percent of pedestrians are likely to survive being struck by a vehicle traveling at 20 miles per hour, only 15 percent are likely to live through a collision with a vehicle traveling at 40 mph.[6]

STPP's analysis of the FARS database revealed that most pedestrians were killed on arterial roads. Just 14.6 percent of pedestrians were killed on Interstates, freeways, or expressways. 33.5 percent were killed on collectors and local roads and streets. But nearly 52 percent of the 9,648 pedestrians killed (for whom location data was recorded) in 2002 and 2003 died on principal or minor arterials.

In addition, a broad look at all pedestrian deaths shows the potential influence of poor pedestrian facilities. Of the 9,565 pedestrians who were killed in 2002 and 2003, for which location of death is known, more than 40 percent were killed where no crosswalk was available. Another 18 percent were killed where crosswalk availability was not known. Less than ten percent of pedestrian deaths occurred inside a crosswalk. These data point to at least one common problem of dangerous streets – there simply are not enough pedestrian facilities.

A recent FHWA study supports this finding: "There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 bicyclists and pedestrians are killed in traffic every year...and that two desirable and efficient modes of travel have been made difficult and uncomfortable."[7] Later in this report, *Recommendations for State and Federal Action* offers suggestions for improving pedestrian facilities.

Figure 1. Location of Pedestrian Fatalities (2002-2003)



[6] Federal Highway Administration (2002). *Pedestrian Facilities Users Guide: Providing Safety and Mobility.*
[7] Federal Highway Administration (1999). *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach.* <http://www.fhwa.dot.gov/environment/bikeped/Design.htm>

The Role of Race and Ethnicity in Pedestrian Fatalities

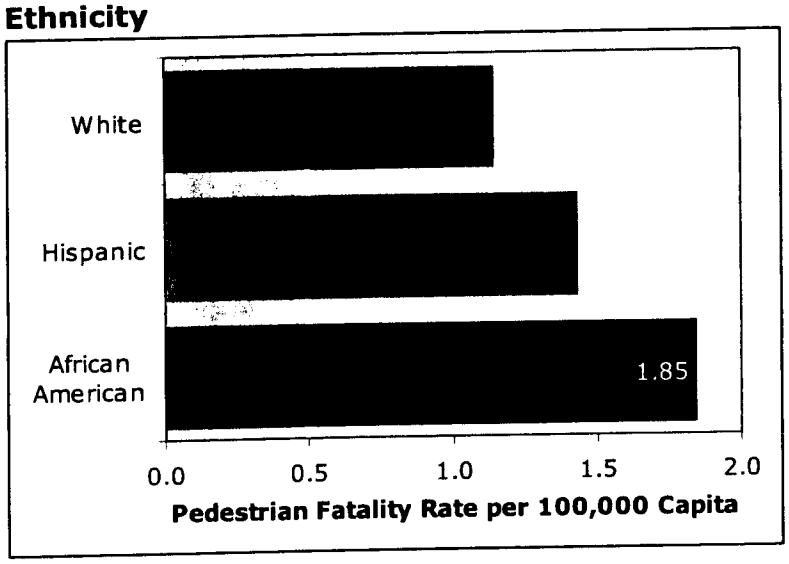
African-Americans comprise only 12.7 percent of the population, but 19 percent of pedestrian deaths.

While it would seem that traffic crashes are indiscriminate killers, the pedestrian fatality statistics show that ethnic and racial minorities tend to be disproportionately represented in the numbers. While the data on race and ethnicity for pedestrian deaths is still incomplete (records for 27 percent of pedestrian fatalities did not record race data, and 28 percent of entries did not record ethnicity data), the available data does offer important findings.

Nationwide, whites comprise 81 percent of the population. However, only 75 percent of pedestrian deaths for which race is known are whites. In contrast, African-Americans make up nearly one in five (19 percent) pedestrian deaths, though they represent less than 13 percent of the total U.S. population. Likewise, Latino pedestrians comprise 16 percent of deaths, but only 13.5 percent of the total U.S. population.

While the FARS data on pedestrian race and ethnicity is too incomplete to permit an assessment at the metro area level, other studies have found that at the regional level, ethnic and racial minorities suffer even greater disparities in pedestrian deaths. The Centers for Disease Control reported recently that Latinos in Atlanta were six times more likely to be hit and killed while walking than whites.[8] A survey conducted by the *Washington Post* found that Latinos in suburban Washington, DC were three times more likely to be hit and killed.[9] Another survey conducted by the *Los Angeles Times* in Orange County, California showed that while Latinos make up 28 percent of the county's population, they accounted for 40 percent of all pedestrian injuries and 43 percent of all pedestrian deaths.[10] A recent *New York Times* article found that while Hispanics comprise only 10 to 15 percent of Long Island's total population,

Figure 2. Pedestrian Fatality Rates by Race and Ethnicity



[8] Centers for Disease Control and Prevention, "Pedestrian Fatalities -- Cobb, DeKalb, Fulton, and Gwinnett Counties, Georgia, 1994-1998," *Morbidity and Mortality Weekly Report*. Atlanta, Georgia, July 23, 1999. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4828a1.htm>
[9] Sylvia Moreno and Alan Sipress. "Fatalities Higher for Latino Pedestrians; Area's Hispanic Immigrants Apt to Walk but Unaccustomed to Urban Traffic," *Washington Post*. August 27, 1999.
[10] Richard Marosi. "Pedestrian Deaths Reveal O.C.'s Car Culture Clash," *Los Angeles Times* Orange County Edition. November 28, 1999.

they account for 43 percent of Nassau County's pedestrian deaths, and 21 percent of Suffolk County's pedestrian fatalities.[11]

Several studies show the risk of injury to be significantly higher among African-American children than other children,[12] and in Census tracts with higher percentages of non-white residents.[13] In New Mexico, Native American children had a death rate 2.5 times that of other ethnic and racial groups.[14]

It is speculated that the link between pedestrian deaths and ethnicity is due to the fact that Latinos, and African-Americans are less likely to own a car and more likely to walk, bike and/or take public transportation, resulting in greater exposure to the dangers of the street. Indeed, an analysis of the 2001 National Household Travel Survey confirms that racial and ethnic minorities are much more likely than whites to walk to destinations. While whites made only 8.6 percent of trips on foot in 2001, African-Americans made 12.6 percent of trips on foot, and Latinos walked for 11.8 percent of trips.

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[11] Patrick Healy. "Peril Afoot in the Land of Four Wheels," *New York Times*. February 29, 2004.
[12] W.D. Kim, P.A. Palmisano. "Racial Differences in Childhood Hospitalized Pedestrian Injuries," *Pediatric Emergency Care*. 1992; 8 (4): pg. 221-224.
[13] M. Braddock, G. Lapidus, D. Gregorio, M. Kapp, L. Banco. "Population, Income, and Ecological Correlates of Child Pedestrian Injury," *Pediatrics*. Dec. 1991; 88 (6): pg. 1242-1247. F.P. Rivara, M. Barber. "Demographic Analysis of Childhood Pedestrian Injuries," *Pediatrics*. Sept. 1985; 76 (3): pg. 375-381.
[14] L.M. Olson, D.P. Sklar, L. Cobb, F. Sapien, R. Zumwalt. "Analysis of Childhood Pedestrian Deaths in New Mexico," *American Emergency Medicine*. 1993; 22: pg. 512-516.

Child Pedestrians

A safe walking environment is particularly important for children, who depend more heavily on walking for mobility than adults. Almost ten percent of all pedestrian deaths are children. And despite recent declines, pedestrian injury remains the third leading cause of unintentional injury-related death among children ages 5 to 14.[15] Annual health care costs for treating child pedestrian injuries (including fatal injuries) amounts to $7.2 billion.[16]

While currently available data does not allow us to compute a pedestrian danger index for children, we know that parents are concerned that the walking environment is too dangerous for kids. A recent national survey by the Centers for Disease Control found that 40 percent of parents cited traffic as a major barrier to allowing children to walk to school.[17] The National Safe Kids Campaign surveyed 9,000 "walkability" audits conducted across the country and found that nearly 60 percent of parents and children encountered at least one serious hazard along their routes to school. Common hazards included the lack of a sidewalk or crosswalk, wide roads, complicated traffic conditions, improper parking and speeding drivers.[18] In addition, many new schools are being built at the edge of communities, too far for children to walk.[19]

While the rate of child pedestrian deaths has been declining over the last decade, analysts believe this is in large part due to a decrease in exposure because children are walking much less. A 2002 survey of walking conducted by Belden Russonello & Stewart for STPP found that while seven in ten (71 percent) of respondents walked or rode a bicycle to school as a child, only 17 percent reported that their own children ever walk to school.[20] This has occurred at the same time that the percent of children who are obese or overweight has soared. Since 1980, the portion of 6 to 19-year-olds who are overweight has more than tripled, with 15 percent of children in this age group now

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[15] National SAFE KIDS Campaign. *Report to the Nation on Child Pedestrian Safety*. October 2002.
[16] National SAFE KIDS Campaign. *Pedestrian Injury Fact Sheet*. 2004. <http://www.safekids.org/tier3_cd.cfm?content_item_id=1150&folder_id=540>
[17] Centers for Disease Control and Prevention, "Barriers to Children Walking and Biking to School - United States, 1999," *MMWR Weekly* 51(32);701-7045, August 16, 2002. <www.cdc.gov/mmwr/preview/mmwrhtml/mm5132a1.htm>
[18] ibid.
[19] National Trust for Historic Preservation. *Why Johnny Can't Walk to School*. 2001. <http://www.nationaltrust.org>
[20] *American's Attitudes Toward Walking and Creating Better Walking Communities*, April 2003. Conducted by Belden Russonello & Stewart Research and Communications for the Surface Transportation Policy Project. <www.transact.org/report.asp?id=205>

considered overweight, while children in all age groups are gaining weight.[21]

Routine physical activity, such as walking to school, is one of the potential solutions to the obesity epidemic among children. Parents and schools are now organizing Walk to School Days to encourage more walking and to identify and fix hazards along the walk to school.

[21] Cynthia L. Ogden; Katherine M. Flegal; Margaret D. Carroll; Clifford L. Johnson. "Prevalence and Trends in Overweight Among U.S. Children and Adolescents, 1999-2000," *Journal of the American Medical Association*. October 9, 2002.

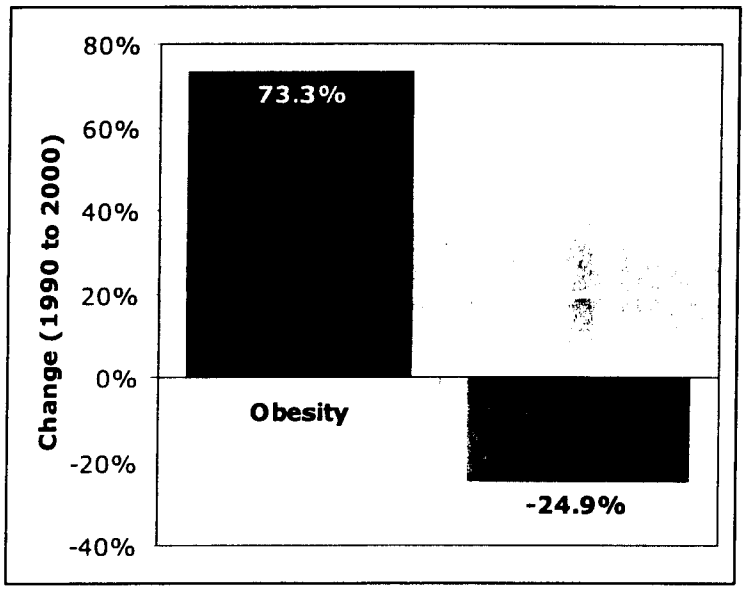
Walking for Health

While walking presents some dangers, not walking may be more hazardous for the health of children and adults. The portion of people who walk to work dropped by 25 percent between 1990 and 2000, at the same time that the portion of the population who are obese or overweight has jumped more than 70 percent. Walking is the most prevalent form of basic physical activity, and public health officials blame physical inactivity for an estimated 250,000 deaths annually. Moderate physical activity has been linked to a wide range of benefits, including lowering the risk for heart disease, stroke, colon and breast cancer, diabetes, and high blood pressure. Studies have also shown its benefits in warding off high cholesterol and depression.

Clearly, increasing pedestrian safety and encouraging walking would deliver significant health benefits. Public health officials have recognized the decline in walking and other physical activity as a contributor to the obesity epidemic that is now affecting 22.1 percent of U.S. adults. The Surgeon General's Call to Action on the obesity epidemic issued in 2001 calls for providing safe and accessible sidewalks, walking, and bicycle paths.

Diseases associated with a sedentary lifestyle cost $76 billion a year.[22] With health care costs soaring, more and more governments and health care agencies are focusing on prevention as a way to improve Americans' health status. A growing movement for "active living" is bringing together transportation, land use, and health officials to determine how to engineer a built environment that encourages walking. This movement promotes active living as a way of life that integrates physical activity into daily routines. The recommended activity level for Americans is 30 minutes of moderate physical activity at least five days a week, a goal that can easily be met through walking to school, to work, or for errands.

Figure 3. Trend in Adult Obesity and Walking Rates (1990 to 2000)



[22] M. Pratt, C.A. Macera, G. Wang. "Higher Direct Medical Costs Associated with Physical Inactivity," *The Physician and Sports Medicine* 2000 vol 28, no. 10 pg. 63-70.

Walkers' Safety Not a Spending Priority

Although one-third of Americans do not drive, nearly everyone walks. Unfortunately, most state departments of transportation have not recognized the importance of walking, and have failed to take advantage of increased federal funding that is available to address pedestrian safety. STPP analyzed state spending of federal funds for the periods of fiscal years 1992 through 1997 and fiscal years 1998 through 2003, comparing state commitments of federal funds to pedestrian safety. Spending of federal funds per se cannot be directly associated with the safety of the walking environment, because many communities have been investing in sidewalks and other facilities for decades, or have dedicated more local funds (and state funds) to this purpose. But it does indicate the level of commitment transportation agencies have made to creating safer pedestrian environments.

Nationwide, less than 1 percent of federal transportation funds were spent on pedestrians from 1998 to 2003

Pedestrian spending within metro areas

Within metropolitan areas, where most walking takes place, spending of federal funds on these vital transportation needs comes to just pennies per person (see Table 4). A few metro areas are showing increased spending on pedestrian and bicycle facilities. The Orlando metro area which has scored poorly on the Pedestrian Danger Index for several years has the second highest commitment of federal funds of the 50 largest metro areas, with $1.56 per capita annually for these facilities. The Tampa metro area led all large metro areas at $1.66 per capita. Even so, the ten most dangerous areas were still below the annual national average of $0.82 per capita spending on pedestrian and bicycle facilities, at $0.73 per person (see table, right).

PDI Rank	Metro Area	Average Yearly Spending of Federal Funds on Bicycle/ Pedestrian Projects per Capita (FY1998-FY2003)
1	Orlando, FL	$1.56
2	Tampa-St Petersburg-Clearwater, FL	$1.66
3	West Palm Beach-Boca Raton, FL	$0.64
4	Miami-Fort Lauderdale, FL	$0.20
5	Memphis, TN-AR-MS	$0.33
6	Atlanta, GA	$1.23
7	Greensboro--Winston-Salem--High Point, NC	$0.24
8	Houston-Galveston-Brazoria, TX	$0.44
9	Jacksonville, FL	$0.83
10	Phoenix-Mesa, AZ	$0.34
	National Average	$0.82

Table 4. Spending on Walking and Bicycling in Large Metro Areas

Metro Area	Portion of All Traffic Deaths that were Pedestrians (2002-2003)	Average Yearly Spending of Federal Funds on Bicycle/Pedestrian Projects per Capita (FY1998-FY2003)	Spending Rank
New York-Northern New Jersey-Long Island, NY-NJ-CT-PA CMSA	**28.3%**	**$0.31**	**40**
Miami-Fort Lauderdale, FL CMSA	22.8%	$0.20	47
San Diego, CA MSA	**22.5%**	**$0.33**	**39**
San Francisco-Oakland-San Jose, CA CMSA	21.7%	$0.80	19
Los Angeles-Riverside-Orange County, CA CMSA	**21.3%**	**$0.21**	**46**
Tampa-St Petersburg-Clearwater, FL MSA	21.1%	$1.66	1
Detroit-Ann Arbor-Flint, MI CMSA	**20.2%**	**$0.58**	**29**
Buffalo-Niagara Falls, NY MSA	19.9%	$0.74	23
Chicago-Gary-Kenosha, IL-IN-WI CMSA	**19.1%**	**$0.49**	**30**
Seattle-Tacoma-Bremerton, WA CMSA	18.5%	$0.98	11
Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD CMSA	**17.3%**	**$0.36**	**36**
Orlando, FL MSA	17.0%	$1.56	2
West Palm Beach-Boca Raton, FL MSA	**17.0%**	**$0.64**	**26**
Washington-Baltimore, DC-MD-VA-WV CMSA	17.0%	$0.49	31
New Haven-Bridgeport-Stamford-Waterbury-Danbury, CT NECMA	**17.0%**	**$0.63**	**27**
Salt Lake City-Ogden, UT MSA	16.9%	$0.74	21
Sacramento-Yolo, CA CMSA	**16.9%**	**$0.88**	**15**
New Orleans, LA MSA	16.7%	$1.30	5
San Antonio, TX MSA	**16.1%**	**$0.08**	**50**
Phoenix-Mesa, AZ MSA	15.8%	$0.34	37
Las Vegas, NV-AZ MSA	**15.7%**	**$0.20**	**48**
Portland-Salem, OR-WA CMSA	15.0%	$0.94	14
Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH NECMA	**14.9%**	**$0.61**	**28**
Memphis, TN-AR-MS MSA	14.8%	$0.33	38
Houston-Galveston-Brazoria, TX CMSA	**14.8%**	**$0.44**	**33**
Denver-Boulder-Greeley, CO CMSA	14.3%	$0.42	34
Atlanta, GA MSA	**14.2%**	**$1.23**	**7**
Hartford, CT NECMA	14.0%	$0.95	13
Milwaukee-Racine, WI CMSA	**13.6%**	**$1.07**	**8**
Dallas-Fort Worth, TX CMSA	13.3%	$0.27	41
Norfolk-Virginia Beach-Newport News, VA-NC MSA	**12.8%**	**$0.26**	**42**
Jacksonville, FL MSA	12.8%	$0.83	17
Raleigh-Durham-Chapel Hill, NC MSA	**12.6%**	**$0.77**	**20**
Greensboro--Winston-Salem--High Point, NC MSA	12.3%	$0.24	44
Louisville, KY-IN MSA	**11.7%**	**$0.81**	**18**
Indianapolis, IN MSA	11.6%	$0.64	25
Rochester, NY MSA	**11.5%**	**$0.66**	**24**
Grand Rapids-Muskegon-Holland, MI MSA	11.3%	$1.27	6
Richmond-Petersburg, VA MSA	**11.2%**	**$0.74**	**22**
St Louis, MO-IL MSA	10.9%	$1.56	3
Kansas City, MO-KS MSA	**10.8%**	**$1.03**	**9**
Pittsburgh, PA MSA	10.7%	$0.37	35
Minneapolis-St Paul, MN-WI MSA	**10.7%**	**$1.30**	**4**
Oklahoma City, OK MSA	10.3%	$0.96	12
Charlotte-Gastonia-Rock Hill, NC-SC MSA	**10.2%**	**$0.24**	**43**
Columbus, OH MSA	9.7%	$0.08	49
Cleveland-Akron, OH CMSA	**8.6%**	**$1.00**	**10**
Austin-San Marcos, TX MSA	8.5%	$0.83	16
Nashville, TN MSA	**8.4%**	**$0.48**	**32**
Cincinnati-Hamilton, OH-KY-IN	7.5%	$0.22	45

State spending on pedestrians

Nationally, less than one percent (0.9 percent) of federal transportation funds has been spent on pedestrians under the current federal spending law, known as TEA-21, even though pedestrians comprise more than 11 percent of all traffic deaths and trips made on foot account for almost nine percent of all trips. This 0.9 percent of spending, about $240 million per year, includes both safety funding and funding for pedestrian (and bicycling) facilities such as crosswalks, sidewalks, traffic calming projects, pedestrian signals, paths, and speed humps.[23] Table 5 shows how each state has performed in using its federal funds on these projects. Nationwide, the average annual amount of federal funds spent on pedestrian (and bicycling) facilities is just 82 cents per person, while the average annual spent per person on other roads and bridge projects is about $90. The 1998 TEA-21 law also represented a significant overall increase in federal transportation dollars flowing to the states; on average, states received more than 40 percent more dollars than the prior transportation funding law provided.

Further, states are not taking advantage of the federal funds specifically available for improving bicycling and walking facilities. The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and its successor, TEA-21, provided a historic opportunity for states and metro areas to make it safer and more pleasant to walk. The principle feature of both federal transportation funding bills was and is their flexibility. Unlike previous laws, ISTEA and TEA-21 gave states the ability to "flex" (or transfer) highway funds to transit, and to use funds for pedestrian or bicycling programs. ISTEA in 1991 created a new program, the Transportation Enhancements program, which reserves ten percent of a state's Surface Transportation Program (STP) funds (overall, less than two cents of every federal dollar) for projects such as bike paths, trails, and sidewalks, and other activities.[24] These changes helped double spending of federal funds on sidewalks, crosswalks, bike paths and trails from just $691 million under ISTEA to $1.4 billion under TEA-21.

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[23] It is important to note that not all funding for pedestrian facilities or safety programs comes from the federal government. Local and state governments also provide significant funding for transportation projects, including those for pedestrians. Unfortunately, this data is not readily available.

[24] See the National Transportation Enhancements Clearinghouse for more information about the twelve activities that qualify for Transportation Enhancements funds, <http://www.enhancements.org/12teas.htm>

Table 5. Pedestrian Fatalities and Spending on Walking and Bicycling by State

State	Average Annual Pedestrian Deaths (2002-2003)	Average Annual Pedestrian Deaths per 100,000 Capita (2002-2003)	Portion of All Traffic Deaths that were Pedestrians (2002-2003)	Percent of All Federal Transportation Funds Spent on Bicycle/ Pedestrian Projects (FY1998-FY2003)
Alabama	63	1.40	6.2%	0.8%
Alaska	**13**	**1.94**	**13.6%**	**2.5%**
Arizona	141	2.55	12.5%	0.6%
Arkansas	**37**	**1.36**	**5.8%**	**1.3%**
California	719	2.04	17.3%	0.9%
Colorado	**67**	**1.47**	**9.7%**	**0.9%**
Connecticut	42	1.21	13.6%	1.0%
Delaware	**18**	**2.15**	**13.2%**	**2.0%**
Florida	503	2.98	16.0%	1.6%
Georgia	**162**	**1.88**	**10.3%**	**1.2%**
Hawaii	29	2.28	22.4%	0.9%
Idaho	**14**	**1.03**	**5.0%**	**0.9%**
Illinois	193	1.53	13.4%	1.0%
Indiana	**58**	**0.93**	**7.1%**	**1.1%**
Iowa	19	0.63	4.4%	1.0%
Kansas	**25**	**0.90**	**5.0%**	**1.2%**
Kentucky	59	1.43	6.3%	1.0%
Louisiana	**96**	**2.14**	**10.7%**	**1.0%**
Maine	14	1.04	6.4%	0.8%
Maryland	**110**	**2.01**	**16.8%**	**0.6%**
Massachusetts	73	1.13	15.7%	1.3%
Michigan	**173**	**1.71**	**13.5%**	**0.9%**
Minnesota	52	1.02	7.8%	1.8%
Mississippi	**48**	**1.65**	**5.4%**	**0.5%**
Missouri	84	1.48	6.9%	1.4%
Montana	**12**	**1.31**	**4.5%**	**1.0%**
Nebraska	12	0.69	4.0%	1.6%
Nevada	**61**	**2.76**	**16.3%**	**0.8%**
New Hampshire	13	1.01	10.2%	1.6%
New Jersey	**162**	**1.88**	**21.3%**	**0.4%**
New Mexico	56	3.01	12.6%	0.8%
New York	**341**	**1.78**	**22.5%**	**0.7%**
North Carolina	164	1.96	10.6%	0.6%
North Dakota	**5**	**0.71**	**4.5%**	**0.8%**
Ohio	95	0.83	7.0%	0.8%
Oklahoma	**46**	**1.30**	**6.5%**	**0.9%**
Oregon	49	1.38	10.3%	1.1%
Pennsylvania	**165**	**1.33**	**10.3%**	**0.4%**
Rhode Island	12	1.07	12.2%	1.5%
South Carolina	**89**	**2.16**	**8.8%**	**0.2%**
South Dakota	9	1.18	4.7%	0.2%
Tennessee	**85**	**1.45**	**7.1%**	**1.1%**
Texas	408	1.86	10.9%	0.4%
Utah	**27**	**1.13**	**8.3%**	**1.1%**
Vermont	6	0.89	7.5%	2.4%
Virginia	**87**	**1.19**	**9.4%**	**0.5%**
Washington	74	1.20	11.7%	1.6%
West Virginia	**25**	**1.38**	**6.0%**	**0.1%**
Wisconsin	53	0.97	6.4%	1.1%
Wyoming	**6**	**1.10**	**3.2%**	**0.9%**
U.S. Total (excl. DC)	4,861	1.68	11.4%	0.9%

Unfortunately, most states have not fully utilized these funds, obligating (i.e. actually spending) only 74 percent of the nearly $6.6 billion made available through the Transportation Enhancements (TE) program under ISTEA and TEA-21. This leaves $1.69 billion which could be dedicated to improving pedestrian and bicyclist safety unspent. Some states have made greater efforts to spend these available funds, but most have failed to take full advantage of TE program resources. Table 6, at right, shows state obligation rates of Transportation Enhancements funds for the TEA-21 period, fiscal years 1998-2003.[25]

Table 6. Transportation Enhancements Obligation Rates by State (FY 1998 – FY 2003)

State	Transportation Enhancements Program Obligation Rates (FY1998-FY2003)
Alabama	75.6%
Alaska	**99.3%**
Arizona	60.3%
Arkansas	**93.2%**
California	74.9%
Colorado	**77.9%**
Connecticut	84.0%
Delaware	**76.5%**
Florida	81.9%
Georgia	**84.3%**
Hawaii	84.1%
Idaho	**66.9%**
Illinois	65.5%
Indiana	**78.9%**
Iowa	75.3%
Kansas	**83.0%**
Kentucky	87.7%
Louisiana	**49.4%**
Maine	65.8%
Maryland	**79.1%**
Massachusetts	37.0%
Michigan	**70.6%**
Minnesota	98.5%
Mississippi	**78.1%**
Missouri	72.6%
Montana	**78.7%**
Nebraska	71.9%
Nevada	**70.4%**
New Hampshire	85.2%
New Jersey	**78.8%**
New Mexico	79.7%
New York	**87.5%**
North Carolina	83.8%
North Dakota	**83.2%**
Ohio	69.6%
Oklahoma	**90.2%**
Oregon	60.2%
Pennsylvania	**59.3%**
Rhode Island	81.7%
South Carolina	**76.6%**
South Dakota	58.7%
Tennessee	**70.4%**
Texas	54.2%
Utah	**71.4%**
Vermont	85.2%
Virginia	**80.6%**
Washington	83.3%
West Virginia	**87.4%**
Wisconsin	52.3%
Wyoming	**99.8%**
Nationwide	**74.4%**

[25] National Transportation Enhancements Clearinghouse, "Transportation Enhancements: A Summary of Nationwide Spending as of FY 2003." May 2004. <http://www.enhancements.org/misc/tedatafy03.pdf>

Recommendations for State and Federal Action

The American public wants to walk ... and needs to walk more often. To make this possible, we need better places to walk. The good news is we are willing to pay to make it happen. There is overwhelming support for policies to make the walking environment more safe and accessible for people of all ages, especially our children. More than two-thirds (68 percent) of Americans favor spending more public funds to improve walkability, even within a constrained budget.[26]

Public health officials are calling for better "pedestrian environments" to encourage walking and help fight obesity. And, transit providers support good pedestrian facilities given that about 85 percent of all transit users get to and from transit services by foot.

Over the last few years, a growing number of communities have taken steps to improve pedestrian safety and walkability. Local governments are hosting Walkable Community Workshops and concerned citizens have performed thousands of "walkability audits" to identify existing gaps and hazards. New, Safe Routes to Schools programs are focusing attention on improving safety on the walk to school and directing resources to make walking and bicycling good, safe choices for children. Many communities have "calmed" neighborhood streets with designs that slow traffic and give a greater margin of safety to those on foot. You can find more information about some of these efforts in *Resources*, beginning on page 35 of this report.

However, the effort to create walkable communities can only succeed if local, state and national transportation agencies more fully embrace walking as a "their business" and as a transportation priority. Additionally, our enforcement and planning agencies, and schools have important contributions to make to the overall effort. The following recommendations identify both design-related and operational actions to make walking a safe and accessible travel option.

Design-Related

1. **Fix What We Have.** Our existing system of streets and highways has many deficiencies in terms of "walkability." There is a lot of work to do to simply "fix" what we have in place.
   - Develop pedestrian action plans to target significant resources for traffic calming, sidewalk and intersection improvements,

[26] *American's Attitudes Toward Walking and Creating Better Walking Communities*, April 2003. Conducted by Belden Russonello & Stewart Research and Communications for the Surface Transportation Policy Project. <www.transact.org/report.asp?id=205>

with attention to transit users and corridors. Enhanced data collection, road safety audits, and asset management systems that include sidewalk inventories can help state and local officials set priorities for upgrading the nation's transportation infrastructure.

- Adopt *"fix-it-first"* policies that emphasize investing available dollars on improving and maintaining existing transportation infrastructure before building new facilities.
- Establish a *Safe Routes to School* program in the federal surface transportation program. Such an initiative is necessary to address the needs of the most vulnerable segment of the population: our children. This focus on the health and safety needs of children going to and from school is the logical first step in a broad commitment to providing safe routes to transit, parks and libraries, senior centers and other public services.
- Ensure a "fair share" commitment of transportation funds to pedestrian and bicycle safety needs. The U.S. Senate has passed transportation legislation to direct states to allocate their federal transportation safety funds to pedestrian and bicycle safety needs proportional to the percentage of all traffic fatalities represented by pedestrians and bicyclists.
- Give more funding to those who own the roads, increasing local control by directing federal funds to the local governments (through their regional agencies or MPOs) that own the infrastructure where most walking takes place. In the nation's urbanized areas, local governments – cities and counties – on average own more than 60 percent of the Federal Aid System (as measured in center-line miles) and most of the other roads.

2. **Complete Streets.** All new transportation investment should improve the pedestrian environment. Establish as a performance standard that every transportation project at every level of government – Federal, State and local – which pedestrians and/or bicycles use or cross, shall provide appropriate accommodations to serve these users. This means designing and providing facilities to ensure safe, easy access and crossing for pedestrians, bicyclists and transit users. Achieving this outcome will require reform of existing governmental policies and practices including design standards and land use; re-training planning officials, traffic engineers, and other transportation leaders; and the development of additional tools to monitor and evaluate performance and function.

Operations

3. **Tame Motor Vehicle Traffic.** More than 42,000 people die in traffic-related crashes in the U.S. every year: this must stop. Motor vehicle operation must be re-established as a privilege and unsafe drivers removed from the roads. Motor vehicle operation – especially speeding – must be strictly controlled. To begin, we must employ promising new technologies to enhance enforcement such as the deployment of photo speed enforcement and so-called red-light cameras. These measures are effective, low-cost strategies that can help reduce speed, tame traffic, and enhance safety for pedestrians and all road users.
4. **Promote Walking.** Most communities and regions still do not actively promote walking. However, a growing number of projects are now underway that emphasize the public health, economic development, and transportation benefits of walking. More focused attention – and resources – should be applied to encourage people of all ages to walk more.

Methodology

Pedestrian Fatalities

The National Highway Traffic Safety Administration collects data on every traffic fatality (pedestrian or otherwise) occurring on U.S. roadways. To determine how many pedestrians were killed in a given year and county, STPP queried NHTSA's Fatality Analysis Reporting System (FARS) for pedestrians who suffered fatal injuries during the years 1994, 1995, 2002, and 2003. We then aggregated the county-level data to the state, Metropolitan Statistical Area (MSA), Consolidated Metropolitan Statistical Area (CMSA), or New England County Metropolitan Area (NECMA) for some 330 metro areas.[27] Dividing this figure by the appropriate population estimate from the U.S. Census Bureau, and multiplied by 100,000 gave us a yearly fatality rate per 100,000 persons.

FARS also collects data on the age of the pedestrian killed, allowing STPP to calculate the number of children or elderly pedestrians killed by automobiles. New to the FARS database is information about the race and ethnicity of the person killed. This allowed STPP to analyze the significance of race and ethnicity in pedestrian fatalities.

STPP created the "Pedestrian Danger Index" to allow for a truer comparison of metro areas that takes into account the exposure that pedestrians face in a given metro area. For example, while approximately the same number of pedestrians per capita is killed in the New York metropolitan and the Greensboro, NC metropolitan areas, the share of work trips made on foot is almost 4 times higher in New York than in Greensboro. We calculated the Pedestrian Danger Index by dividing the average yearly fatality rate for a metro area by the percentage of commuters walking to work in that metro area, using "journey to work" data from the decennial Census.

Safety Spending

STPP calculated spending figures from the Federal Highway Administration's Fiscal Management Information System (FMIS) – a massive database containing details on every surface transportation project receiving federal funds. For the purposes of this report, we queried the database for projects with an improvement type related

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[27] The U.S. Census Bureau recently created a new geographic area category replacing the Metropolitan and Consolidated Metropolitan Statistical Areas (MSA and CMSA), as well as the New England County Metropolitan Areas (NECMA) which had been in use until 2000. But because all previous editions of *Mean Streets* had been based on MSAs and CMSAs, we chose to continue using these geographic areas. For more information on these areas, see www.census.gov/population/ www/estimates/aboutmetro.html

specifically to bicycle and pedestrian programs and facilities (the FMIS database lumps together bicycle and pedestrian projects). The county-level data was then aggregated to the metro area or state-level. Dividing this figure by the appropriate population estimate from the U.S. Census Bureau gives us the amount spent on pedestrian projects per capita.

The percentage of federal funds spent on pedestrian projects was determined by dividing the amount derived above for each state by the total federal funds spent in that state (including funds spent on transit). At the national level, STPP compared this number to the percent of trips taken by foot, from the 2001 National Household Travel Survey.

Transportation Enhancements obligation rates were taken from the National Transportation Enhancements Clearinghouse report, "Transportation Enhancements: A Summary of Nationwide Spending as of FY 2003."

Resources

Places to Start

Pedestrian and Bicycle Information Center
http://www.walkinginfo.org and http://www.pedbikeinfo.org

National Center for Bicycling and Walking
http://www.bikewalk.org

America WALKs
http://www.americawalks.org

Active Living Network
http://www.activeliving.org/

Federal Government

Federal Highway Administration Bicycle and Pedestrian Program
http://www.fhwa.dot.gov/environment/bikeped

Federal Highway Administration Pedestrian and Bicycle Safety Research
http://www.tfhrc.gov/safety/pedbike/pedbike.htm

Federal Highway Administration's Design Guidance for Accommodating Bicycle and Pedestrian Travel
http://www.fhwa.dot.gov/environment/bikeped/Design.htm

Federal Highway Administration's Traffic Calming Page
http://www.fhwa.dot.gov/environment/tcalm

National Highway Traffic Safety Administration's Pedestrian Safety Programs
http://www.nhtsa.dot.gov/people/injury/pedbimot/ped

Access Board
http://www.access-board.gov

Advocacy Groups

Smart Growth America
http://www.smartgrowthamerica.org

WalkBoston (Boston, MA)
http://www.walkboston.org

Pedestrians Educating Drivers on Safety (PEDS) (Atlanta, GA)
http://www.peds.org

Transportation Alternatives (New York, NY)
http://www.transalt.org

Right of Way
http://www.rightofway.org

Tri-State Transportation Campaign (New York-New Jersey-Connecticut)
http://www.tstc.org

National SAFE KIDS Campaign
http://www.safekids.org

Congress for the New Urbanism
http://www.cnu.org

Project for Public Spaces
http://www.pps.org

Walkable Communities, Inc.
http://www.walkable.org

Professional Organizations

American Planning Association
http://www.planning.org

American Public Transportation Association
http://www.apta.com

Association of Bicycle and Pedestrian Professionals
http://www.apbp.org

Human Powered Transportation Committee of the American Society for Civil Engineers
http://www.ascehpt.homestead.com

Institute for Transportation Engineers
http://www.ite.org

American Association of State Highway and Transportation Officials
http://www.aashto.org

Transportation Research Board
http://www.trb.org

Events

Walk to School Day (USA)
http://www.walktoschool-usa.org

International Walk to School Day
http://www.iwalktoschool.org

Walk21 International Conference on Walking in the 21st Century
http://www.americawalks.org/walk21

Pro Bike/Pro Walk Conference
http://www.bikefed.org/Conference/conference.htm

Resources for Communities

Active Living by Design
http://www.activelivingbydesign.org

Fehr and Peers Associates, Inc. Traffic Calming website
http://www.trafficcalming.org

Institute of Transportation Engineers' Traffic Calming Library
http://www.ite.org/traffic

The 2002 Summary of Safe Routes to School Programs
http://www.transact.org/report.asp?id=49

Victoria Transport Policy Institute Online Transportation Demand Encyclopedia
http://www.vtpi.org/tdm

Surface Transportation Policy Project

http://www.transact.org

http://www.tea3.org

Surface Transportation Policy Project

1100 17th Street, NW
Tenth Floor
Washington, DC 20036
phone: (202) 466-2636
fax: (202) 466-2247
stpp@transact.org
www.transact.org

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<Borg@smwlaw.com>
02/13/2009 02:14 PM

To <lower74EIR_D12@dot.ca.gov>
cc "Laurel L. Impett" <Impett@smwlaw.com>
bcc
Subject Ortega Hwy Comments 31 of 34

31 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

Carmen Borg, AICP
Urban Planner
Shute, Mihaly & Weinberger
396 Hayes Street
San Francisco, CA 94102
415-552-7272
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Air
Quality
Land use
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AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE

April 2005

California Environmental Protection Agency
California Air Resources Board

Air Agency Contacts

Federal-

U.S. EPA, Region 9
Phone: (866)-EPA-WEST
Website: www.epa.gov/region09
Email: r9.info@epa.gov

-State-

California Air Resources Board
Phone: (916) 322-2990 (public info)
(800) 363-7664 (public info)
(800) 952-5588 (complaints)
(866)-397-5462 (env. justice)
Website: www.arb.ca.gov
Email: helpline@arb.ca.gov

-Local-

Amador County APCD
Phone: (209) 257-0112
Website: www.amadorapcd.org
E-Mail: jharris@amadorapcd.org

Antelope Valley AQMD
Phone: (661) 723-8070
Complaint Line: (888) 732-8070
Website: www.avaqmd.ca.gov
E-Mail: bbanks@avaqmd.ca.gov

Bay Area AQMD
Phone: (415) 749-5000
Complaint Line: (800) 334-6367
Website: www.baaqmd.gov
E-Mail: webmaster@baaqmd.gov

Butte County AQMD
Phone: (530) 891-2882
Website: www.bcaqmd.org
E-Mail: air@bcaqmd.org

Calaveras County APCD
Phone: (209) 754-6504
E-Mail: lgrewal@co.calaveras.ca.us

Colusa County APCD
Phone: (530) 458-0590
Website: www.colusanet.com/apcd
E-Mail: ccair@colusanet.com

El Dorado County AQMD
Phone: (530) 621-6662
Website:
www.co.el-dorado.ca.us/emd/apcd
E-Mail: mcctaggart@co.el-dorado.ca.us

Feather River AQMD
Phone: (530) 634-7659
Website: www.fraqmd.org
E-Mail: fraqmd@fraqmd.org

Glenn County APCD
Phone: (530) 934-6500
http://www.countyofglenn.net/air_pollution_control
E-Mail: ktokunaga@countyofglenn.net

Great Basin Unified APCD
Phone: (760) 872-8211
Website: www.gbuapcd.org
E-Mail: gb1@greatbasinapcd.org

Imperial County APCD
Phone: (760) 482-4606
E-Mail: reyesromero@imperialcounty.net

Kern County APCD
Phone: (661) 862-5250
Website: www.kernair.org
E-Mail: kcapcd@co.kern.ca.us

Lake County AQMD
Phone: (707) 263-7000
Website: www.lcaqmd.net
E-Mail: bobr@pacific.net

Lassen County APCD
Phone: (530) 251-8110
E-Mail: lassenag@psln.com

Mariposa County APCD
Phone: (209) 966-2220
E-Mail: air@mariposacounty.org

Mendocino County AQMD
Phone: (707) 463-4354
Website:
www.co.mendocino.ca.us/aqmd
E-Mail:
mcaqmd@co.mendocino.ca.us

Modoc County APCD
Phone: (530) 233-6419
E-Mail: modapcd@hdo.net

Mojave Desert AQMD
Phone: (760) 245-1661
(800) 635-4617
Website: www.mdaqmd.ca.gov

Monterey Bay Unified APCD
Phone: (831) 647-9411
(800) 253-6028 (Complaints)
Website: www.mbuapcd.org
E-Mail: dquetin@mbuapcd.org

North Coast Unified AQMD
Phone: (707) 443-3093
Website: www.ncuaqmd.org
E-Mail: lawrence@ncuaqmd.org

Northern Sierra AQMD
Phone: (530) 274-9360
Website: www.myairdistrict.com
E-Mail: office@myairdistrict.com

Northern Sonoma County APCD
Phone: (707) 433-5911
E-Mail: nsc@sonic.net

Placer County APCD
Phone: (530) 889-7130
Website:
http://www.placer.ca.gov/airpollution/airpolut.htm
E-Mail: pcapcd@placer.ca.gov

Sacramento Metro AQMD
Phone: (916) 874-4800
Website: www.airquality.org
E-Mail: kshearer@airquality.org

San Diego County APCD
Phone: (858) 650-4700
Website: www.sdapcd.org

San Joaquin Valley APCD
Phone: (559) 230-6000 (General)
(800) 281-7003
(San Joaquin, Stanislaus, Merced)
(800) 870-1037
(Madera, Fresno, Kings)
(800) 926-5550
(Tulare and Valley portion of Kern)
Website: www.valleyair.org
E-Mail: sjvapcd@valleyair.org

San Luis Obispo County APCD
Phone: (805) 781-5912
Website: www.slocleanair.org
E-Mail: info@slocleanair.org

Santa Barbara County APCD
Phone (805) 961-8800
Website: www.sbcapcd.org
Email us: apcd@sbcapcd.org

Shasta County AQMD
Phone: (530) 225-5789
Website:
www.co.shasta.ca.us/Departments/Resourcemgmt/drm/aqmain.htm
E-Mail: scdrm@snowcrest.net

Siskiyou County APCD
Phone: (530) 841-4029
E-Mail: ebeck@siskiyou.ca.us

South Coast AQMD
Phone: (909) 396-2000
Complaint Line: 1-800-CUT-SMOG
Website: www.aqmd.gov
Email: bwallerstein@aqmd.gov

Tehama County APCD
Phone: (530) 527-3717
Website: www.tehcoapcd.net
Email: general@tehcoapcd.net

Tuolumne County APCD
Phone: (209) 533-5693
E-Mail:
bsandman@co.tuolumne.ca.us

Ventura County APCD
Phone: (805) 645-1400
Complaint Line: (805) 654-2797
Website: www.vcapcd.org
E-Mail: info@vcapcd.org

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To My Local Government Colleagues....

I am pleased to introduce this informational guide to air quality and land use issues focused on community health. As a former county supervisor, I know from experience the complexity of local land use decisions. There are multiple factors to consider and balance. This document provides important public health information that we hope will be considered along with housing needs, economic development priorities, and other quality of life issues.

An important focus of this document is prevention. We hope the air quality information provided will help inform decision-makers about the benefits of avoiding certain siting situations. The overarching goal is to avoid placing people in harm's way. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. What is encouraging is that the health risk is greatly reduced with distance. For that reason, we have provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and land uses such as residences.

Land use decisions are a local government responsibility. The Air Resources Board's role is advisory and these recommendations do not establish regulatory standards of any kind. However, we hope that the information in this document will be seriously considered by local elected officials and land use agencies. We also hope that this document will promote enhanced communication between land use agencies and local air pollution control agencies. We developed this document in close coordination with the California Air Pollution Control Officers Association with that goal in mind.

I hope you find this document both informative and useful.

Barbara Riordian

Mrs. Barbara Riordian
Interim Chairman
California Air Resources Board

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The ARB staff would like to acknowledge the exceptional contributions made to this document by members of the ARB Environmental Justice Stakeholders Group. Since 2001, ARB staff has consistently relied on this group to provide critical and constructive input on implementing the specifics of ARB's environmental justice policies and actions. The Stakeholders Group is convened by the ARB, and comprised of representatives from local land use and air agencies, community interest groups, environmental justice organizations, academia, and business. Their assistance and suggestions throughout the development of this Handbook have been invaluable.

Executive Summary

The Air Resources Board's (ARB) primary goal in developing this document is to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

Focusing attention on these siting situations is an important preventative action. ARB and local air districts have comprehensive efforts underway to address new and existing air pollution sources under their respective jurisdictions. The issue of siting is a local government function. As more data on the connection between proximity and health risk from air pollution become available, it is essential that air agencies share what we know with land use agencies. We hope this document will serve that purpose.

The first section provides ARB recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that we have evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants. A key air pollutant common to many of these sources is particulate matter from diesel engines. Diesel particulate matter (diesel PM) is a carcinogen identified by ARB as a toxic air contaminant and contributes to particulate pollution statewide.

Reducing diesel particulate emissions is one of ARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing diesel PM emissions each year. ARB's long-term goal is to reduce diesel PM emissions 85% by 2020. However, cleaning up diesel engines will take time as new engine standards phase in and programs to accelerate fleet turnover or retrofit existing engines are implemented. Also, these efforts are reducing diesel particulate emissions on a statewide basis, but do not yet capture every site where diesel vehicles and engines may congregate. Because living or going to school too close to such air pollution sources may increase both cancer and non-cancer health risks, we are recommending that proximity be considered in the siting of new sensitive land uses.

There are also other key toxic air contaminants associated with specific types of facilities. Most of these are subject to stringent state and local air district regulations. However, what we know today indicates that keeping new homes and other sensitive land uses from siting too close to such facilities would provide additional health protection. Chrome platers are a prime example of facilities that should not be located near vulnerable communities because of the cancer health risks from exposure to the toxic material used during their operations.

In addition to source specific recommendations, we also encourage land use agencies to use their planning processes to ensure the appropriate separation of industrial facilities and sensitive land uses. While we provide some suggestions, how to best achieve that goal is a local issue. In the development of these guidelines, we received valuable input from local government about the spectrum of issues that must be considered in the land use planning process. This includes addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. All of these factors are important considerations. The recommendations in the Handbook need to be balanced with other State and local policies.

Our purpose with this document is to highlight the potential health impacts associated with proximity to air pollution sources so planners explicitly consider this issue in planning processes. We believe that with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level. One suggestion for achieving this goal is more communication between air agencies and land use planners. Local air districts are an important resource that should be consulted regarding sources of air pollution in their jurisdictions. ARB staff will also continue to provide updated technical information as it becomes available.

Our recommendations are as specific as possible given the nature of the available data. In some cases, like refineries, we suggest that the siting of new sensitive land uses should be avoided immediately downwind. However, we leave definition of the size of this area to local agencies based on facility specific considerations. Also, project design that would reduce air pollution exposure may be part of the picture and we encourage consultation with air agencies on this subject.

In developing the recommendations, our first consideration was the adequacy of the data available for an air pollution source category. Using that data, we assessed whether we could reasonably characterize the relative exposure and health risk from a proximity standpoint. That screening provided the list of air pollution sources that we were able to address with specific recommendations. We also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. In the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Due to the large variability in relative risk in the source categories, we chose not to apply

a uniform, quantified risk threshold as is typically done in air quality permitting programs. Instead, because these guidelines are not regulatory or binding on local agencies, we took a more qualitative approach in developing the distance-based recommendations.

Where possible, we recommend a minimum separation between a new sensitive land use and known air pollution risks. In other cases, we acknowledge that the existing health risk is too high in a relatively large area, that air agencies are working to reduce that risk, and that in the meantime, we recommend keeping new sensitive land uses out of the highest exposure areas. However, it is critical to note that our implied identification of the high exposure areas for these sources does not mean that the risk in the remaining impact area is insignificant. Rather, we hope this document will bring further attention to the potential health risk throughout the impact area and help garner support for our ongoing efforts to reduce health risk associated with air pollution sources. Areas downwind of major ports, rail yards, and other inter-modal transportation facilities are prime examples.

We developed these recommendations as a means to share important public health information. The underlying data are publicly available and referenced in this document. We also describe our rationale and the factors considered in developing each recommendation, including data limitations and uncertainties. These recommendations are advisory and should not be interpreted as defined "buffer zones." We recognize the opportunity for more detailed site-specific analyses always exists, and that there is no "one size fits all" solution to land use planning.

As California continues to grow, we collectively have the opportunity to use all the information at hand to avoid siting scenarios that may pose a health risk. As part of ARB's focus on communities and children's health, we encourage land use agencies to apply these recommendations and work more closely with air agencies. We also hope that this document will help educate a wider audience about the value of preventative action to reduce environmental exposures to air pollution.

1. ARB Recommendations on Siting New Sensitive Land Uses

Protecting California's communities and our children from the health effects of air pollution is one of the most fundamental goals of state and local air pollution control programs. Our focus on children reflects their special vulnerability to the health impacts of air pollution. Other vulnerable populations include the elderly, pregnant women, and those with serious health problems affected by air pollution. With this document, we hope to more effectively engage local land use agencies as partners in our efforts to reduce health risk from air pollution in all California communities.

Later sections emphasize the need to strengthen the connection between air quality and land use in both planning and permitting processes. Because the siting process for many, but not all air pollution sources involves permitting by local air districts, there is an opportunity for interagency coordination where the proposed location might pose a problem. To enhance the evaluation process from a land use perspective, section 4 includes recommended project related questions to help screen for potential proximity related issues.

Unlike industrial and other stationary sources of air pollution, the siting of new homes or day care centers does not require an air quality permit. Because these situations fall outside the air quality permitting process, it is especially important that land use agencies be aware of potential air pollution impacts.

The following recommendations address the issue of siting "sensitive land uses" near specific sources of air pollution; namely:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The recommendations for each category include a summary of key information and guidance on what to avoid from a public health perspective.

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses).

We are characterizing sensitive land uses as simply as we can by using the example of residences, schools, day care centers, playgrounds, and medical facilities. However, a variety of facilities are encompassed. For example, residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.

In developing these recommendations, ARB first considered the adequacy of the data available for each air pollution source category. We assessed whether we could generally characterize the relative exposure and health risk from a proximity standpoint. The documented non-cancer health risks include triggering of asthma attacks, heart attacks, and increases in daily mortality and hospitalization for heart and respiratory diseases. These health impacts are well documented in epidemiological studies, but less easy to quantify from a particular air pollution source. Therefore, the cancer health impacts are used in this document to provide a picture of relative risk. This screening process provided the list of source categories we were able to address with specific recommendations. In evaluating the available information, we also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. Due to the large variability in relative risk between the source categories, we chose not to apply a uniform, quantified risk threshold as is typically done in regulatory programs. Therefore, in the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Additionally, because this guidance is not regulatory or binding on local agencies, we took a more qualitative approach to developing distance based recommendations.

Where possible, we recommend a minimum separation between new sensitive land uses and existing sources. However, this is not always possible, particularly where there is an elevated health risk over large geographical areas. Areas downwind of ports and rail yards are prime examples. In such cases, we recommend doing everything possible to avoid locating sensitive receptors within the highest risk zones. Concurrently, air agencies and others will be working to reduce the overall risk through controls and measures within their scope of authority.

The recommendations were developed from the standpoint of siting new sensitive land uses. Project-specific data for new and existing air pollution sources are available as part of the air quality permitting process. Where such information is available, it should be used. Our recommendations are designed to fill a gap where information about existing facilities may not be readily available. These recommendations are only guidelines and are not designed to substitute for more specific information if it exists.

A summary of our recommendations is shown in Table 1-1. The basis and references[1] supporting each of these recommendations, including health studies, air quality modeling and monitoring studies is discussed below beginning with freeways and summarized in Table 1-2. As new information becomes available, it will be included on ARB's community health web page.

[1]Detailed information on these references are available on ARB's website at: http://www.ARB.ca.gov/ch/landuse.htm.

Table 1-1

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

*Notes:

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Table 1-2

Summary of Basis for Advisory Recommendations

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Freeways and High-Traffic Roads	300 – 1,700	• In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70% drop off in particulate pollution levels at 500 feet.
Distribution Centers[3]	Up to 500	• Because ARB regulations will restrict truck idling at distribution centers, transport refrigeration unit (TRU) operations are the largest onsite diesel PM emission source followed by truck travel in and out of distribution centers. • Based on ARB and South Coast District emissions and modeling analyses, we estimate an 80 percent drop-off in pollutant concentrations at approximately 1,000 feet from a distribution center.
Rail Yards	Up to 500	• The air quality modeling conducted for the Roseville Rail Yard Study predicted the highest impact is within 1,000 feet of the Yard, and is associated with service and maintenance activities. The next highest impact is between a half to one mile of the Yard, depending on wind direction and intensity.
Ports	Studies underway	• ARB will evaluate the impacts of ports and develop a new comprehensive plan that will describe the steps needed to reduce public health impacts from port and rail activities in California. In the interim, a general advisory is appropriate based on the magnitude of diesel PM emissions associated with ports.
Refineries	Under 10	• Risk assessments conducted at California refineries show risks from air toxics to be under 10 chances of cancer per million.[4] • Distance recommendations were based on the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, particularly during non-routine emissions releases.
Chrome Platers	10-100	• ARB modeling and monitoring studies show localized risk of hexavalent chromium diminishing significantly at 300 feet. There are data limitations in both the modeling and monitoring studies. These include variability of plating activities and uncertainty of emissions such as fugitive dust. Hexavalent chromium is one of the most potent toxic air contaminants. Considering these factors, a distance of 1,000 feet was used as a precautionary measure.
Dry Cleaners Using Perchloro-ethylene (perc)	15-150	• Local air district studies indicate that individual cancer risk can be reduced by as much as 75 percent by establishing a 300 foot separation between a sensitive land use and a one-machine perc dry cleaning operation. For larger operations (2 machines or more), a separation of 500 feet can reduce risk by over 85 percent.

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Gasoline Dispensing Facilities (GDF)[5]	Typical GDF: Less than 10 Large GDF: Between Less than 10 and 120	• Based on the CAPCOA Gasoline Service Station Industry-wide Risk Assessment Guidelines, most typical GDFs (less than 3.6 million gallons per year) have a risk of less than 10 at 50 feet under urban air dispersion conditions. Over the last few years, there has been a growing number of extremely large GDFs with sales over 3.6 and as high as 19 million gallons per year. Under rural air dispersion conditions, these large GDFs can pose a larger risk at a greater distance.

[1]For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g., 10 chances in a million).

[2]The estimated cancer risks are a function of the proximity to the specific category and were calculated independent of the regional health risk from air pollution. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 in a million.

[3]Analysis based on refrigerator trucks.

[4]Although risk assessments performed by refineries indicate they represent a low cancer risk, there is limited data on non-cancer effects of pollutants that are emitted from these facilities. Refineries are also a source of non-routine emissions and odors.

[5]A typical GDF in California dispenses under 3.6 million gallons of gasoline per year. The cancer risk for this size facility is likely to be less than 10 in a million at the fence line under urban air dispersion conditions.

A large GDF has fuel throughputs that can range from 3.6 to 19 million gallons of gasoline per year. The upper end of the risk range (i.e., 120 in a million) represents a hypothetical worst case scenario for an extremely large GDF under rural air dispersion conditions.

Freeways and High Traffic Roads

Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. Many of these epidemiological studies have focused on children. A number of studies identify an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways (see findings below). These studies have reported associations between residential proximity to high traffic roadways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children.

One such study that found an association between traffic and respiratory symptoms in children was conducted in the San Francisco Bay Area. Measurements of traffic-related pollutants showed concentrations within 300 meters (approximately 1,000 feet) downwind of freeways were higher than regional values. Most other studies have assessed exposure based on proximity factors such as distance to freeways or traffic density.

These studies linking traffic emissions with health impacts build on a wealth of data on the adverse health effects of ambient air pollution. The data on the effects of proximity to traffic-related emissions provides additional information that can be used in land use siting and regulatory actions by air agencies. The key observation in these studies is that close proximity increases both exposure and the potential for adverse health effects. Other effects associated with traffic emissions include premature death in elderly individuals with heart disease.

Key Health Findings

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet. (Brunekreef, 1997)
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume. (Lin, 2000)
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet. (Venn, 2001)
- Asthma and bronchitis symptoms in children were associated with proximity to high traffic in a San Francisco Bay Area community with good overall regional air quality. (Kim, 2004)
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic. (English, 1999)

In these and other proximity studies, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. In the above health studies, the association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was

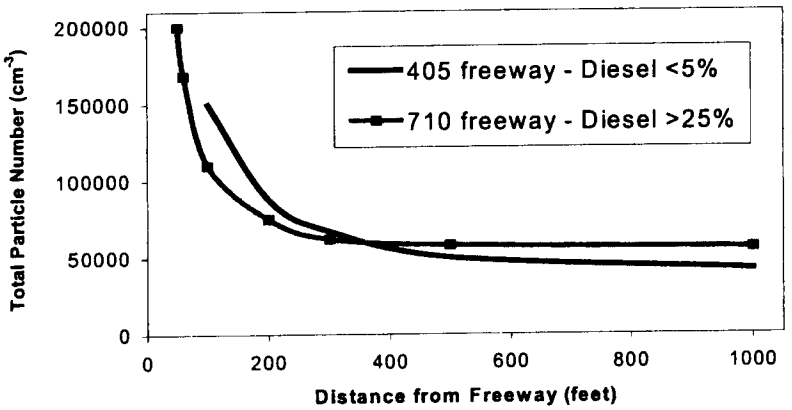
strongest within 300 feet. This demonstrates that the adverse effects diminished with distance.

In addition to the respiratory health effects in children, proximity to freeways increases potential cancer risk and contributes to total particulate matter exposure. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic – diesel particulate matter (diesel PM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000-20,000/day), diesel PM represents about 70 percent of the potential cancer risk from the vehicle traffic. Diesel particulate emissions are also of special concern because health studies show an association between particulate matter and premature mortality in those with existing cardiovascular disease.

Distance Related Findings

A southern California study (Zhu, 2002) showed measured concentrations of vehicle-related pollutants, including ultra-fine particles, decreased dramatically within approximately 300 feet of the 710 and 405 freeways. Another study looked at the validity of using distance from a roadway as a measure of exposure

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions With Distance



to traffic related air pollution (Knape, 1999). This study showed that concentrations of traffic related pollutants declined with distance from the road, primarily in the first 500 feet.

These findings are consistent with air quality modeling and risk analyses done by ARB staff that show an estimated range of potential cancer risk that decreases with distance from freeways. The estimated risk varies with the local meteorology, including wind pattern. As an example, at 300 feet downwind from a freeway (Interstate 80) with truck traffic of 10,000 trucks per day, the potential cancer risk was as high as 100 in one million (ARB Roseville Rail Yard Study). The cancer health risk at 300 feet on the upwind side of the freeway was much

less. The risk at that distance for other freeways will vary based on local conditions – it may be higher or lower. However, in all these analyses the relative exposure and health risk dropped substantially within the first 300 feet. This phenomenon is illustrated in Figure 1-1.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles with some exceptions.[2] However, no such requirements apply to the siting of residences, day care centers, playgrounds, or medical facilities. The available data show that exposure is greatly reduced at approximately 300 feet. In the traffic-related studies the additional health risk attributable to the proximity effect was strongest within 1,000 feet.

The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation.

The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. As air agencies work to reduce the underlying regional health risk from diesel PM and other pollutants, the impact of proximity will also be reduced. In the meantime, as a preventative measure, we hope to avoid exposing more children and other vulnerable individuals to the highest concentrations of traffic-related emissions.

Recommendation

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

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[2] Section 17213 of the California Education Code and section 21151.8 of the California Public Resources Code. See also Appendix E for a description of special processes that apply to school siting.

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Distribution Centers

Distribution centers or warehouses are facilities that serve as a distribution point for the transfer of goods. Such facilities include cold storage warehouses, goods transfer facilities, and inter-modal facilities such as ports. These operations involve trucks, trailers, shipping containers, and other equipment with diesel engines. A distribution center can be comprised of multiple centers or warehouses within an area. The size can range from several to hundreds of acres, involving a number of different transfer operations and long waiting periods. A distribution center can accommodate hundreds of diesel trucks a day that deliver, load, and/or unload goods up to seven days a week. To the extent that these trucks are transporting perishable goods, they are equipped with diesel-powered transport refrigeration units (TRUs) or TRU generator sets.

The activities associated with delivering, storing, and loading freight produces diesel PM emissions. Although TRUs have relatively small diesel-powered engines, in the normal course of business, their emissions can pose a significant health risk to those nearby. In addition to onsite emissions, truck travel in and out of distribution centers contributes to the local pollution impact.

ARB is working to reduce diesel PM emissions through regulations, financial incentives, and enforcement programs. In 2004, ARB adopted two airborne toxic control measures that will reduce diesel PM emissions associated with distribution centers. The first will limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than five minutes at any one location.[3] The elimination of unnecessary idling will reduce the localized impacts caused by diesel PM and other air toxics

[3] For further information on the Anti-Idling ATCM, please click on: http://www.arb.ca.gov/toxics/idling/outreach/factsheet.pdf

in diesel vehicle exhaust. This should be a very effective new strategy for reducing diesel PM emissions at distribution centers as well as other locations.

The second measure requires that TRUs operating in California become cleaner over time. The measure establishes in-use performance standards for existing TRU engines that operate in California, including out-of-state TRUs. The requirements are phased-in beginning in 2008, and extend to 2019.[4]

ARB also operates a smoke inspection program for heavy-duty diesel trucks that focuses on reducing truck emissions in California communities. Areas with large numbers of distribution centers are a high priority.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

Although distribution centers are located throughout the state, they are usually clustered near transportation corridors, and are often located in or near population centers. Diesel PM emissions from associated delivery truck traffic and TRUs at these facilities may result in elevated diesel PM concentrations in neighborhoods surrounding those sites. Because ARB regulations will restrict truck idling at distribution centers, the largest continuing onsite diesel PM emission source is the operation of TRUs. Truck travel in and out of distribution centers also contributes to localized exposures, but specific travel patterns and truck volumes would be needed to identify the exact locations of the highest concentrations.

As part of the development of ARB's regulation for TRUs, ARB staff performed air quality modeling to estimate exposure and the associated potential cancer risk of onsite TRUs for a typical distribution center. For an individual person, cancer risk estimates for air pollution are commonly expressed as a probability of developing cancer from a lifetime (i.e., 70 years) of exposure. These risks were calculated independent of regional risk. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 additional cancer cases per one million population.

---

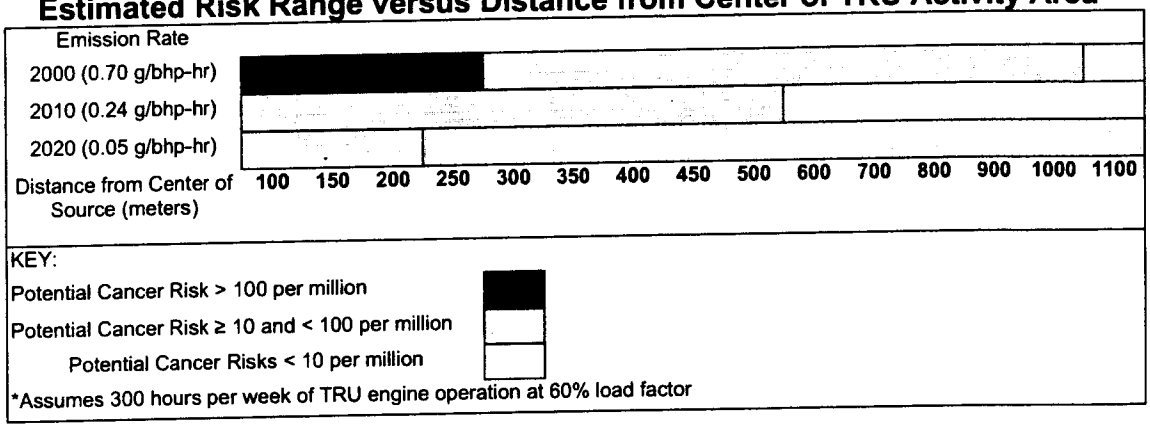
[4] For further information on the Transport Refrigeration Unit ATCM, please click on: http://www.arb.ca.gov/diesel/documents/trufaq.pdf

The diesel PM emissions from a facility are dependent on the size (horsepower), age, and number of engines, emission rates, the number of hours the truck engines and/or TRUs operate, distance, and meteorological conditions at the site. This assessment assumes a total on-site operating time for all TRUs of 300 hours per week. This would be the equivalent of 40 TRU-equipped trucks a day, each loading or unloading on-site for one hour, 12 hours a day and seven days a week.

As shown in Figure 1-2 below, at this estimated level of activity and assuming a current fleet diesel PM emission rate, the potential cancer risk would be over 100 in a million at 800 feet from the center of the TRU activity. The estimated potential cancer risk would be in the 10 to 100 per million range between 800 to 3,300 feet and fall off to less than 10 per million at approximately 3,600 feet. However with the implementation of ARB's regulation on TRUs, the risk will be significantly reduced.[5] We have not conducted a risk assessment for distribution centers based on truck traffic alone, but on an emissions basis, we would expect similar risks for a facility with truck volumes in the range of 100 per day.

Figure 1-2

Estimated Risk Range versus Distance from Center of TRU Activity Area*

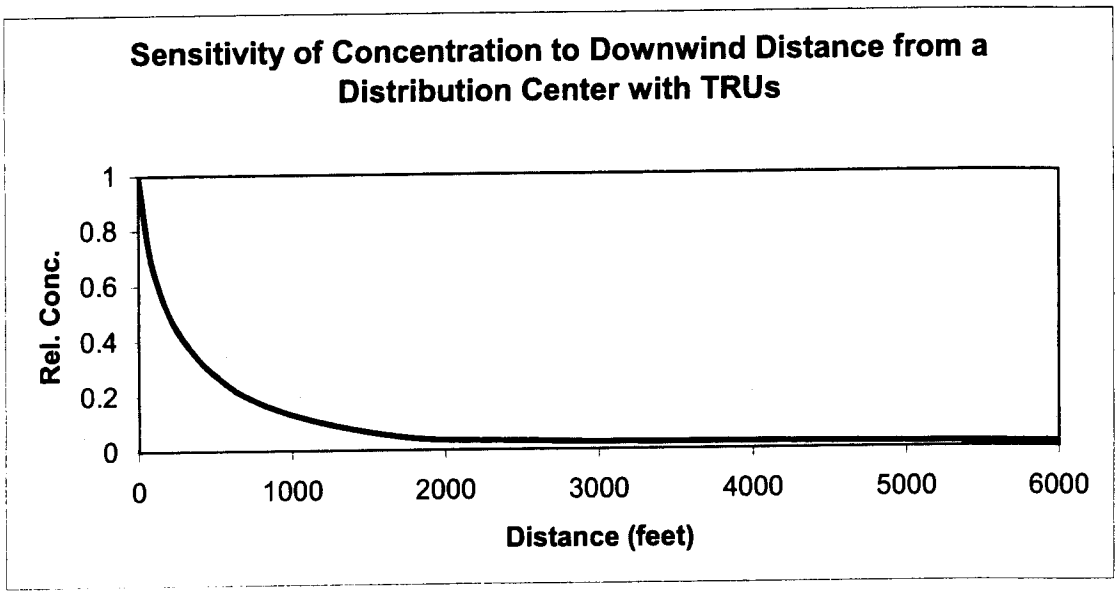


The estimated potential cancer risk level in Figure 1-2 is based on a number of assumptions that may not reflect actual conditions for a specific site. For example, increasing or decreasing the hours of diesel engine operations would change the potential risk levels. Meteorological and other facility specific parameters can also impact the results. Therefore, the results presented here are not directly applicable to any particular facility or operation. Rather, this information is intended to provide an indication as to the potential relative levels of risk that may be observed from operations at distribution centers. As shown in Figure 1-2, the estimated risk levels will decrease over time as lower-emitting diesel engines are used.

[5] These risk values assume an exposure duration of 70 years for a nearby resident and uses the methodology specified in the 2003 OEHHA health risk assessment guidelines.

Another air modeling analysis, performed by the South Coast Air Quality Management District (South Coast AQMD), evaluated the impact of diesel PM emissions from distribution center operations in the community of Mira Loma in southern California. Based on dispersion of diesel PM emissions from a large distribution center, Figure 1-3 shows the relative pollution concentrations at varying distances downwind. As Figure 1-3 shows, there is about an 80 percent drop off in concentration at approximately 1,000 feet.

Figure 1-3
Decrease In Relative Concentration of Risk With Distance



Both the ARB and the South Coast AQMD analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public exposure downwind of a distribution center. While these analyses do not provide specific risk estimates for distribution centers, they provide an indication of the range of risk and the benefits of providing a separation. ARB recommends a separation of 1,000 feet based on the combination of risk analysis done for TRUs and the decrease in exposure predicted with the South Coast AQMD modeling. However, ARB staff plans to provide further information on distribution centers as we collect more data and implement the TRU control measure.

Taking into account the configuration of distribution centers can also reduce population exposure and risk. For example, locating new sensitive land uses away from the main entry and exit points helps to reduce cancer risk and other health impacts.

Recommendations

- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week).

- Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

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- *Airborne Toxic Control Measure To Limit Diesel-Fueled Commercial Motor Vehicle Idling.* ARB (August 20, 2004). Rule effectiveness date awaiting submittal of regulation to the Office of Administration Law. http://www.arb.ca.gov/regact/idling/idling.htm

- *Revised Staff Report: Initial Statement of Reasons for Proposed Rulemaking. Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate.* ARB (October 28, 2003). http://www.arb.ca.gov/regact/trude03/revisor.doc

- *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis.* SCAQMD (August 2003) http://www.aqmd.gov/ceqa/handbook/diesel_analysis.doc

- *"Mira Loma Study: Analysis of the Impact of Diesel Particulate Emissions from Warehouse/Distribution Center Operations",* PowerPoint presentation. SCAQMD (July 31, 2002)

Rail Yards

Rail yards are a major source of diesel particulate air pollution. They are usually located near inter-modal facilities, which attract heavy truck traffic, and are often sited in mixed industrial and residential areas. ARB, working with the Placer County air district and Union Pacific Railroad, recently completed a study[6] of the Roseville Rail Yard (Yard) in northern California that focused on the health risk from diesel particulate. A comprehensive emissions analysis and air quality modeling were conducted to characterize the estimated potential cancer risk associated with the facility.

[6] To review the study, please click on: http://www.arb.ca.gov/diesel/documents/rrstudy.htm

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Subject Ortega Hwy Comments 32 of 34

32 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

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G Appendix
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CEQA & Climate Change

Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act

January 2008

Disclaimer

The California Air Pollution Control Officers Association (CAPCOA) has prepared this white paper consideration of evaluating and addressing greenhouse gas emissions under the California Environmental Quality Act (CEQA) to provide a common platform of information and tools to support local governments.

This paper is intended as a resource, not a guidance document. It is not intended, and should not be interpreted, to dictate the manner in which an air district or lead agency chooses to address greenhouse gas emissions in the context of its review of projects under CEQA.

This paper has been prepared at a time when California law has been recently amended by the Global Warming Solutions Act of 2006 (AB 32), and the full programmatic implications of this new law are not yet fully understood. There is also pending litigation in various state and federal courts pertaining to the issue of greenhouse gas emissions. Further, there is active federal legislation on the subject of climate change, and international agreements are being negotiated. Many legal and policy questions remain unsettled, including the requirements of CEQA in the context of greenhouse gas emissions. This paper is provided as a resource for local policy and decision makers to enable them to make the best decisions they can in the face of incomplete information during a period of change.

Finally, this white paper reviews requirements and discusses policy options, but it is not intended to provide legal advice and should not be construed as such. Questions of legal interpretation, particularly in the context of CEQA and other laws, or requests for advice should be directed to the agency's legal counsel.

Acknowledgements

This white paper benefited from the hard work and creative insights of many people. CAPCOA appreciates the efforts of all who contributed their time and energy to the project. In particular, the Association thanks the following individuals:

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List of Acronyms and Abbreviations

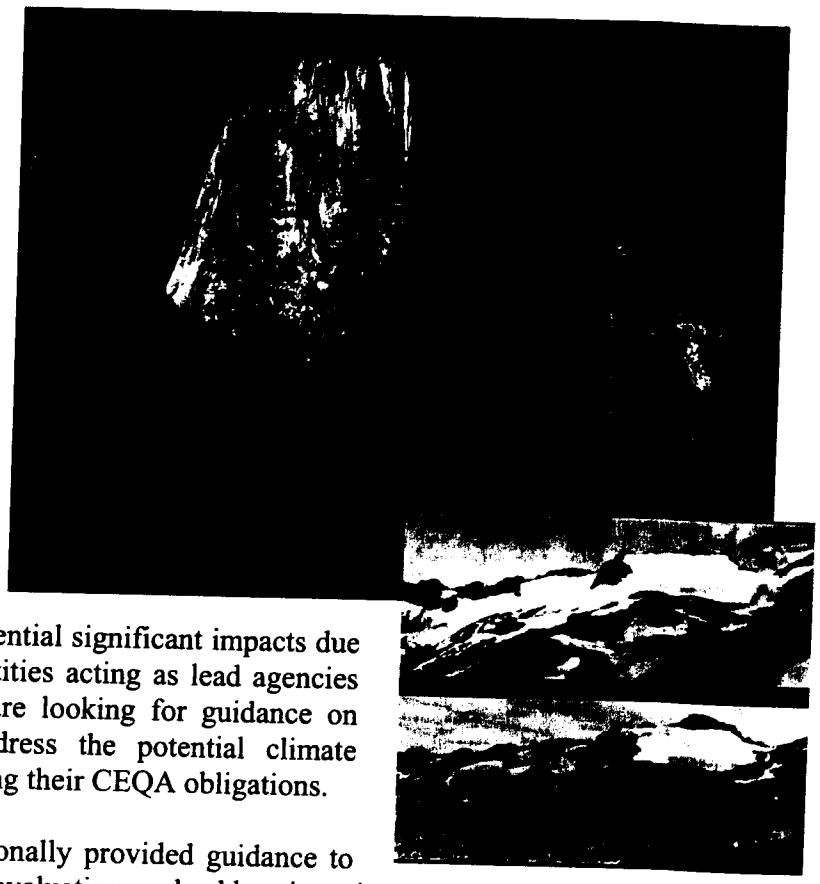
Acronym/ Abbreviation	Meaning
AB 32	Assembly Bill 32 Global Warming Solutions Act of 2006
AG	Attorney General
ARB	Air Resources Board
ASTM	American Society of Testing and Material
BAAQMD	Bay Area Air Quality Management District
BAU	Business as Usual
BEES	Building for Environmental and Economic Sustainability
Calfire	California Fire
Caltrans	California Department of Transportation
CAP	Criteria Air Pollutants
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CCAP	Center for Clean Air Policy
CCAR	California Climate Action Registry
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CF	Connectivity Factor
CH_4	Methane
CIWMB	California Integrated Waste Management Board
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CNG	Compressed Natural Gas
CPUC	California Public Utilities Commission
CUFR	California Urban Forestry
DGS	Department of General Services
DOE	U.S. Department of Energy
DOF	Department of Finance
DPF	Diesel Particulate Filter
DWR	Department of Water Resources
E85	85% Ethanol
EEA	Massachusetts Executive Office of Energy and Environmental Affairs
EERE	Energy Efficiency and Renewable Energy
EIR	Environmental Impact Report
EOE	Encyclopedia of Earth
EPA	U.S. Environmental Protection Agency
ETC	Edmonton Trolley Coalition
EV	Electric Vehicles
FAR	Floor Area Ratio

GHG	Greenhouse Gas
GGEP	Greenhouse Gas Emissions Policy
GGRP	Greenhouse Gas Reduction Plan
GP	General Plan
GWP	Global Warming Potential
IGCC	Integrated Gasification Combined Cycle
IOU	Investor Owned Utility
IPCC	International Panel on Climate Change
IT	Information Technology
ITE	Institute of Transportation Engineers
J&S	Jones & Stokes
km	Kilometer
LandGem	Landfill Gas Emissions Model
LEED	Leadership in Energy and Environmental Design
LNG	Liquefied Natural Gas
MBUAPCD	Monterey Bay Unified Air Pollution Control District
MEPA	Massachusetts Environmental Policy Act
MND	Mitigated Negative Declaration
MMT CO_2e	Million Metric Tons Carbon Dioxide Equivalent
MW	Megawatts
N_2O	Nitrous Oxide
NACAA	National Association Clean Air Agencies
ND	Negative Declaration
NEV	Neighborhood Electric Vehicle
NIST	National Institute of Standards and Technology
NO_X	Oxides of Nitrogen
NREL	National Renewable Energy Laboratory
NSCAPCD	Northern Sonoma County Air Pollution Control District
NSR	New Source Review
OPR	State Office of Planning and Research
PFC	Perfluorocarbon
PG&E	Pacific Gas & Electric
POU	Publicly Owned Utility
PM	Particulate Mater
RoadMod	Road Construction Emissions Model
ROG	Reactive Organic Gas
RPS	Renewable Portfolio Standards
RTP	Regional Transportation Plan
S-3-05	Executive Order S-3-05
SB	Senate Bill
SBCAPCD	Santa Barbara County Air Pollution Control District
SCAQMD	South Coast Air Quality Management District
SCM	Sustainable Communities Model
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Unified Air Pollution Control District
SLOCAPCD	San Luis Obispo County Air Pollution Control District

SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utilities District
SO_X	Sulfur Oxides
SP	Service Population
SRI	Solar Reflectance Index
SWP	State Water Project
TAC	Toxic Air Contaminants
TBD	To Be Determined
TDM	Transportation Demand Management
TMA	Transportation Management Association
THC	Total Hydrocarbon
UC	University of California
ULEV	Ultra Low Emission Vehicle
UNFCCC	United Nations Framework Convention on Climate Change
URBEMIS	Urban Emissions Model
USGBC	U.S. Green Building Council
VMT	Vehicle Miles Traveled
VTPI	Victoria Transit Policy
YSAQMD	Yolo-Solano Air Quality Management District

Introduction

The California Environmental Quality Act (CEQA) requires that public agencies refrain from approving projects with significant adverse environmental impacts if there are feasible alternatives or mitigation measures that can substantially reduce or avoid those impacts. There is growing concern about greenhouse gas emissions[1] (GHG) and recognition of their significant adverse impacts on the world's climate and on our environment. In its most recent reports, the International Panel on Climate Change (IPCC) has called the evidence for this "unequivocal." In California, the passage of the Global Warming Solutions Act of 2006 (AB 32) recognizes the serious threat to the "economic well-being, public health, natural resources, and the environment of California" resulting from global warming. In light of our current understanding of these impacts, public agencies approving projects subject to the CEQA are facing increasing pressure to identify and address potential significant impacts due to GHG emissions. Entities acting as lead agencies in the CEQA process are looking for guidance on how to adequately address the potential climate change impacts in meeting their CEQA obligations.



Air districts have traditionally provided guidance to local lead agencies on evaluating and addressing air pollution impacts from projects subject to CEQA. Recognizing the need for a common platform of information and tools to support decision makers as they establish policies and programs for GHG and CEQA, the California Air Pollution Control Officers Association has prepared a white paper reviewing policy choices, analytical tools, and mitigation strategies.

This paper is intended to serve as a resource for public agencies as they establish agency procedures for reviewing GHG emissions from projects under CEQA. It considers the application of thresholds and offers three alternative programmatic approaches toward

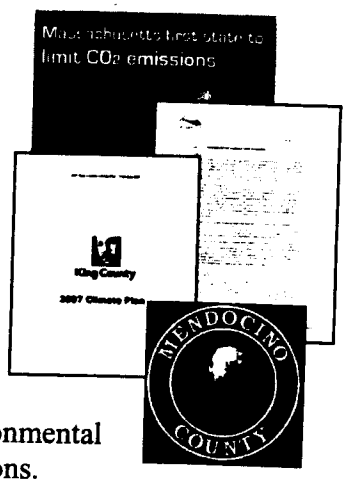
[1] Throughout this paper GHG, CO_2, CO_2e, are used interchangeably and refer generally to greenhouse gases but do not necessarily include all greenhouse gases unless otherwise specified.

determining whether GHG emissions are significant. The paper also evaluates tools and methodologies for estimating impacts, and summarizes mitigation measures. It has been prepared with the understanding that the programs, regulations, policies, and procedures established by the California Air Resources Board (CARB) and other agencies to reduce GHG emissions may ultimately result in a different approach under CEQA than the strategies considered here. The paper is intended to provide a common platform for public agencies to ensure that GHG emissions are appropriately considered and addressed under CEQA while those programs are being developed.

Examples of Other Approaches

Many states, counties, and cities have developed policies and regulations concerning greenhouse gas emissions that seek to require or promote reductions in GHG emissions through standards for vehicle emissions, fuels, electricity production/renewables, building efficiency, and other means. A few have developed guidance and are currently considering formally requiring or recommending the analysis of greenhouse gas emissions for development projects during their associated environmental processes. Key work in this area includes:

- Massachusetts Office of Energy and Environmental Affairs Greenhouse Gas Emissions Policy;
- King County, Washington, Executive Order on the Evaluation of Climate Change Impacts through the State Environmental Policy Act;
- Sacramento AQMD interim policy on addressing climate change in CEQA documents; and
- Mendocino AQMD updated guidelines for use during preparation of air quality impacts in Environmental Impact Reports (EIRs) or mitigated negative declarations.



The following paper evaluates options for lead agencies to ensure that GHG emissions are appropriately addressed as part of analyses under CEQA. It considers the use of significance thresholds, tools and methodologies for analyzing GHG emissions, and measures and strategies to avoid, reduce, or mitigate impacts.

Greenhouse Gas Significance Criteria

This white paper discusses three basic options air districts and lead agencies can pursue when contemplating the issues of CEQA thresholds for greenhouse gas emissions. This paper explores each path and discusses the benefits and disbenefits of each. The three basic paths are:

- No significance threshold for GHG emissions;

- GHG emissions threshold set at zero; or
- GHG threshold set at a non-zero level.

Each has inherent advantages and disadvantages. Air districts and lead agencies may believe the state or national government should take the lead in identifying significance thresholds to address this global impact. Alternatively, the agency may believe it is premature or speculative to determine a clear level at which a threshold should be set. On the other hand, air districts or lead agencies may believe that every GHG emission should be scrutinized and mitigated or offset due to the cumulative nature of this impact. Setting the threshold at zero will place all discretionary projects under the CEQA microscope. Finally, an air district or lead agency may believe that some projects will not benefit from a full environmental impact report (EIR), and may believe a threshold at some level above zero is needed.

This paper explores the basis and implications of setting no threshold, setting a threshold at zero and two primary approaches for those who may choose to consider a non-zero threshold. The first approach is grounded in statute (AB 32) and executive order (EO S-3-05) and explores four possible options under this scenario. The options under this approach are variations of ways to achieve the 2020 goals of AB 32 from new development, which is estimated to be about a 30 percent reduction from business as usual.

The second approach explores a tiered threshold option. Within this option, seven variations are discussed. The concepts explored here offer both quantitative and qualitative approaches to setting a threshold as well as different metrics by which tier cut-points can be set. Variations range from setting the first tier cut-point at zero to second-tier cut-points set at defined emission levels or based on the size of a project. It should be noted that some applications of the tiered threshold approach may require inclusion in a General Plan or adoption of enabling regulations or ordinances to render them fully effective and enforceable.

Greenhouse Gas Analytical Methodologies

The white paper evaluates various analytical methods and modeling tools that can be applied to estimate the greenhouse gas emissions from different project types subject to CEQA. In addition, the suitability of the methods and tools to characterize accurately a project's emissions is discussed and the paper provides recommendations for the most appropriate methodologies and tools currently available.

The suggested methodologies are applied to residential, commercial, specific plan and general plan scenarios where GHG emissions are estimated for each example. This chapter also discusses estimating emissions from solid waste facilities, a wastewater treatment plant, construction, and air district rules and plans.

Another methodology, a service population metric, that would measure a project's overall GHG efficiency to determine if a project is more efficient than the existing statewide average for per capita GHG emissions is explored. This methodology may be more directly correlated to a project's ability to help achieve objectives outlined in AB 32, although it relies on establishment of an efficiency-based significance threshold. The subcommittee believes this methodology may eventually be appropriate to evaluate the long-term GHG emissions from a project in the context of meeting AB 32 goals. However, this methodology will need further work and is not considered viable for the interim guidance presented in this white paper.

Greenhouse Gas Mitigation Measures

Common practice in environmental protection is first to avoid, then to minimize, and finally to compensate for impacts. When an impact cannot be mitigated on-site, off-site mitigation can be effectively implemented in several resource areas, either in the form of offsetting the same impact or preserving the resource elsewhere in the region.

This white paper describes and evaluates currently available mitigation measures based on their economic, technological and logistical feasibility, and emission reduction effectiveness. The potential for secondary impacts to air quality are also identified for each measure. A summary of current rules and regulations affecting greenhouse gas emissions and climate change is also provided.

Reductions from transportation related measures (e.g., bicycle, pedestrian, transit, and parking) are explored as a single comprehensive approach to land use. Design measures that focus on enhancing alternative transportation are discussed. Mitigation measures are identified for transportation, land use/building design, mixed-use development, energy efficiency, education/social awareness and construction.

Purpose

CEQA requires the avoidance or mitigation of significant adverse environmental impacts where there are feasible alternatives available. The contribution of GHG to climate change has been documented in the scientific community. The California Global Warming Solutions Act of 2006 (AB 32) mandates significant reductions in greenhouse gases (GHG); passage of that law has highlighted the need to consider the impacts of GHG emissions from projects that fall under the jurisdiction of the California Environmental Quality Act (CEQA). Because we have only recently come to fully recognize the potential for significant environmental impacts from GHG, most public agencies have not yet established policies and procedures to consider them under CEQA. As a result, there is great need for information and other resources to assist public agencies as they develop their programs.

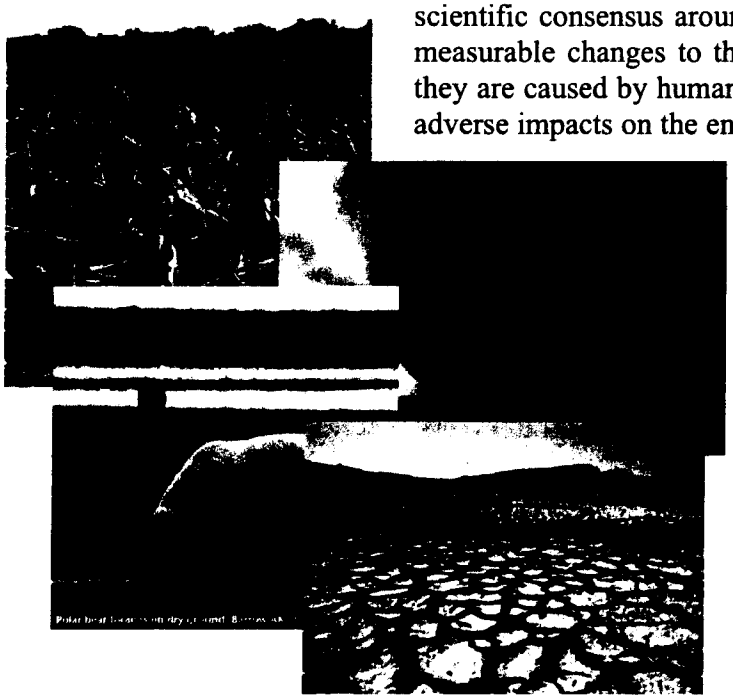
Air districts have historically provided guidance to local governments on the evaluation of air pollutants under CEQA. As local concern about climate change and GHG has increased, local governments have requested guidance on incorporating analysis of these impacts into local CEQA review. The California Air Pollution Control Officers Association (CAPCOA), in coordination with the CARB, the Governor's Office of Planning and Research (OPR) and two environmental consulting firms, has harnessed the collective expertise to evaluate approaches to analyzing GHG in CEQA. The purpose of this white paper is to provide a common platform of information and tools to address climate change in CEQA analyses, including the evaluation and mitigation of GHG emissions from proposed projects and identifying significance threshold options.

CEQA requires public agencies to ensure that potentially significant adverse environmental effects of discretionary projects are fully characterized, and avoided or mitigated where there are feasible alternatives to do so. Lead agencies have struggled with how best to identify and characterize the magnitude of the adverse effects that individual projects have on the global-scale phenomenon of climate change, even more so since Governor Schwarzenegger signed Executive Order S-3-05 and the state Legislature enacted The Global Warming Solutions Act of 2006 (AB 32). There is now a resounding call to establish procedures to analyze and mitigate greenhouse gas (GHG) emissions. The lack of established thresholds does not relieve lead agencies of their responsibility to analyze and mitigate significant impacts, so many of these agencies are seeking guidance from state and local air quality agencies. This white paper addresses issues inherent in establishing CEQA thresholds, evaluates tools, catalogues mitigation measures and provides air districts and lead agencies with options for incorporating climate change into their programs.

Background

National and International Efforts

International and Federal legislation have been enacted to deal with climate change issues. The Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus around the evidence that real and measurable changes to the climate are occurring, that they are caused by human activity, and that significant adverse impacts on the environment, the economy, and human health and welfare are unavoidable.



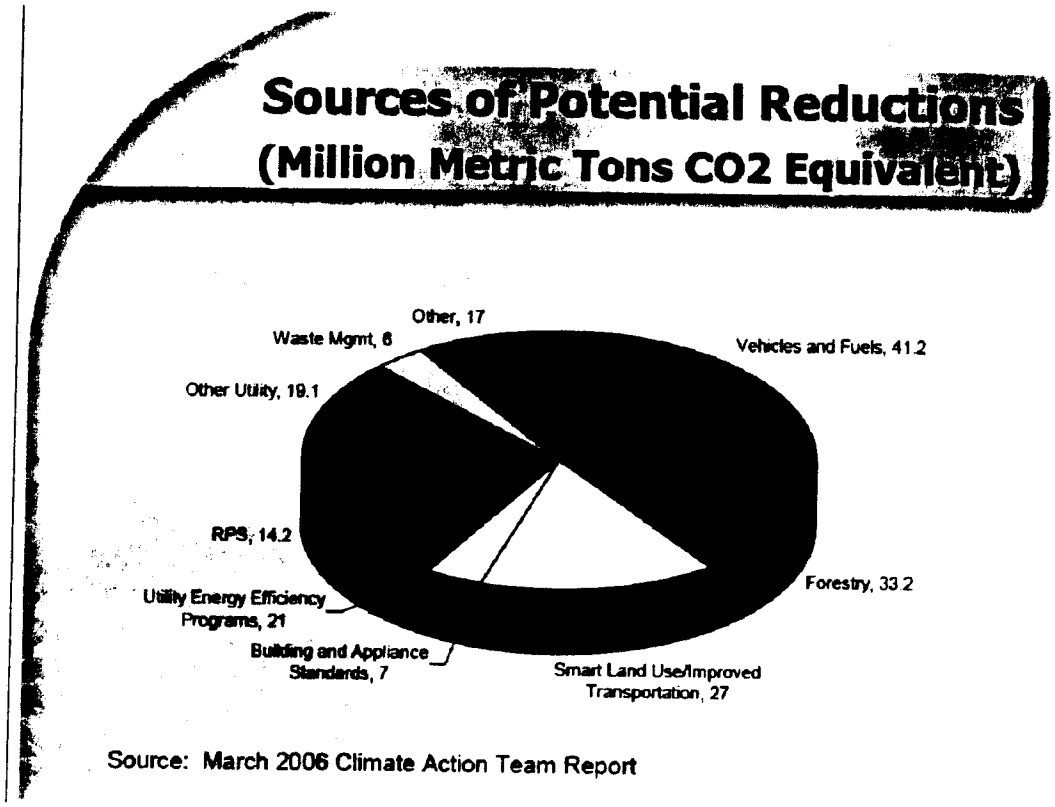
In October 1993, President Clinton announced his Climate Change Action Plan, which had a goal to return greenhouse gas emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives that relied on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in greenhouse gas emissions. On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments agreed to gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

These efforts have been largely policy oriented. In addition to the national and international efforts described above, many local jurisdictions have adopted climate change policies and programs. However, thus far little has been done to assess the significance of the affects new development projects may have on climate change.

Executive Order S-3-05

On June 1, 2005, Governor Schwarzenegger issued Executive Order S-3-05 (S-3-05). It included the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels. To meet the targets, the Governor directed the Secretary of the California Environmental Protection Agency to coordinate with the Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the CARB, Chairperson of the Energy Commission and President of the Public Utilities Commission on development of a Climate Action Plan.

The Secretary of CalEPA leads a Climate Action Team (CAT) made up of representatives from the agencies listed above to implement global warming emission reduction programs identified in the Climate Action Plan and report on the progress made toward meeting the statewide greenhouse gas targets that were established in the Executive Order.



SOURCE: ARB 2007

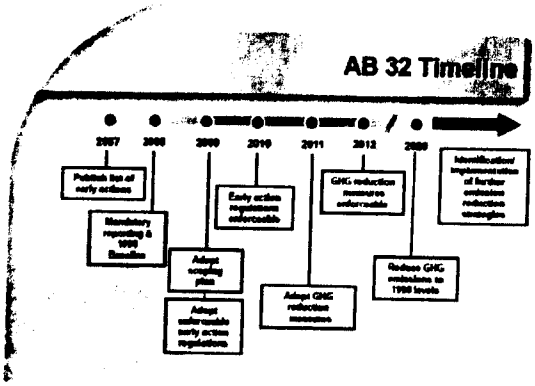
In accord with the requirements of the Executive Order, the first report to the Governor and the Legislature was released in March 2006 and will be issued bi-annually thereafter. The CAT Report to the Governor contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

California Global Warming Solutions Act of 2006 (AB 32)

In 2006, the California State Legislature adopted the California Global Warming Solutions Act of 2006. AB 32 establishes a cap on statewide greenhouse gas emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emissions levels. AB 32 charges the California Air Resources Board (CARB), the state agency charged with regulating statewide air quality, with implementation of the act. Under AB 32, greenhouse gases are defined as: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

The regulatory steps laid out in AB 32 require CARB to: adopt early action measures to reduce GHGs; to establish a statewide greenhouse gas emissions cap for 2020 based on 1990 emissions; to adopt mandatory reporting rules for significant source of greenhouse gases; and to adopt a scoping plan indicating how emission reductions will be achieved via regulations, market mechanisms and other actions; and to adopt the regulations needed to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gases.

AB 32 requires that by January 1, 2008, the State Board shall determine what the statewide greenhouse gas emissions inventory was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. While the level of 1990 GHG emissions has not yet been approved, CARB's most recent emission inventory indicates that California had annual emissions of 436 million metric tons of carbon dioxide equivalent (MMT CO_2e) in 1990 and 497 MMT CO_2e in 2004.



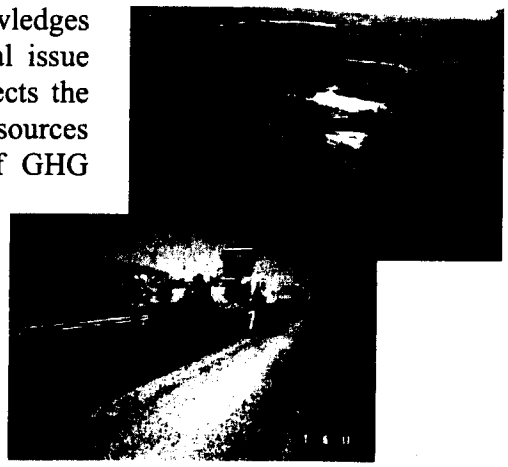
SOURCE: ARB 2007

The regulatory timeline laid out in AB 32 requires that by July 1, 2007, CARB adopt a list of discrete early action measures, or regulations, to be adopted and implemented by January 1, 2010. These actions will form part of the State's comprehensive plan for achieving greenhouse gas emission reductions. In June 2007, CARB adopted three discrete early action measures. These three new proposed regulations meet the definition of "discrete early action greenhouse gas reduction measures," which include the following: a low carbon fuel standard; reduction of HFC-134a emissions from non-professional servicing of motor vehicle air conditioning systems; and improved landfill methane capture. CARB estimates that by 2020, the reductions from those three discrete early action measures would be approximately 13-26 MMT CO_2e.

CARB evaluated over 100 possible measures identified by the CAT for inclusion in the list of discrete early action measures. On October 25, 2007 CARB gave final approval to the list of Early Action Measures, which includes nine discrete measures and 35

additional measures, all of which are to be enforceable by January 1, 2010. AB 32 requires that by January 1, 2009, CARB adopt a scoping plan indicating how emission reductions will be achieved via regulations, market mechanisms and other actions.

Senate Bill 97



Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. This bill directs the OPR to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010. This bill also protects projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1B or 1E) from claims of inadequate analysis of GHG as a legitimate cause of action. This latter provision will be repealed on January 1, 2010. Thus, this "protection" is highly limited to a handful of projects and for a short time period.

The Role of Air Districts in the CEQA Process

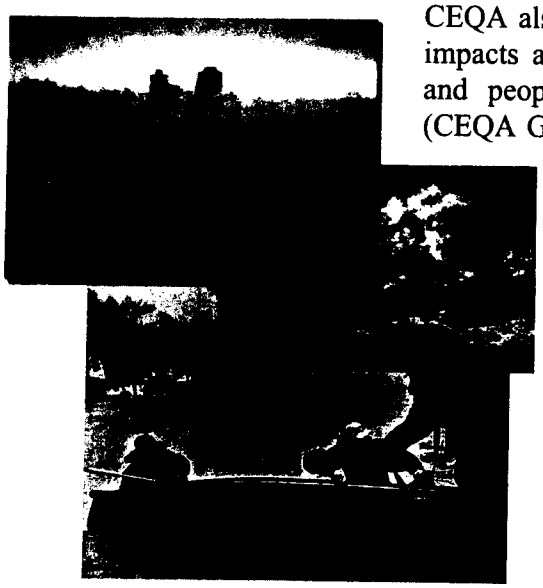
Air districts assume one of three roles in the CEQA process. They may be lead agencies when they are adopting regulations and air quality plans. In some instances, they can also be a lead agency when approving permits to construct or operate for applicants subject to district rules. However, in many cases where an air district permit is involved, another agency has broader permitting authority over the project and assumes the role of lead agency. In these situations, the air district becomes what is referred to as a responsible agency under CEQA. When CEQA documents are prepared for projects that do not involve discretionary approval of a district regulation, plan or permit, the air district may assume the role of a concerned or commenting agency. In this role, it is typical for air districts to comment on CEQA documents where there may be air quality-related adverse impacts, such as projects that may create significant contributions to existing violations of ambient standards, cause a violation of an ambient standard or create an exposure to toxic air contaminants or odors. In some cases, the air district may also act in an "advisory" capacity to a lead agency early on in its review of an application for a proposed development project.

A few air districts in California began developing significance thresholds for use in CEQA analyses in the late 1980's and early 1990's. By the mid-1990's most air districts had developed CEQA thresholds for air quality analyses. Many of the districts have included in their guidance the analysis of rule development and permits that may be subject to CEQA.

What is Not Addressed in this Paper

Impacts of Climate Change to a Project

The focus of this paper is addressing adverse impacts to climate change and the ability to meet statewide GHG reduction goals caused by proposed new land development projects. CEQA also requires an assessment of significant adverse impacts a project might cause by bringing development and people into an area affected by climate change (CEQA Guidelines §15126.2). For example, an area that experiences higher average temperatures due to climate change may expose new development to more frequent exceedances and higher levels of ozone concentrations. Alternatively, a rise in sea level brought on by climate change may inundate new development locating in a low-lying area. The methodologies, mitigation and threshold approaches discussed in this paper do not specifically address the potential adverse impacts resulting from climate change that may affect a project.



Impacts from Construction Activity

Although construction activity has been addressed in the analytical methodologies and mitigation chapters, this paper does not discuss whether any of the threshold approaches adequately addresses impacts from construction activity. More study is needed to make this assessment or to develop separate thresholds for construction activity. The focus of this paper is the long-term adverse operational impacts of land use development.

Introduction

Any analysis of environmental impacts under CEQA includes an assessment of the nature and extent of each impact expected to result from the project to determine whether the impact will be treated as significant or less than significant. CEQA gives lead agencies discretion whether to classify a particular environmental impact as significant. "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved," ref: CEQA Guidelines §15064(b) ("Guidelines"). Ultimately, formulation of a standard of significance requires the lead agency to make a policy judgment about where the line should be drawn distinguishing adverse impacts it considers significant from those that are not deemed significant. This judgment must, however, be based on scientific information and other factual data to the extent possible (Guidelines §15064(b)).

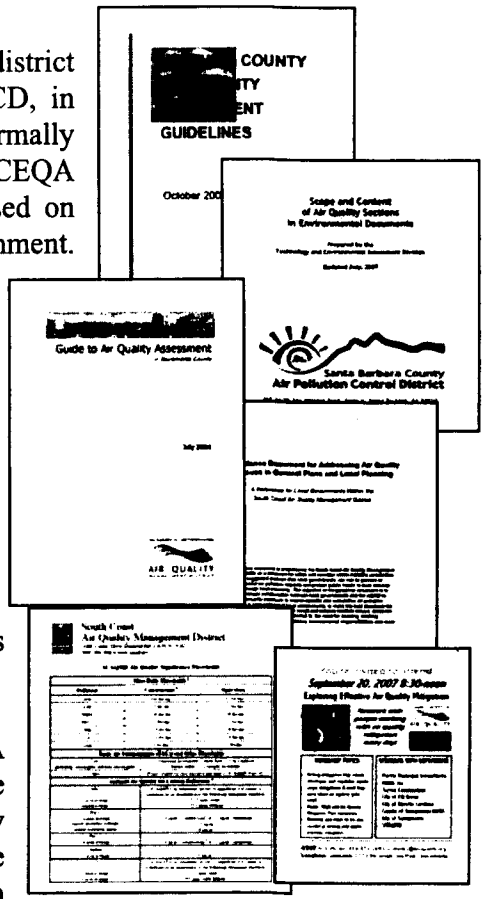
CEQA does not require that agencies establish thresholds of significance. Guidelines §15064.7(a) encourages each public agency "...to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which normally means the effect will be determined to be less than significant."

Once such thresholds are established, an impact that complies with the applicable threshold will "normally" be found insignificant and an impact that does not comply with the applicable threshold will "normally" be found significant.

Additionally, Guidelines §15064.7(b) requires that if thresholds of significance are adopted for general use as part of the lead agency's environmental review process they must be adopted by ordinance, resolution, rule or regulation, and developed through a public review process and be supported by substantial evidence.

While many public agencies adopt regulatory standards as thresholds, the standards do not substitute for a public agency's use of careful judgment in determining significance. They also do not replace the legal standard for significance (i.e., if there is a fair argument, based on substantial evidence in light of the whole record that the project may have a significant effect, the effect should be considered significant) (Guidelines §15064(f)(1). Also see *Communities for a Better Environment v. California Resource Agency* 103 Cal. App. 4th 98 (2002)). In other words, the adoption of a regulatory standard does not create an irrebuttable presumption that impacts below the regulatory standard are less than significant.

Summary of CEQA Thresholds at Air Districts



This section briefly summarizes the evolution of air district CEQA significance thresholds. Ventura County APCD, in 1980, was the first air district in California that formally adopted CEQA significance thresholds. Their first CEQA assessment document contained impact thresholds based on project type: residential, nonresidential, and government. Then, as now, the District's primary CEQA thresholds applied only to ROG and NO_x. The 1980 Guidelines did not address other air pollutants.

Santa Barbara County APCD and the Bay Area AQMD adopted thresholds in 1985. The South Coast AQMD recommended regional air quality thresholds in 1987 for CO, SO_2, NO_2, particulates, ROG, and lead. Most of the other California air districts adopted CEQA guidance and thresholds during the 1990's. Air districts have updated their thresholds and guidelines several times since they were first published.

Originally, most districts that established CEQA thresholds focused on criteria pollutants for which the district was nonattainment and the thresholds only addressed project level impacts. Updates during the 1990's began to add additional air quality impacts such as odors, toxic air contaminants and construction. Several air districts also developed thresholds for General Plans that relied on an assessment of the plan consistency with the district's air quality plans. A consistency analysis involves comparing the project's land use to that of the general plan and the population and employment increase to the forecasts underlying the assumptions used to develop the air quality plan.

Most air district thresholds for CEQA are based on the threshold for review under the New Source Review (NSR). The NSR threshold level is set by district rule and is different depending on the nonattainment classification of the air district. Areas with a less severe classification have a higher NSR trigger level while the most polluted areas have the lowest NSR trigger level. Some districts, such as Ventura County APCD, have significantly lower CEQA thresholds that are not tied to the NSR requirements. In Ventura, one set of CEQA thresholds is 25 pounds per day for all regions of Ventura County, except the Ojai Valley. The second set of CEQA thresholds was set at 5 pounds per day for the Ojai Valley.

The Sacramento Metropolitan AQMD bases its thresholds for ozone precursors on the projected land use share of emission reductions needed for attainment. The emission reductions needed to reach attainment are based on commitments made in the state implementation plan (SIP) prepared for the federal clean air act.

CEQA Considerations in Setting Thresholds

Public agencies use significance thresholds to disclose to their constituents how they plan on evaluating and characterizing the severity of various environmental impacts that could be associated with discretionary projects that they review. Significance thresholds are also used to help identify the level of mitigation needed to reduce a potentially significant impact to a less than significant level and to determine what type of an environmental document should be prepared for a project; primarily a negative declaration, mitigated negative declaration or an environmental impact report.

While public agencies are not required to develop significance thresholds, if they decide to develop them, they are required to adopt them by ordinance, resolution, rule or regulation through a public process. A lead agency is not restrained from adopting any significance threshold it sees as appropriate, as long as it is based on substantial evidence. CEQA Guidelines §15064.7 encourages public agencies to develop and publish significance thresholds that are identifiable, quantitative, qualitative or performance level that the agency uses in the determination of the significance of environmental effects. The courts have ruled that a "threshold of significance" for a given environmental effect is simply that level at which the lead agency finds the effects of the project to be significant.

Before an agency determines its course with regard to climate change and CEQA, it must be made clear that a threshold, or the absence of one, will not relieve a lead agency from having to prepare an EIR or legal challenges to the adequacy of an analysis leading to a conclusion, or lack of a conclusion, of significance under CEQA. CEQA has generally favored the preparation of an EIR where there is any substantial evidence to support a fair argument that a significant adverse environmental impact may occur due to a proposed project. This paper explores three alternative approaches to thresholds, including a no threshold option, a zero threshold option and a non-zero threshold option.

Fair Argument Considerations

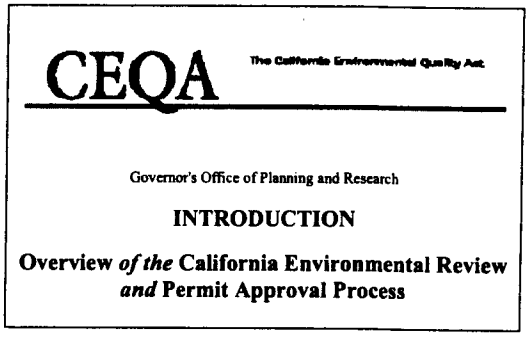
Under the CEQA fair argument standard, an EIR must be prepared whenever it can be fairly argued, based on substantial evidence in the administrative record, that a project may have a significant adverse effect on the environment. "Substantial evidence" comprises "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached." (Guidelines §15384) This means that if factual information is presented to the public agency that there is a reasonable possibility the project could have

a significant effect on the environment, an EIR is required even if the public agency has information to the contrary (Guidelines §15064 (f)).

The courts have held that the fair argument standard "establishes a low threshold for initial preparation of an EIR, which reflects a preference for resolving doubts in favor of environmental review." (*Santa Teresa Citizen Action Group v. City of San Jose* [2003] 114 Cal.App.4th 689) Although the determination of whether a fair argument exists is made by the public agency, that determination is subject to judicial scrutiny when challenged in litigation. When the question is whether an EIR should have been prepared, the court will review the administrative record for factual evidence supporting a fair argument.

The fair argument standard essentially empowers project opponents to force preparation of an EIR by introducing factual evidence into the record that asserts that the project may have a significant effect on the environment. This evidence does not need to be conclusive regarding the potential significant effect.

In 1998, the Resources Agency amended the State CEQA Guidelines to encourage the use of thresholds of significance. Guidelines §15064 (h) provided that when a project's impacts did not exceed adopted standards, the impacts were to be considered less than significant. The section went on to describe the types of adopted standards that were to be considered thresholds. Guidelines § 15064.7 provided that agencies may adopt thresholds of significance to guide their determinations of significance. Both of these sections were challenged when environmental groups sued the Resources Agency in 2000 over the amendments. The trial court concluded that §15064.7 was proper, if it was applied in the context of the fair argument standard.


CEQA The California Environmental Quality Act

Governor's Office of Planning and Research

INTRODUCTION

Overview *of the* California Environmental Review *and* Permit Approval Process

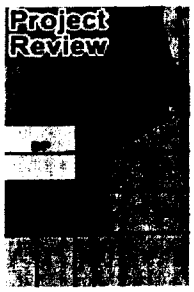
At the appellate court level, §15064(h) was invalidated.[2] Establishing a presumption that meeting an adopted standard would avoid significant impacts was "inconsistent with controlling CEQA law governing the fair argument approach." The Court of Appeal explained that requiring agencies to comply with a regulatory standard "relieves the agency of a duty it would have under the fair argument approach to look at evidence beyond the regulatory standard, or in contravention of the standard, in deciding whether an EIR must be prepared. Under the fair argument approach, any substantial evidence supporting a fair argument that a project may have a significant environmental effect would trigger the preparation of an EIR." (*Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal.App.4th 98)

[2] Prior §15064(h) has been removed from the State CEQA Guidelines. Current §15064(h) discusses cumulative impacts.

In summary, CEQA law does not require a lead agency to establish significance thresholds for GHG. CEQA guidelines encourage the development of thresholds, but the absence of an adopted threshold does not relieve the agency from the obligation to determine significance.

Defensibility of CEQA Analyses

The basic purposes of CEQA, as set out in the State CEQA Guidelines, include: (1) informing decision makers and the public about the significant environmental effects of proposed projects; (2) identifying ways to reduce or avoid those impacts; (3) requiring the implementation of feasible mitigation measures or alternatives that would reduce or avoid those impacts; and (4) requiring public agencies to disclose their reasons for approving any project that would have significant and unavoidable impacts (Guidelines §15002). CEQA is enforced through civil litigation over procedure (i.e., did the public agency follow the correct CEQA procedures?) and adequacy (i.e., has the potential for impacts been disclosed, analyzed, and mitigated to the extent feasible?).



The California Supreme Court has held that CEQA is "to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Friends of Mammoth v. Board of Supervisors* [1972] 8 Cal.3d 247, 259) Within that context, the role of the courts is to weigh the facts in each case and apply their judgment. Although the court may rule on the adequacy of the CEQA work, the court is not empowered to act in the place of the public agency to approve or deny the project for which the CEQA document was prepared. Further, the court's review is limited to the evidence contained in the administrative record that was before the public agency when it acted on the project.

Putting aside the issue of CEQA procedure, the defensibility of a CEQA analysis rests on the following concerns:

- whether the public agency has sufficiently analyzed the environmental consequences to enable decision makers to make an intelligent decision;
- whether the conclusions of the public agency are supported by substantial evidence in the administrative record; and
- whether the agency has made a good faith effort at the full disclosure of significant effects.

CEQA analyses need not be perfect or exhaustive -- the depth and breadth of the analysis is limited to what is "reasonably feasible." (Guidelines §15151) At the same time, the analysis "must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed

project." (Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376)

By itself, establishment of a GHG threshold will not insulate individual CEQA analyses from challenge. Defensibility depends upon the adequacy of the analysis prepared by the lead agency and the process followed. However, the threshold can help to define the boundaries of what is a reasonable analysis by establishing when an analysis will be required and the basic scope of that analysis. The threshold would attempt to define the point at which an analysis will be required and when a level of impact becomes significant, requiring preparation of an EIR. If the threshold includes recommendations for the method or methods of analysis, it can establish the minimum level of analysis to address this issue.

Considerations in Setting Thresholds for Stationary Source Projects

In many respects, the analysis of GHG emissions from stationary sources is much more straightforward than the analysis of land use patterns, forecasted energy consumption, and emissions from mobile sources. The reason is that, for the most part, the latter analyses depend largely on predictive models with myriad inputs and have a wider range of error. Emissions from stationary sources involve a greater reliance on mass and energy balance calculations and direct measurements of emissions from the same or similar sources. Energy demand is more directly tied to production, and even associated mobile source emissions will likely fall within narrower predictive windows.

Implementing CEQA Without a Threshold

A lead agency is not required to establish significance thresholds for GHG emissions from stationary sources. The lead agency may find that it needs more information or experience evaluating GHG from these types of projects to determine an appropriate significance threshold. As with other project types, the lead agency could conduct a project specific analysis to determine whether an environmental impact report is needed and to determine the level of mitigation that is appropriate. The agency might also rely on thresholds established for criteria pollutants as a screening method, and analyze GHG emissions (and require mitigation) from projects with emissions above the criteria pollutant thresholds. Over time, the agency could amass information and experience with specific project categories that would support establishing explicit thresholds. The lead agency may also choose to base local CEQA thresholds on state guidelines or on the category-specific reduction targets established by ARB in its scoping plan for implementing AB32. Resource constraints and other considerations associated with implementing CEQA without GHG thresholds for stationary sources would be similar to those outlined for other types of projects (see Chapter 5 – No Threshold Option).

Implementing CEQA with Threshold of Zero

A lead agency may find that any increase in GHG emissions is potentially significant under CEQA. The resources and other considerations for implementing a threshold of zero for stationary sources are the same as those outlined for other types of projects (see Chapter 6 – Zero Threshold Option).

Implementing CEQA with a Non-Zero Threshold

A lead agency may identify one or more non-zero thresholds for significance of emissions of GHG from stationary sources. The agency could elect to rely on existing thresholds for reviewing new or modified stationary sources of GHG, if the state or local air district has established any. The agency could also apply the threshold(s) established for non-stationary sources to GHG emissions from stationary sources. Significance thresholds could also be established by ordinance, rule, or policy for a given category of stationary sources; this approach is especially conducive to a tiered threshold approach. For example, the agency could establish significance and mitigation tiers for stationary compression-ignition diesel-fueled generators. Under such an approach, the project proponent could be first required to use a lower GHG-emitting power source if feasible, and if not, to apply mitigation based on the size of the generator and other defined considerations, such as hours of operation. Certain classes of generators could be found to be insignificant under CEQA (e.g., those used for emergency stand-by power only, with a limit on the annual hours of use). As with non-stationary projects, the goal of establishing non-zero thresholds is to maximize environmental protection, while minimizing resources used. Resource and other considerations outlined for non-stationary projects are applicable here (see Chapter 7 – Non-Zero Threshold Options).

Implementing CEQA with Different Thresholds for Stationary and Non-stationary Projects

Although a lead agency may apply the same thresholds to stationary and non-stationary projects, it is not required to do so. There are, in fact, some important distinctions between the two types of projects that could support applying different thresholds. The lead agency should consider the methods used to estimate emissions. Are the estimates a "best/worst reasonable scenario" or are they based on theoretical maximum operation? How accurate are the estimates (are they based on models, simulations, emission factors, source test data, manufacturer specifications, etc.)? To what extent could emissions be reduced through regulations after the project is constructed if they were found to be greater than originally expected (i.e., is it possible to retrofit emissions control technology onto the source(s) of GHG at a later date, how long is the expected project life, etc.)? Are there emission limits or emissions control regulations (such as New Source Review) that provide certainty that emissions will be mitigated? Generally, stationary source emissions are based on maximum emissions (theoretical or allowed under law or regulation), are more accurate, and are more amenable to retrofit at a later time than non-stationary source emissions. It is also more likely that category specific

rules or some form of NSR will apply to stationary sources than non-stationary projects. Notwithstanding, it is almost always more effective and cost-efficient to apply emission reduction technology at the design phase of a project. There are, therefore, a number of considerations that need to be evaluated and weighed before establishing thresholds – and which may support different thresholds for stationary and non-stationary projects. Furthermore, the considerations may change over time as new regulations are established and as emissions estimation techniques and control technology evolves.

Direct GHG Emissions from Stationary Sources

The main focus of this paper has been the consideration of projects that do not, in the main, involve stationary sources of air pollution, because stationary source projects are generally a smaller percentage of the projects seen by most local land use agencies. That said, some discussion of stationary sources is warranted. As the broader program for regulating GHG from these sources is developed, the strategies for addressing them under CEQA will likely become more refined.

The primary focus of analysis of stationary source emissions has traditionally been those pollutants that are directly emitted by the source, whether through a stack or as fugitive releases (such as leaks). CAPCOA conducted a simplified analysis of permitting activity to estimate the number of stationary source projects with potentially significant emissions of greenhouse gases that might be seen over the course of a year. This analysis looked only at stationary combustion sources (such as boilers and generators), and only considered direct emissions. A lead agency under CEQA may see a different profile of projects than the data provided here suggest, depending on what other resources are affected by projects. In addition, air districts review like-kind replacements of equipment to ensure the new equipment meets current standards, but such actions might not constitute a project for many land use agencies or other media regulators. The data does provide a useful benchmark, however, for lead agencies to assess the order of magnitude of potential stationary source projects. A similar analysis is included for non-stationary projects in Chapter 7.

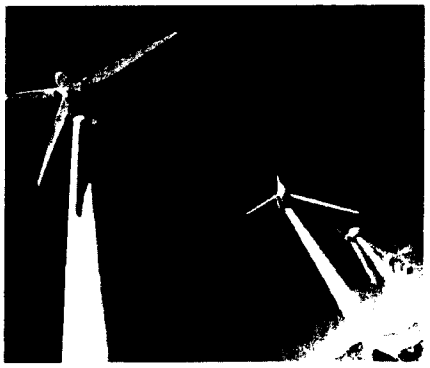
Table 1: Analysis of GHG Emissions from Stationary Combustion Equipment Permits[3]

	BAAQMD	SMAQMD	SJVUAPCD	SCAQMD
Total Applications for Year	1499	778	1535	1179
Affected at threshold of:				
900 metric tons/year	26	43	63	108
10,000 metric tons/year	7	5	26	8
25,000 metric tons/year	3	1	11	4

[3] District data varies based on specific local regulations and methodologies.

Emissions from Energy Use

In addition to the direct emissions of GHG from stationary projects, CEQA will likely need to consider the project's projected energy use. This could include an analysis of opportunities for energy efficiency, onsite clean power generation (e.g., heat/energy recovery, co-generation, geothermal, solar, or wind), and the use of dedicated power contracts as compared to the portfolio of generally available power. In some industries, water use and conservation may provide substantial GHG emissions reductions, so the CEQA analysis should consider alternatives that reduce water consumption and wastewater discharge. The stationary project may also have the opportunity to use raw or feedstock materials that have a smaller GHG footprint; material substitution should be evaluated where information is available to do so.



Emissions from Associated Mobile Sources

The stationary project will also include emissions from associated mobile sources. These will include three basic components: emissions from employee trips, emissions from delivery of raw or feedstock materials, and emissions from product transport. Employee trips can be evaluated using trip estimation as is done for non-stationary projects, and mitigations would include such measures as providing access to and incentives for use of public transportation, accessibility for bicycle and pedestrian modes of transport, employer supported car or vanpools (including policies such as guaranteed rides home, etc). Upstream and downstream emissions related to goods movement can also be estimated with available models. The evaluation will need to determine the extent of the transport chain that should be included (to ensure that all emissions in the chain have been evaluated and mitigated, but to avoid double counting). Mitigations could include direct actions by operators who own their own fleet, or could be implemented through contractual arrangements with independent carriers; again, the evaluation will need to consider how far up and down the chain mitigation is feasible and can be reasonably required.

Comparing Emissions Changes Across Pollutant Categories

The potential exists for certain GHG reduction measures to increase emissions of criteria and toxic pollutants known to cause or aggravate respiratory, cardiovascular, and other health problems. For instance, GHG reduction efforts such as alternative fuels and methane digesters may create significant levels of increased pollutants that are detrimental to the health of the nearby population (e.g.; particulate matter, ozone precursors, toxic air contaminants). Such considerations should be included in any CEQA analysis of a project's environmental impacts. While there are many win-win

strategies that can reduce both GHG and criteria/toxic pollutant emissions, when faced with situations that involve tradeoffs between the two, the more immediate public health concerns that may arise from an increase in criteria or toxic pollutant emissions should take precedence. GHG emission reductions could be achieved offsite through other mitigation programs.

Introduction

Under state law, it is the purview of each lead agency to determine what, if any, significance thresholds will be established to guide its review of projects under CEQA. While the state does provide guidelines for implementing CEQA, the guidelines have left the decision of whether to establish thresholds (and if so, at what level) to individual lead agencies. Frequently, lead agencies consult with resource-specific agencies (such as air districts) for assistance in determining what constitutes a significant impact on that specific resource.

With the passage of AB 32, the ARB has broad authority to regulate GHG emissions as necessary to meet the emission reduction goals of the statute. This may include authority to establish emission reduction requirements for new land use projects, and may also enable them to recommend statewide thresholds for GHG under CEQA.

In developing this white paper, CAPCOA recognizes that, as the GHG reduction program evolves over time, GHG thresholds and other policies and procedures for CEQA may undergo significant revision, and that uniform statewide thresholds and procedures may be established. This paper is intended to serve as a resource for public agencies until such time that statewide guidance is established, recognizing that decisions will need to be made about GHG emissions from projects before such guidance is available. This paper is not, however, uniform statewide guidance. As stated before, it outlines several possible approaches without endorsing any one over the others.

Some air districts may choose to use this paper to support their establishment of guidance for GHG under CEQA, including thresholds. This paper does not, nor should it be construed to require a district to implement any of the approaches evaluated here. Decisions about whether to provide formal local guidance on CEQA for projects with GHG emissions, including the question of thresholds, will be made by individual district boards.

Each of the 35 air districts operates independently and has its own set of regulations and programs to address the emissions from stationary, area and mobile sources, consistent with state and federal laws, regulations, and guidelines. The independence of the districts allows specific air quality problems to be addressed on a local level. In addition, districts have also established local CEQA thresholds of significance for criteria pollutants – also to address the specific air quality problems relative to that particular district.

The overall goal of air district thresholds is to achieve and maintain health based air quality standards within their respective air basins and to reduce transport of emissions to other air basins. In establishing recommended thresholds, air districts consider the existing emission inventory of criteria pollutants and the amount of emission reductions needed to attain and maintain ambient air quality standards.

However, unlike criteria pollutants where individual districts are characterized by varying levels of pollutant concentrations and source types, greenhouse gases (GHG) and their attendant climate change ramifications are a global problem and, therefore, may suggest a uniform approach to solutions that ensure both progress and equity.

Under SB97, the Office of Planning and Research is directed to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions through CEQA by July 1, 2009. Those guidelines may recommend thresholds. As stated, this paper is intended to provide a common platform of information and tools to support local decision makers until such time that statewide guidance or requirements are promulgated.

Local Ability to Promulgate District-Specific GHG Thresholds

One of the primary reasons behind the creation of air districts in California is the recognition that some regions within the state face more critical air pollution problems than others and, as has often been pointed out – one size does not fit all. For example, a "Serious" federal nonattainment district would need greater emission reductions than a district already in attainment – and, therefore, the more "serious" district would set its criteria pollutant CEQA thresholds of significance much lower than the air district already in attainment.

The action of GHGs is global in nature, rather than local or regional (or even statewide or national). Ultimately there may be a program that is global, or at least national in scope. That said, actions taken by a state, region, or local government can contribute to the solution of the global problem. Local governments are not barred from developing and implementing programs to address GHGs. In the context of California and CEQA, lead agencies have the primary responsibility and authority to determine the significance of a project's impacts.

Further, air districts have primary authority under state law for "control of air pollution from all sources, other than emissions from motor vehicles." (H&SC §40000) The term air contaminant or "air pollutant" is defined extremely broadly, to mean "any discharge, release, or other propagation into the atmosphere" and includes, but is not limited to, soot, carbon, fumes, gases, particulate matter, etc. Greenhouse gases and other global warming pollutants such as black carbon would certainly be included in this definition, just as the U.S. Supreme Court held in Massachusetts v. EPA that greenhouse gases were air pollutants under the federal Clean Air Act. Therefore, air districts have the primary authority to regulate global warming pollutants from nonvehicular sources. AB 32 does not change this result. Although it gives wide responsibility to CARB to regulate greenhouse gases from all sources, including nonvehicular sources, it does not preempt the districts. AB 32 specifically states That "nothing in this division shall limit or expand the existing authority of any district..."(H&SC § 38594). Thus, districts and CARB retain concurrent authority over nonvehicular source greenhouse gas emissions.

Introduction

The CEQA statutes do not require an air district or any lead agency to establish significance thresholds under CEQA for any pollutant. While there are considerations that support the establishment of thresholds (which are discussed in other sections of this document), there is no obligation to do so.

An air district or other lead agency may elect not to establish significance thresholds for a number of reasons. The agency may believe that the global nature of the climate change problem necessitates a statewide or national framework for consideration of environmental impacts. SB 97 directs OPR to develop "guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions by July 1, 2009," and directs the California Resources Agency to certify and adopt the guidelines by June 30, 2010.

An agency may also believe there is insufficient information to support selecting one specific threshold over another. As described earlier, air districts have historically set CEQA thresholds for air pollutants in the context of the local clean air plan, or (in the case of toxic air pollutants) within the framework of a rule or policy that manages risks and exposures due to toxic pollutants. There is no current framework that would similarly manage impacts of greenhouse gas pollutants, although the CARB is directed to establish one by June 30, 2009, pursuant to AB 32. A local agency may decide to defer any consideration of thresholds until this framework is in place.

Finally, an agency may believe that the significance of a given project should be assessed on a case-by-case basis in the context of the project at the time it comes forward.

Implementing CEQA Without Significance Thresholds for GHG

The absence of a threshold does not in any way relieve agencies of their obligations to address GHG emissions from projects under CEQA. The implications of not having a threshold are different depending on the role the agency has under CEQA – whether it is acting in an advisory capacity, as a responsible agency, or as a lead agency.

Implications of No Thresholds for an Agency Acting in an Advisory Capacity

Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to assess emissions and impacts, and mitigations for potentially significant impacts. Although districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues that

are program wide, and these are advisory (unless they have been established by regulation).

An air district that has not established significance thresholds for GHG will not provide guidance to local governments on this issue. This does not prevent the local government from establishing thresholds under its own authority. One possible result of this would be the establishment of different thresholds by cities and counties within the air district. Alternatively, the air district could advise local governments not to set thresholds and those jurisdictions may follow the air district's guidance.

It is important to note here (as has been clearly stated by the Attorney General in comments and filings) that lack of a threshold does *not* mean lack of significance. An agency may argue lack of significance for any project, but that argument would have to be carried forth on a case-by-case, project specific basis. By extension then, a decision not to establish thresholds for GHG is likely to result in a greater workload for responsible and lead agencies as they consider individual projects under CEQA.

Implications of No Thresholds for a Responsible Agency

If there are no established thresholds of significance, the significance of each project will have to be determined during the course of review. The responsible agency (e.g., the air district) will review each project referred by the lead agency. The review may be qualitative or quantitative in nature. A qualitative review would discuss the nature of GHG emissions expected and their potential effect on climate change as the district understands it. It could also include a discussion of the relative merits of alternative scenarios. A quantitative analysis would evaluate, to the extent possible, the expected GHG emissions; it would also need to evaluate their potential effect on climate change and might include corresponding analysis of alternatives. The air district, as a responsible agency, may also identify mitigation measures for the project.

The lack of established thresholds will make the determination of significance more resource intensive for each project. The district may defer to the lead agency to make this determination, however the district may be obligated, as a responsible agency, to evaluate the analysis and determination.

Implications of No Thresholds for a Lead Agency

The main impact of not having significance thresholds will be on the primary evaluation of projects by the lead agency. Without significance thresholds, the agency will have to conduct some level of analysis of every project to determine whether an environmental impact report is needed. There are three fundamental approaches to the case-by-case analysis of significance, including presumptions of significance or insignificance, or no presumption:

1. The agency can begin with a presumption of significance and the analysis would be used to support a case-specific finding of no significance. This is similar to establishing a threshold of zero, except that here, the "threshold" is rebuttable. This approach may result in a large number of projects proceeding to preparation of an environmental impact report. Because of the attendant costs, project proponents may challenge the determination of significance, although formal challenge is less likely than attempts to influence the determination.

2. The agency can begin with a presumption of insignificance, and the analysis would be used to support a case-specific finding of significance. A presumption of insignificance could be based on the perspective that it would be speculative to attempt to identify the significance of GHG emissions from a project relative to climate change on a global scale. This approach might reduce the number of projects proceeding to preparation of environmental impact reports. It is likely to have greater success with smaller projects than larger ones, and a presumption of *insignificance* may be more likely to be challenged by project opponents.

3. It is not necessary for the lead agency to have any presumption either way. The agency could approach each project from a *tabula rasa* perspective, and have the determination of significance more broadly tied to the specific context of the project; this approach is likely to be resource intensive, and creates the greatest uncertainty for project proponents. To the extent that it results in a lead agency approving similar projects based on different determinations of significance for GHG emissions, it may be more vulnerable to challenge from either proponents or opponents of the project. Alternatively, in the absence of either thresholds or presumptions, the lead agency could use each determination of significance to build its approach in the same way that subsequent judgments define the law.

Relevant Citations

The full text of relevant citations is in Appendix A.

Public Resources Code – §21082.2, Significant Effect on Environment; Determination; Environmental Impact Report Preparation.

State CEQA Guidelines – §15064, Determining the Significance of the Environmental Effects Caused by a Project.

Introduction

If an air district or lead agency determines that any degree of project-related increase in GHG emissions would contribute considerably to climate change and therefore would be a significant impact, it could adopt a zero-emission threshold to identify projects that would need to reduce their emissions. A lead agency may determine that a zero-emission threshold is justified even if other experts may disagree. A lead agency is not prevented from adopting any significance threshold it sees as appropriate, as long as it is based on substantial evidence.

If the zero threshold option is chosen, all projects subject to CEQA would be required to quantify and mitigate their GHG emissions, regardless of the size of the project or the availability of GHG reduction measures available to reduce the project's emissions. Projects that could not meet the zero-emission threshold would be required to prepare environmental impact reports to disclose the unmitigable significant impact, and develop the justification for a statement of overriding consideration to be adopted by the lead agency.

Implementing CEQA With a Zero Threshold for GHG

The scientific community overwhelmingly agrees that the earth's climate is becoming warmer, and that human activity is playing a role in climate change. Unlike other environmental impacts, climate change is a global phenomenon in that all GHG emissions generated throughout the earth contribute to it. Consequently, both large and small GHG generators cause the impact. While it may be true that many GHG sources are individually too small to make any noticeable difference to climate change, it is also true that the countless small sources around the globe combine to produce a very substantial portion of total GHG emissions.

A zero threshold approach is based on a belief that, 1) all GHG emissions contribute to global climate change and could be considered significant, and 2) not controlling emissions from smaller sources would be neglecting a major portion of the GHG inventory.

CEQA explicitly gives lead agencies the authority to choose thresholds of significance. CEQA defers to lead agency discretion when choosing thresholds. Consequently, a zero-emission threshold has merits.

The CEQA review process for evaluating a project's impact on global climate change under the zero threshold option would involve several components. Air quality sections would be written by lead agencies to include discussions on climate change in CEQA documents, GHG emissions would be calculated, and a determination of significance would be made. The local air districts would review and comment on the climate change discussions in environmental documents. Lead agencies may then revise final EIRs to accommodate air district comments. More than likely, mitigation measures will be specified for the project, and a mitigation monitoring program will need to be put in place to ensure that these measures are being implemented.

Since CEQA requires mitigation to a less than significant level, it is conceivable that many projects subjected to a zero threshold could only be deemed less than significant with offsite reductions or the opportunity to purchase greenhouse gas emission reduction credits. GHG emission reduction credits are becoming more readily available however the quality of the credits varies considerably. High quality credits are generated by actions or projects that have clearly demonstrated emission reductions that are real, permanent, verifiable, enforceable, and not otherwise required by law or regulation. When the pre- or post-project emissions are not well quantified or cannot be independently confirmed, they are considered to be of lesser quality. Similarly, if the reductions are temporary in nature, they are also considered to be poor quality. Adoption of a zero threshold should consider the near-term availability and the quality of potential offsets.

There are also environmental justice concerns about the effects of using offsite mitigations or emission reduction credits to offset, or mitigate, the impacts of a new project. Although GHGs are global pollutants, some of them are emitted with co-pollutants that have significant near-source or regional impacts. Any time that increases in emissions at a specific site will be mitigated at a remote location or using emission reduction credits, the agency evaluating the project should ensure that it does not create disproportionate impacts.

Administrative Considerations

If electing to pursue a zero threshold, an air district or lead agency should consider the administrative costs and the environmental review system capacity. Some projects that previously would have qualified for an exemption could require further substantial analysis, including preparation of a Negative Declaration (ND), a Mitigated Negative Declaration (MND) or an EIR. Moreover, the trade-offs between the volume of projects requiring review and the quality of consideration given to reviews should be considered. It may also be useful to consider whether meaningful mitigation can be achieved from smaller projects.

Consideration of Exemptions from CEQA

A practical concern about identifying GHG emissions as a broad cumulative impact is whether the zero threshold option will preclude a lead agency from approving a large set of otherwise qualified projects utilizing a Categorical Exemption, ND, or MND. The results could be a substantial increase in the number of EIR's. This is a valid and challenging concern, particularly for any threshold approach that is based on a zero threshold for net GHG emission increases.

CEQA has specified exceptions to the use of a categorical exception. Specifically, CEQA Guidelines §15300.2 includes the following exceptions:

"(b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant."

(c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances."

These CEQA Guidelines sections could be argued to mean that any net increase in GHG emissions would preclude the use of a categorical exemption. However, as described below, if the following can be shown, then the exceptions above could be argued not to apply:

(1) Cumulative local, regional and/or state GHG emissions are being reduced or will be reduced by adopted, funded, and feasible measures in order to meet broader state targets.

(2) Mandatory state or local GHG reduction measures would apply to the project's emissions such that broader GHG reduction goals would still be met and the project contributions would not be cumulatively considerable.

(3) Project GHG emissions are below an adopted significance threshold designed to take into account the cumulative nature of GHG emissions.

A similar argument could be made relative to the use of a ND (provided no additional mitigation (beyond existing mandates) is required to control GHG emissions) and to the use of a MND instead of an EIR. However, due to the "fair argument" standard, which is discussed in Chapter 3, caution is recommended in use of a ND or MND unless all three elements above can be fully supported through substantial evidence and there is no substantial evidence to the contrary. Establishing a significance threshold of zero is likely to preclude the use of a categorical exemption.

Relevant Citations

The full text of relevant citations is in Appendix A.

Public Resources Code – §21004, Mitigating or Avoiding a Significant Effect; Powers of Public Agency.

State CEQA Guidelines – §15064, Determining the Significance of the Environmental Effects Caused by a Project.

State CEQA Guidelines – §15130, Discussion of Cumulative Impacts.

State CEQA Guidelines – §15064.7, Thresholds of Significance.

Introduction

A non-zero threshold could minimize the resources spent reviewing environmental analyses that do not result in real GHG reductions or to prevent the environmental review system from being overwhelmed. The practical advantages of considering non-zero thresholds for GHG significance determinations can fit into the concept regarding whether the project's GHG emissions represent a "considerable contribution to the cumulative impact" and therefore warrant analysis.

Specifying a non-zero threshold could be construed as setting a *de minimis* value for a cumulative impact. In effect, this would be indicating that there are certain GHG emission sources that are so small that they would not contribute substantially to the global GHG budget. This could be interpreted as allowing public agencies to approve certain projects without requiring any mitigation of their GHG. Any threshold framework should include a proper context to address the *de minimis* issue. However, the CEQA Guidelines recognize that there may be a point where a project's contribution, although above zero, would not be a *considerable contribution* to the cumulative impact and, therefore, not trigger the need for a significance determination.

GHG emissions from all sources are under the purview of CARB and as such may eventually be "regulated" no matter how small. Virtually all projects will result in some direct or indirect release of GHG. However, a decision by CARB to regulate a class of sources does not necessarily mean that an individual source in that class would constitute a project with significant GHG impacts under CEQA. For example, CARB has established criteria pollutant emission standards for automobiles, but the purchase and use of a single new car is not considered a project with significant impacts under CEQA. At the same time, it is important to note that it is likely that all meaningful sources of emissions, no matter how small are likely to be considered for regulation under AB 32. It is expected that projects will have to achieve some level of GHG reduction to comply with CARB's regulations meant to implement AB 32. As such all projects will have to play a part in reducing our GHG emissions budget and no project, however small, is truly being considered *de minimis* under CARB's regulations.

This chapter evaluates a range of conceptual approaches toward developing GHG significance criteria. The air districts retained the services of J&S an environmental consulting, firm to assist with the development of a Statute and Executive Order-based threshold (Approach 1) and a tiered threshold (Approach 2) based on a prescribed list of tasks and deliverables. Time and financial constraints limited the scope and depth of this analysis, however, the work presented here may be useful in developing interim guidance while AB 32 is being implemented. J&S recognized that approaches other than those described here could be used.

As directed, J&S explored some overarching issues, such as:

- what constitutes "new" emissions?

- how should "baseline emissions" be established?
- what is cumulatively "considerable" under CEQA?
- what is "business as usual" ? and
- should an analysis include "life-cycle" emissions?

The answers to these issues were key to evaluating each of the threshold concepts.

Approach 1 – Statute and Executive Order Approach

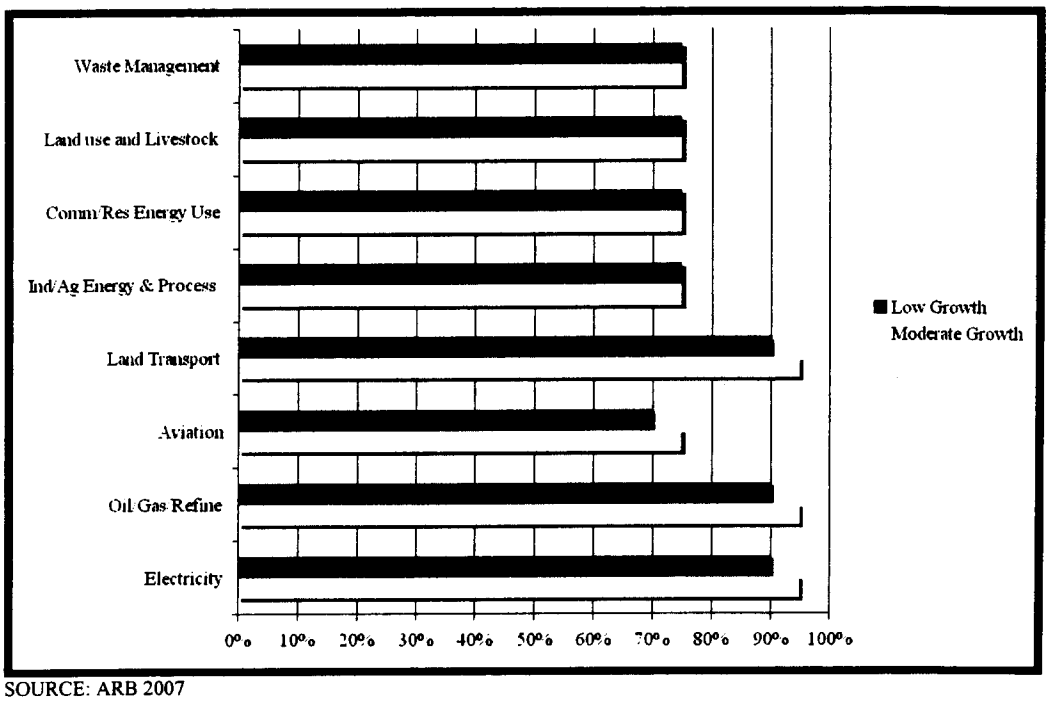
Thresholds could be grounded in existing mandates and their associated GHG emission reduction targets. A project would be required to meet the targets, or reduce GHG emissions to the targets, to be considered less than significant.

AB 32 and S-3-05 target the reduction of statewide emissions. It should be made clear that AB 32 and S-3-05 do not specify that the emissions reductions should be achieved through uniform reduction by geographic location or by emission source characteristics. For example, it is conceivable, although unlikely, that AB 32 goals could be achieved by new regulations that only apply to urban areas or that only apply to the transportation and/or energy sector. However, this approach to evaluating GHG under CEQA is based on the presumption that a new project must at least be consistent with AB 32 GHG emission reduction mandates.

The goal of AB 32 and S-3-05 is the significant reduction of future GHG emissions in a state that is expected to rapidly grow in both population and economic output. As such, there will have to be a significant reduction in the per capita GHG output for these goals to be met. CEQA is generally used to slow or zero the impact of new emissions, leaving the reduction of existing emission sources to be addressed by other regulatory means. With these concepts in mind, four options were identified for statute/executive order-based GHG significance thresholds and are described below.

<u>Threshold 1.1: AB 32/S-3-05 Derived Uniform Percentage-Based Reduction.</u> AB 32 requires the state to reduce California-wide GHG emissions to 1990 levels by 2020. Reducing greenhouse gas emission levels from 2020 to 1990 levels could require a 28 to 33 percent reduction of business-as-usual GHG emissions depending on the methodology used to determine the future emission inventories. The exact percent reduction may change slightly once CARB finalizes its 1990 and 2020 inventory estimates. In this context, business-as-usual means the emissions that would have occurred in the absence of the mandated reductions. The details of the business-as-usual scenario are established by CARB in the assumptions it uses to project what the state's GHG emissions would have been in 2020, and the difference between that level and the level that existed in 1990 constitutes the reductions that must be achieved if the mandated goals are to be met.

This threshold approach would require a project to meet a percent reduction target based on the average reductions needed from the business-as-usual emission from all GHG sources. Using the 2020 target, this approach would require all discretionary projects to achieve a 33 percent reduction from projected business-as-usual emissions in order to be considered less than significant. A more restrictive approach would use the 2050 targets. S-3-05 seeks to reduce GHG emissions to 80 percent below 1990 levels by 2050. To reach the 2050 milestone would require an estimated 90 percent reduction (effective immediately) of business-as-usual emissions. Using this goal as the basis for a significance threshold may be more appropriate to address the long-term adverse impacts associated with global climate change. Note that AB 32 and S-3-05 set emission inventory goals at milestone years; it is unclear how California will progress to these goals in non-milestone years.



SOURCE: ARB 2007

Threshold 1.2: Uniform Percentage-Based (e.g.50%) Reduction for New Development. This threshold is based on a presumption that new development should contribute a greater percent reduction from business-as-usual because greater reductions can be achieved at lower cost from new projects than can be achieved from existing sources. This approach would establish that new development emit 50 percent less GHG emissions than business-as-usual development. This reduction rate is greater than the recommended reduction rate for meeting the Threshold 1.1 2020 target (33 percent) but is significantly less restrictive than the Threshold 1.1 2050 target reduction rate (90 percent). If a 50 percent GHG reduction were achieved from new development, existing emissions would have to be reduced by 25 to 30 percent in order to meet the 2020 emissions goal depending on the year used to determine the baseline inventory. Although this reduction goal is reasonable for achieving the 2020 goal, it would not be possible to

reach the 2050 emissions target with this approach even if existing emissions were 100 percent controlled.

Threshold 1.3: Uniform Percentage-Based Reduction by Economic Sector. This threshold would use a discrete GHG reduction goal specific to the economic sector associated with the project. There would be specific reduction goals for each economic sector, such as residential, commercial, and industrial development. Specifying different reduction thresholds for each market sector allows selection of the best regulatory goal for each sector taking into account available control technology and costs. This approach would avoid over-regulating projects (i.e. requiring emissions to be controlled in excess of existing technology) or under-regulating projects (i.e. discouraging the use of available technology to control emissions in excess of regulations). This approach requires extensive information on the emission inventories and best available control technology for each economic sector. This data will be compiled as CARB develops its scoping plan under AB 32 and its implementing regulations; as a result, this approach will be more viable in the long term.

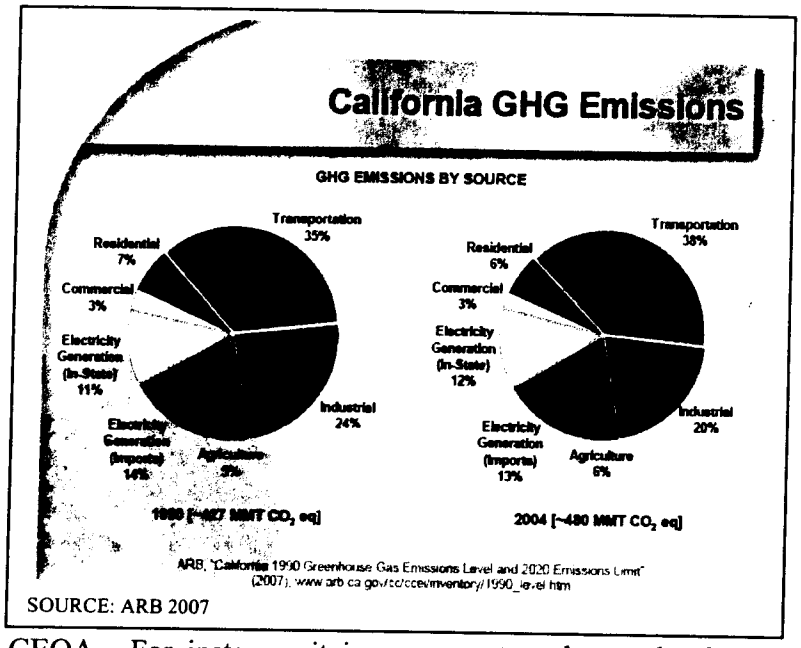
Threshold 1.4: Uniform Percentage-Based Reduction by Region. AB 32 and S-3-05 are written such that they apply to a geographic region (i.e. the entire state of California) rather than on a project or sector level. One could specify regions of the state such as the South Coast Air Basin, Sacramento Valley, or Bay Area which are required to plan (plans could be developed by regional governments, such as councils of governments) and demonstrate compliance with AB 32 and S-3-05 reduction goals at a regional level. To demonstrate that a project has less than significant emissions, one would have to show compliance with the appropriate regional GHG plan. Effectively this approach allows for analysis of GHG emissions at a landscape scale smaller than the state as a whole. Specifying regions in rough correlation to existing air basins or jurisdictional control allows for regional control of emissions and integration with regional emission reduction strategies for criteria and toxic air pollutants. Although differing GHG reduction controls for each region are possible, it is likely that all regions would be

required to achieve 1990 emission inventories by the year 2020 and 80 percent less emissions by 2050. Threshold 1.4 is considered viable long-term significance criteria that is unlikely to be used in the short term.

Implementing CEQA Thresholds Based on Emission Reduction Targets

Characterizing Baseline and Project Emissions

While the population and economy of California is expanding, all new projects can be considered to contribute new emissions. Furthermore, GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. "Business-as-usual" is the projection of GHG emissions at a future date based on current technologies and regulatory requirements in absence of other reductions. For example to determine the future emissions from a power plant for "business-as-usual" one would multiply the projected energy throughput by the current emission factor for that throughput. If adopted regulations (such as those that may be promulgated by CARB for AB 32) dictate that power plant emissions must be reduced at some time in the future, it is appropriate to consider these regulation standards as the new business-as-usual for a future date. In effect, business-as-usual will continue to evolve as regulations manifest. Note that "business-as-usual" defines the CEQA No Project conditions, but does not necessarily form the baseline under CEQA. For instance, it is common to subtract the future traffic with and without a project to determine the future cumulative contribution of a project on traffic conditions. However, existing conditions at the time of issuance of the notice of preparation is normally the baseline.



SOURCE: ARB 2007

Establishing Emission Reduction Targets

One of the obvious drawbacks to using a uniform percent reduction approach to GHG control is that it is difficult to allow for changes in the 1990 and future emission inventories estimates. To determine what emission reductions are required for new projects one would have to know accurately the 1990 budget and efficacy of other GHG promulgated regulations as a function of time. Since CARB will not outline its

regulation strategy for several more years, it is difficult to determine accurately what the new project reductions should be in the short term. Future updates to the 1990 inventory could necessitate changes in thresholds that are based on that inventory. It is important to note that it is difficult to create near term guidance for a uniform reduction threshold strategy since it would require considerable speculation regarding the implementation and effectiveness of forthcoming CARB regulations.

Of greater importance are the assumptions used to make the projected 2020 emission inventories. Projecting future inventories over the next 15-50 years involves substantial uncertainty. Furthermore, there are likely to be federal climate change regulations and possibly additional international GHG emission treaties in the near future. To avoid such speculation, this paper defines all future emission inventories as hypothetical business-as-usual projections.

This white paper is intended to support local decisions about CEQA and GHG in the near term. During this period, it is unlikely that a threshold based on emission reduction targets would need to be changed. However, it is possible that future inventory updates will show that targets developed on the current inventory were not stringent enough, or were more stringent than was actually needed.

Approach 2 – Tiered Approach

The goal of a tiered threshold is to maximize reduction predictability while minimizing administrative burden and costs. This would be accomplished by prescribing feasible mitigation measures based on project size and type, and reserving the detailed review of an EIR for those projects of greater size and complexity. This approach may require inclusion in a General Plan, or adoption of specific rules or ordinances in order to fully and effectively implement it.

A tiered CEQA significance threshold could establish different levels at which to determine if a project would have a significant impact. The tiers could be established based on the gross GHG emission estimates for a project or could be based on the physical size and characteristics of the project. This approach would then prescribe a set of GHG mitigation strategies that would have to be incorporated into the project in order for the project to be considered less than significant.

The framework for a tiered threshold would include the following:

- disclosure of GHG emissions for all projects;
- support for city/county/regional GHG emissions reduction planning;
- creation and use of a "green list" to promote the construction of projects that have desirable GHG emission characteristics;
- a list of mitigation measures;

- a decision tree approach to tiering; and
- quantitative or qualitative thresholds.

Decision-Tree Approach to Tiering

CEQA guidance that allows multiple methodologies to demonstrate GHG significance will facilitate the determination of significance for a broad range of projects/plans that would otherwise be difficult to address with a single non-compound methodology. Even though there could be multiple ways that a project can determine GHG significance using a decision-tree approach, only one methodology need be included in any single CEQA document prepared by the applicant. The presence of multiple methodologies to determine significance is designed to promote flexibility rather than create additional analysis overhead. Figure 1 shows a conceptual approach to significance determination using a tiered approach that shows the multiple routes to significance determination.

Figure 1 Detail Description

Figure 1 pictorially represents how an agency can determine a project's or plan's significance for CEQA analysis using the non-zero threshold methodology. The emissions associated with a project/plan are assumed to have a significant impact unless one can arrive at a less-than-significant finding by at least one of the methodologies below.

1. Demonstrate that a General Plan (GP) or Regional Plan is in Compliance with AB32

   - For most GPs or RPs this will require demonstration that projected 2020 emissions will be equal to or less than 1990 emissions.
   - GPs or RPs are expected to fully document 1990 and 2020 GHG emission inventories.
   - Projection of 2020 emissions is complicated by the fact that CARB is expected to promulgate emission reductions in the short term. Until explicit CARB regulations are in place, unmitigated GP 2020 emission inventories represent business-as-usual scenarios.
   - EIRs for GPs or RPs which demonstrate 2020 mitigated emissions are less than or equal to 1990 emissions are considered less than significant.

2. Demonstrate the Project is Exempt Based on SB 97

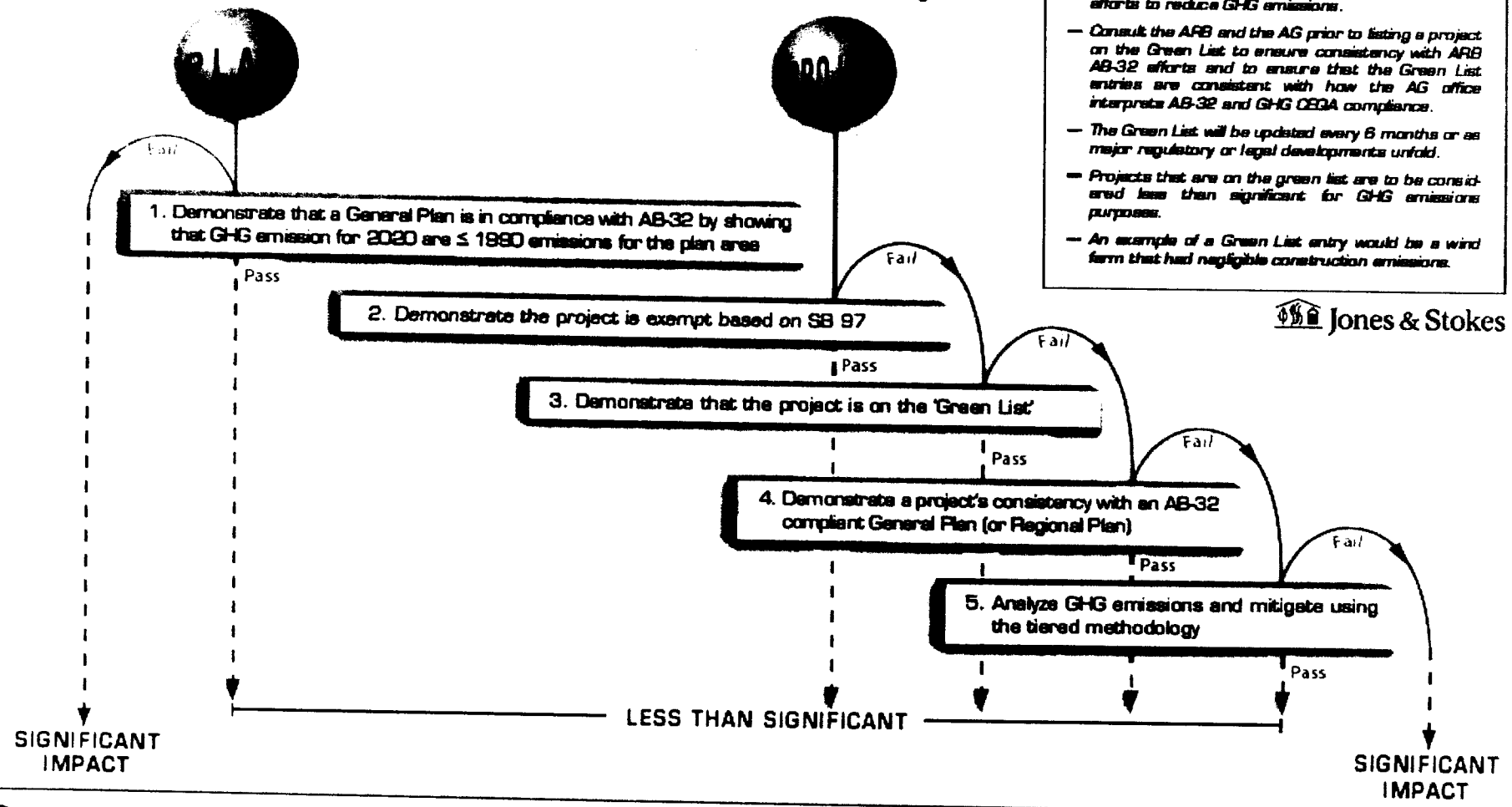
   - As specified in SB 97, projects that are funded under November 2006 Proposition 1B (Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act) and 1C (Disaster Preparedness and Flood Prevention Bond Act) may be exempt from analysis until January 1, 2010.

Climate Change Significance Criteria Flow Chart

- This chart pictorially represents how an agency can determine a project's or plan's significance for CEQA analysis.
- The emissions associated with a project/plan are assumed to have a significant impact unless one can arrive at a less-than-significant finding by at least one of the methodologies below.

The Green List *(Conceptual Approach)*

- *Publish and update a list of projects and project types that are deemed a positive contribution to CA efforts to reduce GHG emissions.*
- *Consult the ARB and the AG prior to listing a project on the Green List to ensure consistency with ARB AB-32 efforts and to ensure that the Green List entries are consistent with how the AG office interprets AB-32 and GHG CEQA compliance.*
- *The Green List will be updated every 6 months or as major regulatory or legal developments unfold.*
- *Projects that are on the green list are to be considered less than significant for GHG emissions purposes.*
- *An example of a Green List entry would be a wind farm that had negligible construction emissions.*



Jones & Stokes

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Figure 1
Climate Change Significance Criteria Flow Chart

- An exemption can be used in an ND, MND, or EIR to support a less than significant finding for GHG impacts.

3. Demonstrate that the Project is on the 'Green List'

   - This list would include projects that are deemed a positive contribution to California efforts to reduce GHG emissions. If the project is of the type described on the Green List it is considered less than significant.
   - If the Green List entry description requires mitigation for impacts other than GHG, this methodology can be used in MNDs or EIRs; if the Green List entry does not require mitigation this methodology can be used in NDs, MNDs, or EIRs.

4. Demonstrate a Project's Compliance with a General Plan

   - If a project is consistent with an appropriate General Plan's Greenhouse Gas Reduction Plan (GGRP), a project can be declared less than significant.
   - Note that at this time there are no known jurisdictions that have a GGRP that has been fully subject to CEQA review. While Marin County has adopted a forward-thinking GGRP and it is described in the most recent GP update, the associated EIR does not analyze the secondary environmental impacts of some of the GGRP measures such as tidal energy. While one can reference GGRPs that have not been reviewed fully in CEQA, to attempt to show a project's compliance with such a plan as evidence that the project's GHG emission contributions are less than significant may not be supported by substantial evidence that cumulative emissions are being fully addressed in the particular jurisdiction.
   - Compliance with a CEQA-vetted GGRP can be cited as evidence for all CEQA documents (Categorical Exemption, ND, MND, and EIR).

5. Analyze GHG Emissions and Mitigate using the Tiered Methodology

   - Guidance and mitigation methodology for various development projects (residential, commercial, industrial) are listed in the form of tiered thresholds. If a project incorporates the mitigation measures specified in the tiered threshold tables the project is considered less than significant.
   - All project emissions are considered less than significant if they are less than the threshold(s).
   - If the tiered approach requires mitigation, this methodology can be used in MNDs or EIRs; if the tiered approach does not require mitigation this methodology can be used in NDs, MNDs, or EIRs.

The Green List

- The Green List would be a list of projects and project types that are deemed a positive contribution to California's efforts to reduce GHG emissions.
- If this approach is followed, it is suggested that CARB and the Attorney General (AG) are consulted prior to listing a project on the Green List to ensure consistency with CARB AB 32 efforts and to ensure that the Green List entries are consistent with how the AG office interprets AB 32 and GHG CEQA compliance.
- The Green List should be updated every 6 months or as major regulatory or legal developments unfold.
- Projects that are on the Green List are to be considered less than significant for GHG emissions purposes.
- A tentative list of potential Green List entries is presented below. Actual Green List entries should be far more specific and cover a broad range of project types and mitigation approaches. The list below is merely a proof-of-concept for the actual Green List.

1. Wind farm for the generation of wind-powered electricity
2. Extension of transit lines to currently developed but underserved communities
3. Development of high-density infill projects with easily accessible mass transit
4. Small hydroelectric power plants at existing facilities that generate 5 mw or less (as defined in Class 28 Categorical Exemption)
5. Cogeneration plants with a capacity of 50 mw or less at existing facilities (as defined in Class 29 Cat Exemption)
6. Increase in bus service or conversion to bus rapid transit service along an existing bus line
7. Projects with LEED "Platinum" rating
8. Expansion of recycling facilities within existing urban areas
9. Recycled water projects that reduce energy consumption related to water supplies that services existing development
10. Development of bicycle, pedestrian, or zero emission transportation infrastructure to serve existing regions

There are also several options for tiering and thresholds, as shown in Table 2 below. One could establish strictly numeric emissions thresholds and require mitigation to below the specific threshold to make a finding of less than significant. One could establish narrative emissions threshold that are based on a broader context of multiple approaches to GHG reductions and a presumption that projects of sufficiently low GHG intensity are less than significant.

In Concept 2A, a zero threshold would be applied to projects and thus only projects that result in a reduction of GHG emissions compared to baseline emissions would be less than significant absent mitigation. All projects would require quantified inventories. All projects that result in a net increase of GHG emissions would be required to mitigate their emissions to zero through direct mitigation or through fees or offsets or the impacts

Table 2: Approach 2 Tiering Options

	Concept 2A Zero	Concept 2B Quantitative	Concept 2C Qualitative
Tier 1	Project results in a net reduction of GHG emissions *Less than Significant*	Project in compliance with an AB 32-compliant General/Regional Plan, on the Green List, or below Tier 2 threshold. Level 1 Reductions (Could include such measures as: bike parking, transit stops for planned route, Energy Star roofs, Energy Star appliances, Title 24, water use efficiency, etc.) *Less than Significant*	Project in compliance with an AB 32-compliant General/Regional Plan, on the Green List, or below Tier 2 threshold. Level 1 Reductions (See measures under 2B) *Less than Significant*
Tier 2	Project results in net increase of GHG emissions Mitigation to zero (including offsets) *Mitigated to Less than Significant*	Above Tier 2 threshold Level 2 Mitigation (Could include such measures as: Parking reduction beyond code, solar roofs, LEED Silver or Gold Certification, exceed Title 24 by 20%, TDM measures, etc.) *Mitigated to Less than Significant*	Above Tier 2 threshold Level 2 Mitigation (See measures under 2B) *Mitigated to Less than Significant*
Tier 3	Mitigation infeasible to reduce emissions to zero (e.g., cost of offsets infeasible for project or offsets not available) *Significant and Unavoidable*	Above Tier 2 threshold With Level 1, 2 Mitigation Level 3 Mitigation: (Could include such measures as: On-site renewable energy systems, LEED Platinum certification, Exceed Title 24 by 40%, required recycled water use for irrigation, zero waste/high recycling requirements, mandatory transit passes, offsets/carbon impact fees) *Mitigated to Less than Significant*	Above Tier 3 thresholds Quantify Emissions, Level 3 Mitigation (see measures under 2B), and Offsets for 90% of remainder *Significance and Unavoidable*

would be identified as significant and unavoidable. This could be highly problematic and could eliminate the ability to use categorical exemptions and negative declarations for a wide range of projects.

In Concepts 2B and 2C, the first tier of a tiered threshold includes projects that are within a jurisdiction with an adopted greenhouse gas reduction plan (GGRP) and General Plan/Regional Plan that is consistent with AB 32 (and in line with S-3-05), or are on the Green List, or are below the Tier 2 threshold. All Tier 1 projects would be required to implement mandatory reductions required due to other legal authority (Level 1 reductions) such as AB 32, Title 24, or local policies and ordinances. With Level 1

reduction measures, qualifying Tier 1 projects would be considered less than significant without being required to demonstrate mitigation to zero.

In Concept 2B, the Tier 2 threshold would be quantitative, and quantified inventories would be required. Several quantitative threshold options are discussed below. A more comprehensive set of Level 2 mitigation would be required. If the project's emissions still exceed the Tier 2 threshold, an even more aggressive set of Level 3 mitigation measures would be required including offsets (when feasible) to reduce emissions below the Tier 2 threshold.

In Concept 2C, there would be two thresholds, a lower Tier 2 threshold (the "low bar") and a higher Tier 3 threshold (the "high bar"). The Tier 2 threshold would be the significance threshold for the purposes of CEQA and would be qualitative in terms of units (number of dwelling units, square feet of commercial space, etc.) or a per capita ratio. Projects above the Tier 2 threshold would be required to implement the comprehensive set of Level 2 mitigation. Projects below the Tier 2 threshold would not be required to quantify emissions or reductions. The Tier 3 threshold would be a threshold to distinguish the larger set of projects for which quantification of emissions would be required. Level 3 mitigation would be required and the project would be required to purchase offsets (when feasible) in the amount of 90 percent of the net emissions after application of Level 1 reductions and Level 2 and 3 mitigation. A variant on Concept 2C would be to require mandatory Level 3 mitigation without quantification and offsets.

Approach 2 Threshold Options

Seven threshold options were developed for this approach. The set of options are framed to capture different levels of new development in the CEQA process and thus allow different levels of mitigation. Options range from a zero first-tier threshold (Threshold 2.1) up to a threshold for GHG that would be equivalent to the capture level (i.e., number of units) of the current criteria pollutant thresholds used by some air districts (Threshold 2.4). The decision-based implementation approach discussed above could be used for any of these options. Table 3 below compares the results of each of the approaches discussed here.

Threshold 2.1: Zero First Tier Tiered Threshold.

This option would employ the decision tree concept and set the first tier cut-point at zero. The second tier cut-point could be one of the qualitative or quantitative thresholds discussed below. First-tier projects would be required to implement a list of very feasible and readily available mitigation measures.

Threshold 2.2: Quantitative Threshold Based on Market Capture

A single quantitative threshold was developed in order to ensure capture of 90 percent or more of likely future discretionary developments. The objective was to set the emission

threshold low enough to capture a substantial fraction of future residential and non-residential development that will be constructed to accommodate future statewide population and job growth, while setting the emission threshold high enough to exclude small development projects that will contribute a relatively small fraction of the cumulative statewide GHG emissions.

The quantitative threshold was created by using the following steps:

- Reviewing data from four diverse cities (Los Angeles in southern California and Pleasanton, Dublin, and Livermore in northern California) on pending applications for development.

- Determining the unit (dwelling unit or square feet) threshold that would capture approximately 90 percent of the residential units or office space in the pending application lists.

- Based on the data from the four cities, the thresholds selected were 50 residential units and 30,000 square feet of commercial space.

- The GHG emissions associated with 50 single-family residential units and 30,000 square feet of office were estimated and were found to be 900 metric tons and 800 metric tons, respectively. Given the variance on individual projects, a single threshold of 900 metric tons was selected for residential and office projects.

- A 900 metric ton threshold was also selected for non-office commercial projects and industrial projects to provide equivalency for different projects in other economic sectors.

- If this threshold is preferred, it is suggested that a more robust data set be examined to increase the representativeness of the selected thresholds. At a minimum, a diverse set of at least 20 cities and/or counties from throughout the state should be examined in order to support the market capture goals of this threshold. Further, an investigation of market capture may need to be conducted for different commercial project types and for industrial projects in order to examine whether multiple quantitative emissions thresholds or different thresholds should be developed.

The 900-ton threshold corresponds to 50 residential units, which corresponds to the 84th percentile of projects in the City of Los Angeles, the 79th percentile in the City of Pleasanton, the 50th percentile in the City of Livermore and the 4th percentile in the City of Dublin. This is suggestive that the GHG reduction burden will fall on larger projects that will be a relatively small portion of overall projects within more developed central cities (Los Angeles) and suburban areas of slow growth (Pleasanton) but would be the higher portion of projects within moderately (Livermore) or more rapidly developing areas (Dublin). These conclusions are suggestive but not conclusive due to the small sample size. The proposed threshold would exclude the smallest proposed developments

from potentially burdensome requirements to quantify and mitigate GHG emissions under CEQA. While this would exclude perhaps 10 percent of new residential development, the capture of 90 percent of new residential development would establish a strong basis for demonstrating that cumulative reductions are being achieved across the state. It can certainly serve as an interim measure and could be revised if subsequent regulatory action by CARB shows that a different level or different approach altogether is called for.

The 900-ton threshold would correspond to office projects of approximately 35,000 square feet, retail projects of approximately 11,000 square feet, or supermarket space of approximately 6,300 square feet. 35,000 square feet would correspond to the 46th percentile of commercial projects in the City of Los Angeles, the 54th percentile in the City of Livermore, and the 35th percentile in the City of Dublin. However, the commercial data was not separated into office, retail, supermarket or other types, and thus the amount of capture for different commercial project types is not known. The proposed threshold would exclude smaller offices, small retail (like auto-parts stores), and small supermarkets (like convenience stores) from potentially burdensome requirements to quantify and mitigate GHG emissions under CEQA but would include many medium-scale retail and supermarket projects.

The industrial sector is less amenable to a unit-based approach given the diversity of projects within this sector. One option would be to adopt a quantitative GHG emissions threshold (900 tons) for industrial projects equivalent to that for the residential/commercial thresholds described above. Industrial emissions can result from both stationary and mobile sources. CARB estimates that their suggested reporting threshold for stationary sources of 25,000 metric tons accounts for more than 90 percent of the industrial sector GHG emissions (see Threshold 2.3 for 25,000 metric ton discussion). If the CARB rationale holds, then a 900 metric ton threshold would likely capture at least 90 percent (and likely more) of new industrial and manufacturing sources. If this approach is advanced, we suggest further examination of industrial project data to determine market capture.

This threshold would require the vast majority of new development emission sources to quantify their GHG emissions, apportion the forecast emissions to relevant source categories, and develop GHG mitigation measures to reduce their emissions.

Threshold 2.3: CARB Reporting Threshold

CARB has recently proposed to require mandatory reporting from cement plants, oil refineries, hydrogen plants, electric generating facilities and electric retail providers, cogeneration facilities, and stationary combustion sources emitting $\geq$ 25,000 MT CO_2e/yr. AB 32 requires CARB to adopt a regulation to require the mandatory reporting and verification of emissions. CARB issued a preliminary draft version of its proposed reporting requirements in August 2007 and estimates that it would capture 94 percent of the GHG emissions associated with stationary sources.

This threshold would use 25,000 metric tons per year of GHG as the CEQA significance level. CARB proposed to use the 25,000 metric tons/year value as a reporting threshold, not as a CEQA significance threshold that would be used to define mitigation requirements. CARB is proposing the reporting threshold to begin to compile a statewide emission inventory, applicable only for a limited category of sources (large industrial facilities using fossil fuel combustion).

A 25,000 metric ton significance threshold would correspond to the GHG emissions of approximately 1,400 residential units, 1 million square feet of office space, 300,000 square feet of retail, and 175,000 square feet of supermarket space. This threshold would capture far less than half of new residential or commercial development.

As noted above, CARB estimates the industrial-based criteria would account for greater than 90 percent of GHG emissions emanating from stationary sources. However, industrial and manufacturing projects can also include substantial GHG emissions from mobile sources that are associated with the transportation of materials and delivery of products. When all transportation-related emissions are included, it is unknown what portion of new industrial or manufacturing projects a 25,000-ton threshold would actually capture.

An alternative would be to use a potential threshold of 10,000 metric tons considered by the Market Advisory Committee for inclusion in a Greenhouse Gas Cap and Trade System in California. A 10,000 metric ton significance threshold would correspond to the GHG emissions of approximately 550 residential units, 400,000 square feet of office space, 120,000 square feet of retail, and 70,000 square feet of supermarket space. This threshold would capture roughly half of new residential or commercial development.

Threshold 2.4: Regulated Emissions Inventory Capture

Most California air districts have developed CEQA significance thresholds for NOx and ROG emissions to try to reduce emissions of ozone precursors from proposed sources that are not subject to NSR pre-construction air quality permitting. The historical management of ozone nonattainment issues in urbanized air districts is somewhat analogous to today's concerns with greenhouse gas emissions in that regional ozone concentrations are a cumulative air quality problem caused by relatively small amounts of NOx and ROG emissions from thousands of individual sources, none of which emits enough by themselves to cause elevated ozone concentrations. Those same conditions apply to global climate change where the environmental problem is caused by emissions from a countless number of individual sources, none of which is large enough by itself to cause the problem. Because establishment of NOx/ROG emissions CEQA significance thresholds has been a well-tested mechanism to ensure that individual projects address cumulative impacts and to force individual projects to reduce emissions under CEQA, this threshold presumes the analogy of NOx/ROG emission thresholds could be used to develop similar GHG thresholds.

The steps to develop a GHG emission threshold based on the NOx/ROG analogy were as follows:

- For each agency, define its NOx/ROG CEQA thresholds.
- For each agency, define the regional NOx/ROG emission inventory the agency is trying to regulate with its NOx/ROG thresholds.
- For each agency, calculate the percentage of the total emission inventory for NOx represented by that agency's CEQA emission threshold. That value represents the "minimum percentage of regulated inventory" for NOx.
- The current (2004) California-wide GHG emission inventory is 499 million metric tons per year of CO_2 equivalent (MMT CO_2e). Apply the typical "minimum percentage of regulated inventory" value to the statewide GHG inventory, to develop a range of analogous GHG CEQA thresholds.

The preceding methodology was applied to two different air quality districts: the Bay Area Air Quality Management District (BAAQMD), a mostly-urbanized agency within which most emissions are generated from urban areas; and the San Joaquin Valley Air Pollution Control District (SJVAPCD), which oversees emissions emanating in part from rural areas that are generated at dispersed agricultural sources and area sources. For example, in the Bay Area the NOx threshold is 15 tons/year. The total NOx inventory for 2006 was 192,000 tons/year (525 tons/day). The threshold represents 0.008 percent of the total NOx inventory. Applying that ratio to the total statewide GHG emissions inventory of 499 MMT CO_2e (2004) yields an equivalent GHG threshold of 39,000 MMT CO_2e.

The range of analogous CEQA GHG thresholds derived from those two agencies is tightly clustered, ranging from 39,000 to 46,000 tons/year. A 39,000 to 46,000 metric ton threshold would correspond to the GHG emissions of approximately 2,200 to 2,600 residential units, 1.5 to 1.8 million square feet of office space, 470,000 to 560,000 square feet of retail, and 275,000 to 320,000 square feet of supermarket space. This threshold would capture far less than half of new residential or commercial development. Similarly, this threshold would capture less of new industrial/manufacturing GHG emissions inventory than Thresholds 2.2 or 2.3.

Threshold 2.5: Unit-Based Thresholds Based on Market Capture

Unit thresholds were developed for residential and commercial developments in order to capture approximately 90 percent of future development. The objective was to set the unit thresholds low enough to capture a substantial fraction of future housing and commercial developments that will be constructed to accommodate future statewide population and job growth, while setting the unit thresholds high enough to exclude small development projects that will contribute a relatively small fraction of the cumulative statewide GHG emissions. Sector-based thresholds were created by using the same steps

and data used to create Threshold 2.2- Quantitative Threshold Based on Market Capture above.

The distribution of pending application data suggests that the GHG reduction burden will fall on larger projects that will be a relatively small portion of overall projects within more developed central cities and suburban areas of slow growth but would be the higher portion of projects within moderately or rapidly developing areas. The proposed threshold would exclude the smallest proposed developments from potentially burdensome requirements to quantify and mitigate GHG emissions under CEQA. While this would exclude perhaps 10 percent of new residential development, the capture of 90 percent of new residential development would establish a strong basis for demonstrating that cumulative reductions are being achieved across the state. It can certainly serve as an interim measure and could be revised if subsequent regulatory action by CARB shows that a different level or different approach altogether is called for.

A similar rationale can be applied to the development of a commercial threshold. Threshold 2.5 would exclude many smaller businesses from potentially burdensome requirements to quantify and mitigate GHG emissions under CEQA. It should be noted that the GHG emissions of commercial projects vary substantially. For example, the carbon dioxide emissions associated with different commercial types were estimated as follows:

- 30,000 square-foot (SF) office = 800 metric tons/year CO_2
- 30,000 SF retail = 2,500 metric tons/year CO_2
- 30,000 SF supermarket = 4,300 metric tons/year CO_2

Thus, in order to assure appropriate market capture on an emissions inventory basis, it will be important to examine commercial project size by type, instead of in the aggregate (which has been done in this paper).

The industrial sector is less amenable to a unit-based approach given the diversity of projects within this sector. One option would be to use a quantitative threshold of 900 tons for industrial projects in order to provide for rough equivalency between different sectors. Industrial emissions can result from both stationary and mobile sources. However, if the CARB rationale for > 90 percent stationary source capture with a threshold of 25,000 metric tons holds, then a 900 metric ton threshold would likely capture at least 90 percent (and likely more) of new industrial sources. Further examination of unit-based industrial thresholds, such as the number of employees or manufacturing floor space or facility size, may provide support for a unit-based threshold based on market capture.

This threshold would require the vast majority of new development emission sources to quantify their GHG emissions, apportion the forecast emissions to relevant source categories, and develop GHG mitigation measures to reduce their emissions.

Threshold 2.6. Projects of Statewide, Regional, or Areawide Significance

For this threshold, a set of qualitative, tiered CEQA thresholds would be adopted based on the definitions of "projects with statewide, regional or areawide significance" under the Guidelines for California Environmental Quality Act, CCR Title 14, Division 6, Section 15206(b).

Project sizes defined under this guideline include the following:

- Proposed residential development of more than 500 dwelling units.
- Proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space.
- Proposed commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space.
- Proposed hotel/motel development of more than 500 rooms.
- Proposed industrial, manufacturing or processing plant or industrial park planned to house more than 1,000 persons, or encompassing more than 600,000 square feet of floor space.

These thresholds would correspond to the GHG emissions of approximately 9,000 metric tons for residential projects, 13,000 metric tons for office projects, and 41,000 metric tons for retail projects. These thresholds would capture approximately half of new residential development and substantially less than half of new commercial development. It is unknown what portion of the new industrial or manufacturing GHG inventory would be captured by this approach.

Threshold 2.7 Efficiency-Based Thresholds

For this approach, thresholds would be based on measurements of efficiency. For planning efforts, the metric could be GHG emissions per capita or per job or some combination thereof. For projects, the metric could be GHG emission per housing unit or per square foot of commercial space. In theory, one could also develop metrics for GHG emissions per dollar of gross product to measure the efficiency of the economy.

This approach is attractive because it seeks to benchmark project GHG intensity against target levels of efficiency. The thresholds would need to be set such that there is reasonably foreseeable and sufficient reductions compared to business as usual to support meeting AB 32 and S-3-05 goals in time (in combination with command and control regulations). Because this approach would require substantial data and modeling to fully develop, this is a concept considered as a potential future threshold and not appropriate

for interim guidance in the short term. Thus, it is not evaluated in the screening evaluation in the next section.

Table 3 compares the results for each of the approaches.

Table 3: Comparison of Approach 2 Tiered Threshold Options

Threshold	GHG Emission Threshold (metric tons/year)	Future Development Captured by GHG Threshold
2.1: Zero Threshold	0 tons/year	All
2.2: Quantitative Threshold Based on Market Capture	~900 tons/year	Residential development > 50 dwelling units Office space > 36,000 ft^2 Retail space >11,000 ft^2 Supermarkets >6.300 ft^2 small, medium, large industrial
2.3: CARB GHG Mandatory Reporting Threshold OR Potential Cap and Trade Entry Level	25,000 metric tons/year OR 10,000 metric tons/year	Residential development >1,400 dwelling units OR 550 dwelling units Office space >1 million ft^2 OR 400,000 ft^2 Retail space >300,000 ft^2 OR 120,000 ft^2 Supermarkets >175,000 ft^2 OR 70,000 ft^2 medium/larger industrial
2.4: Regulated Inventory Capture	40,000 – 50,000 metric tons/year	Residential development >2,200 to 2,600 dwelling units Office space >1.5 to 1.8 million ft^2 Retail space >470,000 to 560,000 ft^2 Supermarkets >270,000 to 320,000 ft^2 medium/larger industrial
2.5: Unit-Based Threshold Based on Market Capture	Not applicable.	Residential development >50 dwelling units Commercial space >50,000 ft^2 > small, medium, large industrial (with GHG emissions > 900 tonsCO2e)
2.6: Projects of Statewide, Regional, or Areawide Significance	Not applicable.	Residential development >500 dwelling units Office space >250,000 ft^2 Retail space >500,000 ft^2 Hotels >500 units Industrial project >1,000 employees Industrial project >40 acre or 650,000 ft^2
2.7: Efficiency-Based Thresholds	TBD tons/year/person TBD tons/year/unit	Depends on the efficiency measure selected.

Implementing CEQA With Tiered Thresholds

Several issues related to Approach 2 are addressed below:

1. *Some applications of this approach may need to be embodied in a duly approved General Plan, or in some other formal regulation or ordinance to be fully enforceable.* Because CEQA does not expressly provide that projects may be deemed insignificant based on implementation of a set of mitigations, this approach may need to be supported with specific and enforceable mechanisms adopted with due public process.

2. *How would this concept affect adoption of air district rules and regulations?* Proposed air district rules and regulations may be subject to CEQA like other projects and plans. Thus, if significance thresholds were adopted by an APCD or AQMD, then they could also apply to air district discretionary actions. If GHG emissions would be increased by a rule or regulation for another regulated pollutant, that would be a potential issue for review under CEQA.

3. *Mitigation measures may not be all-inclusive; better measures now or new future technology would make these measures obsolete.* The mandatory mitigation measures could be periodically updated to reflect current technology, feasibility, and efficiency.

4. *Total reduction may not be quantified or difficult to quantify.* CEQA only requires the adoption of feasible mitigation and thus the reduction effectiveness of required mitigation should not be in question. However, the precise reduction effectiveness may indeed be difficult to identify. As described above, if a quantitative threshold is selected as the measure of how much mitigation is mandated, then best available evidence will need to be used to estimate resultant GHG emissions with mitigation adoption. If a qualitative threshold is selected, then it may not be necessary to quantify reductions.

5. *Difficult to measure progress toward legislative program goals.* One could require reporting of project inventories to the Climate Action Registry, air district, or regional council of governments, or other suitable body. Collection of such data would allow estimates of the GHG intensity of new development over time, which could be used by CARB to monitor progress toward AB 32 goals.

6. *Measures may have adverse impacts on other programs.* The identification of mandatory mitigation will need to consider secondary environmental impacts, including those to air quality.

7. *Consideration of life-cycle emissions.* In many cases, only direct and indirect emissions may be addressed, rather than life-cycle emissions. A project applicant has traditionally been expected to only address emissions that are closely related and within the capacity of the project to control and/or influence. The long chain

8. of economic production resulting in materials manufacture, for example, involves numerous parties, each of which in turn is responsible for the GHG emissions associated with their particular activity. However, there are situations where a lead agency could reasonably determine that a larger set of upstream and downstream emissions should be considered because they are being caused by the project and feasible alternatives and mitigation measures may exist to lessen this impact.

Approach 2 Tiered Threshold with Mandatory Mitigation

As shown in Table 2, due to the cumulative nature of GHG emissions and climate change impacts, there could be a level of mandatory reductions and/or mitigation for all projects integrated into a tiered threshold approach. In order to meet AB 32 mandates by 2020 and S-3-05 goals, there will need to be adoption of GHG reduction measures across a large portion of the existing economy and new development. As such, in an effort to support a determination under CEQA that a project has a less than considerable contribution to significant cumulative GHG emissions, mitigation could be required on a progressively more comprehensive basis depending on the level of emissions.

- Level 1 Reductions – These reduction measures would apply to all projects and would only consist of AB 32 and other local/state mandates. They would be applied to a project from other legal authority (not CEQA). Level 1 reductions could include such measures as bike parking, transit stops for planned routes, Energy Star roofs, Energy Star appliances, Title 24 compliance, water use efficiency, and other measures. All measures would have to be mandated by CARB or local regulations and ordinances.

- Level 2 Mitigation – Projects that exceed the determined threshold would be required to first implement readily available technologies and methodologies with widespread availability. Level 2 Mitigation could include such measures as: parking reduction below code minimum levels, solar roofs, LEED Silver or Gold Certification, exceed Title 24 building standards by 20 percent, Traffic Demand Management (TDM) measures, and other requirements.

- Level 3 Mitigation - If necessary to reduce emissions to the thresholds, more extensive mitigation measures that represent the top tier of feasible efficiency design would also be required. Level 3 Mitigation could include such measures as: on-site renewable energy systems, LEED Platinum certification, exceed Title 24 building requirements by 40 percent, required recycled water use for irrigation, zero waste/high recycling requirements, mandatory transit pass provision, and other measures.

- Offset Mitigation – If, after adoption of all feasible on-site mitigation, the project is still found to exceed a Tier 2 quantitative threshold, or exceed a Tier 3 qualitative threshold, or if a project cannot feasibly implement the mandatory on-site mitigation, then purchases of offsets could be used for mitigation. In the case

of a quantitative threshold, the amount of purchase would be to offset below the Tier 2 significance threshold. In the case of a qualitative threshold, the amount of purchase could be to offset GHG emissions overall to below the lowest equivalent GHG emissions among the Tier 2 qualitative thresholds. With Threshold 2.5, this would be approximately 900 tons of GHG emissions (corresponding to 50 residential units). With Threshold 2.6, this would be approximately 9,000 tons (corresponding to 500 residential units). Alternatively, one could require purchase of offsets in the amount of a set percentage (such as 90% or 50% for example) of the residual GHG emissions (after other mitigation). As discussed earlier, any decision to include or require the use of emission reduction credits (or offsets) must consider issues of availability, quality, and environmental justice.

Substantial Evidence Supporting Different Thresholds

If a project can be shown by substantial evidence not to increase GHG emissions relative to baseline emissions, then no fair argument will be available that the project contributes considerably to a significant cumulative climate change impact.

It is more challenging to show that a project that increases GHG emissions above baseline emissions does not contribute considerably to a significant cumulative climate change impact. It is critical therefore, to establish an appropriate cumulative context, in which, although an individual project may increase GHG emissions, broader efforts will result in net GHG reductions.

Approach 1-based thresholds that by default will require an equal level of GHG reductions from the existing economy (Thresholds 1.1, 1.3, and 1.4) may be less supportable in the short run (especially before 2012) than Approach 1.2 (which requires new development to be relatively more efficient than a retrofitted existing economy). This is because, prior to 2012, there will only be limited mandatory regulations implementing AB 32 that could address the existing economy in a truly systematic way that can be relied upon to demonstrate that overall GHG reduction goals can be achieved by 2020. Approach 1.2 will still rely on substantial reductions in the existing economy but to a lesser degree.

Approach 1-based thresholds that would spread the mitigation burden across a sector (Threshold 1.3) or across a region (Threshold 1.4) will allow for tradeoffs between projects or even between municipalities. In order to demonstrate that a sector or a region is achieving net reductions overall, there would need to be feasible, funded, and mandatory requirements in place promoting an overall reduction scheme, in order for a project to result in nominal net increased GHG emissions.

Approach 2-based thresholds that capture larger portions of the new development GHG inventory (Thresholds 2.2 and 2.5) would promote growth that results in a smaller increase in GHG emissions; they may therefore be more supportable than thresholds that do not and that have a greater reliance on reductions in the existing economy (Thresholds

2.3, 2.4, and 2.6), especially in the next three to five years. With an established cumulative context that demonstrates overall net reductions, all threshold approaches could be effective in ensuring growth and development that significantly mitigates GHG emissions growth in a manner that will allow the CARB to achieve the emission reductions necessary to meet AB 32 targets. In that respect, all of these thresholds are supported by substantial evidence.

Evaluation of Non-Zero Threshold Options

Overarching issues concerning threshold development are reviewed below. Where appropriate, different features or application of the two conceptual approaches and the various options for thresholds under each conceptual approach described above are analyzed. The screening evaluation is summarized in Tables 4 (Approach 1) and 5 (Approach 2). The summary tables rate each threshold for the issues discussed below based on the level of confidence (low, medium or high) ascribed by J&S. The confidence levels relate to whether a threshold could achieve a particular attribute, such as emission reduction effectiveness. For example, a low emission reduction effectiveness rating means the threshold is not expected to capture a relatively large portion of the new development inventory.

As described above, Threshold 2.7 is not included in this evaluation because the data to develop an efficiency-based threshold has not been reviewed at this time and because this threshold is not considered feasible as an interim approach until more detailed inventory information is available across the California economy.

<u>What is the GHG Emissions Effectiveness of Different Thresholds?</u>

Effectiveness was evaluated in terms of whether a threshold would capture a large portion of the GHG emissions inventory and thus require mitigation under CEQA to control such emissions within the larger framework of AB 32. In addition, effectiveness was also evaluated in terms of whether a threshold would require relatively more or less GHG emissions reductions from the existing economy verses new development. This is presumptive that gains from the existing economy (through retrofits, etc.) will be more difficult and inefficient relative to requirements for new development.

Approach 1-based thresholds that require equivalent reductions relative to business-as-usual (Thresholds 1.1, 1.3, and 1.4) for both the existing and new economy will be less effective than thresholds that support lower-GHG intensity new development (Approach 1.2). However, since Approach 1-based thresholds do not establish a quantitative threshold below which projects do not have to mitigate, the market capture for new development is complete.

Approach 2-based thresholds can be more or less effective at capturing substantial portions of the GHG inventory associated with new development depending on where the quantitative or qualitative thresholds are set. Lower thresholds will capture a broader range of projects and result in greater mitigation. Based on the review of project data for

the select municipalities described in the Approach 2 section above, thresholds based on the CARB Reporting Threshold/Cap and Trade Entry Level (Threshold 2.4) or CEQA definitions of "Statewide, Regional or Areawide" projects (Threshold 2.6) will result in a limited capture of the GHG inventory. Lower quantitative or qualitative thresholds (Thresholds 2.1, 2.2 and 2.5) could result in capture of greater than 90 percent of new development.

Are the Different Thresholds Consistent with AB 32 and S-3-05?

Thresholds that require reductions compared to business-as-usual for all projects or for a large portion of new development would be consistent with regulatory mandates. In time, the required reductions will need to be adjusted from 2020 (AB 32) to 2050 (S-3-05) horizons, but conceptually broad identification of significance for projects would be consistent with both of these mandates. Thresholds that exclude a substantial portion of new development would likely not be consistent, unless it could be shown that other more effective means of GHG reductions have already been, or will be adopted, within a defined timeframe.

All Approach 1-based thresholds would be consistent with AB 32 and S-3-05 if it can be demonstrated that other regulations and programs are effective in achieving the necessary GHG reduction from the existing economy to meet the overall state goals.

Approach 2-based thresholds that include substantive parts of the new development GHG inventory (Thresholds 2.1, 2.2 and 2.5) will be more consistent with AB 32 and S-3-05 than those that do not (Thresholds 2.3, 2.4, and 2.6) unless it can be demonstrated that other regulations and programs are effective in achieving the necessary GHG reduction from the existing economy to meet the overall state goals.

What are the Uncertainties Associated with Different Thresholds?

All thresholds have medium to high uncertainties associated with them due to the uncertainty associated with the effectiveness of AB 32 implementation overall, the new character of GHG reduction strategies on a project basis, the immaturity of GHG reduction technologies or infrastructure (such as widespread biodiesel availability), and the uncertainty of GHG reduction effectiveness of certain technologies (such as scientific debate concerning the relative lifecycle GHG emissions of certain biofuels, for example).

In general, Approach 1-based thresholds have higher uncertainties than Approach 2 thresholds because they rely on a constantly changing definition of business-as-usual. Threshold 1.2, with its relatively smaller reliance on the existing economy for GHG reductions has relatively less uncertainty than other Approach 1 thresholds. Thresholds that spread mitigation more broadly (Thresholds 1.3 and 1.4) have less uncertainty by avoiding the need for every project to mitigate equally.

Approach 2 thresholds with lower quantitative (2.1 and 2.2) or qualitative (2.5) thresholds will have uncertainties associated with the ability to achieve GHG reductions

from small to medium projects. Approach 2 thresholds with higher quantitative (2.3, 2.4) or qualitative (2.6) thresholds will have uncertainties associated with the ability to achieve relatively larger GHG reductions from the existing economy.

What are Other Advantages/Disadvantages of the Different Thresholds?

Thresholds with a single project metric (Thresholds 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6) will be easier to apply to individual projects and more easily understood by project applicants and lead agencies broadly. Thresholds that spread mitigation across sectors (1.3) or regions (1.4), while simple in concept, will require adoption of more complicated cross-jurisdictional reduction plans or evaluation of broad sector-based trends in GHG intensity reduction over time. Approach 1 options would require all projects to quantify emissions in order to determine needed reductions relative to business-as-usual (which will change over time as described above). Concepts that are unit-based (Threshold 2.5 and 2.6) will not result in thresholds that have equal amount of GHG emissions, and thus equity issues may arise.

Table 4: Non-Zero Threshold Evaluation Matrix – Approach 1

Approach 1	1.1	1.2	1.3	1.4
	28% - 33% Reduction from BAU by 2020 by Project	**50% Reduction from BAU by 2020 by Project**	**28% - 33% Reduction by 2020 by Sector**	**28% - 33% Reduction by 2020 by Region**
GHG Emissions Reduction Effectiveness	**Low** - Captures all new projects but relies on a high level of reductions from the existing economy.	**Medium** - Captures all new projects and has a more realistic level of reductions from the existing economy.	**Low** - Captures all new projects but relies on a high level of reductions from the existing economy.	**Low** - Captures all new projects but relies on a high level of reductions from the existing economy.
Economic Feasibility	**Low** - Some projects will not be able to afford this level of reduction without effective market-based mechanisms like offsets.	**Low** - Some projects will not be able to afford this level of reduction without effective market-based mechanisms like offsets.	**Medium** - Sectors as a whole will be better able to achieve reductions than individual projects.	**Low** - Some regions and newly developed areas may not be able to afford this level of reduction without effective market-based mechanisms like offsets.
Technical Feasibility	**Medium** - Some projects will not be able to achieve this level of reduction without effective market-based mechanisms like offsets	**Low** - Relatively larger set of projects will not be able to achieve this level of reduction without effective market-based mechanisms like offsets	**High** - Some projects will not be able to achieve this level of reduction without effective market-based mechanisms like offsets	**Medium** - Some regions and newly developed areas may not be able to afford this level of reduction without effective market-based mechanisms like offsets.
Logistical Feasibility	**Low** - Absent broader reductions strategies, each project may reinvent the wheel each time to achieve mandated reductions.	**Low** - Absent broader reductions strategies, each project may reinvent the wheel each time to achieve mandated reductions.	**Low** - Absent broader reductions strategies, each project may reinvent the wheel each time to achieve mandated reductions.	**Low** - Absent broader reductions strategies, each project may reinvent the wheel each time to achieve mandated reductions.
Consistency with AB-32 and S-03-05	**Medium** - Would require heavy reliance on command and control gains.	**High**	**Medium-High** - Would rely on command and control gains, but would allow sectoral flexibility.	**Medium-High** - Would rely on command and control gains, but would allow regional flexibility.
Cost Effectiveness	**Low** - Will require all types of projects to reduce the same regardless of the cost/ton of GHG reductions.	**Low** - Will require all types of projects to reduce the same regardless of the cost/ton of GHG reductions.	**Low/Medium** - Allows tradeoffs within sector between high and low cost reduction possibilities but not between sectors.	**Low/Medium** - Allows tradeoffs within region between high and low cost reduction possibilities, but not between regions.
Uncertainties	**High** - BAU changes over time. Ability to reduce GHG emissions from existing economy will take years to demonstrate. Ability to limit GHG emissions from other new development will take years to demonstrate.	**Medium/High** - BAU changes over time. Ability to limit GHG emissions from other new development will take years to demonstrate.	**High** - BAU changes over time. Ability to reduce GHG emissions from existing economy will take years to demonstrate. Ability to limit GHG emissions from other new development will take years to demonstrate.	**High** - BAU changes over time. Ability to reduce GHG emissions from existing economy will take years to demonstrate. Ability to limit GHG emissions from other new development will take years to demonstrate.
Other Advantages	Simple/easy to explain.	Simple/easy to explain.	Spreads mitigation broadly	Spreads mitigation broadly
Other Disadvantages	Requires all projects to quantify emissions.	Requires all projects to quantify emissions.	Requires all projects to quantify emissions.	Requires all projects to quantify emissions.

Table 5: Non-Zero Threshold Evaluation Matrix – Approach 2

Approach 2	2.1	2.2	2.3	2.4	2.5	2.6
	Zero Threshold	**Quantitative (900 tons)**	**Quantitative CARB Reporting Threshold/Cap and Trade (25,000 tons/ 10,000 tons)**	**Quantitative Regulated Inventory Capture (~40,000 - 50,000 tons)**	**Qualitative Unit-Based Thresholds**	**Statewide, Regional or Areawide (CEQA Guidelines 15206(b)).**
GHG Emissions Reduction Effectiveness	**High** - Captures all sources.	**High** - Market capture at >90%. Captures diverse sources.	**Medium** - Moderate market capture.	**Low** - Low market capture.	**High** - Market capture at ~90%. Captures diverse sources; excl. smallest proj.	**Medium** - Moderate market capture. Excludes small and med. projects.
Economic Feasibility	**Low** - Early phases will be substantial change in BAU, esp. for smaller projects; may be infeasible to mitigate.	**Medium** - Early phases will be substantial change in BAU, esp. for smaller projects; may be infeasible to mitigate.	**High** - Large projects have greater ability to absorb cost.	**High** - Large projects have greater ability to absorb cost.	**Medium** - Early phases will be substantial change in BAU, esp. for smaller projects; may be infeasible to mitigate.	**High** - Large projects have greater ability to absorb cost.
Technical Feasibility	**Low** - Early phases will be substantial change in BAU, esp. for smaller projects; may be infeasible to mitigate.	**Medium** - Early phases will be substantial change in BAU, esp. for smaller projects; may be inefficient to mitigate.	**High** - Greater opportunities for multiple reduction approaches.	**High** - Greater opportunities for multiple reduction approaches.	**Medium** - Early phases will be substantial change in BAU, particularly for smaller projects may be inefficient to mitigate.	**High** - Greater opportunities for multiple reduction approaches.
Logistical Feasibility	**Low** - Unless fee or offset basis,very difficult to mitigate all projects.	**Medium** - BMPs broadly written to allow diversity; new req. will take time to integrate into new dev.	**High** - Less mitigation.	**High** - Less mitigation.	**Medium** - BMPs broadly written to allow diversity; new req. will take time to integrate into new dev.	**High** - Less mitigation.
Consistency with AB-32 and S-03-05	**High** - Market capture.	**High** - Market capture at >90%.	**Low** - Would rely on command and control success heavily.	**Low** - Would rely on command and control success heavily.	**Medium** - Need to demonstrate adequate market capture over time.	**Low** - Would rely on command and control success heavily.
Cost Effectiveness	**Low** - Will result in inefficient mitigation approaches. Efficiency will improve in time.	**Medium** - Emphasis is on new dev., req. for mitigation will result in inefficient mitigation approaches in early phases. Efficiency will improve in time.	**Medium** - Relies on command and control reductions for existing economy more heavily. With focus on larger projects, eff. of mitigation for new dev. high.	**Medium** - Relies on command and control reductions for existing economy more heavily. With focus on larger projects, eff. of mitigation for new dev. high.	**Medium** - Emphasis is on new dev.; req. for mitigation will result in inefficient mitigation approaches in early phases. Efficiency will improve in time.	**Medium** - Relies on command and control reductions for existing economy more heavily. With focus on larger projects, eff. of mitigation for new dev. high.
Uncertainties	**High** - Time to adapt for res. and comm.. sectors. Ability to mitigate without market-based mechanism for smaller projects unlikely.	**Medium/High** - Time to adapt for res. and comm.. sectors. Ability to mitigate without market-based mechanism for smaller projects uncertain.	**High** - Gains from command and control likely longer to be realized.	**High** - Gains from command and control likely longer to be realized.	**Medium/High** - Time to adapt for res. and comm.. sectors. Ability to mitigate without market-based mechanism for smaller projects uncertain.	**High** - Gains from command and control likely longer to be realized.
Other Advantages	Single threshold.	Single threshold. BMPs can be updated. Greenlist can be updated.	Single threshold. Does not change CEQA processing for most projects. CARB inventory = project inv.. All projects treated same.	Single threshold. Does not change CEQA processing for most projects. Follows established SIP practice.	BMPs can be updated. Greenlist can be updated. Unit-Based thresholds can be updated.	Existing guideline. Does not change CEQA processing for most projects. Endorsed by Cal. Chapter of the APA.
Other Disadvantages	Requires all projects to quantify emissions.	Requires nearly all projects to quantify emissions.			Sectoral projects have different GHG emis. Only largest projects to quantify emis.	Sectoral projects have different GHG emissions.

Introduction

This chapter evaluates the availability of various analytical methods and modeling tools that can be applied to estimate the greenhouse gas emissions from different project types subject to CEQA. This chapter will also provide comments on the suitability of the methods and tools to accurately characterize a projects emissions and offer recommendations for the most favorable methodologies and tools available. Some sample projects will be run through the methodologies and modeling tools to demonstrate what a typical GHG analysis might look like for a lead agency to meet its CEQA obligations. The air districts retained the services of EDAW environmental consultants to assist with this effort.

Methodologies/Modeling Tools

There are wide varieties of discretionary projects that fall under the purview of CEQA. Projects can range from simple residential developments to complex expansions of petroleum refineries to land use or transportation planning documents. It is more probably than not, that a number of different methodologies would be required by any one project to estimate its direct and indirect GHG emissions. Table 10 contains a summary of numerous modeling tools that can be used to estimate GHG emissions associated with various emission sources for numerous types of project's subject to CEQA. The table also contains information about the models availability for public use, applicability, scope, data requirements and its advantages and disadvantages for estimating GHG emissions.

In general, there is currently not one model that is capable of estimating all of a project's direct and indirect GHG emissions. However, one of the models identified in Table 9 would probably be the most consistently used model to estimate a projects direct GHG emissions based on the majority of projects reviewed in the CEQA process. The Urban Emissions Model (URBEMIS) is designed to model emissions associated with development of urban land uses. URBEMIS attempts to summarize criteria air pollutants and CO_2 emissions that would occur during construction and operation of new development. URBEMIS is publicly available and already widely used by CEQA practitioners and air districts to evaluate criteria air pollutants emissions against air district-adopted significance thresholds. URBEMIS is developed and approved for statewide use by CARB. The administrative reasons for using URBEMIS are less important than the fact that this model would ensure consistency statewide in how CO_2 emissions are modeled and reported from various project types.

One of the shortfalls of URBEMIS is that the model does not contain emission factors for GHGs other than CO_2, except for methane (CH_4) from mobile-sources, which is converted to CO_2e. This may not be a major problem since CO_2 is the most important GHG from land development projects. Although the other GHGs have a higher global warming potential, a metric used to normalize other GHGs to CO_2e, they are emitted in far fewer quantities. URBEMIS does not calculate other GHG emissions associated with

off-site waste disposal, wastewater treatment, emissions associated with goods and services consumed by the residents and workers supported by a project. Nor does URBEMIS calculate GHGs associated with consumption of energy produced off-site. (For that matter, URBEMIS does not report criteria air pollutant emissions from these sources either).

Importantly, URBEMIS does not fully account for interaction between land uses in its estimation of mobile source operational emissions. Vehicle trip rates are defaults derived from the Institute of Transportation Engineers trip generation manuals. The trip rates are widely used and are generally considered worst-case or conservative. URBEMIS does not reflect "internalization" of trips between land uses, or in other words, the concept that a residential trip and a commercial trip are quite possibly the same trip, and, thus, URBEMIS counts the trips separately. There are some internal correction settings that the modeler can select in URBEMIS to correct for "double counting"; however, a project-specific "double-counting correction" is often not available. URBEMIS does allow the user to overwrite the default trip rates and characteristics with more project-specific data from a traffic study prepared for a project.

Residential, Commercial, Mixed-Use Type Projects/ Specific Plans

Direct Emissions

URBEMIS can be used to conduct a project-specific model run and obtain CO_2e emissions for area and mobile sources from the project, and convert to metric tons CO_2e. When a project-specific traffic study is not available, the user should consult with their local air district for guidance. Many air district staff are experienced practitioners of URBEMIS and can advise the lead agency or the modeler on how to best tailor URBEMIS default input parameters to conduct a project-specific model run. When a traffic study has been prepared for the project, the user must overwrite default trip length and trip rates in URBEMIS to match the total number of trips and vehicle miles traveled (VMT) contained in the traffic study to successfully conduct a project-specific model run. URBEMIS is recommended as a calculation tool to combine the transportation study (if available) and EMFAC emission factors for mobile-sources. Use of a project-specific traffic study gets around the main shortfall of URBEMIS: the lack of trip internalization. URBEMIS also provides the added feature of quantifying direct area-source GHG emissions.

Important steps for running URBEMIS

1. Without a traffic study prepared for the project, the user should consult with the local air district for direction on which default options should be used in the modeling exercise. Some air districts have recommendations in the CEQA guidelines.

2. If a traffic study was prepared specifically for the project, the following information must be provided:

a. Total number of average daily vehicle trips *or* trip-generation rates by land use type per number of units; and,

b. Average VMT per residential *and* nonresidential trip.

c. The user overwrites the "Trip Rate (per day)" fields for each land use in URBEMIS such that the resultant "Total Trips" and the "Total VMT" match the number of total trips and total VMT contained in the traffic study.

d. Overwrite "Trip Length" fields for residential and nonresidential trips in UBEMIS with the project-specific lengths obtained form the traffic study.

3. Calculate results and obtain the CO_2 emissions from the URBEMIS output file (units of tons per year [TPY]).

Indirect Emissions

URBEMIS does estimate indirect emissions from landscape maintenance equipment, hot water heaters, etc. URBEMIS does not however, provide modeled emissions from indirect sources of emissions, such as those emissions that would occur off-site at utility providers associated with the project's energy demands. The California Climate Action Registry (CCAR) Protocol v.2.2 includes methodology, which could be used to quantify and disclose a project's increase in indirect GHG emissions from energy use. Some assumptions must be made for electrical demand per household or per square foot of commercial space, and would vary based on size, orientation, and various attributes of a given structure. An average rate of electrical consumption for residential uses is 7,000 kilowatt hours per year per household and 16,750 kilowatt hours per thousand square feet of commercial floor space. Commercial floor space includes offices, retail uses, warehouses, and schools. These values have been increasing steadily over the last 20 years. Energy consumption from residential uses has increased due to factors such as construction and occupation of larger homes, prices of electricity and natural gas, and increased personal income allowing residents to purchase more electronic appliances. Commercial energy consumption is linked to factors such as vacancy rates, population, and sales.

The modeler will look up the estimated energy consumption for the project's proposed land uses under year of project buildout, or use the values given in the previous paragraph for a general estimate. The CCAR Protocol contains emission factors for CO_2, CH_4, and nitrous oxide. The "CALI" region grid serves most of the State of California. If a user has information about a specific utility provider's contribution from renewable sources, the protocol contains methodology to reflect that, rather than relying on the statewide average grid. The incremental increase in energy production associated with project operation should be accounted for in the project's total GHG emissions for inclusion in the environmental document.

The incremental increase in energy production associated with project operation should be accounted for in the project's total GHG emissions, but it should be noted that these emissions would be closely controlled by stationary-source control-based regulations and additional regulations are expected under AB 32. However, in the interest of disclosing project-generated GHG emissions and mitigating to the extent feasible, the indirect emissions from off-site electricity generation can be easily calculated for inclusion in the environmental document.

Example Project Estimates for GHG Emissions

Residential Project

Project Attributes:

- 68 detached dwelling units
- 15.9 acres
- 179 residents
- 0 jobs
- Located in unincorporated Placer County (PCAPCD jurisdiction)
- Analysis year 2009

As shown in Table 6, the project's direct GHG emissions per service population (SP) would be approximately 8 metric tons CO_2e/SP/year.

Table 6: Residential Project Example GHG Emissions Estimates

URBEMIS Output (Project Specific)	Metric Tons/Year CO_2e	Demographic Data	
Area-source emissions	251	Residents	179
Mobile-source emissions	1,044	Jobs	0
Indirect emissions (from CCAR Protocol)	174		
Total operational emissions	**1,469**	Service population	179
Operational emissions/SP	**8.2**		

Notes:
CO_2e = carbon dioxide equivalent; CCAR = California Climate Action Registry; SP = service population(see definition of service population below in discussion of Normalization/Service Population Metric).

Sources: EDAW 2007, ARB 2007b, CCAR 2007, CEC 2000

Commercial Project

Project Attributes:

- Free Standing Discount Superstore: 241 thousand square feet (ksf)
- 0 residents

- 400 jobs
- Located in the San Joaquin Valley Air Pollution Control District's (SJVAPCD) jurisdiction
- Analysis year 2009

Table 7: Commercial Project Example GHG Emissions Estimates

URBEMIS Output (Project Specific)	Metric Tons/Year CO_2e	Demographic Data	
Area-source emissions	464	Residents	0
Mobile-source emissions	13,889	Jobs	400
Indirect emissions (from CCAR Protocol)	1,477		
Total operational emissions	**15,830**	Service population	400
Operational emissions/SP	**39.6**		

Notes:
CO_2e = carbon dioxide equivalent; CCAR = California Climate Action Registry; SP = service population (see definition of service population below in discussion of Normalization/Service Population Metric).

Sources: EDAW 2007, ARB 2007b, CCAR 2007, CEC 2000

Specific Plan

If used traditionally with default trip rates and lengths, rather than project-specific (Traffic Analysis Zone-specific) trip rates and lengths, URBEMIS does not work well for specific plan or general plan-sized projects with multiple land use types proposed. However, in all instances, projects of these sizes (several hundred or thousand acres) would be accompanied by a traffic study. Thus, for large planning-level projects, URBEMIS can be used as a calculation tool to easily obtain project-specific mobile-source emissions. The user should follow the steps discussed above; wherein he/she overwrites the default ITE trip rates for each land use type with that needed to make total VMT match that contained in the traffic study. The URBEMIS interface is a simple calculator to combine the traffic study and EMFAC emissions factors for mobile-source CO_2.

Project Attributes:

- 985 acres
- Total dwelling units: 5,634
- Commercial/Mixed Use: 429 ksf
- Educational: 2,565 ksf
- 14,648 residents
- 3,743 jobs
- Located in Sacramento County (SMAQMD jurisdiction)
- Analysis year 2009

Table 8: Specific Plan Example GHG Emissions Estimates

URBEMIS Output (Project Specific)	Metric Tons/Year CO_2e	Demographic Data	
Area-source emissions	23,273	Residents	14,648
Mobile-source emissions	73,691	Jobs	3,743
Indirect emissions (from CCAR Protocol)	32,744		
Total operational emissions	**129,708**	Service population	18,391
Operational emissions/SP	**7.1**		

Notes:
CO_2e = carbon dioxide equivalent; CCAR = California Climate Action Registry; SP = service population (see definition of service population below in discussion of Normalization/Service Population Metric).

Sources: EDAW 2007, ARB 2007b, CCAR 2007, CEC 2000

The specific plan example, when compared to the residential or commercial examples, illustrates the benefit of a mixed-use development when you look at CO_2e emissions per resident or job (service population) metric (see definition of service population below in discussion of Normalization/Service Population Metric). Though this particular specific plan is not an example of a true jobs/housing balance, the trend is clear: accommodating residents and jobs in a project is more efficient than residents or jobs alone.

Stationary- and Area-Source Project Types

GHG emissions from stationary or area sources that require a permit to operate from the air district also contain both direct and indirect sources of emissions. Examples of these types of sources would be fossil fuel power plants, cement plants, landfills, wastewater treatment plants, gas stations, dry cleaners and industrial boilers. All air districts have established procedures and methodologies for projects subject to air district permits to calculate their regulated pollutants. It is anticipated that these same procedures and methodologies could be extended to estimate a permitted facility's GHG calculations. For stationary and area sources that do not require air district permits, the same methodologies used for permitted sources could be used in addition to URBEMIS and CCAR GRP to calculate GHG emissions from these facilities.

Wastewater Treatment Facilities

Direct GHG emissions associated with a proposed waste water treatment plant can be calculated using AP-42 emission factors from Chapter 4.3.5 Evaporative Loss Sources: Waste Water-Greenhouse Gases and the CCAR methodology. In general, most wastewater operations recover CH_4 for energy, or use a flare to convert the CH_4 to CO_2. There are many types of wastewater treatment processes and the potential for GHG emissions from different types of plants varies substantially. There is not one standard set of emission factors that could be used to quantify GHG emissions for a state

"average" treatment plant. Thus, research will need to be conducted on a case-by-case basis to determine the "Fraction Anaerobically Digested" which is a function of the type of treatment process. Indirect emissions from these facilities can be calculated using the CCAR energy use protocols and URBEMIS model for transportation emissions.

Solid Waste Disposal Facilities

Air districts will have emission estimate methodologies established for methane emissions at permitted landfills. In addition, EPA's Landfill Gas Emissions Model (LandGem) and the CCAR methodology could also be used to quantify GHG emissions from landfill off gassing; however, this model requires substantial detail be input. The model uses a decomposition rate equation, where the rate of decay is dependent on the quantity of waste in place and the rate of change over time. This modeling tool is free to the public, but substantial project detail about the operation of the landfill is needed to run the model. Indirect emissions from these facilities can be calculated using the CCAR energy use protocols and URBEMIS model for transportation emissions.

Construction Emissions

GHG emissions would occur during project construction, over a finite time. In addition, a project could result in the loss of GHG sequestration opportunity due primarily to the vegetation removed for construction. URBEMIS should be used to quantify the mass of CO_2 that would occur during the construction of a project for land development projects. Some construction projects would occur over an extended period (up to 20–30 years on a planning horizon for general plan buildout, or 5–10 years to construct a dam, for example). OFFROAD emission factors are contained in URBEMIS for CO_2 emissions from construction equipment. For other types of construction projects, such as roadway construction projects or levee improvement projects, SMAQMD's spreadsheet modeling tool, the Road Construction Emissions Model (RoadMod), should be used. This tool is currently being updated to include CO_2 emissions factors from OFFROAD.

The full life-cycle of GHG emissions from construction activities is not accounted for in the modeling tools available, and the information needed to characterize GHG emissions from manufacture, transport, and end-of-life of construction materials would be speculative at the CEQA analysis level. The emissions disclosed will be from construction equipment and worker commutes during the duration of construction activities. Thus, the mass emissions in units of metric tons CO_2e/year should be reported in the environmental document as new emissions.

General Plans

In the short-term, URBEMIS can be used as a calculation tool to model GHG emissions from proposed general plans, but only if data from the traffic study is incorporated into model input. The same methodology applied above in the specific plan example applies to general plans. The CCAR GRP can be used to approximate indirect emissions from

increased energy consumption associated with the proposed plan area. The same models and methodologies discussed previously for wastewater, water supply and solid waste would be used to estimate indirect emissions resulting from buildout of the general plan.

In the longer-term, more complex modeling tools are needed, which would integrate GHG emission sources from land use interaction, such as I-PLACE^{3}S or CTG Energetics' Sustainable Communities Custom Model attempt to do. These models are not currently available to the public and only have applicability in certain areas of the state. It is important that a tool with statewide applicability be used to allow for consistency in project treatment, consideration, and approval under CEQA.

Scenarios

At the general plan level, the baseline used for analyzing most environmental impacts of a general plan update is typically no different from the baseline for other projects. The baseline for most impacts represents the existing conditions, normally on the date the Notice of Preparation is released. Several comparative scenarios could be relevant, depending on the exact methodological approach and significance criteria used for GHG assessment:

- Existing Conditions. The GHG emissions associated with the existing, on-the-ground conditions within the planning area.

- 1990 conditions. The GHG emissions associated with the general plan area in 1990. This is relevant due to the state's AB 32 GHG emission reduction goals' benchmark year of 1990. The GHG-efficiency of 1990 development patterns could be compared to that of the general plan buildout.

- Buildout of the Existing General Plan. The GHG emissions associated with buildout of the existing general plan (without the subject update). This is the no project alternative for the purposes of general plan CEQA analysis.

- Buildout of the Updated General Plan. The GHG emissions associated with buildout of the general plan, as proposed as a part of the subject update. This would include analysis of any changes included as a part of the general plan update for the existing developed portions of the planning area. Many communities include redevelopment and revitalization strategies as a part of the general plan update. The general plan EIR can include assumptions regarding what level and type of land use change could be facilitated by infill and redevelopment. Many jurisdictions wish to provide future projects consistent with these land use change assumptions with some environmental review streamlining. In addition, many communities include transit expansions, pedestrian/bicycle pathway improvements, multi-modal facility construction, travel demand policies, energy efficiency policies, or other measures that could apply to the existing developed area, just as they may apply to any new growth

areas. Such policies could affect the overall GHG emissions of the built out general plan area.

- Increment between Buildout of Updated General Plan and Existing General Plan Area. There are many important considerations associated with the characterization of the impact of the General Plan update. The actual GHG emissions impact could be described as the difference between buildout under the existing and proposed land use plan (No-Build Alternative). However, the courts have held that an EIR should also analyze the difference between the proposed General Plan and the existing environment (*Environmental Planning & Information Council v. County of El Dorado* (EPIC) (1982) 131 Cal.App.3d 350). At the General Plan level, over the course of buildout, some new land uses are introduced, which could potentially add operational GHG emissions and potentially remove existing sequestration potential. Some properties become vacant and are not redeveloped. Other properties become vacant and then are redeveloped. Communities cannot pretend to understand fully in advance each component of land use change. The programmatic document is the preferred method of environmental analysis. Through this programmatic framework, communities develop buildout assumptions as a part of the General Plan that are normally used as a basis of environmental analysis. For certain aspects of the impact analysis, it becomes important not just to understand how much "new stuff" could be accommodated under the updated General Plan, but also the altered interactions between both "new" and "existing" land uses within the planning area. As addressed elsewhere, there are tools available for use in understanding land use/transportation interactions at the General Plan level. Without the GHG targets established by AB 32, a simple mass comparison of existing conditions to General Plan buildout might be appropriate.

However, within the current legal context, the GHG efficiency of the updated General Plan becomes the focus of analysis. Some options in this regard include:

- Estimate the GHG emissions associated with all the land uses included within the planning area upon buildout of the General Plan using no project specific information (regional, countywide, or statewide defaults). Estimate GHG emissions using project specific information from the transportation engineer, transportation demand policies, community design elements, energy efficiency requirements, wastewater treatment and other public infrastructure design changes, and other components. Compare these two calculations. Is the second calculation reduced by the percent needed to meet AB 32 goals compared to the first calculation?

- Estimate the GHG emissions associated with the 1990 planning area and the per-capita or per-service population GHG associated with the 1990 planning area. (Many communities are establishing GHG inventories using different tools). Estimate the GHG emissions associated with buildout of the proposed General Plan update and the resulting per-capita or per-service population GHG

emissions. Compare the two calculations. Is the General Plan buildout per-capita or per-service population level greater than the 1990 estimate?

Example General Plan Update: Proposed new growth area

Project Attributes:

- 10,050 single family dwelling units
- 652 multi-family dwelling units
- 136 acres parks
- 2,047 ksf commercial (regional shopping center)
- 2,113 ksf office
- 383 acres industrial park
- 31,293 new residents
- 4,945 new jobs
- Located in Stanislaus County (SJVAPCD jurisdiction)
- Analysis year 2025

Table 9: General Plan Example GHG Emissions Estimates

URBEMIS Output (Project Specific)	Metric CO_2e Tons/Year	Demographic Data	
Construction emissions	12,083*	Residents	31,293
Area-source emissions	45,708		
Mobile-source emissions	263,954	Jobs	4,945
Indirect emissions (from CCAR Protocol)	78,385		
Total operational emissions	**388,046**	Service population	36,238
Operational emissions/SP	**10.7**		

* Approximately 241,656 metric tons CO_2e total at general plan buildout (assumes 20-year buildout period). Construction emissions were not included in total operational emissions.
Notes:
CO_2e = carbon dioxide equivalent; CCAR = California Climate Action Registry; SP = service population (see definition of service population below in discussion of Normalization/Service Population Metric).
Sources: EDAW 2007, ARB 2007b, CCAR 2007, CEC 2000

Due to the programmatic level of analysis that often occurs at the general plan level, and potential for many relevant GHG emission quantities, it could be preferable to use a qualitative approach. Such an analysis could address the presence of GHG-reducing policy language in the general plan.

Three possible tiers of approaches to addressing GHG mitigation strategies, either as general plan policy, general plan EIR mitigation measures, or both, include:

- Forward planning
- Project toolbox
- Defer to GHG reductions plan

The three basic approaches are described below.

1. Bring reduction strategies into the plan itself. The most effective way for local jurisdictions to achieve GHG emissions reductions in the medium- and long-term is through land use and transportation policies that are built directly into the community planning document. This involves creating land use diagrams and circulation diagrams, along with corresponding descriptive standards, that enable and encourage alternatives to travel and goods movement via cars and trucks. The land use and circulation diagrams provide a general framework for a community where people can conduct their everyday business without necessarily using their cars. The overall community layout expressed as a part of the land use and circulation diagrams is accompanied by a policy and regulatory scheme designed to achieve this community layout. Impact fees, public agency spending, regulations, administrative procedures, incentives, and other techniques are designed to facilitate land use change consistent with the communities' overall vision, as expressed in policy and in the land use diagram. There are many widely used design principles that can be depicted in land use and circulation diagrams and implemented according to narrative objectives, standards, and policies:

- Connectivity. A finely-connected transportation network shortens trip lengths and creates the framework for a community where homes and destinations can be placed close in proximity and along direct routes. A hierarchical or circuitous transportation network can increase trip lengths and create obstacles for walking, bicycling, and transit access. This policy language would likely be found in the Circulation Element.

- Compactness. Compact development, by its nature, can increase the efficiency of infrastructure provision and enable travel modes other than the car. If communities can place the same level of activity in a smaller space, GHG emissions would be reduced concurrently with VMT and avoid unnecessary conversion of open space. This policy language would likely be found in the Land Use Element.

- Diversity. Multiple land use types mixed in proximity around central "nodes" of higher-activity land uses can accommodate travel through means other than a car. The character and overall design of this land use mix is, of course, different from community to community. This policy language would likely be found in the Land Use Element.

- Facilities. Pedestrian, bicycle, and public transportation improvements, planning, and programming are sometimes an afterthought. To get a more GHG-efficient mode share, safe and convenient bike lanes, pedestrian pathways, transit shelters, and other facilities are required to be planned along with the vehicular travel network. This policy language would likely be found in the Circulation Element.

- Redevelopment. One way to avoid GHG emissions is to facilitate more efficient and economic use of the lands in already-developed portions of a community. Reinvestment in existing neighborhoods and retrofit of existing buildings is appreciably more GHG efficient than greenfield development, and can even result in a net reduction in GHG emissions. This policy language would likely be found in the Conservation or Land Use Element.

- Housing and Employment. Most communities assess current and future economic prospects along with long-range land use planning. Part of the objective for many communities is to encourage the coalescence of a labor force with locally available and appropriate job opportunities. This concept is best known as "jobs-housing balance." This policy language would likely be found in the Housing Element.

- Planning Level Versus Project Level. For transportation-related GHG emissions that local governments can mitigate through land use entitlement authority, the overall community land use strategy and the overall transportation network are the most fruitful areas of focus. The reduction capacity of project-specific mitigation measures is greatly limited if supportive land use and transportation policies are lacking at the community planning level. The regional economic context, of course, provides an important backdrop for land use and transportation policy to address GHG emissions. Within this context, the general plan is the readily available tool for local governments to establish such land use and transportation strategies. This policy language would likely be found in the Land Use and Circulation Elements.

- Shipping Mode Shift. Locate shipping-intensive land uses in areas with rail access. Some modes of shipping are more GHG-intensive than others. Rail, for example, requires only about 15 to 25 percent of the energy used by trucks to ship freight equivalent distances and involves reduced transportation-related GHG emissions. Cities and counties have little direct control over the method of shipment that any business may choose. Nevertheless, as a part of the general planning process, cities and counties can address constraints on the use of rail for transporting goods. This policy language would likely be found in the Land Use and Circulation Elements.

2. Provide a "toolbox" of strategies after the project site has been selected. In addition to the examples of design principles that are built into the community planning process, communities can offer project applicants a range of tools to reduce GHG emissions. Mitigation strategies are elaborated in detail in Chapter 9.

3. Defer to General Plan implementation measure. Develop and implement a GHG Emissions Reduction Plan. Another option for local governments would be development of an implementation measure as a part of the general plan that outlines an enforceable GHG reduction program. Perhaps the most well known example of this approach is the result of California's Attorney General settlement of the lawsuit brought against San

Bernardino County. The County has agreed to create a 1990 GHG inventory and develop measures to reduce such emissions according to the state's overall goals. Other communities have pursued similar programs (i.e., the City of San Diego, Marin County). Along with the inventories, targets, and example reduction measures, these programs would include quantitative standards for new development; targets for reductions from retrofitting existing development; targets for government operations; fee and spending program for GHG reduction programs; monitoring and reporting; and other elements. The local government itself should serve as a model for GHG reduction plan implementation, by inventorying emissions from government operations and achieving emission reductions in accordance with the plan's standards. An optional climate change element could be added to contain goals, policies, and this implementation strategy, or this could belong in an optional air quality element.

Other Project Types

Air District Rules, Regulations and Air Quality Plans

Air district air quality plans, rules and regulations could have the potential to increase or decrease GHG emissions within their respective jurisdiction. In general, air district air quality plans, rules and regulations act to reduce ozone precursors, criteria air pollutant and toxic air contaminant emissions, which would almost always act to reduce GHG emissions simultaneously. However, this may not always be the case.

Air Quality Plans

Air districts will have to include GHG emissions analysis as part of their criteria air pollutant and toxic air contaminant air pollutant analysis when considering the adoption of air quality plans and their subsequent rules and regulations needed to implement the plans. Multiple models and methodologies will be needed to accomplish this analysis.

Regional Transportation Plans

Regional transportation plans would also need to be evaluated on a case-by-case basis to determine if a net increase or decrease in GHG emissions would occur. Complex interactions between the roadway network, operating conditions, alternative transportation availability (such as public transit, bicycle pathways, and pedestrian infrastructure), and many other independent parameters specific to a region should be considered. Regional transportation models exist to estimate vehicular emissions associated with regional transportation plans, which includes the ability to estimate GHG emissions.

Normalization/Service Population Metric

The above methodology would provide an estimate of the mass GHG emissions generated by a proposed project, which could be compared to a mass emission threshold. EDAW developed a methodology that would measure a project's overall GHG efficiency

in order to determine if a project is more efficient than the existing statewide average for per capita GHG emissions. The following steps could be employed to estimate the GHG-"efficiency," which may be more directly correlated to the project's ability to help obtain objectives outlined in AB 32, although it relies on establishment of an efficiency-based significance threshold. The subcommittee believes this methodology may eventually be appropriate to evaluate the long-term GHG emissions from a project in the context of meeting AB 32 goals. However, this methodology will need substantially more work and is not considered viable for the interim guidance presented in this white paper.

- Divide the total operational GHG emissions by the Service Population (SP) supported by the project (where SP is defined as the sum of the number of residents and the number of jobs supported by the project). This value should be compared to that of the projected statewide GHG emissions inventory from the applicable end-use sectors (electricity generation, residential, commercial/institutional, and mobile-source) in 1990 divided by the projected statewide SP for the year 2020 (i.e., AB 32 requirements), to determine if the project would conflict with legislative goals.

    - If the project's operational GHG/SP falls below AB 32 requirements, then the project's GHG emissions are less than cumulatively considerable.

    - If the project's operational GHG/SP exceed AB 32 requirements (a substantial contribution), then the project's GHG emissions would conflict with legislative requirements, and the impact would be cumulatively considerable and mitigation would be required where feasible.

- New stationary and area sources/facilities: calculate GHG emissions using the CCAR GRP. All GHG emissions associated with new stationary or area sources should be treated as a net increase in emissions, and if deemed significant, should be mitigated where feasible.

- Road or levee construction projects or other construction-only projects: calculate GHG emissions using the RoadMod, which will be updated to contain GHG emission factors from EMFAC and OFFROAD. All construction-generated GHG emissions should be treated as a net increase, and if deemed significant, should be mitigated to the extent feasible.

- Air District rulemaking or air quality management plan-type projects should be evaluated on a case-by-case basis for secondary impacts of increased GHG emissions generation. In most cases, the types of projects that act to reduce regional air pollution simultaneously act to reduce GHG emissions, and would be beneficial, but should be evaluated for secondary effects from GHG emissions.

- Regional transportation plans should also be evaluated on a case-by-case basis for potential to either reduce or increase GHG emissions from the transportation sector. EMFAC can be utilized to determine the net change in GHG emissions

associated with projected vehicle VMT and from operating speed changes associated with additional or alleviated congestion.

To achieve the goals of AB 32, which are tied to GHG emission rates of specific benchmark years (i.e., 1990), California would have to achieve a lower rate of emissions per unit of population and per unit of economic activity than it has now. Further, in order to accommodate future population and economic growth, the state would have to achieve an even lower rate of emissions per unit than was generated in 1990. (The goal to achieve 1990 quantities of GHG emissions by 2020 means that this will need to be accomplished in light of 30 years of population and economic growth in place beyond 1990.) Thus, future planning efforts that would not encourage new development to achieve its fair share of reductions in GHG emissions would conflict with the spirit of the policy decisions contained in AB 32, thus impeding California's ability to comply with the mandate.

Thus, if a statewide context for GHG emissions were pursued, any net increase in GHG emissions within state boundaries would be considered "new" emissions. For example, a land development project, such as a specific plan, does not necessarily create "new" emitters of GHG, but would theoretically accommodate a greater number of residents in the state. Some of the residents that move to the project could already be California residents, while some may be from out of state (or would 'take the place' of in-state residents who 'vacate' their current residences to move to the new project). Some may also be associated with new births over deaths (net population growth) in the state. The out-of-state residents would be contributing new emissions in a statewide context, but would not necessarily be generating new emissions in a global context. Given the California context established by AB 32, the project would need to accommodate an increase in population in a manner that would not inhibit the state's ability to achieve the goals of lower total mass of emissions.

The average net influx of new residents to California is approximately 1.4 percent per year (this value represents the net increase in population, including the net contribution from births and deaths). With population growth, California also anticipates economic growth. Average statewide employment has grown by approximately 1.1 percent over the last 15 years. The average percentage of population employed over the last 15 years is 46 percent. Population is expected to continue growing at a projected rate of approximately 1.5 percent per year through 2050. Long-range employment projection data is not available from the California Department of Finance (DOF) and can be extrapolated in different ways (e.g., linear extrapolation by percentage rate of change, percentage of population employed, mathematical series expansion, more complex extrapolation based on further research of demographic projections such as age distribution). Further study would be needed to refine accurate employment projections from the present to 2050. For developing this framework, employment is assumed to have a constant proportionate relationship with the state's population. The projected number of jobs is assumed to be roughly 46 percent of the projected population.

In light of the statewide context established by California law, consistency is most important for evaluating GHG emissions from projects. Thus, URBEMIS and the CCAR GRP are the recommended tools for quantification of GHG emissions from most project types in the short term. Over the long term, more sophisticated models that integrate the relationship between GHG emissions and land use, transportation, energy, water, waste, and other resources, and have similar application statewide would have better application to the problem, but may not currently be as accessible or as easily operable. I-PLACE^{3}S and CTG Energetics' Sustainable Communities Model (SCM) are two examples of such models that contain emission factors for GHGs, which could be refined to have applicability statewide and made available to CEQA practitioners. Other models are likely to be developed, given the importance of this issue.

Short-Term and Long-Term Methodologies

The following tools can be used to quantify a project's GHG emissions until tools that are more comprehensive become available statewide:

1. Land development projects: URBEMIS 2007 v. 9.2 and the CCAR GRP v. 2.2 (short-term); further development of I-PLACE^{3}S or CTG's Sustainable Communities Model (long-term).
2. New stationary and area sources/facilities: AP-42 Chapter 4.3, LandGem v. 3.02, and/or CCAR GRP v. 2.2.
3. Road or levee construction projects or other construction-only projects: RoadMod/OFFROAD 2007.

Ideally, I-PLACE^{3}S or CTG's Sustainable Communities Model would be expanded to apply to all regions of the state. These types of models use an integrated approach, which is the best approach for reasonably approximating the emissions that result from interaction between land uses, but neither is available to the public and would create consistency problems in reporting emissions from projects across the state if these were used today. However, a similar model with statewide applicability will likely be developed due to the importance of the issue.Table 10 Summary of Modeling Tools for Estimating GHG Emissions and Project Applicability

Table 10: Summary of Modeling Tools for GHG Emissions

Method/Tool Description	Availability	Applicability	Scope	Ease of Use	Data Input (Requirements and Guidance)	Data Output	Recommendation Comments	Advantages/ Disadvantages
URBEMIS 2007	*Public domain -Download (www.urbemis.com) free of charge*	*Land development and construction projects (construction, mobile- and area-source emissions)*	*Local*	*Fairly Easy*	*Land use information, construction and operational data and assumptions (e.g., jurisdiction, acres of land use type, year of operation, etc.)*	*Mobile-source Construction & Operational CO_2 (lb/day or tons/year)*	*-Recommended for land use development and construction projects -Also recommended for net change in land use (zoning changes)*	*-Does not quantify indirect emissions from energy consumption or other GHGs (except methane from mobile-sources) -Free, available to public, and applicable statewide -Widely used for assessment of other air quality impacts*
California Climate Action Registry General Reporting Protocol v. 2.2	*Public guidance document*	*Indirect emissions from land development projects, stationary- and area-source facilities regulated under AB 32*	*State*	*Easy*	*Energy consumption*	*CO_2e (Metric tons/year)*	*-Recommended for indirect emissions from energy consumption for land use development projects, and for new stationary- or area- sources to be regulated*	*-Contains emission factors for CH_4 and N_2O in addition to CO_2 -Does not contain emission factors broken down by utility provider (statewide average grid only)*
Clean Air and Climate Projection (CACP) Software	*Public agencies (members of ICLEI, NACAA, or similar)*	*Local governments used for emissions inventories*	*Local*	*N/A*	*Energy usage, waste generation/disposal transportation*	*CO_2e (tons/year)*	*-Recommended for inventories of local government entities activities (must be a member of affiliated agency or group)*	*-Not available to public*
CTG Sustainable Communities Model	*Custom model*	*Land development*	*Regional, scalable*	*N/A*	*Land use information, operational (mobile, energy, economic, infrastructure) assumptions*	*CO_2e (tons/year)*	*-An integrated and comprehensive modeling tool, but cannot obtain*	*-Not available to public*

Method/Tool Description	Availability	Applicability	Scope	Ease of Use	Data Input (Requirements and Guidance)	Data Output	Recommendation Comments	Advantages/ Disadvantages
I-PLACE^{3}S	*Access fee through local COG* *Only available for eight California counties*	*Land use change*	*Regional, scalable*	*Fairly Easy*	*Parcel information*	*CO_2 (lb/day or tons/year)*	*-Recommended for land use development projects and land use changes* *-Especially good for general plans*	*-Not freely available to public* *-Not applicable statewide* *-Actually provides insight into land use interaction* *-Can include very specific project attributes* *-Trip rates are from behavioral survey data, instead of ITE*
EMFAC 2007	*Public domain*	*On-road mobile-sources*	*Statewide, regional*	*Fairly Easy*	*Vehicle fleet information*	*CO_2 (grams/mile)*	*-Not recommended for most projects (URBEMIS preferred)* *-Could be used for certain Air District Rulemaking applications*	*-Can compare emissions based on speed-distribution* *-Emission factors contained in URBEMIS* *-Not a stand-alone model*
OFFROAD 2007	*Public domain*	*Off-road mobile sources (construction equipment)*	*Statewide, regional*	*Fairly Easy*	*Construction fleet information*	*CO_2 (lb/day)*	*-Not recommended (URBEMIS preferred)* *-could be used for certain Air District Rulemaking applications (re: construction equipment)*	*-Emission factors contained in URBEMIS*
RoadMod (to be updated to include CO_2)	*Public domain*	*Off-road and on-road mobile sources (construction equipment and material haul trucks)*	*Statewide*	*Easy*	*Construction information*	*CO_2 (lb/day or tons/project)*	*-Recommended for construction-only projects (linear in nature; i.e., levees, roads, pipelines)*	*-To be updated to support emissions factors from OFFROAD 2007*

Method/Tool Description	Availability	Applicability	Scope	Ease of Use	Data Input (Requirements and Guidance)	Data Output	Recommendation Comments	Advantages/ Disadvantages
DTIM	*Public domain*	*On-road mobile-sources*	*Statewide, regional*	*Difficult (consists of a series of three programs and requires input files from traffic and emissions modeling)*	*-EMFAC files -Traffic model output files (e.g., link, interzonal, and trip end data) -User options file -Optional files*	*CO_2 (tons/year)*	*-Not recommended*	*-Not updated to support EMFAC 2007 emission factors -Input files include output files from regional transportation models which more accurately reflect VMT*
Southeast Climate Change Partnership Spreadsheet Model (UK)	*Public domain http://www.climatesoutheast.org.uk/*	*UK Local government/ agencies/ organizations used for emissions inventories*	*Local, county, regional*	*Fairly easy*	*Energy usage, waste generation/disposal, transportation*	*CO_2 (tonnes/year)*	*-Not recommended for use in California, but could be a valuable source for building an applicable spreadsheet model*	*-Applicability for UK, but could be updated with CA-specific emission factors*
EPA AP-42; Evaporation Loss Sources Chapter 4.3.5	*Public reference document*	*GHG emissions from waste water treatment facilities*	*Facility level*	*Easy equation; substantial research needed to use*	*Biochemical oxygen demand (BOD) loading, Fraction anaerobically digested*	*CH4 (lb/year)*	*-Recommended for Publicly owned treatment works (POTW) projects*	*-Substantial research needed to determine the "fraction anaerobically digested" parameter, which is dependent on the type of treatment plant/process*
LandGem v. 3.02	*Public domain http://www.epa.gov/ttn/catc/dir1/landgem-v302.xls*	*GHG emissions from anaerobic decomposition associated with landfills*	*Facility Level*	*Moderate*	*Solid waste processing, year of analysis, lifetime of waste in place*	*CO_2, CH_4 (Mega grams/year)*	*-Recommended for landfill emissions*	*-Emission rates change dependent on years of decomposition, waste in place rates of change. -Complex decomposition rate equation, but good first approximation*

Method/Tool Description	Availability	Applicability	Scope	Ease of Use	Data Input (Requirements and Guidance)	Data Output	Recommendation Comments	Advantages/ Disadvantages
CARROT	*Registry members*	*Stationary source emissions, vehicle fleet mobile sources*	*Facility level*	*Moderate*	*Facility-specific information*	*All GHGs*	*-Recommended for reporting facilities under AB 32 and for indirect emissions from energy consumption (CCAR Protocol)*	*-Estimates all GHGs and normalizes to CO_2e -Not publicly available*

Notes:
GHG = greenhouse gas; AB = assembly bill; CO_2e = carbon dioxide equivalent; CH_4 = methane; N_2O = nitrous oxide; COG = council of governments ; ITE = Institute of Transportation Engineers; CCAR = California Climate Action Registry
Source: Data compiled by EDAW and the California Air Pollution Control Officers Association in 2007

Introduction

This chapter (and Appendix B) identifies existing and potential mitigation measures that could be applied to projects during the CEQA process to reduce a project's GHG emissions that would be identified using the analytical methodologies included in this white paper. The Subcommittee retained the services of EDAW to assist with this effort. EDAW performed a global search of mitigation measures currently in practice and under study that would reduce GHG emissions.

Table 16 (Appendix B) provides a brief description of each measure along with an assessment of their feasibility (from a standpoint of economical, technological, and logistical feasibility, and emission reduction effectiveness), and identifies their potential for secondary impacts to air quality. During the global search performed, EDAW also took note of GHG reduction strategies being implemented as rules and regulation (e.g., early action items under AB 32), which are summarized in Table 18 (Appendix C). It is important to note that though compliance with such would be required by regulation for some sources, such strategies may be applicable to other project and source types.

The recurring theme that echoes throughout a majority of these measures is the shift toward New Urbanism, and research has consistently shown that implementation of Neotraditional Development techniques reduces VMT and associated emissions. The material reviewed assessed reductions from transportation-related measures (e.g., bicycle, pedestrian, transit, and parking) as a single comprehensive approach to land use. This comprehensive approach focuses on development design criteria conducive to enhancing alternate modes of transportation, including transit, walking, and bicycling. Transportation Demand Management (TDM) programs are viewed as a mechanism to implement specific measures. TDM responsibilities may include offering incentives to potential users of alternative modes of transportation and monitoring and reporting mode split changes.

The comprehensive approach makes it more difficult to assess reductions attributable to each measure. Nevertheless, there is a strong interrelationship between many of the measures, which justifies a combined approach. Consider the relationship between bike parking nonresidential, bike parking residential, endtrip facilities, and proximity to bike path/bike lane measures. In reality, these measures combined act as incentives for one individual to bike to work, while implementation of a single measure without the others reduces effectiveness.

The global nature of GHG emissions is an important feature that enables unique mitigation: abatement. When designing a project subject to CEQA, the preferred practice is first to avoid, then to minimize, and finally to compensate for impacts. Where the impact cannot be mitigated on-site, off-site mitigation is often and effectively implemented in several resource areas, either in the form of offsetting the same impact or preserving the resource elsewhere in the region. Frequently, mitigation fee programs or funds are established, where the proponent pays into the program and fees collected

throughout the region or state are used to implement projects that, in turn, proportionately offset the impacts of the projects to the given resource. It may be more cost-effective to reduce as much GHG on-site as feasible (economically and technologically). Then the proponent would pay into a "GHG retrofit fund" to reduce equivalent GHG emissions off-site. In contrast to regional air pollutant offset programs such as the Carl Moyer Program, it matters greatly where reductions of ozone precursors occur, as ozone affects regional air quality. The GHG retrofit fund could be used to provide incentives to upgrade older buildings and make them more energy efficient. This would reduce demand on the energy sector and reduce stationary source emissions associated with utilities. This program has been successfully implemented in the United Kingdom where developments advertise "carbon neutrality." Of course, some GHG emissions occur associated with operation of the development, but the development would offset the remainder of emissions through off-site retrofit. Avoiding emissions that would otherwise continue to occur at existing development would be a unique opportunity for mitigation of GHG emissions. Reduction of GHG emissions also may have important side benefits including reduction of other forms of pollution.

Depending on the significance threshold concept adopted, projects subject to the CEQA process would either qualitatively or quantitatively identify the amount of GHG emissions associated with their project using the analytical methodologies identified in the previous chapter. The analysis would then apply the appropriate number of mitigation measures listed in Appendix B to their project to reduce their GHG emissions below the significance level. Calculating the amount of GHG emission reductions attributable to a given mitigation measure would require additional research. The examples below illustrate how a project would be mitigated using this approach.

Residential Project Example

Project Attributes:

- 68 detached dwelling units
- 15.9 acres
- Located in unincorporated Placer County PCAPCD jurisdiction)
- Assume URBEMIS defaults for a rural project in Placer County, in absence of a traffic study (This is contrary to the recommendations contained under Task 1; a traffic study is necessary to asses project-specific GHG emissions).
- Analysis year 2009

Table 11: Residential Project Example GHG Emissions Estimates with Mitigation

URBEMIS Output (Unmitigated)	Metric Tons/Year CO_2e	URBEMIS Output (Mitigated)	Metric Tons/Year CO_2e	Percent Reduction
Area-source emissions	252	Area-source emissions	215	14.6
Mobile-source emissions	1,047	Mobile-source emissions	916	12.5
Total direct operational emissions (area + mobile)	1,299	Total operational emissions (area + mobile)	1,131	12.9

Notes:
CO_2e = carbon dioxide equivalent

Sources: Data compiled by EDAW in 2007

Using URBEMIS 2007 and assuming the project would implement the mitigation measures listed below, yearly project-generated emissions of CO_2e would be reduced by approximately 13 percent. Implementation of the following mitigation measures is assumed:

- 100 housing units within one-half-mile radius of project's center, including this project's 68 residential units;
- provision of 80 jobs in the study area;
- retail uses present with one-half-mile radius of project's center;
- 10 intersections per square mile;
- 100% of streets with sidewalks on one side;
- 50% of streets with sidewalks on both sides;
- 30% of collectors and arterials with bike lanes, or where suitable, direct parallel routes exist;
- 15% of housing units deed restricted below market rate;
- 20% energy efficiency increase beyond Title 24; and
- 100% of landscape maintenance equipment electrically powered and electrical outlets in front and rear of units.

Example Project Methodology and Mitigation

Table 12 –Residential Projects Example Methodology and Mitigation

Source	Methodology	Mitigation
Direct Emissions		
Construction	URBEMIS (OFFROAD emission factors)	MM C-1→MM C-4
Mobile Sources	URBEMIS (EMFAC emission factors)	MM T-3→MM T-8, MM T-10→ MM T-14, MM T-16, MM T-19→ MM T-21 MM D-2→MM D-8, MM D-10→ MM D-15, MM D-17 MM S-1→MM S-2 MM M-1→MM M-2
Area Sources	URBEMIS	MM D-13→MM D-15, MM D-17
Indirect Emissions		
Energy Consumption	CCAR GRP & CEC	MM E-1→MM E-8, MM E-10, MM E-12→MM E-23 MM S-1→MM S-2 MM M-1→MM M-2

Table 13 –Commercial Projects Example Methodology and Mitigation

Source	Methodology	Mitigation
Direct Emissions		
Construction	URBEMIS (OFFROAD emission factors)	MM C-1→MM C-4
Mobile Sources	URBEMIS (EMFAC emission factors)	MM T-1→MM T-2, MM T-4→ MM T-15, MM T-17→MM T-21 MM D-1→MM D-3, MM D-5→ MM D-6, MM D-10, MM D-12, MM D-14→MM D-17 MM E-24 MM S-1→MM S-2 MM M-1→MM M-2
Area Sources	URBEMIS	MM D-14→MM D-17
Indirect Emissions		
Energy Consumption	CCAR GRP & CEC	MM E-1, MM E-4→MM E-13, MM E-16→MM E-24 MM S-1→MM S-2 MM M-1→MM M-2

Table 14 –Specific Plans Example Methodology and Mitigation

Source	Methodology	Mitigation
Direct Emissions		
Construction	URBEMIS (OFFROAD emission factors)	MM C-1→MM C-4
Mobile Sources	Short-term: URBEMIS (EMFAC emission factors). Long-term: I-PLACE^{3}S/CTG SCM	MM T-1→MM T-21 MM D-1→MM D-12, MM D-18→ MM D-19 MM E-24 MM S-1→MM S-2 MM M-1→MM M-2
Area Sources	Short-term: URBEMIS (EMFAC emission factors). Long-term: I-PLACE^{3}S/CTG SCM	MM D-13→MM D-19 MM E-1→MM E-24 MM S-1→MM S-2 MM M-1→MM M-2
Indirect Emissions		
Energy Consumption	Short-term: CCAR GRP & CEC. Long-term: I-PLACE^{3}S/CTG SCM	

General Plans

- Include a general plan policy to reduce emissions within planning area to a level consistent with legislative requirements.
- Implementation strategies include preparation of a GHG reduction plan.
- Projects consistent with a general plan could be responsible for complying with such a policy.

Table 15 –General Plans Example Methodology and Mitigation

Source	Methodology	Mitigation
Direct Emissions		
Construction	URBEMIS (OFFROAD emission factors).	MS G-1 MM G-15
Mobile Sources	Short-term: URBEMIS (EMFAC emission factors). Long-term: I-PLACE^{3}S/CTG SCM	MS G-1 MS G-2→MS C-7, MS G-9, MS G-12, MS-13→MS-14, MS-16→MS-23
Area Sources	Short-term: URBEMIS (EMFAC emission factors). Long-term: I-PLACE^{3}S/CTG SCM	MS G-1 MS G-8→MS C-11, MS G-134, MS G-12, MS-15, MS-17, MS-22
Indirect Emissions		
Energy Consumption	Short-term: CCAR GRP & CEC. Long-term: I-PLACE^{3}S/CTG SCM	

Other Project Types

Air District Rules and Regulations

Air district rules and regulations could have the potential to increase or decrease GHG emissions within the respective jurisdiction. In general, air district rules and regulations act to decrease criteria air pollutant or toxic air contaminant emissions, which would usually act to reduce GHG emissions simultaneously. However, this may not always be the case and air district rules and regulations could address emissions from a large variety of different source types. Reductions of GHG emissions associated with implementation of applicable mitigation, which could also vary greatly, would need to be evaluated on a case-by-case basis. However, once applicable mitigation measures are identified, percent reductions based on the best available research to date, such as those specified in Table 15, could be applied to determine mitigated emissions.

Air Quality Plans

Similarly to air district rules and regulations, air quality plans could have the potential to increase or decrease GHG emissions because of criteria air pollutant reduction strategies. In general, strategies implemented by air districts to reduce criteria air pollutants also act to reduce GHG emissions. However, this may not always be the case. Reductions of GHG emissions associated with implementation of applicable mitigation would need to be evaluated on a case-by-case basis. The methodology identified above for determining whether the strategies contained within the GHG reduction plan would adhere to the level specified in general plan policy could also be used to determine the reductions associated with CAP strategies.

Regional Transportation Plans

Regional transportation plans and reductions of GHG emissions associated with implementation of applicable mitigation would also need to be evaluated on a case-by-case basis to determine if a net increase or decrease in GHG emissions would occur. Complex interactions between the roadway network, operating conditions, alternative transportation availability (such as public transit, bicycle pathways, and pedestrian infrastructure), and many other independent parameters specific to a region should be considered. EMFAC 2007 can be used with VMT from the RTP to create an inventory of GHG emissions. Reductions associated with implementation of applicable measures contained in Table 16 could be accomplished by accounting for VMT reductions in the traffic model.

Many states, counties, and cities have developed policies and regulations concerning greenhouse gas emissions that seek to require or promote reductions in GHG emissions through standards for vehicle emissions, fuels, electricity production/renewables, building efficiency, and other means. However, we could only identify three public agencies in the United States that are considering formally requiring the analysis of greenhouse gas emissions and climate change for development projects during their associated environmental processes. There may be others, but they were not identified during research conducted during preparation of this paper.

The following is a summary of those three efforts.

Commonwealth of Massachusetts - MEPA Greenhouse Gas Emissions Policy and Protocol

The Massachusetts Executive Office of Energy and Environmental Affairs (EEA) has determined that the phrase "damage to the environment" as used in the Massachusetts Environmental Policy Act (MEPA) includes the emission of greenhouse gases caused by projects subjects to MEPA Review. EEA has published a Greenhouse Gas Emissions Policy (GGEP) to fulfill the statutory obligation to take all feasible measurers to avoid, minimize or mitigate damage to the environment.

The GGEP concerns the following projects only:

- The Commonwealth or a state agency is the proponent;
- The Commonwealth or a state agency is providing financial assistance;
- The project is privately funded, but requires an Air Quality Permit from the department of Environmental Protection;
- The project is privately funded, but will generate:
    - 3,000 or more new vehicle trips per day for office projects;
    - 6,000 or more new vehicle trips per day for mixed use projects that are 25% or more office space; or
    - 10,000 or more new vehicle trips per day for other projects.

As a comparison, the trip generation amounts correspond as follows:

- 3,000 vehicle trips per day = approximately 250,000 square foot office development;
- 6,000 or more new vehicle trips per day for mixed use projects that are 25% or more office space = if 25% office space, then equivalent to approximately 130,000 square feet of office and either 100,000 square feet of retail or 450 single-family residential units or some combination thereof.
- 10,000 or more new vehicle trips per day = approximately 1,000 single family residential units or 250,000 square feet retail.

The draft policy states it is not intended to create a numerical GHG emission limit or a numerical GHG emissions reduction target, but rather to ensure that project proponents and reviewers have considered the GHG emissions impacts of their projects and taken all feasible means and measure to reduce those impacts.

The draft policy notes that some projects within these categories will have little or no greenhouse gas emission and the policy will not apply to such projects. EEA intends to identify in the scoping certificate whether a project falls within this *de minimis* exception.

The GGEP requires qualifying projects to do the following:

- to quantify their GHG emissions;
- identify measures to minimize or mitigate such emissions;
- quantify the reduction in emissions and energy savings from mitigation.

Emissions inventories are intended to focus on carbon dioxide, but analysis of other GHGs may be required for certain projects. EEA will require analysis of direct GGH emissions and indirect (electricity and transportation) emissions. The GGEP references the protocols prepared by the World Resource Institute as guidance for inventory preparation.

The policy is still in draft form, but the comment period closed on August 10, 2007.

King County, Washington - Executive Order on the Evaluation of Climate Change Impacts through the State Environmental Policy Act (SEPA)

On June 27, 2007, the King County Executive Ron Sims directed all King County Departments, as follows:

> *"...effective September 1, 2007 to require that climate impacts, including, but not limited to those pertaining to greenhouse gases, be appropriately identified and evaluated when such Departments are acting as the lead agency in reviewing the environmental impacts of private or public proposals pursuant to the State Environmental Policy Act".*

The Executive Order does not define what a "climate impact" is. Based on statements of the County Deputy Chief of Staff*

- County agencies will ask project proponents to supply information on transportation, energy usage and other impacts of proposed projects using the County's existing SEPA checklist.

* Marten Law Group: Environmental News, August 1, 2007, "King County (WA) First in Nation to Require Climate Change Impacts to be Considered During Environmental Review of New Projects".

- There is no current plan to require project proponents to take action to mitigate the impacts identifies.
- Development of emissions thresholds and mitigation requirements will be undertaken in connection with the County's upcoming 2008 update of its Comprehensive Plan.

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District released an interim guidance on addressing climate change in CEQA documents on September 6, 2007. While very general in nature, the District recommends that CEQA environmental documents include a discussion of anticipated GHG emissions during both the construction and operation phases of the project. This includes assessing the GHG emissions from projects (using readily available models) to determine whether a project may have a significant impact. If so, then the District recommends addressing all of the District's GHG mitigation measures (drawn from comments made by the California Attorney General) – with explanations on how the mitigation will be implemented or providing rationale for why a measure would be considered infeasible. The District provides assistance to agencies in their analysis of GHG emissions and the applicability of specific mitigation measures. The District's guidance can be found at: http://64.143.64.21/climatechange/ClimateChangeCEQAguidance.pdf

Mendocino Air Quality Management District – CEQA Guidelines

The Mendocino AQMD updated its "Guidelines for Use During Preparation of Air Quality Impacts in EIRs or Mitigated Negative Declarations" in May 2007. The guidelines call for preparing estimates of the increased emissions of air contaminations (including GHG) for projects.

The guidelines state that GHG emissions should be presumed to have a significant impact if CO emissions from District-approved modeling exceed either of the following:

- 80% of the level defined as significant for stationary sources in Regulation1, Rule 130 (s2) of the District (which is 550 lbs/day for CO, meaning a threshold of 440 lbs/day for CO for stationary sources); or
- levels established in District Regulation 1 Rule 130 (i2) for indirect sources (which is 690 lbs/day for CO for indirect sources).

If an average passenger vehicle emits 22 grams of CO/mile and 0.8 lb/mile of CO_2, then the 690-lb/day threshold for CO corresponds to approximately 11,400 lb/day CO_2 threshold for passenger vehicle-related emissions. If one assumes that the average passenger vehicle goes 12,500 miles/year (about 35 miles/day), then this is a threshold equivalent to about 420 vehicles. Using an average in California of about 1.77 vehicles/household, this would correspond to about 250 households/dwelling units.

Appendix A

Relevant Citations

Citations from the Public Resources Code (Division 13, §21000 et seq.) as amended through January 1, 2005.

Public Resources Code – Section 21004, MITIGATING OR AVOIDING A SIGNIFICANT EFFECT; POWERS OF PUBLIC AGENCY:

"In mitigating or avoiding a significant effect of a project on the environment, a public agency may exercise only those express or implied powers provided by law other than this division. However, a public agency may use discretionary powers provided by such other law for the purpose of mitigating or avoiding a significant effect on the environment subject to the express or implied constraints or limitations that may be provided by law."

Public Resources Code – Section 21082.2, SIGNIFICANT EFFECT ON ENVIRONMENT; DETERMINATION; ENVIRONMENTAL IMPACT REPORT PREPARATION:

(a) The lead agency shall determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record.

(b) The existence of public controversy over the environmental effects of a project shall not require preparation of an environmental impact report if there is no substantial evidence in light of the whole record before the lead agency that the project may have a significant effect on the environment.

(c) Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

(d) If there is substantial evidence, in light of the whole record before the lead agency, that a project may have a significant effect on the environment, an environmental impact report shall be prepared.

(e) Statements in an environmental impact report and comments with respect to an environmental impact report shall not be deemed determinative of whether the project may have a significant effect on the environment.

Citations from the Guidelines for California Environmental Quality Act, CCR, Title 14, Division 6 (§15000 et seq.) as amended through July 27, 2007.

AG=Attorney General; ARB=California Air Resources Board; ASTM=American Society for Testing and Material; BAAQMD=Bay Area Air Quality Management District; BEES= Building for Environmental and Economic Sustainability; CA=California; Caltrans=California Department of Transportation; CAPs=Criteria Air Pollutants; CCAP=Center for Clean Air Policy; CF=Connectivity Factor; CIWMB=California Integrated Waste Management Board; CO= Carbon Monoxide; CO_2=Carbon Dioxide; DGS=Department of General Services; DOE=U.S. Department of Energy; DPF=Diesel particulate Filter; E85=85% Ethanol; EERE=Energy Efficiency and Renewable Energy; EOE=Encyclopedia of Earth; EPA=U.S. Environmental Protection Agency; ETC=Edmonton Trolley Coalition; EVs/CNG=Electric Vehicles/Compressed Natural Gas; FAR=Floor Area Ratio; GHG=Greenhouse Gas; ITE=Institute of Transportation Engineers; kg/m^2=kilogram per square meter; km=Kilometer; lb=pound; LEED=Leadership in Energy and Environmental Design; M=Million; NA=Not Available; NEV=Neighborhood Electric Vehicle; NIST=National Institute of Standards and Technology; NO_X=Oxides of Nitrogen; NREL=National Renewable Energy Laboratory; N/S=North/South; PG&E=Pacific Gas and Electric; PM=Particulate Matter; SJVAPCD=San Joaquin Valley Air Pollution Control District; SMAQMD=Sacramento Metropolitan Air Quality Management District; SMUD=Sacramento Municipal Utilities District; SO_x=Sulfur Oxides; SRI=Solar Reflectance Index; TACs=Toxic Air Contaminants; TDM=Transportation Demand Management; TMA=Transportation Management Association; THC=Total Hydrocarbon; ULEV=Ultra Low Emission Vehicle; USGBC=U.S. Green Building Council; and VTPI=Victoria Transit Policy.

State CEQA Guidelines – Section 15064, DETERMINING THE SIGNIFICANCE OF THE ENVIRONMENTAL EFFECTS CAUSED BY A PROJECT:

(a) Determining whether a project may have a significant effect plays a critical role in the CEQA process.

(1) If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, the agency shall prepare a draft EIR.

(2) When a final EIR identifies one or more significant effects, the Lead Agency and each Responsible Agency shall make a finding under Section 15091 for each significant effect and may need to make a statement of overriding considerations under Section 15093 for the project.

(b) The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area.

(c) In determining whether an effect will be adverse or beneficial, the Lead Agency shall consider the views held by members of the public in all areas affected as expressed in the whole record before the lead agency. Before requiring the preparation of an EIR, the Lead Agency must still determine whether environmental change itself might be substantial.

(d) In evaluating the significance of the environmental effect of a project, the Lead Agency shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project.

(1) A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project. Examples of direct physical changes in the environment are the dust, noise, and traffic of heavy equipment that would result from construction of a sewage treatment plant and possible odors from operation of the plant.

(2) An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment. For example, the construction of a new sewage treatment plant may facilitate population growth in the service area due to the increase in sewage treatment capacity and may lead to an increase in air pollution.

(3) An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project. A change which is speculative or unlikely to occur is not reasonably foreseeable.

(e) Economic and social changes resulting from a project shall not be treated as significant effects on the environment. Economic or social changes may be used, however, to determine that a physical change shall be regarded as a significant effect on the environment. Where a physical change is caused by economic or social effects of a

project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project. Alternatively, economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment. If the physical change causes adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant. For example, if a project would cause overcrowding of a public facility and the overcrowding causes an adverse effect on people, the overcrowding would be regarded as a significant effect.

(f) The decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency.

(1) If the lead agency determines there is substantial evidence in the record that the project may have a significant effect on the environment, the lead agency shall prepare an EIR (Friends of B Street v. City of Hayward (1980) 106 Cal.App.3d 988). Said another way, if a lead agency is presented with a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect (No Oil, Inc. v. City of Los Angeles (1974) 13 Cal.3d 68).

(2) If the lead agency determines there is substantial evidence in the record that the project may have a significant effect on the environment but the lead agency determines that revisions in the project plans or proposals made by, or agreed to by, the applicant would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur and there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment then a mitigated negative declaration shall be prepared.

(3) If the lead agency determines there is no substantial evidence that the project may have a significant effect on the environment, the lead agency shall prepare a negative declaration (Friends of B Street v. City of Hayward (1980) 106 Cal.App. 3d 988).

(4) The existence of public controversy over the environmental effects of a project will not require preparation of an EIR if there is no substantial evidence before the agency that the project may have a significant effect on the environment.

(5) Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion support by facts.

(6) Evidence of economic and social impacts that do not contribute to or are not caused by physical changes in the environment is not substantial evidence that the project may have a significant effect on the environment.

(7) The provisions of sections 15162, 15163, and 15164 apply when the project being analyzed is a change to, or further approval for, a project for which an EIR or negative declaration was previously certified or adopted (e.g. a tentative subdivision, conditional use permit). Under case law, the fair argument standard does not apply to determinations of significance pursuant to sections 15162, 15163, and 15164.

(g) After application of the principles set forth above in Section 15064(f)(g), and in marginal cases where it is not clear whether there is substantial evidence that a project may have a significant effect on the environment, the lead agency shall be guided by the following principle: If there is disagreement among expert opinion supported by facts

over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR.
(h)(1) When assessing whether a cumulative effect requires an EIR, the lead agency shall consider whether the cumulative impact is significant and whether the effects of the project are cumulatively considerable. An EIR must be prepared if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
(2) A lead agency may determine in an initial study that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. When a project might contribute to a significant cumulative impact, but the contribution will be rendered less than cumulatively considerable through mitigation measures set forth in a mitigated negative declaration, the initial study shall briefly indicate and explain how the contribution has been rendered less than cumulatively considerable.
(3) A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem (e.g., water quality control plan, air quality plan, integrated waste management plan) within the geographic area in which the project is located. Such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan or mitigation program addressing the cumulative problem, an EIR must be prepared for the project.
(4) The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.

State CEQA Guidelines – Section 15130, DISCUSSION OF CUMULATIVE IMPACTS:
(a)(3). "An EIR may determine that a project's contribution to a significant cumulative impact will be rendered less than cumulatively considerable and thus is not significant. A project's contribution is less than cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The lead agency shall identify facts and analysis supporting its conclusion that the contribution will be rendered less than cumulatively considerable.

State CEQA Guidelines – Section 15064.7, THRESHOLDS OF SIGNIFICANCE:
"Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level

of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant."

Appendix B

Mitigation Measure Summary

Table 16
Mitigation Measure Summary

Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
Bicycle/Pedestrian/Transit Measures								
MM T-1: Bike Parking	LD (C, M), I, SP, TP, AQP, RR, P/Mobile	1%-5%/High: CCAP presents combined % reductions for a range of mitigation measures (Dierkers et al. 2007). SMAQMD allocates combined reductions among individual measures (e.g., 2.5% reduction for all bicycle-related measures and one-quarter of 2.5% for each individual measure) (TIAX 2005, EDAW 2006, SMAQMD 2007). VTPI presents % reductions for showers and combined measures in the TDM encyclopedia (VTPI	Yes: Lockers ($1,200-$2,950, $700/bike on average), Racks ($70-$2,000, $70/bike on average).	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	Caltrans, Portland Bicycle Master Plan (City of Portland 1998), CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, CA air quality management and control districts, and cities/counties.	Nonresidential projects provide plentiful short- and long-term bicycle parking facilities to meet peak season maximum demand (e.g., one bike rack space per 20 vehicle/employee parking spaces.
MM T-2: End of Trip Facilities	LD (C, M), I, SP, TP, AQP, RR, P/Mobile		Yes	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs		Nonresidential projects provide "end-of-trip" facilities including showers, lockers, and changing space (e.g., four clothes lockers and one shower provided for every 80 employee parking spaces, separate facilities for each gender for projects with 160 or more employee parking spaces).
MM T-3: Bike-Parking at Multi-	LD (R, M), SP, AQP, RR,		Yes: Lockers ($1,200-	Yes (Caltrans 2005,	Yes (Caltrans	Adverse: No Beneficial:		Long-term bicycle parking is provided at apartment

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Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
Unit Residential	P/Mobile	2007). JSA bases estimates on CCAP information (JSA 2004).	$2,950, $700/bike on average), Racks ($70-$2,000, $70/bike on average).	Dierkers et al. 2007, VTPI 2007)	2005, Dierkers et al. 2007, VTPI 2007)	CAPs, TACs		complexes or condominiums without garages (e.g., one long-term bicycle parking space for each unit without a garage). Long-term facilities shall consist of one of the following: a bicycle locker, a locked room with standard racks and access limited to bicyclists only, or a standard rack in a location that is staffed and/or monitored by video surveillance 24 hours per day.
MM T-4: Proximity to Bike Path/Bike Lanes	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile		Yes	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Yes (Caltrans 2005, Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs		Entire project is located within one-half mile of an existing/planned Class I or Class II bike lane and project design includes a comparable network that connects the project uses to the existing offsite facility. Project design includes a designated bicycle route connecting all units, on-site bicycle parking facilities, offsite bicycle facilities, site entrances, and primary building entrances to existing Class I or Class II bike lane(s) within one-half mile. Bicycle route connects to all streets contiguous with project site. Bicycle route has minimum conflicts with automobile parking and circulation

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Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
								facilities. All streets internal to the project wider than 75 feet have Class II bicycle lanes on both sides.

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Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM T-5: Pedestrian Network	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-10%/High: CCAP presents combined % reductions for a range of mitigation measures (Dierkers et al. 2007). SMAQMD allocates 1% for each individual measure (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, CA air quality management and control districts, and cities/counties.	The project provides a pedestrian access network that internally links all uses and connects to all existing/planned external streets and pedestrian facilities contiguous with the project site. Project design includes a designated pedestrian route interconnecting all internal uses, site entrances, primary building entrances, public facilities, and adjacent uses to existing external pedestrian facilities and streets. Route has minimal conflict with parking and automobile circulation facilities. Streets (with the exception of alleys) within the project have sidewalks on both sides. All sidewalks internal and adjacent to project site are minimum of five feet wide. All sidewalks feature vertical curbs. Pedestrian facilities and improvements such as grade separation, wider sidewalks, and traffic calming are implemented wherever feasible to minimize pedestrian barriers. All site entrances provide pedestrian access.
MM T-6: Pedestrian	LD (R, C, M), I, SP, TP,		Yes	Yes (Dierkers et al. 2007,	Yes (Dierkers et	Adverse: No Beneficial:		Site design and building placement minimize barriers to

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Mitigation Measure	Applicable Project/Source Type[1]	Effective		Feasible (Yes/No)		Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
Barriers Minimized	AQP, RR, P/Mobile			VTPI 2007)	al. 2007, VTPI 2007)	CAPs, TACs		pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between residential and nonresidential uses that impede bicycle or pedestrian circulation are eliminated.
MM T-7: Bus Shelter for Existing/Planned Transit Service	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-2%/High: CCAP presents these % reductions (Dierkers et al., 2007). SMAQMD assigns from .25%-1%, depending on headway frequency (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes: $15,000-$70,000.	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, City of Calgary (City of Calgary 2004), CA air quality management and control districts, and cities/counties.	Bus or streetcar service provides headways of one hour or less for stops within one-quarter mile; project provides safe and convenient bicycle/pedestrian access to transit stop(s) and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).

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Mitigation Measure	Applicable Project/Source Type[1]	Effective	Feasible (Yes/No)			Secondary Effects (Yes/No)	Agency/Organization/Other[6]	Description/Comments
		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM T-8: Traffic Calming	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-10%/High: CCAP presents combined % reductions for a range of mitigation measures (Dierkers et al. 2007). SMAQMD allocates .25%-1.0% for each individual measure depending on percent of intersections and streets with improvements (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, CA air quality management and control districts, and cities/counties.	Project design includes pedestrian/bicycle safety and traffic calming measures in excess of jurisdiction requirements. Roadways are designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming features. All sidewalks internal and adjacent to project site are minimum of five feet wide. All sidewalks feature vertical curbs. Roadways that converge internally within the project are routed in such a way as to avoid "skewed intersections;" which are intersections that meet at acute, rather than right, angles. Intersections internal and adjacent to the project feature one or more of the following pedestrian safety/traffic calming design techniques: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, and roundabouts or mini-circles. Streets internal and adjacent to the project feature pedestrian safety/traffic calming measures such as on-street parking, planter strips with street trees,

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								and chicanes/chokers (variations in road width to discourage high-speed travel).
Parking Measures								
MM T-9: Paid Parking (Parking Cash Out)	LD (C, M), I, SP, TP, AQP, RR, P/Mobile	1%-30%/High: CCAP presents a range of 15%-30% reduction for parking programs (Dierkers et al. 2007). SMAQMD presents a range of 1.0%-7.2%, depending on cost/day and distance to transit (TIAX 2005, EDAW 2006, SMAQMD 2007). Shoupe presents a 21% reduction [$5/day for commuters to downtown LA, with elasticity of -0.18 (e.g., if price increases 10%, then solo driving goes down by 1.8% more)] (Shoupe 2005). Urban Transit Institute	Yes: Vary by location and project size.	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, CA air quality management and control districts, and cities/counties.	Project provides employee and/or customer paid parking system. Project must have a permanent and enforceable method of maintaining user fees for all parking facilities. The facility may not provide customer or employee validations. Daily charge for parking must be equal to or greater than the cost of a transit day/monthly pass plus 20%.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
		presents a range of 1%-10% reduction in trips to central city sites, and 2%-4% in suburban sites (VTPI 2007).						
MM T-10: Minimum Parking	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-30%/High: CCAP presents a range of 15%-30% reduction for parking programs (Dierkers et al. 2007). SMAQMD presents a maximum of 6% (Nelson/Nygaard Consulting Associates, 2005, TIAX 2005, EDAW 2006).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007), Note that in certain areas of the state, the minimum parking required by code is greater than the peak period parking demand for most land uses. Simply meeting minimum code requirements in these areas would not result in an emissions reduction.	Adverse: No Beneficial: CAPs, TACs	CCAP Transportation Emissions Guidebook (Dierkers et al. 2007), SMAQMD Recommended Guidance for Land Use Emission Reductions (SMAQMD 2007), VTPI, Governor's Office of Smart Growth (Annapolis, Maryland) (Zimbler), CA air quality management and control districts, and cities/counties.	Provide minimum amount of parking required. Once land uses are determined, the trip reduction factor associated with this measure can be determined by utilizing the ITE parking generation publication. The reduction in trips can be computed as shown below by the ratio of the difference of minimum parking required by code and ITE peak parking demand to ITE peak parking demand for the land uses multiplied by 50%. Percent Trip Reduction = 50 * [(min parking required by code – ITE peak parking demand)/ (ITE peak parking demand)]

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MM T-11: Parking Reduction Beyond Code/Shared Parking	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-30%/High: CCAP presents a range of 15%-30% reduction for parking programs (Dierkers et al. 2007). SMAQMD presents a maximum of 12% (Nelson/Nygaard, 2005, TIAX 2005, EDAW 2006).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs		Provide parking reduction less than code. This measure can be readily implemented through a shared parking strategy, wherein parking is utilized jointly among different land uses, buildings, and facilities in an area that experience peak parking needs at different times of day and day of the week.
MM T-12: Pedestrian Pathway Through Parking	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-4%/Moderate: CCAP presents combined % reductions for a range of mitigation measures (Dierkers et al. 2007). SMAQMD allocates 0.5% reduction for this measure (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs		Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM T-13: Off - Street Parking	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-4%/Moderate: CCAP presents combined % reductions for a range of mitigation measures (Dierkers et al. 2007). SMAQMD allocates a range of 0.1%-1.5% for this measure (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs		Parking facilities are not adjacent to street frontage.
MM T-14: Parking Area Tree Cover	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	Annual net CO_2 reduction of 3.1 kg/m^2 canopy cover/Moderate (McPherson 2001).	Yes: $19 per new tree for CA, cost varies for maintenance, removal and replacement (McPherson 2001).	Yes	Yes	Adverse: VOCs Beneficial: CAPs, TACs	AG, State of CA Department of Justice (Goldberg 2007) and cities/counties (e.g., parking lot ordinances in Sacramento, Davis, and Los Angeles, CA).	Provide parking lot areas with 50% tree cover within 10 years of construction, in particular low emitting, low maintenance, native drought resistant trees. Reduces urban heat island effect and requirement for air conditioning, effective when combined with other measures (e.g., electrical maintenance equipment and reflective paving material).
MM T-15: Valet Bicycle Parking	LD (C, M), SP, AQP, TP, RR, P/Mobile	NA/Low	Yes	Yes	Yes: Raley Field (Sacramento, CA)	Adverse: No Beneficial: CAPs, TACs	Raley Field (Sacramento, CA).	Provide spaces for the operation of valet bicycle parking at community event "centers" such as amphitheaters, theaters, and stadiums.
MM T-16: Garage Bicycle Storage	LD (R, M), SP, AQP, TP, RR, P/Mobile	NA/Low	Yes: Less than $200/multiple bike rack.	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	City of Fairview, OR	Provide storage space in one-car garages for bicycles and bicycle trailers.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
MM T-17: Preferential Parking for EVs/CNG Vehicles	LD (C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	USGBC, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	Provide preferential parking space locations for EVs/CNG vehicles.
MM T-18: Reduced/No Parking Fee for EVs/CNG Vehicles	LD (C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	Hotels (e.g., Argonaut in San Francisco, CA)	Provide a reduced/no parking fee for EVs/CNG vehicles.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
Miscellaneous Measure								
MM T-19: TMA Membership	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	1%-28%/High: CCAP presents a range of 3%-25% for TDMs with complementary transit and land use measures (Dierkers et al. 2007). VTPI presents a range of 6%-7% in the TDM encyclopedia (VTPI 2007). URBEMIS offers a 2%-10% range in reductions for a TDM that has 5 elements that are pedestrian and transit friendly and 1%-5% for 3 elements. SMAQMD presents a reduction of 5% (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007, VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Include permanent TMA membership and funding requirement. Funding to be provided by Community Facilities District or County Service Area or other nonrevocable funding mechanism. TDMs have been shown to reduce employee vehicle trips up to 28% with the largest reductions achieved through parking pricing and transit passes. The impact depends on the travel alternatives.
MM T-20: ULEV	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes: Higher than corresponding gasoline models.	Yes	Yes: Fueling stations might not be readily available depending on location. More than 900 E85 fueling	Adverse: No Beneficial: CAPs, TACs	DGS, CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Use of and/or provide ULEV that are 50% cleaner than average new model cars (e.g., natural gas, ethanol, electric).

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					stations in the U.S., 5 in CA. Vehicles available in select regions only			
MM T-21: Flex Fuel Vehicles	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	5466.97 lb GHG/year/Low (DOE Fuel Economy)	Yes: E85 costs less than gasoline per gallon, but results in lower fuel economy.	Yes	Yes: More than 900 E85 fueling stations in the U.S., 5 in CA. Vehicles available in select regions only	Adverse: Yes Issues with the energy intensive ethanol production process (e.g., wastewater treatment requirements). Beneficial: CAPs, TACs	DGS, CA air quality management and control districts and cities/counties (e.g., SJVAPCD).	Use of and/or provide vehicles that utilize gasoline/ethanol blends (e.g., E85).
Commercial & Residential Building Design Measures								
MM D-1: Office/Mixed Use Density	LD (C, M), SP, TP, AQP, RR, P/Mobile	0.05%-2%/Moderate: This range is from SMAQMD, depending	Yes	Yes (VTPI 2007)	Yes (VTPI 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties	Project provides high density office or mixed-use proximate to transit. Project must provide

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		on FAR and headway frequencies (Nelson/Nygaard Consulting Associates 2005, EDAW 2006, SMAQMD 2007).					(e.g., SMAQMD).	safe and convenient pedestrian and bicycle access to all transit stops within one-quarter mile.
MM D-2: Orientation to Existing/Planned Transit, Bikeway, or Pedestrian Corridor	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	0.4%-1%/Moderate: CCAP attributes a 0.5% reduction per 1% improvement in transit frequency (Dierkers et al. 2007). SMAQMD presents a range of 0.25%-5% (JSA 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (Dierkers et al. 2007)	Yes (Dierkers et al. 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project is oriented towards existing transit, bicycle, or pedestrian corridor. Setback distance between project and existing or planned adjacent uses is minimized or nonexistent. Setback distance between different buildings on project site is minimized. Setbacks between project buildings and planned or existing sidewalks are minimized. Buildings are oriented towards existing or planned street frontage. Primary entrances to buildings are located along planned or existing public street frontage. Project provides bicycle access to any planned bicycle corridor(s). Project provides pedestrian access to any planned pedestrian corridor(s).
MM D-3: Services Operational	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	0.5%-5%/Moderate	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project provides on-site shops and services for employees.

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MM D-4: Residential Density (Employ Sufficient Density for New Residential Development to Support the Use of Public Transit)	LD (R, M), SP, TP, AQP, RR, P/Mobile	1%-40%/High: #7, EPA presents a range of 32%-40% (EPA 2006). SMAQMD presents a range of 1%-12% depending on density and headway frequencies (Nelson/Nygaard Consulting Associates 2005, JSA 2005, EDAW 2006, SMAQMD 2007). Nelson/Nygaard presents a trip reduction formula: Trip Reduction = 0.6*(1-(19749*((4.814+ households per residential acre)/(4.814+7.14))^-06.39)/25914).	Yes	Yes (VTPI 2007, Holtzclaw 2007)	Yes (VTPI 2007, Holtzclaw 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project provides high-density residential development. Transit facilities must be within one-quarter mile of project border. Project provides safe and convenient bicycle/pedestrian access to all transit stop(s) within one-quarter mile of project border.
MM D-5: Street Grid	LD (R, C, M), I, SP, TP, AQP, RR,	1%/Moderate: SMAQMD presents this % reduction (JSA	Yes	Yes (Dierkers et al. 2007, VTPI 2007)	Yes (Dierkers et al. 2007,	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties	Multiple and direct street routing (grid style). This measure only applies to projects

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	P/Mobile	2005, EDAW 2006, SMAQMD 2007).			VTPI 2007)		(e.g., SMAQMD).	with an internal CF >/= 0.80, and average of one-quarter mile or less between external connections along perimeter of project. [CF= # of intersections / (# of cul-de-sacs + intersections)]. Cul-de-sacs with bicycle/pedestrian through access may be considered "complete intersections" when calculating the project's internal connectivity factor. External connections are bike/pedestrian pathways and access points, or streets with safe and convenient bicycle and pedestrian access that connect the project to adjacent streets, sidewalks, and uses. If project site is adjacent to undeveloped land; streets, pathways, access points, and right-of-ways that provide for future access to adjacent uses may count for up to 50% of the external connections. Block perimeter (the sum of the measurement of the length of all block sides) is limited to no more than 1,350 feet. Streets internal to the project should connect to streets external to the project whenever possible.

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MM D-6: NEV Access	LD (R, C, M), SP, TP, AQP, RR, P/Mobile	0.5%-1.5%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (Litman 1999, Sperling 1994)	Yes (Litman 1999, Sperling 1994)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Make physical development consistent with requirements for neighborhood electric vehicles. Current studies show that for most trips, NEVs do not replace gas-fueled vehicles as the primary vehicle.
MM D-7: Affordable Housing Component	LD (R, M), SP, TP, AQP, RR, P/Mobile	0.4%-6%/Moderate: SMAQMD presents this % reduction (Nelson/Nygaard Consulting Associates 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Residential development projects of five or more dwelling units provide a deed-restricted low-income housing component on-site (or as defined in the code). Developers who pay into In-Lieu Fee Programs are not considered eligible to receive credit for this measure. The award of emission reduction credit shall be based only on the proportion of affordable housing developed on-site because in-lieu programs simply induce a net increase in development. Percentage reduction shall be calculated according to the following formula:

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
								% reduction = % units deed-restricted below market rate housing * 0.04
MM D-8: Recharging Area	LD (R, M), SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Provide residential buildings with a "utility" room or space for recharging batteries, whether for use in a car, electric lawnmower, other electric landscaping equipment, or even batteries for small items such as flashlights.
Mixed-Use Development Measures								
MM D-9: Urban Mixed-Use	LD (M), SP, TP, AQP, RR, P/Mobile	3%-9%/Moderate: SMAQMD presents this % reduction (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (EPA 2006)	Yes (EPA 2006)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Development of projects predominantly characterized by properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design.
MM D-10: Suburban Mixed-Use	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	3%/Moderate: SMAQMD presents this % reduction (TIAX 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (EPA 2006)	Yes (EPA 2006)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Have at least three of the following on site and/or offsite within one-quarter mile: Residential Development, Retail Development, Park, Open Space, or Office.
MM D-11: Other Mixed-Use	LD (R, M), SP, TP, AQP, RR, P/Mobile	1%/Moderate: SMAQMD presents this % reduction (TIAX 2005, EDAW	Yes	Yes (EPA 2006)	Yes (EPA 2006)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	All residential units are within one-quarter mile of parks, schools or other civic uses.

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		2006, SMAQMD 2007).						
MM D-12: Infill Development	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	3%-30%/High: Infill development reduces vehicle trips and VMT by 3% and 20%, respectively (Fehr & Peers 2007). CCAP identifies a site level VMT reduction range of 20%-30% (Dierkers et al. 2007).	Yes	Yes (Dierkers et al. 2007)	Yes (Dierkers et al. 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project site is on a vacant infill site, redevelopment area, or brownfield or greyfield lot that is highly accessible to regional destinations, where the destinations rating of the development site (measured as the weighted average travel time to all other regional destinations) is improved by 100% when compared to an alternate greenfield site.
Miscellaneous Measures								
MM D-13: Electric Lawnmower	LD (R, M), SP, AQP, RR, P/Area	1%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Provide a complimentary electric lawnmower to each residential buyer.

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MM D-14: Enhanced Recycling/Waste Reduction, Reuse, Composting	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Low	Yes	Yes	Yes: Association with social awareness.	Adverse: No Beneficial: CAPs, TACs	CIWMB	Provide infrastructure/education that promotes the avoidance of products with excessive packaging, recycle, buying of refills, separating of food and yard waste for composting, and using rechargeable batteries.
MM D-15: LEED Certification	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Moderate	Yes: Receive tax rebates, incentives (e.g., EDAW San Diego office interior remodel cost $1,700,000 for 32,500 square feet) (USGBC 2007)	Yes	Yes: More than 700 buildings of different certifications in CA (USGBC 2007).	Adverse: No Beneficial: CAPs, TACs	USGBC, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.
MM D-16: Retro-Commissioning	LD (C, M), I, SP, AQP, RR, P/Stationary & Area	8%-10% reduction in energy usage/Moderate: (Mills et al. 2004)	Yes: Average $0.28/square feet, varies with building size (Haasl and Sharp 1999).	Yes	Yes: 27 projects underway in CA, 21 more to be completed in 2007, mostly state buildings owned by DGS (DGS 2007).	Adverse: No Beneficial: CAPs, TACs	DGS, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	The process ensures that all building systems perform interactively according to the contract documents, the design intent and the owner's operational needs to optimize energy performance.
MM D-17 Landscaping	LD (R, C, M), I, SP, AQP, RR,	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	Alliance for the Chesapeake Bay, EPA Green Landscaping	Project shall use drought resistant native trees, trees with low emissions and high carbon

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	P/Stationary & Area						Resources	sequestration potential. Evergreen trees on the north and west sides afford the best protection from the setting summer sun and cold winter winds. Additional considerations include the use of deciduous trees on the south side of the house that will admit summer sun; evergreen plantings on the north side will slow cold winter winds; constructing a natural planted channel to funnel summer cooling breezes into the house. Neighborhood CCR's not requiring that front and side yards of single family homes be planted with turf grass. Vegetable gardens, bunch grass, and low-water landscaping shall also be permitted, or even encouraged.
MM D-18: Local Farmers' Market	LD (M), SP/Mobile, Stationary, &	NA/Low	Yes	Yes	Yes: Associated with social	Adverse: No Beneficial: CAPs, TACs	Cities/counties (e.g., Davis, Sacramento)	Project shall dedicate space in a centralized, accessible location for a weekly farmers' market.

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	Area				choice and public awareness.			
MM D-19: Community Gardens	LD (M), SP/Mobile, Stationary, & Area	NA/Low	Yes	Yes	Yes: Associated with social choice and public awareness.	Adverse: No Beneficial: CAPs, TACs	Cities/counties (e.g., Davis)	Project shall dedicate space for community gardens.
[redacted]								
MM E-1: High-Efficiency Pumps	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., BAAQMD).	Project shall use high-efficiency pumps.
MM E-2: Wood Burning Fireplaces/Stoves	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low: EDAW 2006	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project does not feature fireplaces or wood burning stoves.
MM E-3: Natural Gas Stove	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low: EDAW 2006	Yes: Cost of stove—$350 (gas) and $360 (electric) same brand, total yearly cost of $42.17 as opposed to $56.65 for electric (Saving Electricity 2006).	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project features only natural gas or electric stoves in residences.

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MM E-4: Energy Star Roof	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	0.5%-1%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes: 866 Energy Star labeled buildings in California (Energy Star 2007)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project installs Energy Star labeled roof materials.
MM E-5: On-site Renewable Energy System	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	1%-3%/Moderate: SMAQMD presents this % reduction (USGBC 2002 and 2005, EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project provides onsite renewable energy system(s). Nonpolluting and renewable energy potential includes solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, projects may take advantage of net metering with the local utility.

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MM E-6: Exceed Title 24	LD (R, C, M), I, GSP, AQP, RR, P/Stationary & Area	1%/Moderate: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (PG&E 2002, SMUD 2006)	Yes (PG&E 2002, SMUD 2006)	Adverse: No Beneficial: CAPs, TACs	PG&E, SMUD, CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project exceeds title 24 requirements by 20%.
MM E-7: Solar Orientation	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	0.5%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project orients 75% or more of homes and/or buildings to face either north or south (within 30° of N/S). Building design includes roof overhangs that are sufficient to block the high summer sun, but not the lower winter sun, from penetrating south facing windows. Trees, other landscaping features and other buildings are sited in such a way as to maximize shade in the summer and maximize solar access to walls and windows in the winter.
MM E-8: Nonroof Surfaces	LD (R, C, M), I, GSP, AQP, RR, P/Stationary & Area	1.0%/Low: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Provide shade (within 5 years) and/or use light-colored/high-albedo materials (reflectance of at least 0.3) and/or open grid pavement for at least 30% of the site's nonroof impervious surfaces, including parking lots, walkways, plazas, etc.; OR place a minimum of 50% of parking spaces underground or covered by structured parking; OR use an open-grid pavement system (less than 50% impervious) for a minimum of

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								50% of the parking lot area. The mitigation measure reduces heat islands (thermal gradient differences between developed and undeveloped areas to minimize impact on microclimate and human and wildlife habitats. This measure requires the use of patented or copyright protected methodologies created by the ASTM. The SRI is a measure of the constructed surface's ability to reflect solar heat, as shown by a small rise in temperature. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is "0" and a standard white (reflectance 0.80, emittance 0.90) is 100. To calculate SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980-01. Reflectance is measured

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								according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371. Default values for some materials will be available in the LEED-NC v2.2 Reference Guide.
MM E-9: Low-Energy Cooling	LD (C, M), I, SP, AQP, RR, P/Stationary & Area	1%-10%/Low: EDAW presents this percent reduction range (EDAW 2006).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: No Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Project optimizes building's thermal distribution by separating ventilation and thermal conditioning systems.
MM E-10: Green Roof	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	1.0%/Moderate: SMAQMD presents this % reduction (EDAW 2006, SMAQMD 2007).	Yes	Yes (USGBC 2002 and 2005)	Yes (USGBC 2002 and 2005)	Adverse: Increased Water Consumption Beneficial: CAPs, TACs	CA air quality management and control districts and cities/counties (e.g., SMAQMD).	Install a vegetated roof that covers at least 50% of roof area. The reduction assumes that a vegetated roof is installed on a least 50% of the roof area or that a combination high albedo and vegetated roof surface is installed that meets the following standard: (Area of SRI Roof/0.75)+(Area of vegetated roof/0.5) >= Total Roof Area. Water consumption reduction measures shall be considered in the design of the green roof.
MM E-11: EV Charging Facilities	LD (C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: $500-$5000/ vehicle site (PG&E 1999)	Yes	Yes: 381 facilities in CA (Clean Air Maps 2007).	Adverse: No Beneficial: CAPs, TACs	DOE, EERE, CA air quality management and control districts and cities/counties (e.g., BAAQMD).	Project installs EV charging facilities.
MM E-12:	LD (R, C, M),	NA/Low: Increasing	Yes: Light	Yes	Yes: Apply	Adverse: No		Project provides light-colored

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Light-Colored Paving	I, SP, AQP, RR, P/Stationary & Area	the albedo of 1,250 km of pavement by 0.25 would save cooling energy worth $15M per year.	colored aggregates and white cement are more expensive than gray cement. Certain blended cements are very light in color and may reflect similarly to white cement at an equivalent cost to normal gray cement.		natural sand or gravel colored single surface treatments to asphalt (EOE 2007).	Beneficial: CAPs, TACs		paving (e.g., increased albedo pavement).
MM E-13: Cool Roofs	LD (R, C, M), I, SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: 0.75–1.5/square feet coating (EPA 2007a)	Yes	Yes: Over 90% of the roofs in the United States are dark colored	Adverse: No Beneficial: CAPs, TACs	CEC	Project provides cool roofs. Highly reflective, highly emissive roofing materials that stay 50-60°F cooler than a normal roof under a hot summer sun. CA's Cool Savings

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
					(EPA 2007a).			Program provided rebates to building owners for installing roofing materials with high solar reflectance and thermal emittance. The highest rebate went to roofs on air conditioned buildings, while buildings with rooftop ducts and other nonresidential buildings were eligible for slightly less. The program aimed to reduce peak summer electricity demand and was administered by the CEC.
MM E-14: Solar Water Heaters	LD (R, M), SP, AQP, RR, P/Stationary & Area	20%–70% reduction in cooling energy needs/Moderate	Yes: $1675/20 square feet, requires a 50 gallon tank, annual operating cost of $176 (DOE 2007).	Yes	Yes: Based on solar orientation, building codes, zoning ordinances.	Adverse: No Beneficial: CAPs, TACs	Europe	Project provides solar water heaters.
MM E-15: Electric Yard Equipment Compatibility	LD (R, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: $75–$250/outlet from existing circuit (Cost Helper 2007).	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Project provides electrical outlets at building exterior areas.
MM E-16: Energy Efficient Appliance Standards	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low	Yes: Varies for each appliance—higher capital costs, lower operating costs (Energy	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Project uses energy efficient appliances (e.g., Energy Star).

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			Star 2007).					
MM E-17: Green Building Materials	LD (R, C, M), SP, AQP, RR, P/Stationary & Area	NA/Low: 25-30% more efficient on average.	Yes	Yes: BEES software allows users to balance the environmental and economic performance of building products; developed by NIST (NIST 2007).	Yes	Adverse: No Beneficial: CAPs, TACs		Project uses materials which are resource efficient, recycled, with long life cycles and manufactured in an environmentally friendly way.
MM E-18: Shading Mechanisms	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: Up to $450 annual energy savings (Energy Star 2007).	Yes: Higher capital costs, lower operating and maintenance costs (Energy Star 2007).	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing shading mechanisms for windows, porch, patio and walkway overhangs.

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MM E-19: Ceiling/Whole-House Fans	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: 50% more efficient than conventional fans (Energy Star 2007).	Yes: $45-$200/fan, installation extra (Lowe's 2007).	Yes	Yes: Major retail stores.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing ceiling/whole-house fans.
MM E-20: Programmable Thermostats	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: $100 annual savings in energy costs (Energy Star 2007).	Yes: $60/LCD display and 4 settings for typical residential use (Lowe's 2007).	Yes	Yes: Major retail stores.	Adverse: Yes, Mercury Beneficial: CAPs, TACs		Install energy-reducing programmable thermostats that automatically adjust temperature settings.
MM E-21: Passive Heating and Cooling Systems	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low	Yes: $800 (wall heaters) to $4,000+ (central systems)	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing passive heating and cooling systems (e.g., insulation and ventilation).
MM E-22: Day Lighting Systems	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low	Yes: $1,300 to $1,500 depending upon the kind of roof (Barrier 1995), installation extra.	Yes	Yes: Work well only for space near the roof of the building, little benefit in multi-floor buildings.	Adverse: No Beneficial: CAPs, TACs		Install energy-reducing day lighting systems (e.g., skylights, light shelves and interior transom windows).
MM E-23: Low-Water Use Appliances	LD (R, C, M), I, SP, AQP, RR, P/Stationary, & Area	NA/Low: Avoided water agency cost for using water-efficient kitchen pre-rinse spray valves of $65.18 per acre-foot.	Yes: Can return their cost through reduction in water consumption,	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Require the installation of low-water use appliances.

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			pumping, and treatment.					
MM E-24: Goods Transport by Rail	LD (C, M), I, SP, AQP, RR, P/Mobile	NA/Moderate	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs	ARB Goods Movement Plan (ARB 2007)	Provide a spur at nonresidential projects to use nearby rail for goods movement.
MM S-1: GHG Emissions Reductions Education	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Mobile	NA/Low	Yes	Yes	Yes: Similar programs currently exist in CA.	Adverse: No Beneficial: CAPs, TACs		Provide local governments, businesses, and residents with guidance/protocols/information on how to reduce GHG emissions (e.g., energy saving, food miles).
MM S-2: School Curriculum	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Mobile	NA/Low	Yes	Yes	Yes: Similar programs currently exist in CA.	Adverse: No Beneficial: CAPs, TACs		Include how to reduce GHG emissions (e.g., energy saving, food miles) in the school curriculum.
MM C-1: ARB-Certified Diesel Construction Equipment	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes: Oxidation Catalysts, $1,000-	Yes	Yes	Adverse: Yes, NO_x Beneficial: CAPs, TACs	AG, EPA, ARB, and CA air quality management and pollution control districts.	Use ARB-certified diesel construction equipment. Increases CO_2 emissions when trapped CO and carbon particles

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
			$2,000. DPF, $5000-$10,000; installation extra (EPA 2007b).					are oxidized (Catalyst Products 2007, ETC 2007).
MM C-2: Alternative Fuel Construction Equipment	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: Yes, THC, NO_x Beneficial: CO, PM, SO_x	AG, EPA, ARB, and CA air quality management and pollution control districts.	Use alternative fuel types for construction equipment. At the tailpipe biodiesel emits 10% more CO_2 than petroleum diesel. Overall lifecycle emissions of CO_2 from 100% biodiesel are 78% lower than those of petroleum diesel (NREL 1998, EPA 2007b).
MM C-3: Local Building Materials	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes: Depends on location of building material manufacture sites.	Adverse: No Beneficial: CAPs, TACs		Use locally made building materials for construction of the project and associated infrastructure.
MM C-4: Recycle Demolished Construction Material	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile	NA/Low	Yes	Yes	Yes	Adverse: No Beneficial: CAPs, TACs		Recycle/Reuse demolished construction material. Use locally made building materials for construction of the project and associated infrastructure.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
[illegible]								
MM M-1: Off-Site Mitigation Fee Program	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile & Area	NA/Moderate-High: Though there is currently no program in place, the potential for real and quantifiable reductions of GHG emissions could be high if a defensible fee program were designed.	Yes	Yes	No: Program does not exist in CA, but similar programs currently exist (e.g., Carl Moyer Program, SJVAPCD Rule 9510, SMAQMD Off-Site Construction Mitigation Fee Program).	Adverse: No Beneficial: CAPs, TACs		Provide/Pay into an off-site mitigation fee program, which focuses primarily on reducing emissions from existing development and buildings through retro-fit (e.g., increased insulation).
MM M-2: Offset Purchase	LD (R, C, M), I, SP, TP, AQP, RR, P/Mobile, Stationary, & Area	NA/Low	Yes	Yes	No: ARB has not adopted official program, but similar programs	No		Provide/purchase offsets for additional emissions by acquiring carbon credits or engaging in other market "cap and trade" systems.

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		Emissions Reduction/Score[2]	Cost (Yes/No)[3]	Technical[4]	Logistical[5]			
					currently exist.			
MM RTP-1: Dedicate High Occupancy Vehicle (HOV) lanes prior to adding capacity to existing highways.	RTP		Yes	Yes	Yes	Adverse: possible local CO Beneficial: regional CAPs, TACs	Caltrans, local government	Evaluate the trip reduction (and GHG reduction) potential of adding HOV lanes prior to adding standard lanes.
MM RTP-2: Implement toll/user fee programs prior to adding capacity to existing highways.	RTP		Yes	Yes	Yes	Adverse: possible local CO. Beneficial: regional CAPs, TACs	Caltrans	Evaluate price elasticity and associated trip reduction (and GHG reduction) potential with adding or increasing tolls prior to adding capacity to existing highways.

Note:
[1] Where LD (R, C, M) =Land Development (Residential, Commercial, Mixed-Use), I=Industrial, GP=General Plan, SP=Specific Plan, TP=Transportation Plans, AQP=Air Quality Plans, RR=Rules/Regulations, and P=Policy. It is important to note that listed project types may not be directly specific to the mitigation measure (e.g., TP, AQP, RR, and P) as such could apply to a variety of source types, especially RR and P.
[2] This score system entails ratings of high, moderate, and low that refer to the level of the measure to provide a substantive, reasonably certain (e.g., documented emission reductions with proven technologies), and long-term reduction of GHG emissions.
[3] Refers to whether the measure would provide a cost-effective reduction of GHG emissions based on available documentation.
[4] Refers to whether the measure is based on currently, readily available technology based on available documentation.
[5] Refers to whether the measure could be implemented without extraordinary effort based on available documentation.
[6] List is not meant to be all inclusive.
Source: Data complied by EDAW in 2007

Table 17
General Planning Level Mitigation Strategies Summary

Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
MS G-1: Adopt a GHG reduction plan	GP/ Mobile, Stationary, & Area	City of San Bernardino	- Adopt GHG reduction targets for the planning area, based on the current legislation providing direction for state-wide targets, and update the plan as necessary. -The local government agency should serve as a model by inventorying its GHG emissions from agency operations, and implementing those reduction goals.
MS G-2: Provide for convenient and safe local travel	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Create a gridded street pattern with small block sizes. This promotes walkability through direct routing and ease of navigation. -Maintain a high level of connectivity of the roadway network. Minimize cul-de-sacs and incomplete roadway segments. -Plan and maintain an integrated, hierarchical and multi-modal system of roadways, pedestrian walks, and bicycle paths throughout the area. -Apply creative traffic management approaches to address congestion in areas with unique problems, particularly on roadways and intersections in the vicinity of schools in the morning and afternoon peak hours, and near churches, parks and community centers. -Work with adjacent jurisdictions to address the impacts of regional development patterns (e.g. residential development in surrounding communities, regional universities, employment centers, and commercial developments) on the circulation system. -Actively promote walking as a safe mode of local travel, particularly for children attending local schools. -Employ traffic calming methods such as median landscaping and provision of bike or transit lanes to slow traffic, improve roadway capacity, and address safety issues.
MS G-3: Enhance the regional transportation network and maintain effectiveness	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Encourage the transportation authority to reduce fees for short distance trips. -Ensure that improvements to the traffic corridors do not negatively impact the operation of local roadways and land uses.

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Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
			-Cooperate with adjacent jurisdictions to maintain adequate service levels at shared intersections and to provide adequate capacity on regional routes for through traffic. -Support initiatives to provide better public transportation. Work actively to ensure that public transportation is part of every regional transportation corridor. - Coordinate the different modes of travel to enable users to transfer easily from one mode to another. -Work to provide a strong paratransit system that promotes the mobility of all residents and educate residents about local mobility choices. - Promote transit-oriented development to facilitate the use of the community's transit services.
MS G-4: Promote and support an efficient public transportation network connecting activity centers in the area to each other and the region.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Promote increased use of public transportation and support efforts to increase bus service range and frequency within the area as appropriate. -Enhance and encourage provision of attractive and appropriate transit amenities, including shaded bus stops, to encourage use of public transportation. -Encourage the school districts, private schools and other operators to coordinate local bussing and to expand ride-sharing programs. All bussing options should be fully considered before substantial roadway improvements are made in the vicinity of schools to ease congestion.
MS G-5: Establish and maintain a comprehensive system, which is safe and convenient, of pedestrian ways and bicycle routes that provide viable options to travel by automobile.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Improve area sidewalks and rights-of-way to make them efficient and appealing for walking and bicycling safely. Coordinate with adjacent jurisdictions and regional agencies to improve pedestrian and bicycle trails, facilities, signage, and amenities. -Provide safe and convenient pedestrian and bicycle connections to and from town centers, other commercial districts, office complexes, neighborhoods, schools, other major activity centers, and surrounding communities. -Work with neighboring jurisdictions to provide well-designed pedestrian and bicycle crossings of major roadways. -Promote walking throughout the community. Install sidewalks where missing and make improvements

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Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
			to existing sidewalks for accessibility purposes. Particular attention should be given to needed sidewalk improvement near schools and activity centers. -Encourage businesses or residents to sponsor street furniture and landscaped areas. - Strive to provide pedestrian pathways that are well shaded and pleasantly landscaped to encourage use. - Attract bicyclists from neighboring communities to ride their bicycles or to bring their bicycles on the train to enjoy bicycling around the community and to support local businesses. - Meet guidelines to become nationally recognized as a Bicycle-Friendly community. - Provide for an education program and stepped up code enforcement to address and minimize vegetation that degrades access along public rights-of-way. -Engage in discussions with transit providers to increase the number of bicycles that can be accommodated on buses
MS G-6: Achieve optimum use of regional rail transit.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Support regional rail and work with rail authority to expand services. - Achieve better integration of all transit options. -Work with regional transportation planning agencies to finance and provide incentives for multimodal transportation systems. - Promote activity centers and transit-oriented development projects around the transit station.
MS G-7: Expand and optimize use of local and regional bus and transit systems.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Encourage convenient public transit service between area and airports. -Support the establishment of a local shuttle to serve commercial centers. -Promote convenient, clean, efficient, and accessible public transit that serves transit-dependent riders and attracts discretionary riders as an alternative to reliance on single-occupant automobiles.

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			- Empower seniors and those with physical disabilities who desire maximum personal freedom and independence of lifestyle with unimpeded access to public transportation. -Integrate transit service and amenities with surrounding land uses and buildings.
MS G-8: Emphasize the importance of water conservation and maximizing the use of native, low-water landscaping.	GP/Stationary & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Reduce the amount of water used for landscaping and increase use of native and low water plants. Maximize use of native, low-water plants for landscaping of areas adjacent to sidewalks or other impermeable surfaces. -Encourage the production, distribution and use of recycled and reclaimed water for landscaping projects throughout the community, while maintaining urban runoff water quality objectives. -Promote water conservation measures, reduce urban runoff, and prevent groundwater pollution within development projects, property maintenance, area operations and all activities requiring approval. -Educate the public about the importance of water conservation and avoiding wasteful water habits. -Work with water provider in exploring water conservation programs, and encourage the water provider to offer incentives for water conservation.
MS G-9: Improve air quality within the region.	GP/ Mobile, Stationary, & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Integrate air quality planning with area land use, economic development and transportation planning efforts. -Support programs that reduce air quality emissions related to vehicular travel. -Support alternative transportation modes and technologies, and develop bike- and pedestrian-friendly neighborhoods to reduce emissions associated with automobile use. -Encourage the use of clean fuel vehicles. -Promote the use of fuel-efficient heating and cooling equipment and other appliances, such as water

Table 17 General Planning Level Mitigation Strategies Summary			
Strategy	**Source Type[1]**	**Agency/Organization[2]**	**Description/Comments**
			heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units. - Promote the use of clean air technologies such as fuel cell technologies, renewable energy sources. UV coatings, and alternative, non-fossil fuels. -Require the planting of street trees along streets and inclusion of trees and landscaping for all development projects to help improve airshed and minimize urban heat island effects. - Encourage small businesses to utilize clean, innovative technologies to reduce air pollution. - Implement principles of green building. - Support jobs/housing balance within the community so more people can both live and work within the community. To reduce vehicle trips, encourage people to telecommute or work out of home or in local satellite offices.
MS G-10: Encourage and maximize energy conservation and identification of alternative energy sources.	GP/ Stationary & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Encourage green building designs for new construction and renovation projects within the area. -Coordinate with regional and local energy suppliers to ensure adequate supplies of energy to meet community needs, implement energy conservation and public education programs, and identify alternative energy sources where appropriate. -Encourage building orientations and landscaping that enhance natural lighting and sun exposure. -Encourage expansion of neighborhood-level products and services and public transit opportunities throughout the area to reduce automobile use. - Incorporate the use of energy conservation strategies in area projects. - Promote energy-efficient design features, including appropriate site orientation, use of light color roofing and building materials, and use of evergreen trees and wind-break trees to reduce fuel consumption for heating and cooling.

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Strategy	**Source Type[1]**	**Agency/Organization[2]**	**Description/Comments**
			-Explore and consider the cost/benefits of alternative fuel vehicles including hybrid, natural gas, and hydrogen powered vehicles when purchasing new vehicles. -Continue to promote the use of solar power and other energy conservation measures. - Encourage residents to consider the cost/benefits of alternative fuel vehicles. - Promote the use of different technologies that reduce use of non-renewable energy resources. -Facilitate the use of green building standards and LEED in both private and public projects. -Promote sustainable building practices that go beyond the requirements of Title 24 of the California Administrative Code, and encourage energy-efficient design elements, as appropriate. -Support sustainable building practices that integrate building materials and methods that promote environmental quality, economic vitality, and social benefit through the design, construction, and operation of the built environment. - Investigate the feasibility of using solar (photovoltaic) street lights instead of conventional street lights that are powered by electricity in an effort to conserve energy. - Encourage cooperation between neighboring development to facilitate on-site renewable energy supplies or combined heat and power co-generation facilities that can serve the energy demand of contiguous development.

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Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
MS G-11: Preserve unique community forests, and provide for sustainable increase and maintenance of this valuable resource.	GP/Stationary & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Develop a tree planting policy that strives to accomplish specific % shading of constructed paved and concrete surfaces within five years of construction. -Provide adequate funding to manage and maintain the existing forest, including sufficient funds for tree planting, pest control, scheduled pruning, and removal and replacement of dead trees. -Coordinate with local and regional plant experts in selecting tree species that respect the natural region in which Claremont is located, to help create a healthier, more sustainable urban forest. - Continue to plant new trees (in particular native tree species where appropriate), and work to preserve mature native trees. -Increase the awareness of the benefits of street trees and the community forest through a area wide education effort. -Encourage residents to properly care for and preserve large and beautiful trees on their own private property.
MS G-12: Provide affordability levels to meet the needs of community residents.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Encourage development of affordable housing opportunities throughout the community, as well as development of housing for elderly and low and moderate income households near public transportation services. -Ensure a portion of future residential development is affordable to low and very low income households.
MS G-13: Promote a visually-cohesive urban form and establish connections between the urban core and outlying portions of the	GP/ Mobile, Stationary, & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Preserve the current pattern of development that encourages more intense and higher density development at the core of the community and less intense uses radiating from the central core. -Create and enhance landscaped greenway, trail and sidewalk connections between neighborhoods and to commercial areas, town centers, and parks.

Table 17
General Planning Level Mitigation Strategies Summary

Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
community.			-Identify ways to visually identify and physically connect all portions of the community, focusing on enhanced gateways and unifying isolated and/or outlying areas with the rest of the area. -Study and create a diverse plant identity with emphasis on drought-resistant native species.
MS G-14: Provide a diverse mix of land uses to meet the future needs of all residents and the business community.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Attract a broad range of additional retail, medical, and office uses providing employment at all income levels. -Support efforts to provide beneficial civic, religious, recreational, cultural and educational opportunities and public services to the entire community. -Coordinate with public and private organizations to maximize the availability and use of parks and recreational facilities in the community. -Support development of hotel and recreational commercial land uses to provide these amenities to local residents and businesses.
MS G-15: Collaborate with providers of solid waste collection, disposal and recycling services to ensure a level of service that promotes a clean community and environment.	GP/ Stationary, & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Require recycling, composting, source reduction and education efforts throughout the community, including residential, businesses, industries, and institutions, within the construction industry, and in all sponsored activities.
MS G-16: Promote construction, maintenance and active use of publicly- and privately-operated parks, recreation programs, and a community center.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Work to expand and improve community recreation amenities including parks, pedestrian trails and connections to regional trail facilities. -As a condition upon new development, require payment of park fees and/or dedication and provision of parkland, recreation facilities and/or multi-use trails that improve the public and private recreation system. -Research options or opportunities to provide necessary or desired community facilities.

Table 17
General Planning Level Mitigation Strategies Summary

Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
MS G-17: Promote the application of sustainable development practices.	GP/ Mobile, Stationary, & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Encourage sustainable development that incorporates green building best practices and involves the reuse of previously developed property and/or vacant sites within a built-up area. - Encourage the conservation, maintenance, and rehabilitation of the existing housing stock. -Encourage development that incorporates green building practices to conserve natural resources as part of sustainable development practices. -Avoid development of isolated residential areas in the hillsides or other areas where such development would require significant infrastructure investment, adversely impact biotic resources. - Provide land area zoned for commercial and industrial uses to support a mix of retail, office, professional, service, and manufacturing businesses.
MS G-18: Create activity nodes as important destination areas, with an emphasis on public life within the community.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Provide pedestrian amenities, traffic-calming features, plazas and public areas, attractive streetscapes, shade trees, lighting, and retail stores at activity nodes. -Provide for a mixture of complementary retail uses to be located together to create activity nodes to serve adjacent neighborhoods and to draw visitors from other neighborhoods and from outside the area.
MS G-19: Make roads comfortable, safe, accessible, and attractive for use day and night.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Provide crosswalks and sidewalks along streets that are accessible for people with disabilities and people who are physically challenged. -Provide lighting for walking and nighttime activities, where appropriate. -Provide transit shelters that are comfortable, attractive, and accommodate transit riders.
MS G-20: Maintain and expand where possible the system of neighborhood connections that attach neighborhoods to larger roadways.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Provide sidewalks where they are missing, and provide wide sidewalks where appropriate with buffers and shade so that people can walk comfortably. -Make walking comfortable at intersections through traffic-calming, landscaping, and designated crosswalks.

Table 17
General Planning Level Mitigation Strategies Summary

Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
			-Look for opportunities for connections along easements & other areas where vehicles not permitted.
MS G-21: Create distinctive places throughout the area.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	-Provide benches, streetlights, public art, and other amenities in public areas to attract pedestrian activities. -Encourage new developments to incorporate drought tolerant and native landscaping that is pedestrian friendly, attractive, and consistent with the landscaped character of area. -Encourage all new development to preserve existing mature trees. -Encourage streetscape design programs for commercial frontages that create vibrant places which support walking, bicycling, transit, and sustainable economic development. -Encourage the design and placement of buildings on lots to provide opportunities for natural systems such as solar heating and passive cooling. - Ensure that all new industrial development projects are positive additions to the community setting, provide amenities for the comfort of the employees such as outdoor seating area for breaks or lunch, and have adequate landscape buffers.
MS G-22: Reinvest in existing neighborhoods and promote infill development as a preference over new, greenfield development	GP/ Mobile, Stationary, & Area	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Identify all underused properties in the plan area and focus development in these opportunity sites prior to designating new growth areas for development. - Implement programs to retro-fit existing structures to make them more energy-efficient. -Encourage compact development, by placing the desired activity areas in smaller spaces.

Table 17
General Planning Level Mitigation Strategies Summary

Strategy	Source Type[1]	Agency/Organization[2]	Description/Comments
MS G-23: Promote a safe community in which residents can live, work, shop, and play.	GP/ Mobile	Cities/Counties (e.g., Aliso Viejo, Claremont)	- Foster an environment of trust by ensuring non-biased policing, and by adopting policies and encouraging collaboration that creates transparency. - Facilitate traffic safety for motorists and pedestrians through proper street design and traffic monitoring.

Note:
[1] Where GP=General Plan.
[2] List is not meant to be all inclusive.
Source: Data complied by EDAW in 2007

Appendix C

Rule and Regulation Summary

Table 18
Rule and Regulation Summary

Rule/Regulation	Reduction	Implementation Date	Agency	Description	Comments
Low Carbon Fuel Standard	10-20 MMT CO_2e by 2020	January 1, 2010	ARB	This rule/regulation will require fuel providers (e.g., producers, importers, refiners and blenders) to ensure that the mix of fuels they sell in CA meets the statewide goal to reduce the carbon intensity of CA's transportation fuels by at least 10% by the 2020 target.	ARB Early Action Measure
Reduction of HFC-134a Emissions from Nonprofessional Servicing of Motor Vehicle Air Conditioning Systems	1-2 MMT CO_2e by 2020	January 1, 2010	ARB	This rule/regulation will restrict the use of high GWP refrigerants for nonprofessional recharging of leaky automotive air conditioning systems.	ARB Early Action Measure
Landfill Gas Recovery	2-4 MMT CO_2e by 2020	January 1, 2010	IWMB, ARB	This rule/regulation will require landfill gas recovery systems on small to medium landfills that do not have them and upgrade the requirements at landfills with existing systems to represent best capture and destruction efficiencies.	ARB Early Action Measure
Vehicle Climate Change Standards (AB 1493 Pavley, Chapter 200, Statutes of 2002)	30 MMT CO_2e by 2020	2009	ARB	This rule/regulation will require ARB to achieve the maximum feasible and cost effective reduction of GHG emissions from passenger vehicles and light-duty trucks.	ARB Early Action Measure
Reduction of PFCs from the Semiconductor Industry	0.5 MMT CO_2e by 2020	2007–2009	ARB	This rule/regulation will reduce GHG emissions by process improvements/source reduction, alternative chemicals capture and beneficial reuse, and destruction technologies	Underway or to be initiated by CAT members in 2007-2009 period

AB=Assembly Bill; ARB=California Air Resources Board; Calfire=California Fire; CA=California; Caltrans=California Department of Transportation; CAT=California Action Team; CEC=California Energy Commission; CDFA=California Department of Food and Agriculture; CH_4=Methane; CO_2=Carbon Dioxide; CPUC=California Public Utilities Commission; CUFR=California Urban Forestry; DGS=Department of General Services; DWR=Department of Water Resources; GHG=Greenhouse Gas; GWP=Global Warming Potential; IGCC= Integrated Gasification Combined Cycle; IOU= Investor-Owned Utility; IT=Information Technology; IWCB= Integrated Waste Management Board; LNG= Liquefied Natural Gas; MMT CO_2e=Million Metric Tons Carbon Dioxide Equivalent; MW=Megawatts; NA=Not Available; N_2O=Nitrous Oxide; PFC= Perfluorocompound; POU= Publicly Owned Utility; RPS= Renewable Portfolio Standards; RTP=Regional Transportation Plan SB=Senate Bill; SWP=State Water Project; TBD=To Be Determined; UC/CSU=University of California/California State University; ULEV=Ultra Low Emission Vehicle.

Table 18
Rule and Regulation Summary

Rule/Regulation	Reduction	Implementation Date	Agency	Description	Comments
Restrictions on High GWP Refrigerants	9 MMT CO_2e by 2020	2010	ARB	This rule/regulation will expand and enforce the national ban on release of high GWP refrigerants during appliance lifetime.	ARB Early Action Measure
Cement Manufacture	<1 MMT CO_2e per year (based on 2004 production levels)	2010	Caltrans	This rule/regulation will allow 2.5% interground limestone concrete mix in cement use.	CAT Early Action Measure
Hydrogen Fuel Standards (SB 76 of 2005)	TBD	By 2008	CDFA	This rule/regulation will develop hydrogen fuel standards for use in combustion systems and fuel cells.	CAT Early Action Measure
Regulation of GHG from Load Serving Entities (SB 1368)	15 MMT CO_2e by 2020	May 23, 2007	CEC, CPUC	This rule/regulation will establish a GHG emission performance standard for baseload generation of local publicly owned electric utilities that is no higher than the rate of emissions of GHG for combined-cycle natural gas baseload generation.	CAT Early Action Measure
Energy Efficient Building Standards	TBD	In 2008	CEC	This rule/regulation will update of Title 24 standards.	CAT Early Action Measure
Energy Efficient Appliance Standards	TBD	January 1, 2010	CEC	This rule/regulation will regulate light bulb efficiency	CAT Early Action Measure
Tire Efficiency (Chapter 8.7 Division 15 of the Public Resources Code)	<1 MMT CO_2e by 2020	January 1, 2010	CEC & IWMB	This rule/regulation will ensure that replacement tires sold in CA are at least as energy efficient, on average, as tires sold in the state as original equipment on these vehicles.	CAT Early Action Measure
New Solar Homes Partnership	TBD	January 2007	CEC	Under this rule/regulation, approved solar systems will receive incentive funds based on system performance above building standards.	CAT Early Action Measure

Table 18 Rule and Regulation Summary					
Rule/Regulation	**Reduction**	**Implementation Date**	**Agency**	**Description**	**Comments**
Water Use Efficiency	1 MMT CO_2e by 2020	2010	DWR	This rule/regulation will adopt standards for projects and programs funded through water bonds that would require consideration of water use efficiency in construction and operation.	CAT Early Action Measure
State Water Project	TBD	2010	DWR	This rule/regulation will include feasible and cost effective renewable energy in the SWP's portfolio.	CAT Early Action Measure
Cleaner Energy for Water Supply	TBD	2010	DWR	Under this rule/regulation, energy supply contracts with conventional coal power plants will not be renewed.	CAT Early Action Measure
IOU Energy Efficiency Programs	4 MMT CO_2e by 2020	2010	CPUC	This rule/regulation will provide a risk/reward incentive mechanism for utilities to encourage additional investment in energy efficiency; evaluate new technologies and new measures like encouraging compact fluorescent lighting in residential and commercial buildings	CAT Early Action Measure
Solar Generation	TBD	2007–2009	DGS	3 MW of clean solar power generation implemented in CA last year, with another 1 MW coming up. The second round is anticipated to total additional 10 MW and may include UC/CSU campuses and state fairgrounds.	Underway or to be initiated by CAT members in 2007-2009 period

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Table 18
Rule and Regulation Summary

Rule/Regulation	Reduction	Implementation Date	Agency	Description	Comments
Transportation Efficiency	9 MMT CO_2e by 2020	2007–2009	Caltrans	This rule/regulation will reduce congestion, improve travel time in congested corridors, and promote coordinated, integrated land use.	Underway or to be initiated by CAT members in 2007-2009 period
Smart Land Use and Intelligent Transportation	10 MMT CO_2e by 2020	2007–2009	Caltrans	This rule/regulation will integrate consideration of GHG reduction measures and energy efficiency factors into RTPs, project development etc.	Underway or to be initiated by CAT members in 2007-2009 period
Cool Automobile Paints	1.2 to 2.0 MMT CO_2e by 2020	2009	ARB	Cool paints would reduce the solar heat gain in a vehicle and reduce air conditioning needs.	ARB Early Action Measure
Tire Inflation Program	TBD	2009	ARB	This rule/regulation will require tires to be checked and inflated at regular intervals to improve fuel economy.	ARB Early Action Measure
Electrification of Stationary Agricultural Engines	0.1 MMT CO_2e by 2020	2010	ARB	This rule/regulation will provide incentive funding opportunities for replacing diesel engines with electric motors.	ARB Early Action Measure
Desktop Power Management	Reduce energy use by 50%	2007–2009	DGS, ARB	This rule/regulation will provide software to reduce electricity use by desktop computers by up to 40%.	Currently deployed in DGS
Reducing CH_4 Venting/Leaking from Oil and Gas Systems (EJAC-3/ARB 2-12)	1 MMT CO_2e by 2020	2010	ARB	This rule/regulation will reduce fugitive CH_4 emissions from production, processing, transmission, and distribution of natural gas and oil.	ARB Early Action Measure
Replacement of High GWP Gases Used in Fire Protection Systems with Alternate Chemical (ARB 2-10)	0.1 MMT CO_2e by 2020	2011	ARB	This rule/regulation will require the use of lower GWP substances in fire protection systems.	ARB Early Action Measure
Contracting for Environmentally Preferable Products	NA	2007–2009	DGS	New state contracts have been or are being created for more energy and resource efficient IT goods, copiers, low mercury fluorescent lamps, the CA Gold Carpet Standard and office furniture.	Underway or to be initiated by CAT members in 2007-2009 period
Hydrogen Fuel Cells	NA	2007–2009	DGS	This rule/regulation will incorporate clean hydrogen fuel cells in stationary applications	Underway or to be initiated by CAT members in 2007-2009

Table 18 Rule and Regulation Summary					
Rule/Regulation	**Reduction**	**Implementation Date**	**Agency**	**Description**	**Comments**
				at State facilities and as back-up generation for emergency radio services.	period
High Performance Schools	NA	2007–2009	DGS	New guidelines adopted for energy and resource efficient schools; up to $100 million in bond money for construction of sustainable, high performance schools.	Underway or to be initiated by CAT members in 2007-2009 period
Urban Forestry	1 MMT CO_2e by 2020	2007–2009	Calfire, CUFR	This rule/regulation will provide five million additional trees in urban areas by 2020.	Underway or to be initiated by CAT members in 2007-2009 period
Fuels Management/Biomass	3 MMT CO_2e by 2020	2007–2009	Calfire	This rule/regulation will provide biomass from forest fuel treatments to existing biomass utilization facilities.	Underway or to be initiated by CAT members in 2007-2009 period
Forest Conservation and Forest Management	10 MMT CO_2e by 2020	2007–2009	Calfire, WCB	This rule/regulation will provide opportunities for carbon sequestration in Proposition 84 forest land conservation program to conserve an additional 75,000 acres of forest landscape by 2010.	Underway or to be initiated by CAT members in 2007-2009 period
Afforestation/Reforestation	2 MMT CO_2e by 2020	2007–2009	Calfire	This rule/regulation will subsidize tree planting.	Underway or to be initiated by CAT members in 2007-2009 period
Dairy Digesters	TBD	January 1, 2010	CDFA	This rule/regulation will develop a dairy digester protocol to document GHG emission reductions from these facilities.	ARB Early Action Measure

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Table 18
Rule and Regulation Summary

Rule/Regulation	Reduction	Implementation Date	Agency	Description	Comments
Conservation Tillage and Enteric Fermentation	1 MMT CO_2e by 2020	2007–2009	CDFA	This rule/regulation will develop and implement actions to quantify and reduce enteric fermentation emissions from livestock and sequester soil carbon using cover crops and conservation tillage.	Underway or to be initiated by CAT members in 2007-2009 period
ULEV	TBD	2007–2009	DGS	A new long term commercial rental contract was released in March 2007 requiring a minimum ULEV standard for gasoline vehicles and requires alternative fuel and hybrid-electric vehicles.	Underway or to be initiated by CAT members in 2007-2009 period
Flex Fuel Vehicles	370 metric tons CO_2, 0.85 metric tons of CH_4, and 1.14 metric tons of N_2O	2007–2009	DGS	Under this rule/regulation, DGS is replacing 800 vehicles with new, more efficient vehicles.	Underway or to be initiated by CAT members in 2007-2009 period
Climate Registry	TBD	2007–2009	DGS	Benchmarking and reduction of GHG emissions for state owned buildings, leased buildings and light duty vehicles.	Underway or to be initiated by CAT members in 2007-2009 period
Municipal Utilities Electricity Sector Carbon Policy	Included in SB 1368 reductions	2007–2009	CEC, CPUC, ARB	Under this rule/regulation, GHG emissions cap policy guidelines for CA's electricity sector (IOUs and POUs).	Underway or to be initiated by CAT members in 2007-2009 period
Alternative Fuels: Nonpetroleum Fuels	TBD	2007–2009	CEC	State plan to increase the use of alternative fuels for transportation; full fuel cycle assessment.	Underway or to be initiated by CAT members in 2007-2009 period
Zero Waste/High Recycling Strategy	5 MMT CO_2e by 2020	2007–2009	IWMB	This rule/regulation will identify materials to focus on to achieve GHG reduction at the lowest possible cost; Builds on the success of 50% Statewide Recycling Goal.	Underway or to be initiated by CAT members in 2007-2009 period
Organic Materials Management	TBD	2007–2009	IWMB	This rule/regulation will develop a market incentive program to increase organics diversion to the agricultural industry.	Underway or to be initiated by CAT members in 2007-2009 period
Landfill Gas Energy	TBD	2007–2009	IWMB	Landfill Gas to Energy & LNG/biofuels	Underway or to be initiated by CAT members in 2007-2009 period

Table 18
Rule and Regulation Summary

Rule/Regulation	Reduction	Implementation Date	Agency	Description	Comments
Target Recycling	TBD	2007–2009	IWMB	This rule/regulation will focus on industry/public sectors with high GHG components to implement targeted commodity recycling programs.	Underway or to be initiated by CAT members in 2007-2009 period
Accelerated Renewable Portfolio Standard	Included in SB 1368 reductions	2007–2009	CPUC	This rule/regulation will examine RPS long term planning and address the use of tradable renewable energy credits for RPS compliance.	Underway or to be initiated by CAT members in 2007-2009 period
CA Solar Initiative	1 MMT CO_2e by 2020	2007–2009	CPUC	Initiative to deliver 2000 MWs of clean, emissions free energy to the CA grid by 2016.	Underway or to be initiated by CAT members in 2007-2009 period
Carbon Capture and Sequestration	TBD	2007–2009	CPUC	Proposals for power plants with IGCC and/or carbon capture in the next 18 months.	Underway or to be initiated by CAT members in 2007-2009

Source: Data complied by EDAW in 2007

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Subject Ortega Hwy Comments 33 of 34

33 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

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Traffic
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in Europe

Traffic noise reduction in Europe

Health effects, social costs and technical and policy options to reduce road and rail traffic noise

Report

Delft, August 2007

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Preface

Millions of people in Europe are affected by transport noise. Transport noise annoys people, causes stress and illness and may sometimes even have a fatal impact. As a result, noise is very costly to society.

There are numerous cheap and relatively easy ways to reduce transport noise significantly. First of all, noise should be taken as seriously as other forms of pollution, as it is similarly damaging to human health. This year, 2007, is an important one for the future of noise policy. The European Commission is presenting a proposal for tightening car tyre noise emission limits, and in June 2007 the first noise maps of large agglomerations, main roads and railways were to be submitted to the Commission under the terms of the Environmental noise directive.

This reports describes the health effects of rail and road transport noise and presents a number of recommendations as to how to address them.

We would like to kindly thank the people who reviewed this report for their contributions. The comments of Rokho Kim of the WHO and Tor Kihlman of the Chalmers Institute of Technology were especially helpful in improving the overall quality of the report. We also thank Nigel Harle for his careful editing of the English.

Eelco den Boer
Arno Schroten

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Summary

The main conclusions of this report are as follows:

Health effects and social costs

- Traffic noise has a variety of adverse impacts on human health. Community noise, including traffic noise, is already recognised as a serious public health problem by the World Health Organization, WHO.
- Of all the adverse effects of traffic noise the most widespread is simply annoyance.
- There is also substantial evidence for traffic noise disturbing sleep patterns, affecting cognitive functioning (especially in children) and contributing to certain cardiovascular diseases. For raised blood pressure, the evidence is increasing. For mental illness, however, the evidence is still only limited.
- The health effects of noise are not distributed uniformly across society, with vulnerable groups like children, the elderly, the sick and the poor suffering most.
- In 2000, more than 44% of the EU25[1] population (about 210 million people) were regularly exposed to over 55 dB of road traffic noise, a level potentially dangerous to health. In addition, 35 million people in the EU25 (about 7%) are exposed to rail traffic noise above 55 dB. Millions of people indeed experience health effects due to traffic noise. For example, about 57 million people are annoyed by road traffic noise, 42% of them seriously.
- A preliminary analysis shows that each year over 245,000 people in the EU25 are affected by cardiovascular diseases that can be traced to traffic noise. About 20% of these people (almost 50,000) suffer a lethal heart attack, thereby dying prematurely.
- The annual health loss due to traffic noise increased between 1980 and 2000 and is expected to increase up to 2020. In contrast, traffic safety has improved, following implementation of a variety of policy measures.
- At a conservative estimate, the social costs of traffic noise in the EU22[2] amount to at least € 40 billion per year (0.4% of total GDP). The bulk of these costs (about 90%) are caused by passenger cars and lorries.

Noise reduction options

- If noise-related problems are to be alleviated, they must be the subject of greater political focus. Vehicle noise emission limits have not been technology-forcing since their introduction and were last tightened in 1995. This means these limits have not been updated for twelve years, in stark contrast to vehicle air pollution emission standards, which have been tightened three times over the same period.
- Consequently, there has been no reduction in community exposure to noise. This is due to the lax limits in the EU Motor vehicle sound emission directive

[1] EU25 refers to EU27 except Cyprus and Malta.

[2] EU22 refers to EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.

and the Tyre/road directive, the fact that changes in test conditions have in practice led to even weaker limits, and increased traffic volumes.

- There is plenty of scope for reducing ambient noise levels by at least 3-4 dB(A) in the short term using currently available technology. Beyond 2012, year-on-year improvement targets (x dB(A) every y years) should be introduced, outlined well in advance to give industry time to adapt.
- In the case of both road and rail traffic, there are already vehicles/rolling stock available that are well within current noise standards. Besides the vehicles themselves, examples of silent tyres/wheels and road pavements/tracks show also room for noise reduction. At noise 'hotspots' additional, local measures can be implemented.
- The most cost-effective measures are those addressing the noise at-source. This includes noise from the engine, exhaust, mechanical systems and contact between tyres and road, or wheels and track. The associated costs are generally limited, for vehicles and tyres at least. There are signs that use of composite brake blocks on rail wagons also comes at a modest cost.
- Although an optimal noise control regime will always be a mix of local and at-source measures, the Commission should take responsibility for ensuring that the noise emissions of cars, tyres and railways are reduced significantly. These are the most cost-effective measures and their impact will be felt across Europe.
- When it comes to tightening noise standards and improving test procedures, prolonged discussions and political procedures are costing Europe dearly. If the EU does not come up with better policies soon, local measures will need to be taken, which are considerably more expensive than measures taken across the EU.

1 Introduction

Noise pollution consistently ranks high on the list of citizens' concerns. It is estimated that over half of Europe's population is exposed to unacceptable noise levels. Noise from road transport is the major source, followed by aircraft and railway noise. In its 6th Environmental Action Programme (2002-2012) the EU has set itself the objective of substantially reducing the number of people regularly affected by long-term average levels of noise. The aim of reducing noise exposure to acceptable levels has been repeated in the renewed Sustainable Development Strategy as well as in the transport White paper and its mid-term review. Despite all efforts in this direction, however, EU policy does not seem to recognise that noise is first and foremost a major environmental health issue.

Vehicle noise regulation is important, especially in light of growing traffic volumes and the proximity between transport infrastructure and residential and living areas. Every doubling of transport intensity increases noise levels by 3 dB(A). Vehicle noise regulation goes back to the 1970s, with tyre/road noise regulation added in 2001 and thereafter. In their present form, however, both sets of legislation are too liberal to have had any significant effect and the number of people exposed to ambient noise has consequently increased rather than declined.

This report highlights the scale and scope of the traffic noise problem, which affects a very substantial proportion of the European populace. It serves as a background report to a T&E brochure and is based on a thorough literature review. The report covers health effects and social costs, and reviews noise reduction policies and measures to reduce noise exposure. In conclusion, a number of recommendations for action are given. The report focuses on road and rail transport.

2 The health effects of traffic noise

In this chapter we first discuss the health impact of traffic noise, describing the various effects signalled and discussing the scientific evidence for each. We then report on the number of people exposed to traffic noise and the number likely to be affected by the respective health effects. Finally, we briefly review the evidence for traffic noise having an impact on animals and ecosystems.

2.1 WHO Community Noise Guidelines

Traffic is the most widespread source of environmental noise. Exposure to traffic noise is associated with a wide range of effects on human health and well-being. The World Health Organisation (WHO) recognises community noise, including traffic noise, as a serious public health problem, prompting it to publish guidelines on community noise in 1999 (Berglund et al., 1999). These guidelines present noise levels above which a significant impact on human health and/or well-being is to be expected. In 2007 an extension of the guidelines was published (WHO, 2007), focusing on the health impacts of night-time noise. Table 1 presents the relevant guideline values for specific environments. When multiple adverse health effects are identified for a given environment, the guideline values are set at the level of the lowest adverse health effect (the 'critical health effect').

Table 1 Selected values from the WHO Community Noise Guidelines and WHO Night Noise Guidelines

Specific environment	Critical health effect	Day: L_{Aeq} (dB(A)) Night: L_{night} (dB(A))	Time base (hours)
Day-time and evening noise			
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16
Dwellings, indoor	Speech intelligibility and moderate annoyance, daytime and evening	35	16
School class rooms, and pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	During class
School playground, outdoor	Annoyance	55	During play
Hospital ward rooms, indoors	Sleep disturbance, daytime and evenings	30	16
Hospital, treatment rooms, indoors	Interference with rest and recovery	a	
Night-time noise			
At the façade, outside	Body movements, awakening, self-reported sleep disturbance	30	During the night

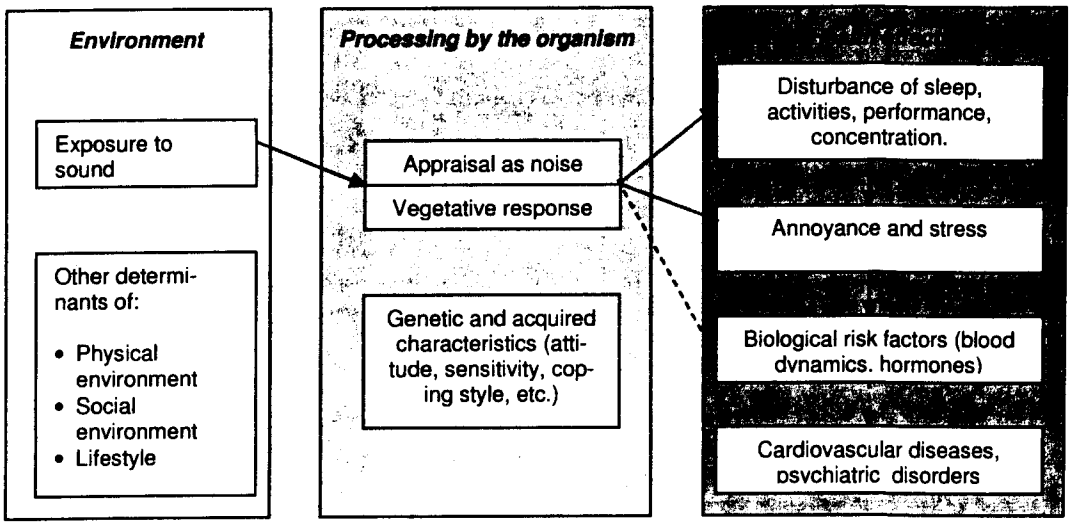
[a] As low as possible.

2.2 The relation between noise and human health

Traffic noise frequently exceeds the guideline values published by the WHO and those exposed to traffic noise consequently suffer an array of adverse health effects. These include socio-psychological responses like annoyance and sleep disturbance, and physiological effects such as cardiovascular diseases (heart and circulatory problems) and impacts on mental health (RIVM, 2004). In addition, traffic noise may also affect children's learning progress. Finally, prolonged, cumulative exposure to noise levels above 70 dB(A), common along major roads, may lead to irreversible loss of hearing (Rosenhall et al., 1990).

Figure 1 summarises the potential mechanisms of noise-induced health effects and their interactions. In the first place, noise exposure can lead to disturbance of sleep and daily activities, to annoyance and to stress. This stress can in turn trigger the production of certain hormones (e.g. cortisol, noradrenalin and adrenaline), which may lead to a variety of intermediate effects, including increased blood pressure. Over a prolonged period of exposure these effects may in their turn increase the risk of cardiovascular disease and psychiatric disorders. The degree to which noise leads to disturbance, annoyance and stress depends partly on individual characteristics, in particular a person's attitude and sensitivity to noise. Finally, the relation between noise and personal health and well-being is also influenced by external factors like physical and social environment and lifestyle.

Figure 1 The mechanisms of noise-induced health effects



Source: HCN (Health Council of the Netherlands), 1999.

2.3 Review of health effects

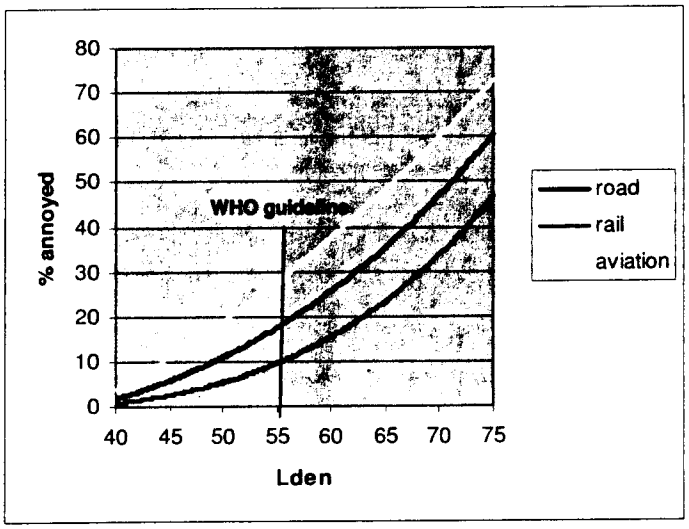
From Figure 1 and the discussion thus far we can identify the following potential health effects due to exposure to traffic noise:

- Annoyance.
- Sleep disturbance.
- Disturbed cognitive functioning (learning and understanding).
- Cardiovascular disease.
- Adverse effects on mental health.

2.3.1 Annoyance

The most widespread problem created by noise is quite simply annoyance. Annoyance can be defined as a general feeling of displeasure or adverse reaction triggered by the noise. Among the ways it can express itself are fear, uncertainty and mild anger (Stansfeld & Matheson, 2003; RIVM, 2005). In the human environment (which also includes neighbours, industry, etc.) traffic is the single most important source of noise annoyance (Niemann & Maschke, 2004; RIVM, 2004). As Figure 2 shows, aircraft noise is perceived as more annoying than road and rail traffic noise at the same volume. At a noise level of 55 dB(A), the guideline limit set by the WHO, approximately 30% of those exposed are annoyed by aircraft noise, about 20% by road traffic noise and about 10% by rail traffic noise. Some people begin to experience annoyance at traffic noise from noise levels of 40 dB(A) upwards.

Figure 2 Percentage of people annoyed as a function of noise exposure of dwellings (Lden in dB(A))



Source: Miedema & Oudshoorn (2001).

The degree of annoyance triggered by traffic noise is determined first of all by the noise level. The higher the level, the more people are annoyed and the greater the severity of perceived annoyance (Ellebjerg Larsen et al., 2002; RIVM, 2005).

The degree of annoyance depends on other noise characteristics, too (London Health Commission, 2003). The higher the pitch of the noise, the greater the annoyance. Duration and intermittency also influence the degree of annoyance.

However, traffic noise-induced annoyance is governed by more than just acoustic factors, with personal and situational factors also coming into play, as well as a person's relationship to the source of the noise. In a familiar illustration, a mosquito may not make much of a noise, but during the night it can cause considerable annoyance. Feelings of annoyance depend in the first place on an individual's sensitivity to noise (Ouis, 2001; RIVM, 2004). The fact that noise is a form of harm that can be avoided contributes to people's perception of noise as annoyance (London Health Commission, 2003). Another important determinant of perceived annoyance is fear of the noise's source (RIVM, 2004). People who feel they have no control over the situation, or believe authorities are failing to control it, are likely to experience a greater level of annoyance. Annoyance at noise depends also on how the noise interferes with everyday life (London Health Commission, 2003; Stansfeld & Matheson, 2003). People will be more annoyed when noise affects activities that involve talking and listening, such as conversations, listening to music, watching television and so on. Finally, noise in situations where it is expected is less annoying than noise in circumstances anticipated to be quiet. For this reason noise at night-time (the buzzing of a mosquito, as cited, but also traffic noise) is more annoying than during the day.

To some extent, people frequently exposed to traffic noise develop strategies of adapting and coping with the problem (London Health Commission, 2003). The problem still remains, however: subconscious physical reactions, such as raised blood pressure, and levels of annoyance due to chronic noise will not diminish over time unless the noise itself is abated.

2.3.2 Sleep disturbance

Traffic noise is the main cause of sleep disturbance (Niemann & Maschke, 2004). This effect of noise on sleep has important health effects, since uninterrupted sleep is known to be a prerequisite for proper physiological and mental functioning in healthy people (WHO, 2007). Three types of effects of noise on sleep can be distinguished: effects on sleeping behaviour (primary effects), effects on performance and mood through the following day (secondary effects) and long-term effects on well-being and health:

- *Sleeping behaviour.* Night-time noise can increase the arousal of the human body, i.e. lead to activation of the nervous system, which may result in a person awakening or prevent them from falling asleep (Ising et al., 2004; TNO Inro, 2002; WHO, 2007). However, this arousal response to noise is often more subtle than mere awakening and may involve a change from a deeper to lighter sleep, an increase in body movements, a temporary increase in heart rate and changes in (stress) hormone levels (RVIM, 2003; HCN, 2004; WHO, 2007). Finally, there is also some evidence that blood pressure is affected by traffic noise during sleep (WHO, 2007).

- *Effects on performance and mood through the following day.* The secondary effects of sleep disturbance include reduced perceived sleep quality and increased drowsiness, tiredness and irritability (HCN, 2004). While there are also indications of other effects such as depressed mood and decreased performance (Ouis, 2001), the available evidence is still inconclusive (HCN, 2004; WHO, 2007).
- *Long-term effects on well-being.* In the long-term, night-time noise can lead to insomnia and increased medication use (HCN, 2004; WHO, 2007). It may also result in chronic annoyance (Berglund et al., 1999; RIVM, 2004). Furthermore, an increased risk of cardiovascular disease due to night-time noise is plausible, although there is only limited evidence for this effect (TNO Inro, 2002; WHO, 2007). Finally, there are certain indications that night-time noise can contribute to mental illness (WHO, 2007)

The effects of night-time traffic noise on sleep disturbance begin at fairly low volumes and become more likely as the intensity of the noise increases. Changes between sleep stages, increased body movements and heart-rate acceleration start at noise levels around 32-42 dB(A) (WHO, 2007). In addition, reported sleep quality is likely to be affected at noise levels above 40 dB(A) (RIVM, 2004; Ising et al., 2004; WHO, 2007). Night-time awakenings also start at levels above 40 dB(A) (WHO, 2007). However, sleep disturbance is influenced by other noise characteristics, too. People are far more sensitive to intermittent noise than continuous noise (Prasher, 2003). For example, an accelerating car will disturb a person's sleep more than a continuous traffic flow. In addition, the alarm function of the sense of hearing may lead to awakening if the noise contains information perceived to be of relevance, even if the noise level is low. This means that unfamiliar noises are far more likely to disturb sleep than familiar, regular patterns of noise. Finally, personal characteristics like noise sensitivity influence the relation between night-time noise and sleep disturbances (Ouis, 2001).

People are good at adapting to nocturnal noise. However, there is never complete habituation, particularly with respect to heart-rate acceleration (Stansfeld & Matheson, 2003; WHO, 2007).

2.3.3 Impaired cognitive functioning

Exposure to traffic noise can impair an adult's cognitive functioning (information processing, understanding and learning) (Stansfeld & Matheson, 2003). To have this effect, though, noise levels must be high, or the task complex or cognitively demanding (Prasher, 2003). Repetitive and simple tasks are unaffected by (traffic) noise. The influence of noise on cognitive functioning depends on a person's perceived control of the noise and its predictability.

In the literature there is a prominent focus on the influence of traffic noise on the cognitive functioning of children. Although most of the studies are concerned with the impact of aircraft noise in this respect, some of them consider road and rail traffic noise, too. According to Bistrup et al. (2001), the adverse effects of road traffic noise exceed those of rail traffic noise.

In general, the following effects have been found for children exposed to high levels of traffic noise (Bistrup et al., 2001; Clark et al., 2005; RIVM, 2005):

- Difficulty sustaining attention.
- Difficulty concentrating.
- Poorer discrimination between sounds and poorer perception of speech.
- Difficulty remembering, especially complex issues.
- Poorer reading ability and school performance.

A hypothesis frequently stated to explain the impact of chronic exposure to noise on the cognitive development of children is that noise affects the intelligibility of speech communication (Bistrup et al., 2001; RIVM, 2005). Ambient noise leads to a loss in the content of a teacher's instruction, and consequently children may have problems with speech perception and language acquisition. This, in turn, can lead to impairment of children's reading skills and vocabulary, and eventually to difficulties with other, higher-level processes, such as long-term memory for complex issues. Closely related to this process is the so-called 'tuning out' response: to adapt to noise interferences during activities, children filter out the unwanted noise stimuli (RIVM, 2005). However, researchers suggest that children generalise this strategy to other situations where noise is not present, with adverse effects on their understanding and learning performance.

Although there has been little research into the impact of noise reduction in this context, there is evidence that reduced noise levels can relieve cognitive problems within about a year (London Health Commission, 2003).

2.3.4 Cardiovascular disease

Exposure to traffic noise is associated with changes in blood pressure and increased risk of various types of heart disease (e.g. ischemic heart diseases, angina pectoris, myocardial infraction). Noise-induced cardiovascular diseases are considered to be the consequence of stress (Babisch, 2006; Ising et al., 2004; Prasher, 2003; RIVM, 2004). Exposure to noise triggers the production of (stress) hormones like cortisol, noradrenaline and adrenaline. It does so both directly and indirectly, through disturbance of activities. These hormones may cause changes in the values of a number of biological risk factors, such as hypertension (high blood pressure), blood lipids (e.g. cholesterol) and blood glucose. These risk factors can increase the risk of cardiovascular disease (Babisch, 2006; Ising et al., 2004). Persistent exposure to environmental noise could therefore result in permanent changes to the vascular system, with elevated blood pressure and heart diseases as potential outcomes. The magnitude of these effects will be partly determined by individual characteristics, lifestyle behaviours and environmental conditions (Berglund et al., 1999).

Sufficient evidence can be found in the literature for the relation between traffic noise and heart diseases like myocardial infarction and ischemic heart diseases (Babisch, 2006; Babisch et al., 2005; Ising et al., 2004; Prasher, 2003). Higher risks of heart disease are found for those living in streets with average noise levels above 65-70 dB(A). For these people the risk of heart disease is approximately 20% higher than for those living in quieter areas (Babisch, 2006). This risk

increases with noise level. Again, the risk is also influenced by personal characteristics. For example, Babisch et al. (2005) found that only men are at higher risk of heart attack due to traffic noise. This risk is also dependent on the number of years of exposure to the traffic noise, moreover. The longer people are exposed to a high level of traffic noise, the greater the likelihood of it having an impact and increasing the risk of a heart attack.

There is a growing body of evidence for a higher risk of hypertension in people exposed to high levels of traffic noise (Babisch, 2006). For example, a recent study by Bluhm et al. (2006) suggests the existence of a relation between residential exposure to road traffic noise and hypertension. However, earlier studies (e.g. Babisch, 1998; RIVM, 2005) show less evidence for this relationship, and according to Babisch (2006) these studies cannot be neglected in the overall judgement process. Hence more research into the relation between traffic noise and hypertension is needed.

There has been hardly any research into the impact of night-time noise exposure on cardiovascular health outcomes (Babisch, 2006). One exception is UBA (2003), who showed that night-time noise exposure was more strongly associated with medical treatment for hypertension than day-time noise exposure.

In contrast to the subjective perception of noise, which adapts within a few days through habituation (see paragraph 2.3.1), none of the cardiovascular diseases show habituation to noise after prolonged exposure (WHO, 2007).

2.3.5 Mental illness

A small number of studies have presented limited evidence for a link between traffic noise and mental illness (Prasher, 2003; Stansfeld & Matheson, 2003; WHO, 2007). The clear association between noise and annoyance does not necessarily translate into a more serious relationship with mental health (London Health Commission, 2003). However, noise may well accelerate and intensify the development of latent mental disorder. Even so, people already suffering mental problems are likely to be more sensitive to being annoyed or disturbed by traffic noise than the general population.

2.4 Traffic noise especially harmful to vulnerable groups

The health effects of road and rail traffic noise are not distributed uniformly across society, with vulnerable groups like children, the elderly and the sick affected most. In addition, poorer people are more likely to suffer the health effects of transport noise than the better off. This might be explained by lower quality housing with poor noise insulation and the proximity of housing for lower income groups to noisy transport infrastructure.

Children are likely to be a group that is particularly vulnerable to the health effects of noise. They have less cognitive capacity to understand and anticipate it and lack well-developed coping strategies (Stansfeld & Matheson, 2003). As

children are still developing both physically and cognitively, moreover, in this group there is a potential risk of chronic noise having irreversible negative consequences. The impact of traffic noise on children's cognitive development has already been briefly discussed. Noise may also possibly affect foetal development, by way of (stress) effects on expectant mothers (EPA, 1978). However, a more recent study questions this impact on foetal development, although such effects are not completely ruled out (Bistrup et al., 2001). Additionally, children do not appear to be at particular risk with respect to cardiovascular disease, especially through high blood pressure (Babisch, 2006). At the same time, though, traffic noise exposure from an early age may have cumulative health effects in later life, which once more include cardiovascular disease. This also holds for the negative effects of sleep disturbance. In the short term, however, children are less severely affected by sleep disturbance than adults (RIVM, 2004), as evidenced by fewer awakenings and changes between sleep stages. With respect to annoyance due to traffic noise, finally, children do not differ from adults.

The elderly and the sick are two other groups that may be especially vulnerable to the effects of traffic noise. There has not been much research into this area, however. One of the rare findings is that both the elderly and those already ill are more affected by sleep disturbance - especially awakenings - than the general population (HCN, 2004; Ouis, 2001). Also, those already suffering from sleep disturbance are more severely affected by traffic noise. With regard to cardiovascular disease, Babisch (2006) shows that people with prevalent chronic diseases have a slightly higher probability of contracting certain heart diseases as a result of traffic noise than those without. For the elderly, there is no consistent evidence that the effect of traffic noise on cardiovascular diseases is greater than for younger people. Finally, traffic noise may aggravate the psychological problems of people with existing health problems (London Health Commission, 2003).

The price of houses exposed to high levels of traffic noise will be lower than that of similar houses in quieter areas (Soguel, 1994; Theebe, 2004). Those living on lower household incomes are therefore more likely to be exposed to traffic noise than those with higher incomes, and will hence have more noise-related health problems. For the Dutch region 'Rijnmond' this relationship between household income and exposure to noise was confirmed by RIVM (2004).

2.5 Over 210 million in EU25 exposed to harmful traffic noise

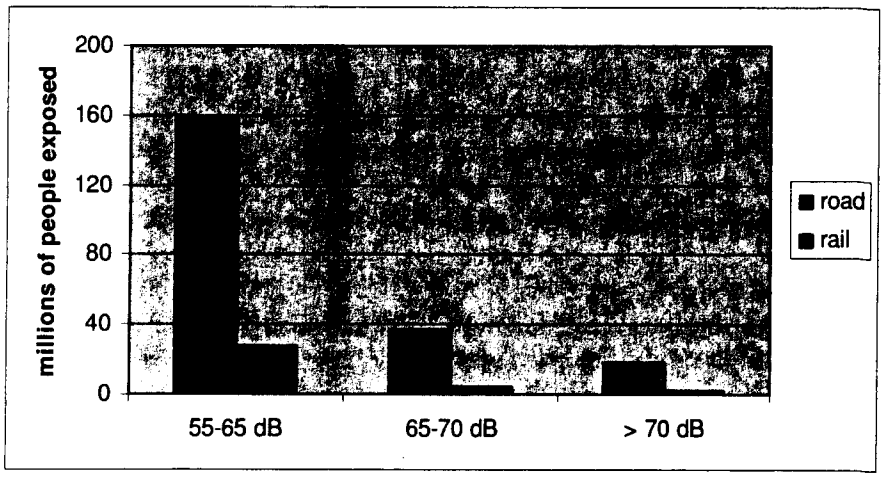
In the year 2000 about 44% of the population of the EU25[3] (over 210 million people) were exposed to road traffic noise levels above 55 dB(A). This is the WHO guideline value for outdoor noise levels and the threshold for 'serious annoyance'. More than 54 million people were exposed to road traffic noise levels over 65 dB(A), which is ten times louder than the WHO guideline value. Rail traffic noise is a burden to fewer people. Nonetheless, 35 million people in the EU25 (about 7%) were exposed to rail traffic noise above 55 dB in 2000, with 7 million of them exposed to noise over 65 dB from this source.

[3] EU27 except Cyprus and Malta.

In most European countries the number of people exposed to noise levels below 55 dB are not reported on. As already discussed, though, noise below 55 dB may still trigger adverse effects like annoyance, sleep disturbance and reduced cognitive ability. The actual number of people exposed to levels of traffic noise that are potentially dangerous to their health will thus be higher than the figures presented in Figure 3.

The data in this figure are for the year 2000. Given traffic growth and the fact that legislation and standards have hardly changed in the meantime, these exposure figures probably underestimate the true extent of the problem.

Figure 3 Number of people exposed to road and rail traffic noise in 25 EU countries in 2000



Note: This figure covers the EU27 except Cyprus and Malta.
Source: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), calculations by CE Delft (for Estionia, Latvia, Lithuania).

These figures for the number of people exposed to traffic noise are based mainly on data from INFRAS/IWW (2004) (West European countries) and OECD/INFRAS/Herry (2002) (East European countries). Link (2000) also presents estimates for the number of people exposed to traffic noise in certain West European countries. Although in some cases the results for individual countries (including the Netherlands) differ considerably between the first and last of these studies, the aggregate numbers are comparable, with a difference of only about 3% between the two. Since INFRAS/IWW (2004) covers more countries and uses more up-to-date data, we chose to present these figures here.
The reliability of these data sets is discussed in appendix A.

2.6 Health of millions of Europeans affected by traffic noise

Although not all people exposed to road or rail noise will experience health effects (see also appendix A), a significant fraction will. Beyond investigations of the absolute number of people suffering from various health effects due to traffic noise, however, not much research has been undertaken in this area. In this sec-

tion, therefore, we cannot do much more than provide an estimate of the number of people affected by cardiovascular disease. In addition, figures on the number of people experiencing annoyance at traffic noise in Europe are presented. Finally, the health impact of traffic noise is compared to the health impact of two other social problems: air pollution and traffic accidents.

Fatal heart attack and ischemic heart diseases

The annual count of people suffering a (fatal) heart attack due to traffic noise is known for three countries only (see Table 2). For two of these, Denmark and Germany, the annual count for ischemic heart diseases (IHD) is also known.

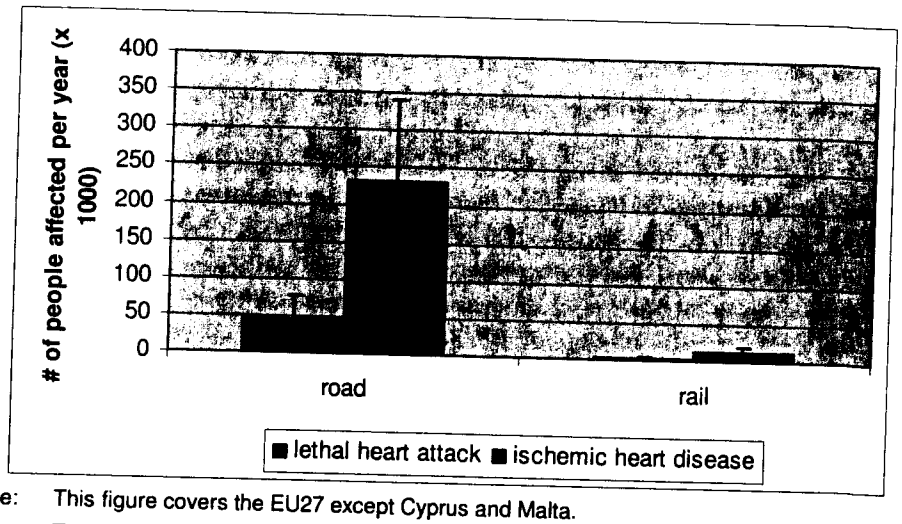
Table 2 Number of people affected by heart diseases and the probability of heart diseases due to traffic noise in three European countries

Country	Annual count of people suffering a lethal heart attack	Annual count of people affected by IHD	Probability of a lethal heart attack for people exposed to > 60 dB	Probability of IHD for people exposed to > 60 dB
Denmark	200 - 500	800 - 2200	0.00026 - 0.00065	0.001 - 0.003
Germany	4,289	27,366	0.00017	0.001
Netherlands	300 - 1000	-	0.00016 - 0.00053	-

Sources: Babish, 2006; Danish, 2003; RIVM, 2005; probabilities calculated by CE Delft.

Based on these figures and the number of people exposed to noise levels above 60 dB(A) in the relevant countries, we estimated the probability of a fatal heart attack or ischemic heart disease and used these probabilities to estimate the number of people likely to be affected by these diseases in the EU25 annually. To this end, for each country we multiplied the number of people exposed to noise levels over 60 dB(A) by the respective probabilities of the heart diseases. The aggregate results of this estimation procedure are shown in Figure 4.

Figure 4 Indication of number of people affected by an ischemic heart disease or suffering a lethal heart attack due to traffic noise in the EU25 (2000)



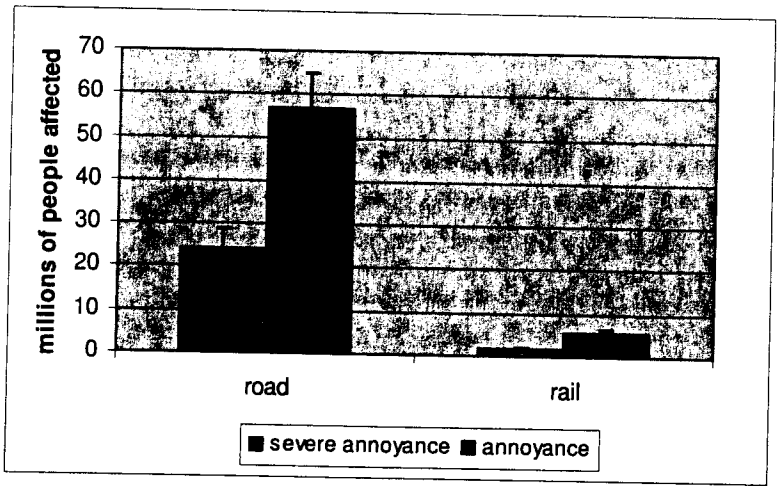
Note: This figure covers the EU27 except Cyprus and Malta.
To estimate the number of people affected by heart diseases the average of the probabilities from Table 2 were used, with the upper and lower bounds of the band width estimated using the highest and lowest probability, respectively.

We can conclude that over 245,000 people in the EU25 are affected by an ischemic heart disease due to traffic noise annually, of whom 94% (approx. 231,000) due to road traffic noise. About 20% (almost 50,000) of these people suffer fatal heart attacks. Road and rail traffic noise are thus responsible for around 50,000 premature deaths per year in Europe.

Annoyance

To estimate the number of people experiencing annoyance at traffic noise, we used exposure-response relationships. Miedema & Oudshoorn (2001) have estimated the percentage of people annoyed as a function of both road and rail traffic. Their exposure-response functions have already been presented in paragraph 2.3.1. These researchers derived exposure-response functions for both severe annoyance and annoyance and these curves have been recommended for use in EU legislation on noise (EC, 2001). Figure 5 shows the number of people experiencing (severe) annoyance at road and rail traffic noise in the EU25.

Figure 5 Number of people affected by (severe) annoyance due to road and rail traffic noise in the EU25 in 2000



Note: This figure covers the EU27 except Cyprus and Malta.

To estimate the number of people affected by (severe) annoyance, the exposure data from paragraph 2.5 were used. These exposure data are related to L_{Aeq} noise levels, while the exposure-response functions of Miedema & Oudshoorn are defined for L_{den} noise levels. For this reason the exposure data were translated using a rule of thumb: noise levels expressed in L_{den} are approximately 2 dB(A) lower than those expressed in L_{Aeq}. To express the uncertainty in the estimates a band width for the results is shown. The upper and lower bound of this band width were estimated by varying the exposure figures by 2 dB(A).

Around 57 million people in the EU25 are annoyed by road traffic noise, 42% of whom (approximately 24 million) are severely annoyed. This means that about 12% of the European population suffers annoyance due to road traffic noise. Rail traffic noise causes annoyance to about 5.5 million Europeans (about 1% of the total European population), of whom about 2 million are severely annoyed.

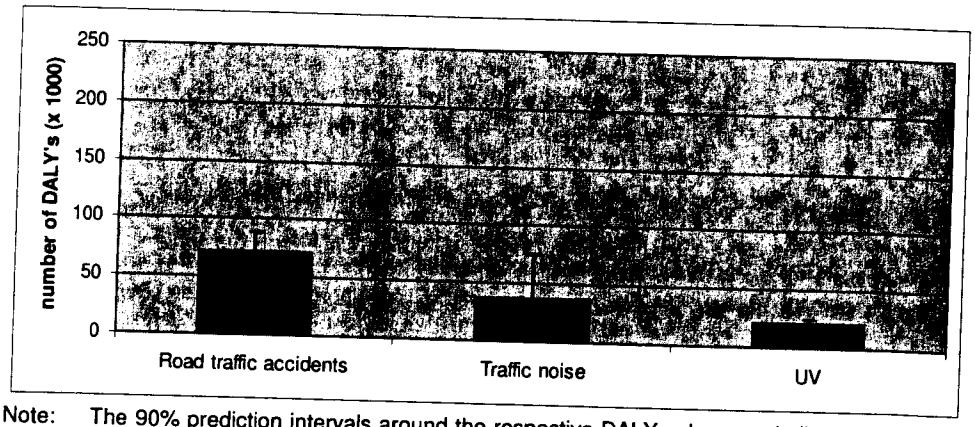
Comparison with health impact of other environmental problems

Disability-adjusted life years (DALY) is a measure used to quantify the overall 'burden of disease' on a population. It does so by combining the impact of premature death (mortality; life years lost) and disability (morbidity; life years lived with disability or disease) into a single, comparable measure. DALYs represent the total number of years of life lost due to premature death and of years lived with a reduced level of health, weighted by the seriousness of the health impairment suffered (SAEFL, 2003). Below, we use DALYs to summarise the health impact of an external environmental influence, traffic noise. By using this concept it is possible to compare the total impact of several health effects of traffic noise and, moreover, to compare the magnitude of these effects with that of other problems affecting society, such as air pollution and traffic accidents.

The WHO is currently working on an estimate of DALYs for traffic noise for Europe. To date, however, there is only country for which such an estimate is publicly available: the Netherlands. For this country, RIVM (2005) present DALYs for several environmental vectors of disease: see Figure 6. The DALYs for traffic

noise take the following health effects into account: mortality (through stress, hypertension and cardiovascular diseases), severe annoyance and severe sleep disturbance. These health effects are the major determinants of DALYs caused by traffic noise. Including other health effects, such as the adverse impact on cognitive functioning and hearing impairment, will not significantly change the order of magnitude of DALYs related to traffic noise.

Figure 6 Burden of disease due to several problems in the Netherlands in 2000, in DALYs



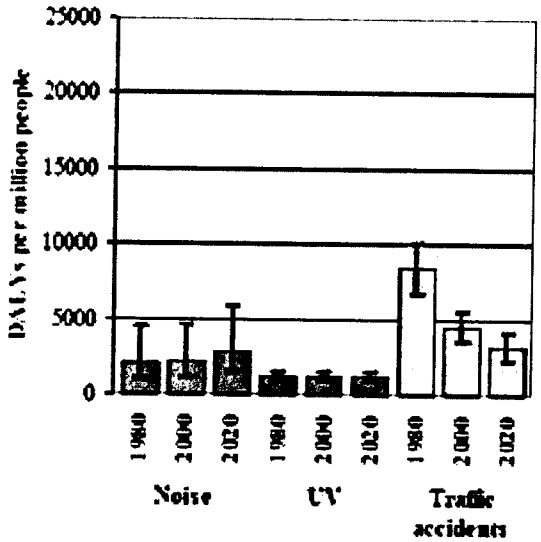
Note: The 90% prediction intervals around the respective DALY values are indicated by a band width. The figures for traffic noise include road, rail and air traffic noise.
Source: RIVM, 2005.

The annual health loss associated with traffic noise is approximately half the health loss due to traffic accidents.

The number of DALYs related to traffic noise presented in Figure 6 also includes the noise of air traffic. The latter is only a very minor source of health loss (see Figure 8), as airport noise affects only relatively few people. However, the exposure of these people is likely to be severe, and so will their health loss.

RIVM (2005) also present trends in the environmental burden of disease in the Netherlands for the period 1980-2020. Figure 7 presents trends in DALYs due to three environmental problems.

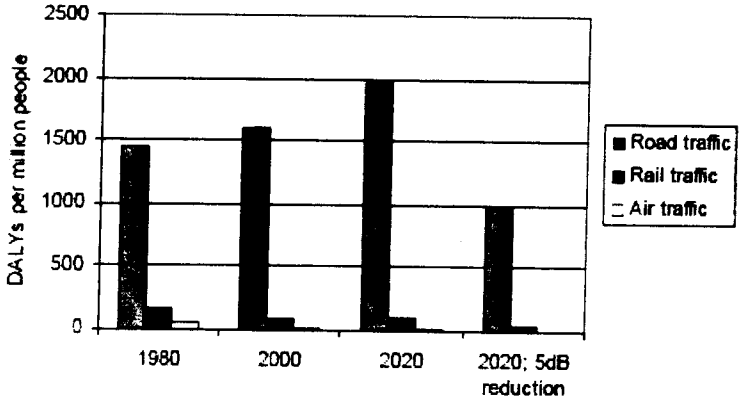
Figure 7 Trends in DALYs per million people in the Netherlands for the period 1980-2020



Source: RIVM, 2005.

In contrast to problems like traffic accidents, the number of DALYs due to traffic noise rose between 1980 and 2000. With policy as it stands today, this disease burden will continue to grow in the coming years, while that of traffic accidents will continue to fall. RIVM (2005) also report on the potential decrease in disease burden if noise levels are reduced by around 5 dB(A) for every source by 2020. Such a reduction could almost halve the number of annoyance and sleep disturbance-related DALYs (see Figure 8).

Figure 8 DALYs per million caused by severe annoyance and severe sleep disturbance due to raod, train and air traffic noise, for 1980, 2000 and 2020, including an alternative scenario for 2020 (with 5 dB(A) noise exposure reduction for road and rail traffic)



Source: RIVM (2005).

In Chapter 4 we demonstrate that a 3-4 dB(A) reduction of road and railway noise is easily feasible in the short term using currently available technologies.

2.7 Effects on animals and ecosystems

It is not only humans but also animals that are affected by traffic noise. When exposed to man-made noise they may suffer both physiological and behavioural effects (Kaseloo and Tyson, 2004). With regard to the former, an animal's response may range from mild annoyance to panic and escape behaviour. These responses are manifestations of stress, which may harm an animal's health, growth and reproductive fitness. For example, energy losses due to escape and panic responses could result in impaired growth and health. For some animals, traffic noise also interferes with communication (Kaseloo, 2005). Bats, for example, a species group totally reliant on echo location, are unable to find food if noise levels are too high.

In terms of behaviour, animals may avoid places with high levels of traffic noise. In the case of birds it has been found that sound levels above 40 - 45 dB(A) influence species distribution; as the noise level at a given spot increases, fewer birds will visit the spot (Kaseloo, 2005; RIVM, 2002). For animals like the mountain goat and white-tailed deer, too, evidence has been found for the avoidance of noisy areas around busy roads (Kaseloo & Tyson, 2004).

The effects of traffic noise on animals vary markedly among as well as within species, owing to a variety of factors (such as age, sex, prior exposure, etc.). It is therefore hard to draw any general conclusions about the effects of traffic noise on animals. Further research on this topic is certainly needed. Nevertheless, from the evidence presented here it is reasonable to say that traffic noise interferes with animals' feeding, hunting and breeding behaviour and performance.

3 The social costs of traffic noise

3.1 Valuing the health effects of traffic noise

The loss of well-being due to exposure to traffic noise can be expressed in monetary terms. The amount of money people are willing to pay to avoid traffic noise provides a good estimate of the loss of well-being people experience. In some instances the market will provide reliable estimates of people's willingness to pay (WTP). For example, the price of sleeping pills provides an estimate of the WTP to fall asleep and avoid night-time awakenings.

For many of the health effects of noise, however, there are no such market prices. To estimate the WTP to avoid these effects various methods are available. Generally speaking, there are two relevant valuation methods: hedonic pricing and contingent valuation. The hedonic pricing method examines variations in housing prices due to traffic noise. These differences can be seen as the WTP to avoid the adverse effects (especially annoyance) of noise. The contingent valuation method, on the other hand, involves asking people directly in a survey how much they would be willing to pay to avoid certain health effects associated with noise. Both methods are used for placing a value on the effects of traffic noise.

To value mortality due to traffic noise means assigning a monetary value to a human life. In the field of environmental valuation this has always been a controversial topic, for the WTP to avoid the loss of one's life is infinite, is it not? Nonetheless, in their everyday lives people make plenty of choices that influence their risk of mortality. For example, we may choose to drive a motorcycle despite being aware that this involves a greater risk of lethal accident than driving a car. With the aid of this kind of information on risk behaviour a value can be determined for a *statistical* human life.

Additional information on attributing a monetary value to traffic noise is provided in appendix B.

3.2 Social cost of traffic noise in EU22 over € 40 billion a year

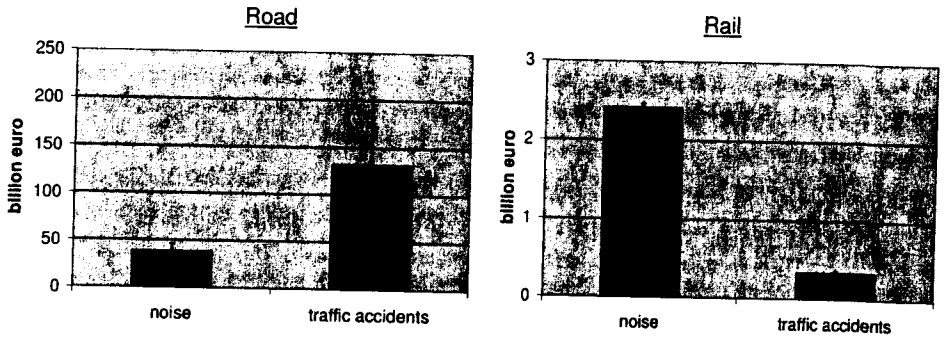
The social cost of road traffic noise in the EU22[4] is estimated to be at least €38 (30 - 46) billion per year, which is approximately 0.4% of total GDP in the EU22. For rail, estimates of social costs due to noise are about € 2.4 (2.3 - 2.5) billion per year (about 0.02% of total EU22 GDP). It should be noted that this takes into account only effects related to noise levels above 55 dB(A), while people may also be adversely affected by noise below this level. Hence, the social cost estimates presented here probably underestimate the actual costs.

The social costs of road traffic noise in the EU22 are almost one-third of those associated with road traffic accidents; see Figure 9. In the case of rail traffic,

[4] EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.

though, the social costs of noise are approximately seven times those of accidents.

Figure 9 Social costs of traffic noise in the EU22 compared to those of traffic accidents (2006 price level)



Note : This figure covers the EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta and hence covers 98.4% of the EU27's population.
Sources: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), Link (2000).

These social cost estimates are based on valuation studies by INFRAS/IWW (2004), OECD/INFRAS/Herry (2002) and Link (2000). INFRAS/IWW and Link provide cost estimates for West European countries, while cost estimates for East European countries are provided by OECD/INFRAS/Herry. INFRAS/IWW and Link cover partly the same countries, with the two studies presenting somewhat different estimates for some of them. A brief explanation for these differences is given in appendix B. As it is not clear which of the studies presents the most reliable estimates, in calculating total social noise costs in the EU22 the average of the two has been used for the relevant countries. For these countries minimum and maximum estimates were also determined, which were used to estimate band width. Note that the band width for the estimated social costs of traffic noise in the EU22 is based on minimum and maximum estimates for just 9 countries. For the other 13 countries, only a single estimate was available.

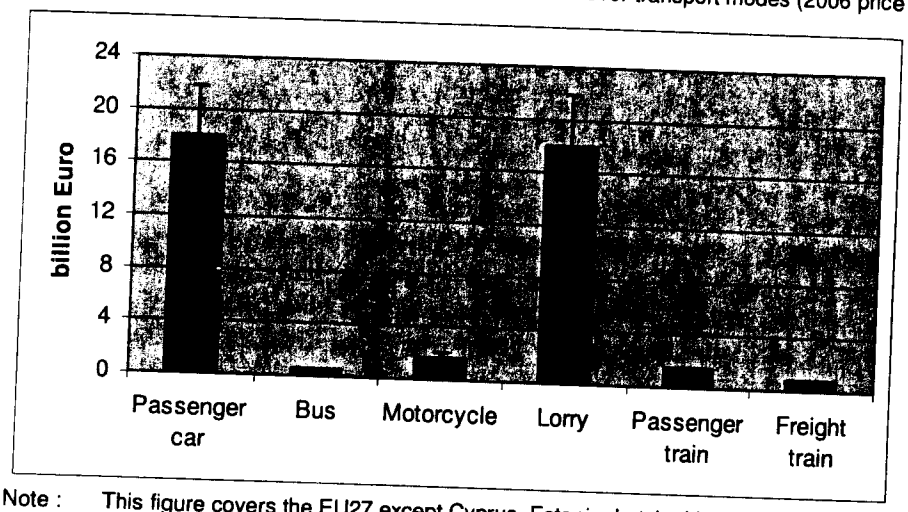
Another way to estimate the social costs of traffic noise is by valuating the associated DALYs (see previous chapter). As mentioned, the WHO is currently working on an estimate of DALYs due to traffic noise in Europe and certain preliminary results of this study have already been presented in the EU's Noise Steering Group[5]. These tentative results show that the total number of DALYs depends heavily on how the DALYs due to annoyance are calculated. Differences in measuring method yield estimates differing by a factor 2. If we value the WHO's conservative estimate of DALYs (assumption: 1 DALY equals € 78,500 (VITO, 2003)), the social costs of traffic noise are found to be comparable to the figure obtained by using the results of INFRAS/IWW, OECD/INFRAS/Herry and Link. The social cost estimates presented above would therefore appear to be robust, but conservative.

[5] See: http://circa.europa.eu/Public/irc/env/noisedir/library?l=/health_effects_noise/who&vm=detailed&sb=Title

3.3 Passenger cars and lorries responsible for bulk of costs

Passenger cars and lorries are responsible for 90% of the total social costs of road and rail traffic noise in Europe; see Figure 10. This is due above all to the large number of vehicles and kilometres driven on European roads.

Figure 10 Distribution of social costs due to traffic noise in the EU22 over transport modes (2006 price level)



Note : This figure covers the EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.
Sources: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), Link (2000).

This distribution of social costs over transport modes is again based on the valuation studies by INFRAS/IWW (2004), OECD/INFRAS/Herry (2002) and Link (2000). To derive average figures for the EU22 the same methodology was used as in section 3.2.

3.4 Benefits of noise reduction

Noise abatement policies will have major economic benefits. Less people will be annoyed by traffic noise and the incidence of health problems will decline. With their sleep less disturbed, people may also be more productive at work. The latter effect may be reinforced by improved cognitive performance, moreover. According to Navrud (2002) the perceived benefit of noise reduction is € 25 per household per decibel per year. This estimate is based on a thorough review of the literature on this topic. The EU working group 'Health and Socio-Economic Aspects' (2003) also recommends using this figure to value noise reduction.

Noise abatement policies will generate cost savings for government, too. Expenditures on the health system will be lower due to a decline in noise-related health problems. In addition, if noise is reduced at its source (i.e. on vehicles, road surfaces and rail tracks), then local and national authorities can reduce the funds currently spent on building and maintaining noise barriers and insulation. The Dutch government's Noise Innovation Programme (IPG) has calculated that for every decibel of noise reduction at-source €100 million in expenditures on end-of-

pipe measures such as noise barriers and insulation will be saved (IPG, 2007). This calculation only takes major interurban roads and railways into account. Actual savings will probably be even greater, because other regions and urban areas will also benefit from such noise reduction via at-source measures. From a social perspective there is also a preference for at-source over end-of-pipe measures, the latter being considerably less cost-effective (see Chapter 4).

"Carmen Borg"
<Borg@smwlaw.com>
02/13/2009 02:15 PM

To <lower74EIR_D12@dot.ca.gov>
cc "Laurel L. Impett" <lmpett@smwlaw.com>
bcc
Subject Ortega Hwy Comments 34 of 34

34 of 34

Dear Mr . Shelley,

On behalf of Joan Irvine Smith and Save Ortega, please find attached our comments on the DEIR for State Route 74 Lower Ortega Highway Widening Project. You will be receiving a series of 34 emails containing our comment letter and appendices. (Please note that Appendix A to the DEIR comment letter consists of our previous comment letter on the Mitigated Negative Declaration and all 22 exhibits to that letter.) In addition, I will be sending via Federal Express a hard copy of the DEIR comment letter only and a compact disc. The disc, which includes the DEIR comment letter and its appendices, will be delivered to your office on Tuesday 2/17/09. We hope that the submittal on CD will make the documents easier to manage.

If you should have any problems receiving or opening these documents, or if you have any questions, please call me or my secretary Cynthia at the number below.

Carmen Borg, AICP
Urban Planner
Shute, Mihaly & Weinberger
396 Hayes Street
San Francisco, CA 94102
415-552-7272
The information contained in this email message is privileged, confidential, and protected from disclosure. If you are not the intended recipient, any dissemination, distribution, or copying is strictly prohibited. If you think that you have received this email message in error, please email the sender at borg@smwlaw.com or telephone at (415) 552-7272. H. (Traffic Noise reduction in Europe).pdf

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5. Public Comments

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P-1

"Devon Allen"
<dallen@

01/30/2009 03:15 PM

To <lower74EIR_D12@dot.ca.gov>

cc

bcc

Subject State Route 74 Lower Ortega Hwy/Draft EIRComment

Caltrans District 12 Office:

Thank you for giving the residents of San Juan Capistrano the opportunity to provide their comments to you regarding the State Route 74 Lower Ortega Highway Widening Draft Environmental Impact Report. As an impacted resident, I would like to comment that I believe this project represents extraordinarily poor long-term global planning by Caltrans in order to meet a perceived future traffic problem. By attempting to solve the problem of increased traffic by widening one highway, thereby profoundly negatively impacting the immediate residential areas, Caltrans is abandoning its responsibility to the greater area to concurrently pursue alternative road construction so that any future burden of increased traffic may be disbursed into the larger geographical area. 1

In addition, I object to the widening of Ortega Highway for the following health and safety reasons: there will be increased traffic, air pollution and noise that will negatively impact the well being of hundreds of families living in adjacent communities; the destruction of many beautiful specimen trees and the construction of unsightly sound walls will desecrate a scenic highway that is the gateway to the historic town of San Juan Capistrano; the road widening will induce drivers to increase their speed thereby creating traffic safety issues for a long stretch of highway that will not have traffic controls such as stop lights to ameliorate unsafe driving conditions - this safety issue will negatively impact residents attempting to enter Ortega Highway and is especially of concern because Ortega Highway is the only road by which students now may access San Juan Hills High School: and, if Ortega is the only road to be modified to accommodate increased traffic in the area it will function as a magnet for traffic seeking to reach the 5 Freeway from Riverside County, placing an unfair burden on our city and its residents. 2

By widening Ortega Highway under the proposed plan, Caltrans will succeed only in creating new problems without implementing a global solution to traffic issues that are now projected for far in the future. The situation that exists at the present time adequately serves the needs of those who use Ortega Highway. I know because I travel it many times each day and at various times of the day. Given the dire fiscal situation that the state of California finds itself in today, it would seem that the needless expenditure of state funds for the widening of Ortega Highway would be yet another example of wasteful government spending. 3

It is the responsibility of governmental agencies such as Caltrans to prudently manage the limited resources available for necessary public projects - the widening of Ortega Highway at this time and without the concurrent implementation of additional routes is clearly not a necessary project. 4

Your consideration of these comments is sincerely appreciated.

Very truly yours,

Devon Allen

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P-2

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Laurie Allen + Jim Allen

Comment:
Although we still don't think you need to start at Calle Entradero, we are much more satisfied with the current plan. We live in Hunt Club and back up to Ortega Road. We much prefer Option 1 (no sidewalk) to protect more trees. Also, please keep the plan to have NO sound walls between Entradero + Hunt. We don't need any more noise bouncing back up to us. Thank you. 1 2

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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P-3

Debe Baileys
<debe@
02/14/2009 02:14 PM
Please respond to
Debe Baileys
<debe@

To Lower74EIR_D12@dot.ca.gov
cc
bcc
Subject Opposition to Hwy 74 Widening

Caltrans District 12 Office
Attn: Scott Shelley
3337 Michelson Drive, Suite 380
Irvine, CA 92612-8894

Dear Mr. Shelley,

As an eighteen year resident of San Juan Capistrano, I want to express my extreme opposition to the widening of Ortega Highway within the city limits of San Juan Capistrano. The widening would be disastrous to our historic town and the project would be equivalent to putting a freeway through a residential community that then comes to a screeching halt at the onramp to the I-5 freeway. 1

As a resident of the Hunt Club community on the north side of Ortega Highway, it has become increasingly dangerous to enter and leave our community due the increasing amount of traffic coming from Riverside county to access the I-5 freeway. It sometimes takes in excess of 10 minutes to safely enter or leave our development, which is only accessable by Ortega Highway. 2

This is a residential area with children riding bikes and walking to school. It is an equestrian community with people on horseback and walking dogs. How can you seriously consider removing our sidewalks and raising the speed limit? 3

What thought has been put into the safety of the residents of San Juan Capistrano in order to accommodate motorists from outside our county? It is my understanding that there are several alternative road extensions and routes that will help with the Riverside County traffic that have not been pursued. These alternatives need to be studied. You cannot dump this problem on our town! 4

Sincerely,
Deborah Baileys
30691 Hunt Club Drive
San Juan Capistrano, CA 92675

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"Steven and Jamie Bellomo" <sjctalls@
01/31/2009 12:04 PM

To <lower74EIR_D12@dot.ca.gov>
cc "Robin and Margot Andrews" <robinandmargot@ , "Kent & Paulette Greenwald" <KPGREENWALD@C "Chris and
bcc
Subject Suggestion for State Route 74

Caltrans:

We live directly off State Route 74 in San Juan Capistrano (State Route 74 and Via Cuartel: http://maps.google.com/maps?hl=en&q=31272+via+cuartel+san+juan+capistrano,+ca&um=1&ie=UTF-8&split=0&gl=us&sa=X&oi=geocode_result&resnum=1&ct=image) with the proposed widening of State Route 74 (SR-74) from two lanes to four lanes from Calle Entradero in the City of San Juan Capistrano to the City/Orange County line we would like to know the possibility of closing Via Cuartel to State Route 74. 1

The amount of traffic on State Route 74 makes it nearly impossible to make a left turn onto State Route 74 during rush hour. Making State Route 74 four lanes will only increase the amount of traffic. The proposed home building east of Antonio parkway - 20,000 homes - will only increase traffic all the more. Having fewer uncontrolled cross-streets on State Route 74 will decrease the possibilities of accidents and increase the flow on State Route 74. 2

We have discussed the possibility of closing Via Cuartel to State Route 74 with many of the residents on Via Cuartel and they are in favor of doing this. Of course the State should pick up all cost associated with this change, including making a circle at the end of the street, re-landscaping the 2 corner lots, and if necessary reimbursement to the two corner lot owners for the loss of any of their land.

Steven and Jamie Bellomo
31272 Via Cuartel
San Juan Capistrano, CA 92675
sjctalls@

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P-5

"cathleen"
<cathleen.brannon@
02/13/2009 02:02 PM

To <lower74EIR_D12@dot.ca.gov>
cc
bcc
Subject comments DEIR/widening of Ortega Highway, San Juan Capistrano

Dear Sirs,

The following has been brought to my attention, and I'm upset that these concerns were not addressed.

--Coastal commission was not consulted for review for runoff to San Juan Creek or environmentally sensitive area that included wetlands. 1

--Caltrans hasn't properly considered that this widening, with added traffic and noise, will affect our entire town. The traffic will increase dramatically when the access from Riverside is made easier with this widening. This widening is being touted as a "regional solution" from the OCTA who teamed with the Riverside County Transportation Authority for "solutions". Further inappropriate segmentation for widening closer to Riverside will induce further traffic from Riverside commuters. Directly in conflict with greenhouse gas emission goals. OC roads are unfairly burdened to accommodate Riverside commuters and will induce further growth for east of Antonio& Riverside County. 2

--Segmentation of highway. The area that contained the wetlands, (albeit small) and abutted area bordering the gnatcatcher is no longer part of the analysis. OCTA requested this area be segmented. This area has now been graded, with the claim that it has environmental review completed. Documentation needs to be provided. Segmentation took place after the MND and just a few months prior to the release of the DEIR. 3

--Established trees along Ortega Highway will be uprooted, but no mention of where they will be replanted. 4

Thank you for your attention on these matters.

Cathleen Brannon
San Juan Capistrano

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D Bravender
<dianes_e_mail@
02/14/2009 01:10 PM
Please respond to
dianes_e_mail@

To lower74EIR_D12@dot.ca.gov
cc
bcc
Subject Ortega Widening Proposal

I became a resident of San Juan Capistrano in 1979 because of it's quaint charm.
Widening Ortega Highway would ruin that charm. Please consider the following when making your decision:

Highlights of the Public Comments

- **Pro-Widening Advocates** - There were **less than 10** documented respondents who **wanted Ortega *widened*** – and the majority of those who *did* favor widening did so because their *homes were already severely impacted by the current traffic Ortega has. They simply* ***wanted a sound wall*** *to give them back use of their home & enjoyment of their lives.* 1
- **CALTRANS Project Construction Sequence/Other Projects** - The vast majority believe that I-5/Ortega interchange improvements and La Plata extensions **must come first**, before the first shovelful of soil is turned on Ortega's widening through San Juan Capistrano. (There were also strong feelings on additional extensions being considered, such as Avery through to Ladera Ranch). This is contrary to the presentation in January where it was hoped that both projects would be done simultaneously – because the interchange would take far longer! 2
- **Trash Truck Traffic** – *The above issue is even more vital with the heavy round trip Trash Truck traffic to the Prima Deschera Landfill that deafens all residents backing or near Ortega! Nearly 20% (19.1% by CALTRANS' stud) of all vehicular traffic on Ortega is large tractor-trailer traffic.* 3
- **Tourism vs. Traffic** – while we want downtown to be vital and alluring to visitors outside San Juan Capistrano, this project will have virtually NO affect because tourist buses don't come East on Ortega, but use the freeway (and thus, the I-5 interchange @ Ortega is the critical junction) 4
- **The U-Turn Solution** - While CALTRANS had their heart in the right place, the idea of turning right, to eventually make a U-turn (without a light!), to go the direction originally desired was universally panned. *It's hard to conceive of why it was listed as a solution – it builds additional traffic on an already busy street, while forcing cross traffic (u-turns) in a non-protected manner! Wait until the 3-point turns occur! The next logical step of this "solution" will be to prohibit any U-turns until reaching a safe place...Lake Elsinore, maybe?* 5
- **Local Access** – Overwhelming comment surrounded the inability to turn into or out of our housing tracts at all times of the day. *Widening Ortega will only exacerbate this issue, as there will be fewer "gaps" to complete a turn. (This goes for the U-Turn solution as well!)* 6
- **Speed** – While it was a relief to hear in the January meeting that maximum design speeds 7

will not exceed 45 MPH (Down from the earlier reported speed allowances of 55 or higher!), it still is in conflict with the current posted 40 MPH – a limit that was *so important to maintain* , it was designated a **double fine zone** (and the tickets written daily must contribute a double percentage point to what ever coffer they go to) 7

- **Lost of Rural Feel** – Between the loss of the canopy of over 100 mature trees, the "bowling alley" effect of large, un-natural walls on either side (with strong likelihood of graffiti adorning them -- and the additional city-born cost of removal!), removal of wandering sidewalks on one or both sides, there was *absolutely no upside to this proposal for residents of the city* ! 8
- **San Juan Capistrano Bisected** – The vast majority of Ortega Hwy East of I-5 divides a completely residential and equestrian area. Yet residents aren't being given any relief in accessing their own town via walking, bike or horse through cross walks or additional lights. If a 300 HP ***car*** has trouble getting across two lanes of traffic to merge into a third, the image of kids or a horse successfully making the crossing are just plain ridiculous! 9
- **San Juan Hills High School** – This year they have freshman and sophomores (few, if any students currently drive), but in two years we'll have thousands of newly minted drivers making daily trips to and from school. 10
- **Noise, Noise and More Noise** – It was a primal scream for mercy ~ do not allow us to be unwilling victims/hosts of others living in homes yet to be built, damming the current paradise of San Juan Capistrano to become enslaved for some *future* development. The noise study results were heavily rejected with "come to my front yard between 4:30 ~ 7:30 am and then let's talk!" 11
- **Ortega Current Drainage Issues Unresolved** – Several residents noted the ongoing and very hazardous issue of local flooding that occurs east of Hunt Club. It's common to lose up to half of the west bound lane in places and not unusual to have run off completely *flood across all lanes during heavy rains* . 12
- **Current Ortega Road Maintenance** - It was only brought up a few times, and I was surprised. Right now, the current state of the Ortega Roadbed is seriously in need of repair along much of the length through San Juan Capistrano. There are already heavily "gatored" patches that will become potholes at the next big rain; ruts from the trucks in other places will lead to asphalt failure. And let's not forget the scrape that extends for over 1/4th of a mile east bound that remained unfixed for over a year (and for some reason is only half patched at the present time!). It this the level of service we'll inherit years after the proposed widening? 13

But all this was before the Environmental Impact Report was released. Was the wait worth it? While data, statistics and studies can be used in many ways, their interpretation and framing can radically alter the findings. There were numerous aspects that were cited in support of alternatives A and B, but upon closer examination were shown to be often contrary or misleading. 14

15

EIR Report Comments

There was a great deal of sleigh-of-hand in interpretation and presentation of the information…and room for improvement if this becomes the final plan. Specifically; 15

- **Under S.2.1/ Project Purpose** – Why is CALTRANS considering this project? All four points really speak to moving traffic **through** our city, allowing access to **future** developments outside our city, and providing "improvements consistent with local documents" *What it doesn't list is the goal of* ***local access*** **of current San Juan Capistrano residents** to this highway that literally runs through some of their back yards. The effect of this "improvement" on those eight affected intersections *(already listed as "poor" for the affected intersections in the previous CALTRANS' sponsored traffic study* ***and projected to be downgraded to "failed" after the improvements) is NEVER DIRECTLY ADDRSSED. The only documentation presented in Table 2.1.5-1 "Mainline Level of Service Summary" is how traffic is moving ALONG Ortega – totally ignoring the total deterioration of the traffic coming out of and into the 8 side streets! THIS IS OUR MEASURE "M" MONEY WORKING AGAINST US!!!*** ***One of the primary goals of this plan must be to include the interests of the San Juan Capistrano citizens who are most directly affected by it! This is NOT reflected in the project purpose or by any of the supporting consideration or documentation.*** 16
- **Under Table S-1 "Visual and Aesthetics (Permanent)** – There's almost a tone of glee in describing the addition curbs and gutters extending throughout the area (whoopee)! There will be landscaping, and tree replacement "**where feasible**" *But wait!* ***Don't think for a minute the "artist rendition" of that canopy of trees will once again soar over Ortega! No, no, no!*** *Because within 30' of a roadway edge with design speeds in excess of 35 MPH (ours will be at least 45 we're told) is considered a Clear Recovery Zone, and as such* ***NO TREE SHALL BE LOCATED THAT EXCEEDS A TRUNK DIAMETER OF FOUR (4) INCHES ~ AT MATURITY! Folks, we're talking giant shrubs at best – certainly nothing similar to what we already treasure! And the salt in the wound? It's measured from the EDGE of the road…so the ENTIRE area on either side of this project will ALL BE CONSIDERED A "CLEAR RECOVERY ZONE"*** 17
- **Utility Burial** – Note that in the same section above, all utilities are to be buried underground. There is an important aspect that CALTRANS doesn't reference. Anyone who's driven up Crown Valley Drive from I-5 east through Mission Viejo has already witnessed the ugly truth – *moving multiple utilities is a very, very long and frustrating process.* ***Crown Valley widening was due to be completed in a little over 8 months – and it's now over 1.5 years and still not completed!*** *And they fewer utilities to coordinate! So imagine this timeline doubling or tripling as The Gas Co, Cox, or SDG&E work off their own sweet timeline – with no real authority or control by CALTRANS other than to finish it* 18

in a "timely manner"

- **Hydrology & Floodplain (Permanent)** – Remember the current problem with Ortega flooding? How's that going to be solved? New drain covers! They do mention the possibility of "additional drain lines" but *nothing detailing the elimination of flooding, or altering the slope or crown of the road to prevent water from crossing Ortega. Oh and the erosion and debris that blocks those drains...well, hopefully they'll figure something out.* But we will get to enjoy bicycle-friendly drain covers! 18 19
- **Noise (Temporary)** – ***This section is woefully downplayed!*** *The promise of adhering to California DOT's "Sound Control Requirement" is NOT enough. There will be an enormous amount of additional, idling traffic, the on-going "**beep, Beep, BEEP**" of numerous pieces of equipment shifting into and out of reverse repeatedly, not to mention crew assembly points, destruction of current road bed, material deliveries, pile driving of the foundations of sound walls and much more will make this an on-going war zone ~ right outside some citizen's windows! WE ARE THE ONES BEING INCONVENIENCED WITHOUT ANY REAL BENEFIT! There needs to be serious discussions with the communities before anything begins about minimizing noise, or combining multiple noisy tasks simultaneously to minimize disruption (i.e. pile driving sound wall pylons while also removing existing road bed.) Clear restrictions on hours of operation with a hot line number to the project manager for violators must be provided. All operations should be restricted to Monday through Friday.* 20
- **Noise (Permanent)** – Why is there **no reference** to mandating use of rubberized asphalt for all lanes replaced on Ortega? This has been proven to substantially reduce noise (especially of multi-wheel vehicles, i.e. trucks), while offering the same durability of standard asphalt. Plus it's a recycled product (incorporating shredded truck tires, I believe), which should also work in favor of the environmental impact aspect?!?! 21
- **Climate Change** – **It's really, *REALLY* difficult to believe that there's no difference between the current "no build" options and alternates 1 and 2.** Does the use of recycled water and the use of whiter Portland cement (curbs & sidewalks) really negate the effects of a loss of a **mile long canopy of multi-story mature trees and the grass that used to be beneath them?** And what about the **addition of two long, wide lanes of black asphalt** (to be "shaded" with tall shrubs whose trunks will not exceed 4" at maturity)??? Then there's the matter of the **additional heat radiating from those two story sound walls** being baked in the sun (the brick front of my house is almost untouchable at the end of a summer day!). This is Seriously **FLAWED.** The statement about the use of landscaping cutting heat and CO2 is accurate – but we'll be LOOSING landscape and mature trees, and replacing them with smaller, immature plantings whose size at maturity is best described as dwarf! This is a NEGATIVE that's somehow being spun as a positive! **Further more, the statement must be challenged that "the project will comply with San Juan Capistrano's Section 9-2:349 Municipal code and plant trees above and beyond what CALTRANS is impacting."** *Exactly how can that be possible if **the entire scope of your project falls into your own definition of Clear Recovery Zone for every area alongside the roadbed?** Will there be a "memorial" forest planted at the east end of Ortega just inside the project line (but far enough removed not to endanger traffic)? Or will there just be many more pigmy trees planted within the Clear Recovery Zone – which would satisfy the wording, but certainly not the intent! This seems like a charade whose reality can never come true.* 22
- **Local Traffic Access (Turning on-to and off-of Ortega)** - *At the bottom of page 87 of the* 23

"Traffic Conditions at Mainline and Intersections" section an interesting literary sleigh-of-hand occurs. All the information presented is based on using and unsophisticated Highway Capacity Manual (HCM) instead of a physically monitored & tracked study. For the six un-signaled intersections, it notes at current conditions, the average time to turn on or off Ortega is 50 second per vehicle. With the "no build" option, that rate would be 200 seconds per vehicle. ***YET THE TIME IS NEVER MENTIONED FOR HOW LONG THAT TIME WOULD BE FOR EITHER ALTERNATE BUILD OPTION A OR B! Instead the famous "U-Turn" solution is presented promising "the delay experienced (by U-Turn) vehicles would be considerably less than the "no build" option" – but no evidence is offered or mentioned. Worse yet, the beginning of the paragraph notes "The side street delay analysis assumed certain gap acceptance parameters which may or may not be representative of actual conditions or driver behavior at (some or all) intersections"!!! This means that all of this future impact is done on an abstract theoretical nature! It was not based on any of the six intersections being physically surveyed by a traffic survey team to document actual turning time on to or off of any of those streets! Furthermore, it is pure conjecture that the U-Turn solution would work because 1) the right turn option is not measured in any reliable manner i.e. seconds to complete, 2) the U-Turn at the "next available street" is inconsistent for each of the six intersections (some would have to rapidly jump into a left hand turn pocket, while other intersections would require a much longer drive before that 'next" street was available, further 3) the affected car would now have to wait for another gap in the oncoming traffic (again, undocumented) and worse 4) any car now trying to enter Ortega (turning right) from that same intersection as the car making a U-turn in front of it will now be delayed further!*** *THIS ENTIRE ASPECT DEMANDS MUCH FURTHER DOCUMENTATION AND STUDY WITH ACTUAL SURVEY AS OPPOSED THE THEORETICAL CONJECTURE!!!* 23

- **Local Traffic/Missed Opportunities** – Of the six intersections, at least one (and possibly two) should be designed to incorporate a left turn "merge and acceleration" pocket onto Ortega, as they are "T" intersections. The Via Errecarte would be a primary one – the 12' wide painted median could be adjusted to allow a long acceleration lane west bound with almost a thousand feet before encountering the next intersection. This would require the driver to only cross east bound traffic, while able to "rest" and wait for a west bound opening, instead of requiring them both to occur at identical times. 24
- **Sound Wall Designs** – While the "key view" depictions were well done, *they failed to show that literally all the trees depicted would be removed, cleverly de-emphasizing the ugliness of both sound wall designs.* If you look at the depictions again, mentally removing the trees, then the only option must be the design "A" with the clear panels inset – and this design is still UGLY with its flat cinderblock wall supporting the panels. In deference to our centuries-old mission, why can't those cinderblock portions be designed (and colored) to look "adobe like" to lend some of our city's historic, rural feel if they must be installed? Even better would be a "natural rock" like design which would really make the walls blend and disappear! **Those that rallied against the clear panel design did so not because they *didn't like the look* or the view preservation, but because they were concerned about traffic sounds being "bounced" back**, rather than absorbed – *which is certainly a critical aspect.* Yet visiting the company's web site mentioned somewhere in the documentation (glassoundwalls.com?) it mentions the availability of sound-absorption glass panel design – 25

this should be further investigated to protect resident's sight lines and lower traffic sounds, the two are not mutually exclusive! 25

The three proposed solution don't do enough to meet the current needs of the residents of San Juan Capistrano, nor will they succeed in completely solving the future needs of those using Ortega Highway to reach Interstate 5 from outside our city, which is CALTRANS' primary focus. *There is a fourth alternative which is not listed nor under consideration.* Note that within the EIR they've determined all utilities will be relocated underground ~why? Because, while it's expensive in the short term, it succeeds on every other level – eliminating visual clutter, providing safer and more dependable operation and overall enhancing rather that detracting from the community. I challenge CALTRANS to think further out of the box – why not leave the current "Old Ortega" exactly as is, with all it's rural charms, canopy of trees and low speed limits, and take those two lanes in each direction and run them just under "Old Ortega" to provide a higher speed corridor unencumbered with traffic signals or cross traffic -- a direct access link from the eastern edge of San Juan to on and off ramps at I-5?

It would be the equivalent of adding a basement, with one side of the roadway being excavated down to allow forms to be poured for vertical walls and floors – utilities would also be relocated, with lighting provided to reduce the chance of accidents. After that a "lid" would be added to serve as the corridor ceiling as well as the base foundation for the "Old Ortega" roadway above ground, still staying within the original footprint of the roadway. After the south side or Ortega was completed, the other side would be done. The finished results would be that East/West travel in the corridor would be completely separated by a wall eliminating the chance of any head-on accidents. While the project would certainly cost more for initial construction, it would provide a higher level of service on all measurable levels. Consider: 26

- The route would meet the primary goal of rapidly getting traffic from Antonio Parkway to the I-5, but without needing to slow it for any lights, cross traffic, while also allowing for a higher design speed.
- With the re-design of the I-5/Ortega interchange, the north bound on-ramp and northbound off ramp could take advantage of the grade change to offer a direct access lane spilling directly into and out of the below-ground corridor from the freeway without need for a signal . South-bound on and off ramps could be accommodated with a dedicated lane covering the ingress and egress of the corridor's single lane emergence just east of Rancho Viejo and then channeled across the freeway bridge crossing.
- CALTRANS gains a "free" additional lane each direction – two below ground with at least one (and in places two) above ground lanes in each direction!
- **No sound walls would be required** as all through traffic noise would be confined underground!

- Safer/Quieter Truck Travel with no cross traffic for accident reduction and direct access to their primary destination – *Prima Deschera Landfill*
- San Juan Hills H.S. traffic offered additional protection as mixture with truck traffic limited to La Plata and brief span of Ortega before allowing them to split and cross over on "Old Ortega"
- All intersections within San Juan Capistrano that cross "Old Ortega" benefit from vastly improved level of service since through traffic is now eliminated
- **No loss of mature trees or landscaping as these would remain undisturbed!**
- Faster Emergency Vehicle access both within town and for crews headed through town!
- Homeowners adjacent to Ortega "given back" the use of their home and yards *without the need of installing double paned windows, air conditioners and other required mitigations to be paid for by CALTRANS.* Residents can sleep with windows open without truck traffic awakening them at all!
- Bicycle lanes on both sides, with equestrian access and meandering sidewalks are maintained and further enjoyed in a more rural setting.
- Much lower climate impact as heat load from additional lanes and sound walls eliminated, while mature vegetation left in place. An added benefit may be recognized in running recycled water supply lines to existing sprinkler runs along "Old Ortega" to further benefit environmental conservation efforts!
- Noise from large groups of weekend motorcycle riders and be either 1) restricted to using the underground corridor, or subjected to a decibel limit (as Laguna Beach has imposed) to further limit noise impacts on neighboring areas of Ortega
- Property values are retained, and perhaps enhanced within San Juan Capistrano while CALTRANS exceeds the needs of current and future traffic going through the city – it's a "win" by every measure!
- Note that there would probably be one, sole looser if this is built. Ticket revenues from the double fine zone would markedly decrease, if not disappear entirely!

26

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Scott Bull

Comment:
THE ROAD NOISE THAT COMES FROM TRAFFIC ON ORTEGA MAKES IT COMPLETELY UNBEARABLE TO BE OUTSIDE OR EVEN HAVE A WINDOW OPEN IN MY HOUSE. WIDENING THE HWY, ADDING THE RETAINING WALL AND TRAFFIC WILL MAKE MATTERS EVEN WORSE. 1

A SOUND WALL ON THE SOUTH SIDE IS COMPLETELY NECESSARY. I SUPPORT IT 100%.

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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"Emily Burke"
<emily.burke@
01/30/2009 11:35 PM

To <lower74EIR_D12@dot.ca.gov>
cc <jvolzke@
bcc
Subject Ortega widening proposals

CALTRANS:
I'm an exhausted mother of a very young child and couldn't make it to the meeting at Marco Forster, but I have been following closely the disaster that you all propose for Ortega. Simply put, DON"T DO IT. None of the proposals aims to make life any easier for the residents who live along that stretch of road; instead, the proposals aim to make life for the tens of thousands who may move into the as-yet-unbuilt subdivisions east of here only slightly less painful as they cram onto the road to get to the freeway. Chop down all the trees, add lanes, put up ghastly walls, and wipe out the most pleasant stretch of road in town? Are you kidding? How will this help the residents of San Juan? How will this help our city? How will this help our quality of life? We don't want this. We're saying it loud and clear. DON'T DO THIS. 1

Sincerely,
Emily Burke
Ten-year resident of San Juan

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Ilse Byrnes
<ilse_byrnes@
02/02/2009 03:48 PM

To lower74eir_d12@dot.ca.gov
cc
bcc
Subject Fw: Trail Alignment on Ortega/ att. Scott Shelley

--- On **Mon, 2/2/09, Ilse Byrnes** ***<ilse_byrnes@yahoo.com>*** wrote:
From: Ilse Byrnes <ilse_byrnes@
Subject: Trail Alignment on Ortega/ att. Scott Shelley
To: lower74eir_diz@
Cc: "Mark Nielsen" <nielsen1@ t>, "Gail" < , "joan irvine-smith" <theoaksfarms >, "Lennie deCaprio" <saveortega@
Date: Monday, February 2, 2009, 3:35 PM

Dear Mr. Shelly, in your EIR there is no mention of the proposed extension of a Multi-None Motorized Trail that connects the trail from the Hunt Club with Ave. Siega.
The City of San Juan Capistrano did a study of equestrian issues and on page 84 is the description of the "Siega Extension Trail"
It reads: This trail would start at the intersection of Ave. Siega and Ortega Hwy. and has two possible routes. Both would cross the Ortega at a signalized crossing. 1
Route A wouild run west 21oo" adjacent to the north sdide of the Ortega to the east Hunt Club Trail.
Route B would run north parallel to Shadetree Lane into the County and then northwest within the Edison easement to the east Huntclub Trail.
Widening the Ortega as proposed will totally eliminate any Trail Connection with Ave. Siega.
San Juan is well known for the wonderful trail system we presently have in place and to loose this portion of trail along the Ortega due to the proposed widening is most damaging to our overall system. Ilse M. Byrnes

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Ilse Byrnes
<ilse_byrnes@
02/13/2009 08:00 AM
Please respond to
ilse_byrnes@

To scott shelley/caltrans/ortega <lower74eir_d12@
cc
bcc
Subject Fw: Ortega Highway/ att. Scott Shelley

I just want to make sure you have my comments in your file. IMB

--- On **Sun, 1/11/09, Ilse Byrnes <*ilse_byrnes@*** wrote:
From: Ilse Byrnes <ilse_byrnes@
Subject: Ortega Highway/ att. Scott Shelley
To: "lower74EIR_D12@dot.ca.gov." <saveortega@
Cc: "Mark Nielsen" <nielsen1@ , "jan siegel" <janquest@
Date: Sunday, January 11, 2009, 7:55 AM

Your Agency claims to have studied all the effects this project would have on the environment. Personally I dont think so.
I have lived on the Ortega for over 40 years and reviewing your report I find that little attention has been given to historic matters. 1
My concerns are the Parra Adobe that with increased traffic due to vibration will not survive. On Shadetree Lane are the foundations for the Manriquez Adobe- which most likely is an archaeological site .
Your plan to cut down the old, mature trees that go back to the time the Ortega was named Hot Springs Road- that is unacceptable. 2

San Juan Capistrano is known as a historic town and to destroy the ambiance of the East Side when you enter the City is once again unacceptable. 3
Years ago, there was a plan for a Multi-Purpose Trail on the Northside of Ortega linking the Hunt Club Trail with Ave. Siega- Where is that in your report? 4

Your claim that Caltrans improves mobility across California might be correct in some cases but here in San Juan it will destroy and have a horrible negative impact on our livestyle, the history of out town and the environment. 5

Ilse M. Byrnes
P.O. 1029 (30500 Hilltop Way,)SJC

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Barb & Dan Campion

Comment: We are for the widening of Ortega Hwy along w/ the addition of sound walls & retaining walls. Our backyard backs up to the highway so over the years the increased traffic has made it impossible to enjoy our beautiful backyard! With all the new housing developments in the area - we need those two lanes increased to 4!! It does NOT make sense for the road to go from 4 lanes at Antonio down to two lanes & then open back up to four going into town!! The bottle neck does not make sense! The area that would receive the retaining wall going into town desperately needs to be cleaned up! It looks trashy w/ parked cars, debris & whatever else ends up in the road. In addition to the aesthetics, the debris blocks the drains & causes hazardous driving, cars hydroplane through the standing water!! I expect a car in my back yard any day during the rains! We are for the widening, sound walls & retaining walls!! 1

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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"Barb Campion"
<bkc@a
02/03/2009 10:52 AM

To <lower74eir_d12@ >
cc
bcc
Subject State Route 74 Widening

We are in favor of the widening of Ortega Highway! It does not make sense for this small stretch to be only two lanes when it's four lanes on either side. The widening will improve traffic flow, improve the drainage problem, and improve the aesthetics of that curve!

Other arterials need to be opened such as La Pata to San Clemente, and San Juan Creek through to Ortega. As it stands now, there is only one way to the 5 Freeway from Lake Elsinore. Just the other day there was an accident at Antonio and Ortega, traffic was bumper to bumper almost all the way back to the 5 Freeway. This is very dangerous! Emergency vehicles are not able to get through efficiently. 1

Please widen Ortega Highway, and add the sound walls and retaining walls where proposed. We need to better, safer access into the San Juan area.

Thank you.

Access Property Services, Inc.
30448 Rancho Viejo Road, Suite 190
San Juan Capistrano, CA 92675

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Sent: Saturday, January 31, 2009 1:01 PM
To: City Clerk Scanstation
Cc: reza_aursteh@
Subject: Ortega Highway

Dear City of San Juan Capistrano and Cal Trans,

We have had the pleasure of living in San Juan Capistrano for over twenty years. Part of what drew us here was the small town feel. Widening the Ortega Highway, unsightly sound walls and unsafe speed limit of 60-65 mph is unreasonable and ridiculous. Please reconsider the proposal of raising the speed limit on the Ortega. Let's keep our small town feeling by maintaining one of our beautiful entrances to our historic town. 1

Thank you,
The Chichi Family

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"Art Cusolito"
<ajcusolito@
01/27/2009 05:49 PM

To <lower74EIR_D12@
cc
bcc
Subject Ortega widening

CALTRANS

Public Comment Card

State Route 74 Lower Ortega Highway Widening

Draft Environmental Impact Report (Draft EIR)

Arthur J. Cusolito 30917 Steeplechase Drive, San Juan Capistrano

The Ortega Highway is the only exit and entrance to the Hunt Club Community and during the peak traffic hours of 6AM to 9AM, 3PM to 6PM it is almost impossible to enter or exit the Hunt Club Community.

If the community was ordered to evacuate during a major fire incident our only two streets would be jammed making fire fighting operations impossible. I know what I am talking about, because I am a retired Fire Captain. 1

We need a traffic signal installed at Hunt Club Drive and Ortega Highway.

The City of San Juan Capistrano was ready to install one two years ago so don't tell me it can't be done.

Removing 11 feet from the North side of Ortega will cause the Hunt Club residence and main entrance to be limited to stacking of only one vehicle and cause increased stacking on Ortega; which will be a accident waiting to happen.

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Heather Davis
<heatherdavis@
01/08/2009 12:53 PM

To lower74EIR_D12(
cc
bcc
Subject Ortega Hwy.

To Caltrans
Attn:Scott Shelley
I am writing because I oppose the widening of Ortega Highway. Mission Viejo should have to continue Avery Parkway through to the developments. Rancho Mission Viejo should have planned a better arterial system than rely on the scenic, historical entrance to San Juan Capistrano with the trees and horses for their driveway to the freeway. This is NOT the answer, please reconsider doing something else. 1 Why does a historical town like San Juan Capistrano have to take the brunt of traffic from all the surrounding cities? Why would we want to change one of the last beautiful charming roads that lead into our town? How can you possibly think we would allow you to rip out old trees and put up sound walls? 2
Thank you,
Heather Davis
28302 Camino La Ronda
S.J.C. CA 92675

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DEBAIRCALGAL@
01/30/2009 09:57 PM

To lower74EIR_D12@
cc
bcc
Subject (no subject)

YOU HAVE NOT ADDRESSED THE TRUE SPEED THAT PEOPLE WILL GOTHEY GO 50 OR 60 NOW AND WITH 4 LANES THEY WILL GO 60 OR MORE. WE CANT GET OUT ON TO THE HIGHWAY NOW WITH THE SPEED AND UNINTERUPTED CARS COMING FROM RIVERSIDE AND ANTIONIO THERE NEEDS TO BE STOP LIGHTS TO SLOW TRAFFIC.WE LIVE ON SHADETREE AND WE ARE ZONED SMALL FARM/ EQUESTRIAN WE CAN NOT SAFELY CROSS THE STREET WE HAVE TO STOP TRAFFIC TO GET THE HORSES ACROSS NOW AND WE HAVE CHILDREN AND THER IS NO WAY THEY CAN ENJOY THE PARKS ACROSS STREET BECAUSE OF THE ROAD NOW SO WHEN THERE ARE 4 LANES OUR EQUESTRIAN ZONEING AND ACCESS TO THE RIDING TRAILS WILL BE GONE AND THE VALUE OF EQUESTRIAN PROPERTY ON OUR SIDE OF ROADWAY WILL BE WORTHLESS.WE NEED STOP LIGHT AND EQUESTRIAN CROSSINGS. AND WHY WERENT THE HOME ONERS ON OUR SIDE OF THE ROAD ASKED ABOUT THE SOUND ON OUR SIDE SINCE WHEN DID SOUND CARRY DOWN? YOU ONLY ASKED THE PEOPLE ON THE OTHER SIDE OF STREET. AND REALIGNING THE ROAD AGAIN TO TAKE MORE OF MY LAND INSTEAD OF LEAVING IT THE WAY IT WAS WHEN IT WAS FIRST TAKEN IN 1979.I DONT HAVE THE LAWYERS OF JOAN IRVING AND SHE IS NOT GOING TO LOSE ANY MORE OF HER PROPERTY BUT I AM?AND MY NEIGHBOR.

1

2

A Good Credit Score is 700 or Above. See yours in just 2 easy steps!

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"justice4l" <justice4l@

12/15/2008 12:21 PM

To "Lower74EIR D12" <Lower74EIR_D12@

cc

bcc

Subject my 63 pages of comments were not included in the DEIR

History: This message has been replied to.

To Scott Shelley,

My 63 pages that were sent directly to Caltrans were not included in the section for comments. I have proof of delivery that this was sent on time and received by Caltrans. Comment period was extended to Sept. 8, 2007, the date my documents were mailed. 1

Further, what *is* included is my 80 page binder of project inconsistencies that was submitted to the city council & Caltrans with the "highlighted" problem areas.
The highlighted areas have been entirely blacked out. I have the originals. I tested copies from my fax machine and it does *not* black the information out. I hope this was an innocent mistake, however, the fact that the 63 pages of important information, mailed in a timely fashion, was not included would lead a reasonable person to assume otherwise. I also was not notified by mail of the DEIR. 2

Please respond ASAP.

I am formally requesting Caltrans to extend the public comment period for an additional 30 days, as our City hall will be shut down for two weeks during this crucial time, the public comments were not available and are not complete. 3

Thanks,

Lennie DeCaro

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"justice4l" <justice4l@

12/18/2008 10:28 AM

To "Lower74EIR D12" <Lower74EIR_D12@ >

cc

bcc

Subject 2nd request for comment period to be extended & response from prior email

Hi Scott,

I left you a phone message regarding the lack of response from my prior email regarding my (63 pages) documents that were not included in the comments for the DEIR, as well as my other information being blacked out instead of highlighted.

Ms. Joan Irvine Smith also requested council to relay to Caltrans the needed extension for public comment.

I am requesting a response as to extending the comment period. Certainly, it would be reasonable for Caltrans, as the lead agency, to extend the comment period. 1

The holidays are not an appropriate time to release the voluminous DEIR and expect the public to be able to fully disseminate all of the information.

Please do what you can to respond to this by tomorrow.

Thanks!

Lennie DeCaro

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"justice4l" <justice4l@c

01/11/2009 09:55 AM

To "Lower74EIR D12" <Lower74EIR_D12@ >

cc

bcc

Subject Has Caltrans granted the extension of time requested by city council?

History: This message has been replied to.

Hi Scott,
City council unanimously voted to formally request an extension of time for public response. Could you please answer if this request was granted. 1

Thanks,
Lennie DeCaro

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Lennie DeCaro

February 3, 2009

Mr. Scott Shelley
2009 Lower Ortega DEIR Comment
Attn: Scott Shelley
Office, 3337 Michelson Dr., Ste. 380
Irvine, CA 92612-8894
email to: lower74EIR_D12@

RE: Comments on the Lower Ortega widening project Draft Environmental Impact Report.
SCH #20070771038
P.M. 1.0_ to 1.9 (DEIR submission approved 11-24-08 Cindy Quon)

Dear Mr. Shelley & Ms. Quon;

I am submitting comments on the many inadequacies of the draft EIR. In consultation with professionals, I believe there are numerous serious legal deficiencies in the DEIR. These failures to fully satisfy the strictures of the California Environmental Quality Act (Pub resources Code, Section 21000 et seq.) ("CEQA") are set forth below under the subject headings used in the DEIR. Before presenting the flaws in detail, I would like to summarize my feelings on the DEIR.

I believe that, as currently drafted, the DEIR is so inadequate that it is impossible to formulate a fully informed position regarding the merits of the Project. Without better and more complete analyses of the direct and reasonably foreseeable indirect environmental consequences of the Project, as well as significantly improved mitigation measures addressing those effects and adequately studying alternatives to the project, one cannot determine whether there are *any* benefits that could outweigh the adverse environmental impacts. 1

Without a revised DEIR correcting the many deficiencies in the existing document or an outright withdrawal of this project, I am opposed to the proposed Lower Ortega widening project.

Project Description

Caltrans should have disclosed that it has been assigned environmental review and consultation responsibilities under NEPA pursuant to 23 U.S.C. 327 as of July 1, 2007. 2

Document shows PM as 1.06. The beginning of the Freeway in San Juan is PM 0.0. The area at Calle Entradero is not at 1.06, instead this description would be consistent with Via Cordova, the original plan to widen from prox 300 feet east of Hunt Club Drive/Via Cordova. 3

The DEIR p64, states that the project *is listed in the 2006 RTIP as follows: ""SAN JUAN CAPISTRANO- ORTEGA HIGHWAY WIDENING (FROM CALLE ENTRADERO TO ANTONIO PARKWAY; FRM 2 TO 4 LANES DIVIDED)"." The description of the project in the 2006 RTIP is "consistent" with the portion of the proposed project in the City to the County limits."* 3

Many of the documents that I submitted to council, that were forwarded as MND comments, were shown in the DEIR comment section with the highlighted areas "blacked out". Several documents proved that it was Via Cordova, not Calle Entradero, that was the actual terminus for the project. 4

The document entitled, "'NCCP/MSAA/HCP joint programmatic EIR 3.4 transportation & Circulation", dated July 2006, for Non-Committed Circulation System Improvements in the traffic Study area, lists" "*ORTEGA HIGHWAY (**VIA CORDOVA** TO SAN JUAN CAPISTRANO CITY LIMITS)" "Widen to four lanes*", source MPAH.

DEIR, by reference to the 2006 STIP, proved that it was "*inconsistent*" with the portion of the proposed project in the city to the County limits. In reviewing this document, the question as to why this project was "segmented" when it clearly served the same project goal and has both sections of the Ortega combined in the 2006 STIP, needs to be addressed. The project development team, (PDT) decided that no analysis of the county portion was required based on prior

environmental analysis. However, to use the 2006 STIP in particular, is inappropriate as this document lists Ortega Highway in San Clemente, not San Juan Capistrano and includes project to Antonio, not city limits.

DEIR also states that the project development team determined that the department must only prepare an environmental document for the city portions. DEIR fails to state who the individuals are on the project development team and provide records of the CEQA analysis that was required for their decision. There is one reference stating that the ranch plan analyzed this area for environmental clearance, but it appears that the ranch plan only looked at this area as it pertained to visual impact analysis. The DEIR is inadequate and needs to be revised. 5

In July 2008, the county of Orange determined that the OCTA should request that project be segmented. An amendment, (which would be a segmentation), request to Caltrans was dated 7-22-08, refers to area PM1.9 to 3, consistent with area outside of city limits. However, this amendment mentions nothing about safety, it states the purpose and need is for:

> *"to construct access improvement required for the adjacent development such that they are compatible with the long term transportation plan for Ortega Highway as envisioned by the agencies and minimize throwaway cost. Purpose: The existing Ortega Highway within the project limits has one signalized intersection at Antonio Parkway/La Pata Avenue. There are driveway openings to the adjacent ranch property. However, these access points are not adequate to accommodate the entitled development around the*

area. The existing Antonio Parkway/La Pata requires additional capacity for turn movement. New intersections need to be added and the driveway openings need to be modified. ... These improvements must be constructed to their ultimate configurations where Ortega will be a four-lane facility. "

5

It appears that Caltrans has predetermined that the Ortega will be widened and has approved adjacent projects without full environmental review. The amendment doesn't show any existing environmental milestones being completed.

Caltrans has a prior record of admitting that they did not following proper planning procedures. In 2000, Caltrans admitted to mishandling plans to widen Highway 91 west of Corona. (Press Enterprise Sacramento R. Garrett)

DEIR needs to address this and provide the justification for segmentation and prior records of environmental analysis. DEIR references one document but does not provide this document in any exhibit. The DEIR must provide proper analysis for public review and a detailed breakdown of where the funding is originating from and the amounts that have been spent to date. I have provided as an attachment the document signed by the board of supervisors.

The "revision to ASR" document needs further explaining as to why Rancho Mission Viejo and its consultants have been hired for the Ortega widening and why Caltrans agreed that it was a safety issue. The document states: *"In addition to the Project segment between the City boundary and Antonio Parkway, Caltrans has agreed that the 1,900 feet long transition from four lanes to the existing two lanes east of Antonio Parkway identified in the plans and specifications is necessary to the Ortega Highway Project to meet traffic safety requirements*."

6

This area has never been addressed as a "safety issue", and it is quite troubling that there appears to be fastracking of the widening project before the there is full environmental review. There was a "safety issue" for Ortega widening, "SR-74Safety-Project", in yet another segmented portion of Ortega, that was further east of Antonio.

A full disclosure of the approvals from the OCTA and the county needs to be included in the DEIR, and additionally disclose who has project approval for both the Ranch plan entitlements, what they consist of, who oversees the funding for the widening project and funds spent and committed to date.

There appears to be a pattern where Caltrans either ignores or removes troubling documents or references to them. The Draft DEIR is so deficient, that one could pick many sections and find numerous issues that were not addressed adequately and demand revision. For the record, the following additional documents prove that it was **Via Cordova** that was always the intended terminus.

Caltrans needs to address why the terminus changed and provide justification for spending taxpayer dollars on a section of road that doesn't need widening. My 80-page (previously submitted) doc references:

(A)., circulation element from San Juan General Plan dated December 14, 1999 for long range roadway improvements: "*Ortega highway- **Via Cordova** to east city limits- widen to four lanes*"

(B) committed master plan of arterial highways 4-26-04 in the SOCTIIP, " Source: Austin Foust (2002)

(C.) Media Release, Bill Huber May 2004 "*Ortega interchange would get 20 million dollar boost from OC Board of Supervisors...widening from **Via Cordova** to La Pata...*"

(D1)Joe Soto letter to Assemblymember Pat Bates "*...to widen Ortega highway to four lanes from Antonio Parkway westerly to about **Via Cordova** to match up with existing four lane section.*"

(E1) same as listed in first paragraph ...**Via Cordova**

(F1) RMV covered activities July 2006 "widen to four lanes **from east of** Calle Entradero" it did not state "at"

(F) Caltrans screening sheet STIP/2006 "map shows the project area east of Via Cordova" 6

(F2) Excerpt from co-op agreement for interchange 5-17-06 between Caltrans and the city "Ortega highway consists of two westbound and two eastbound lanes from the I-5 freeway to **Via Cordova**"

(F4) Caltrans shows NEW CTC 2006 STIP, 4-2005 changing terminus to Calle Entradero.

Clearly, there was no reasonable explanation as to why this area between Calle Entradero and Via Cordova was included in the widening, and DEIR must be revised to provide analysis. The area geometric is 64' of pavement, consistent with the four-lane road immediately adjacent and to the west of Calle Entradero. For a road to be widened at great taxpayer expense, with the loss of the scenic beauty by the removal of the large beautiful trees, the hardscape that was put in as a requirement of the city and has been maintained by the Hunt Club and removing the safety buffer that is required by the city's general plan, is nothing short of unconscionable.

DEIR57 states it will widen from two lanes to four lanes from Calle Entradero PM1.0. This is incorrect. The road is actually 64' wide, consistent from La Novia to easterly end of Hunt Club (east of Via Cordova). This geometric currently provides for 4 (12') lanes with a center (12') median. Area in front of Hunt Club was restriped to 3 lanes, 1 median, and right turn lane. Road fronting the Hunt Club is NOT a 2-lane road. This is deceptive. It is the same geometric as west of Calle Entradero, four lanes. 7

The "PM1.0" is also incorrect. P.M. from the freeway to Calle Entradero is approx. "P.M.0.8". However, P.M.1.0 *is* consistent with the project beginning beyond the Hunt Club., as it was originally intended. It does not transition to two lanes at 330 feet east of Calle Entradero. 8

Again, it appears old documents have been used without verifying the information. The road actually transitions to two lanes at 330 feet east of Via Cordova. Again, further proof that the intended area was from Via Cordova. 8

The project description incorrectly describes the area as having sharp curves and limited sight distance. This must have been the project description used from the "segmented" road widening that was done several miles east on Ortega, the "SR-74-Safety Project". This project has *no* sharp curves or limited sight distance areas within city limits. Improper segmentation needs to be addressed. 9

Project DEIR57, states that there are five roadways that intersect. However, this is contradicted in DEIR 138, where it discussed six unsignalized intersections within project. "*They are Calle Entradero, Via Cordova/Hunt Club Drive, Via Cristal, Strawberry Lane, Via Errecarte, and Avenida Siega becomes Shade Tree Lane..*"

The project description adds an additional intersection, but misstates the significance of three other roads. DEIR 57 references that "*to the North of 74, Strawberry Lane, Toyon Drive and Palm Hill Drive provide access to hillside private properties.*" Proposed Project omitted that each of these areas provides important access to a number of different residences on the *North side* of Ortega; they are not private driveways serving a single residence. 10

Requirements for driveways are different than requirements for streets, and DEIR analysis must provide design details. Palm Hill drive provides access for a number of homes yet Caltrans still has not addressed how the widening will increase the gradient on Palm Hill drive to 23%, far exceeding the allowable OCFA standards of 10% max. 11

Caltrans also seems to ignore that as presented, the sidewalk may not be able to safely accommodate ADA requirements in front of the Hunt Club and further east, there are no planned sidewalks on the north side. This DEIR shows that project is contrary to highway standards for a primary arterial, and is inconsistent with both the county and the city's general plan diagrams that define a primary arterial. The county defines ADT for a primary arterial as accommodating maximum of 30,000 ADT. This is not consistent with ADT projections. San Juan shows a secondary arterial is typically 64' wide, and Ortega was considered a secondary arterial in the city's original general plan. In fact, San Juan Creek was the designated future primary arterial. 12

Proposed Purpose

The purpose provides the factors for the decision to pursue the project. It is intended to be a solution to the proposed problem or deficiency identified in the need statement. However, the purpose in this DEIR is not consistent with providing a solution, instead it creates a problem to which it purports to attempt to mitigate the problems it has caused. It is well understood that widening roadways, increases capacity and further induces growth. It then causes numerous other environmentally damaging effects, of which the project claims it can mitigate. It simply 13

cannot mitigate the extreme environmental damage that it will cause. If it were to actually cure the problem, and the city would have congestion free roadways, it may be different. But widening provides the capacity, which is the mitigation to allow development of 14,000 homes on the city's edge. 13

The impacts will be impossible to mitigate and the ramifications will be felt throughout Orange County. It is an unreasonable expenditure of public funds. There is no benefit to cost analysis that could possibly outweigh the suffering our community will have to endure. An extreme example of frivolous expenditure of public funds was the decision to remove the beautiful trees and hardscape in an area that is already the appropriate geometric to accommodate 4 lanes, without providing any justification or analysis. 14

It is obvious that the DEIR carefully chose its words based on sound bite appeal, instead of stating what they are really doing, which is "widening" the road. Caltrans uses the more marketable phrase "to relieve traffic congestion", when in fact it doesn't.

The purpose is stated as:

1) to relieve existing & future traffic congestion and improve the flow of traffic
2) accommodate planned growth and development in the surrounding areas
3) provide improvements consistent with local planning documents
4) gap enclosure.

None of these reasons are logical, without bias or do what they propose to do. Caltrans should not encourage growth and long commutes by providing easier access and capacity for Riverside County. A better use of public funds would be to find ways to encourage business to develop in Riverside that could be a benefit to the residents, which could include new roads within Riverside county. DEIR should analyze surrounding county road improvements as an alternative to destroying the scenic Ortega. 15

If the purpose is to improve access to Orange County, this will result in more vehicle miles traveled with the resultant increase in green house gas emissions. The county also did not support the proposed Riverside link that included tunneling back in 2004. The DEIR needs to adequately address the impacts of the effects on vehicle miles traveled and green house gas emissions as the widening will induce further traffic from further away areas. Traffic congestion will happen if the road is widened, it will not guard against it. 16

DEIR states it is to accommodate planned growth and development in the surrounding areas. However, it is the widening that provides the capacity that will induce this growth.

DEIR also states it will provide improvements consistent with local planning documents. If that were the case, the DEIR would have evaluated the extension of San Juan Creek as it is also on the MPAH. I am not in favor of this extension, but the DEIR is required to study alternatives and needs to be revised. 17

DEIR should have evaluated other roadways. If the purpose is to provide consistency with local Planning documents, this could consist of documents that are quite controversial, such as the toll road. Should Caltrans decide what projects are proper based on their analysis or that of the county or the city? How does Caltrans handle this if they do not believe it is an appropriate project? It appears that decisions on this project are no longer independent and free from outside influence. 17

Providing for Gap closure was added during the DEIR and is somewhat akin to creating a problem only to then create the solution to the problem that you created. If you widen at one end and then the other end, you widen in the middle as "gap closure". Using this logic, the wider area of the Ortega, beyond city limits will have a significant difference in the geometric for paved roadway. Will Caltrans or the OCTA determine that gap closure will be needed again? 18

DEIR fails to analyze the important safety features and benefits that two lanes provide as traffic calming. This is and never has been a chokepoint. The chokepoint is at the interchange. Unfortunately, if repeated often enough, people believe and accept it as fact. The two lanes within city limits are not a chokepoint and are needed for the safety of our community, to provide the brief pause in traffic to safely exit our communities. DEIR fails to analyze the dire impacts of raised speeds without traffic signalization, yet with twice the traffic. DEIR needs to fully analyze the safety concerns of our community and their inability to safely exit their communities. 19

Safety will be negatively impacted with the Project. Increasing speeds to 55-60 mph with in a residential community will insure accidents will be more likely to include fatalities vs. fender benders. With the inclusion of the new high school, it is particularly perilous for young drivers to drive parallel to large trash trucks that can block their views, while increasing their odds for head-on collisions. There is no raised median for safety. 20

Safety for the (9) riders who might use the bike lane would be akin to riding on a freeway. It would be dangerous for any bicyclist on a 60 mph highway, let alone one that abruptly ends at Calle Entradero, a bike path to nowhere.

Then to make matters worse, the bike lane is to share the road with cars using it as a non-standard 5' shoulder. (This is a design exception, admitted by Caltrans, but wasn't adequately disclosed to the State clearinghouse). It would appear that the 5' bike lane would eventually turn Ortega into a 5 or 6 lane road in the future. If no one utilized these bike lanes, Caltrans could have another "study" that determines there is no need, or worse, if there was a fatality, then the bike lanes could be turned into an additional lane for even more road capacity, traffic, etc. At that time, Caltrans could simply repaint the road and would avoid environmental disclosure that would be required for analysis of a 5-lane road. 21

DEIR has failed to adequately analyze the possibly that RMV may not end up developing 6,000 senior units as proposed. Traffic was based on 6,000 senior units with the formula of .33 traffic per unit. This is considerably less traffic generated from other dwelling units. 22

DEIR has also failed to adequately analyze the effects of La Pata going through. The increase to Ortega may not have been apparent in the past, but it shows an extreme increase in traffic on Ortega and is not beneficial to our city. The forecast for Antonio Parkway was that it would decrease traffic on the Ortega; this didn't happen, instead we gained the majority of Ladera commuters that use the Ortega and the traffic has substantially increased. The problem, is consultants vary widely in analysis. Caltrans has relied almost exclusively on consultants and this is inappropriate when Caltrans has the talent to do most of the analysis themselves. 23

The DEIR is illogical in the termini. FHWA requires that this be evaluated per 23 CFR 771.111 (f). The switching of terminus to include Calle Entradero is clearly illogical. Further in supporting a "consistent 4-lane Ortega", the study has left out the rest of Ortega for environmental study. The fact that there are other historical sites that are impacted as well as a school and housing for mostly retired people that borders Ortega, appears to be an attempt to circumvent the intent of the CEQA laws.

Switching this terminus appears to be contrary to the intent and purpose of CEQA and demands the DEIR be revised or the project aborted. DEIR states that there is no impact, direct or otherwise to schools that are beyond .5 miles from the project. It is ridiculous to think that there won't be major impacts to St Margarets, and Ambuehl trying to access schools from La Novia. La Novia must be properly analyzed. How can the DEIR not figure that a two lane bridge with youngsters that walk to school will not have severe impacts for the duration of construction that would likely exceed two years. This is the reason that CEQA cautions against piecemealing of the project. It appears that if the project is segmented, one can avoid the impacts by simply not including them in the analysis. 24

This is troubling that one could look at the DEIR and not believe that residents next door to Calle Entradero will not be just as affected, if not more so, as some of the homes appear to be less than 25 feet from the roadway. 25

Caltrans did not analyze removing the area in front of the Hunt Club from the project even though Caltrans was informed of the unanimous council vote to remove this area from the widening project. DeCaro submitted warning of potential litigation if this area was pursued, as the area is already the geometric consistent with westerly direction of road, and has numerous immitigable impacts to the area if widening was pursued. Cost benefit makes no sense for this area, making the conflict of interest issues appear more obvious. 26

DEIR requires that adequate analysis of viable alternatives be discussed. Having two choices of wall treatments or sidewalk is inadequate as the road widening stays the exact same, there is no viable alternative offered. A viable alternative would have been either other transit opportunities in conjunction with other roads or a more in depth analysis of the no build scenario. DEIR did not analyze what would happen in the foreseeable future if the project was not approved. 27

Transportation System Management strategies were not analyzed that should have included traffic signalization and coordination or modal alternatives such as rail and transit. 28

DEIR 66 incorrectly cites the city's circulation element, which is part of the general plan, as part of the long-range roadway improvement to be widened to four lanes from "*Calle Entradero to east city limits*". Wrong, again. This document actually states that widening is to be from Via Cordova to east city limits. 29

The widening project presents an out of balance circulation system and increases travel into the community to access the I-5 freeway. A balanced circulation system would have provided for an east- west arterial between Ortega and Crown Valley for Ladera Ranch to directly access the I-5 instead of burdening Mission Viejo and San Juan. To widen will simply exacerbate the problem for both arterials, as it will induce growth. 30

Emissions will negatively impact the surrounding air quality due to more vehicle miles traveled and the widening will turn a traffic calming effect two lane area into a very dangerous alternative that proposes to change the existing 40 mph road into approximately 55 to 65 mph. DEIR is deficient in adequately stating the proposed speed. I believe that due to the community outrage over the MND proposal for 60 mph, that the DEIR simply did not discuss the mph. This again cries out for an adequate DEIR that analyzes the speed traveled as LOS, green house emission, noise and traffic are all dependent on the proposed speed. 31

The Purpose of the Project per DEIR (p.8 of 582) *"Accommodate planned growth and development in the surrounding areas."*

This "capacity' will also provide an alternative to the 91 and provide a preferred link from Riverside to the job centers in Orange County, making this project truly unacceptable and irresponsible. This Riverside link is troubling as it encourages growth that is not sustainable. Project purpose DEIR p.8 " *Relieve existing and future traffic ...*" By creating capacity through the widening, you are creating the future traffic that you state you need to provide relief from. 32

We are currently facing troubling times with concerns for our environment and green house gas emissions, yet the demands on our infrastructure and resources will be strained with the addition of new housing developments. Commuters from Riverside will be encouraged to travel the Ortega and our roads due to the imbalance of employment opportunities in Orange County and affordable housing in Riverside.

Our residents had no voice in allowing Ortega to provide the mitigation for developments outside of our city and county, and now that we are aware, we find it **unacceptable.**

Bias in project purpose description

Unfortunately, many of the firms that did the work for the RMV development are also doing work on this project widening as consultants. DEIR cites the 2002 strategic transportation plan, however, the same consultant that is doing much of the analysis for this widening project 33

authored this document. The strategic plan appears to be nothing more than an extension of how to benefit the development of 14,000 homes. I have come to the determination that it is not in the best interest of San Juan, and never has been. The DEIR should have provided review of the 2002 Strategic transportation plan and validated the assumptions made in this report. 33

I believe the purpose for this project is and has been biased. I have numerous documents to suggest this. There appears to have been analysis that was done that had a predetermined outcome. An example is the fact that Caltrans entered into a resolution with the City of San Juan Capistrano in January of 2005 that "supported the submittal of Ortega Highway widening from "Calle Entradero to the East city Limits for funding under the combined transportation funding program". This was done before any environmental documents were even studied, and before the public was aware of any widening. This was also the first document I have uncovered that included Calle Entradero, but no reasonable explanation has been given as to why this terminus was changed. How does one resolve to apply for funds that may be injurious to one's city or county without appropriate analysis and review? 34

I submitted my 63 pages of documents alleging numerous instances of bias, but they didn't find their way online. However, I charged that I had proof obtained through public records act requests that the pedestrian study was **never done for the purpose of "determining sidewalk removal"**, as the MND alleged. Now, all references to this have been removed in the DEIR, much like any reference to speed limits.

MND2-28 stated:" *The proposed project involves the removal of the sidewalk on the north side of SR-74 from Calle Entradero to Via Cordova to accommodate the widening of the facility from two to four lanes. A new sidewalk on the south side would be constructed just east of Avenida Siega and would connect to the County sidewalk system to provide continuity.* ***A pedestrian count was conducted in early 2000 to determine the need for retaining the existing sidewalk on the north side of SR-74."*** 35

MND2-31 stated: "*The project would necessitate the removal of 1,056 ft. (322 m) of sidewalk on the north side of SR-74 from Calle Entradero and Via Cordova. This would not constitute a negative impact on community cohesion from a pedestrian movement perspective due to its limited usage* ***as per the study conducted in early 2000*** *The San Juan Capistrano City Council concurred with this concept at the May 30, 2006, meeting. The pedestrian study and field observation indicated an extremely low demand to warrant a signal light as a means for providing a safe crossing.* ***The pedestrian count also did not warrant the need to keep the existing sidewalk on the north side.*** *During project design, the optimal location for pedestrian crosswalk would be determined. This would facilitate access to the existing sidewalk on the south side of the street. This facility would allow a pedestrian-safe pathway through this portion of the project area and would connect to the County system. As a design option to the proposed project,*

the sidewalk on the north side of SR-74 between Calle Entradero and Via Cordova would be reconstructed."

MND2-41-42: *"Pedestrian and Bicycle Facilities- In early 2000, the Department conducted a study in the vicinity of the Via Cordova/Hunt Club Drive intersection to identify the need for a pedestrian crossing. The pedestrian count and field observation indicated an extremely low demand to warrant a signal light as a means for providing a safe crossing. The project design does not preclude the potential construction of a non-signalized painted crosswalk with a minimum four foot-wide raised median to reduce the crossing distance of SR-74, nor the construction of a full signal light for pedestrian crossing if such a signal is warranted in the future.*

The pedestrian count also did not warrant the retention of the existing sidewalk on the north side of SR-74. *It was agreed by the PDT to provide a continuous sidewalk between the City and County area. It required the provision of a new sidewalk on the south side and elimination of the existing discontinued sidewalks on the north side. The project also proposes to utilize shoulders on both sides of the roadway for a Class II bicycle facility. It is compatible with the Bikeways Plan included in the Transportation Element of the Orange County General Plan."* 35

The DEIR currently states that Caltrans only did the pedestrian study to determine traffic signalization. Again, Caltrans completely omitted the prior false statement that I brought up in my past MND comment to them, whereby I objected and stated that their assertion in the MND regarding the purpose of the pedestrian study as stated (for purposes of removing the sidewalk), was blatantly dishonest. Caltrans knows there is no protocol for any such justification and misleading the public is a violation of the public trust.

There was no study ever done for justification or purposes of removing that sidewalk between Calle Entradero and Hunt Club drive. The DEIR needs to provide answers as to why this particular area has apparently been targeted for the unnecessary removal of the beautiful trees and meandering sidewalk, while compromising the safety of the entire community as it appears there will be eminent domain takings to provide an alternative to stacking cars out on to the Ortega. There is and never was any truth to the Caltrans statement regarding a study for sidewalk removal and Caltrans has misled the public and the homeowners association that maintains this area. The Hunt Club has never received an explanation as to why Caltrans, who required the city to obtain a letter of support for removing our sidewalks, never acted further upon this. If this is or was a requirement, why is it no longer? I have been told that somebody must have wanted it removed. The DEIR must answer these questions. 36

Also, it was actually the city of San Juan who did the study and I have the documents (through a PRA) that confirm the entire timeline of events. Caltrans declined the signal warrant but agreed at the time to allow San Juan to install a traffic signal at their expense and Caltrans would consider helping with the construction costs. San Juan currently has a proposed traffic

signal at approx Ave. Siega and this is included in their capital improvement plan. The DEIR fails to address this and claims that there are no planned signalizations in the project area. 36

DEIR must be revised as it continually has put in incorrect and misleading information. This pedestrian study consisted on no more than counting pedestrians crossing Ortega, which was a completely invalid approach. Signal warrants are a combination of parameters, either a specific number of cars must pass within an hour or a certain number of pedestrians within four hours. DEIR must provide adequate analysis. City did not want the suggestions from Caltrans fo. a traffic median. 37

Another of many examples that shows agency bias would be the email I obtained through a public records act request. It was from San Juan's former planning director that appears to confirm bias and that the project development team did not have the city of San Juan's residents best interest in mind. I have numerous public records that I believe give the same appearance.

The former planning director sent an email to a project development team member (prior to the public meeting on 5/30/2006) where Council and planning commission gave Caltrans council concurrence on several objectives that were contrary to the sentiments that were voiced by the public that evening. This email gives a second hand account of a conversation and states: 38

> *"Hello XXXX-I received a call from XXXX XXXXXX today regarding the Ortega widening project. He has had some dialog with Caltrans folks on the direction our subcommittee is heading. Hisinput is: There appears to be support from Caltrans about leaving the curb face where it is on the south side to protect trees, sidewalk, walls and landscape in place; ...**On north side, Caltrans would be open to deleting a public sidewalk in favor of a trail but they will be looking for support in the form of a City Council resolution (so that later if people complain, Caltrans can respond that they were only doing what the City Council wanted)** and*
> *they are very concerned about a raised median, and would prefer to have a striped median only as a means of limiting the right of way and impacts to the north side.*
> *Is this similar to the input you have gotten at your meetings? We can discuss further with the committee tomorrow."*

This is not simply bias, it amounts to a violation of public trust.

Right of Way

The Hunt Club dedicated 52' of right of way to the city of San Juan, not Caltrans, as required by a development agreement. 32' of road and 20' of landscaped and hardscaped 20' of right of way. This dedication was never codified and the maintenance on this 20' area has been maintained since its inception at homeowner association expense. The entry to the private streets specifically did not give this area to the city and it belongs to the Hunt Club. 39

I mention this now as I have made numerous statements regarding the incorrect ROW. confirmed with the design engineer from HDR that the incorrect Right of Way showed on the designs. Incorrect project description and ROW have misled the residents and this demands a revised DEIR. Residents have been told that there was nothing we could do as the ROW was under Caltrans jurisdiction, yet another property owner that abuts Ortega that wants to maintain their access without being blocked by retaining walls, has been told that the city has jurisdiction and will not allow this.

DEIR Appendix C-45 of 66 letter from Mr. Abou-Abdou, dated 8-21-2006, admits:

" ***"Since these sound walls will be located within right of way under City jurisdiction,*** *the Department will also be willing to support other wall type that City determines feasible..."*

It is apparent that Caltrans has been aware that the right of way (ROW) required for the widening is under the jurisdiction of the city of San Juan Capistrano, and therefore should have known that the design from HDR shows incorrect ROW. Caltrans also appears to have been aware that the right of way in front of the Hunt Club belongs to the Hunt Club in the area between Calle Entradero and Via Cordova. 39

Caltrans admits in 5-page letter from Jim Biehl to Dave Adams dated *5-4-2006, (DEIR, appendix C, agency correspondence p. 24 of 66)* my wherein it states:

"*...The walls will be located* ***within right of way under city jurisdiction***"(p.2 of 5)

"*...A cooperative Agreement between the Department and the City will be prepared to address concerns ...Prior to the execution of the Cooperative agreement, the* ***Department requires*** *the City's written concurrence for the following items...6. The elimination of the north side sidewalk from Calle Entradero to Via Cordova and* ***obtain a Letter of Support from the Hunt Club*** *(or appropriate property owner), if appropriate,* ***for the subject sidewalk elimination****..."*(pg. 3 of 5). This support letter was admittedly never sent

I confirmed with the prior HDR engineer that stamped the original designs that the right of way was reversed. This was acknowledged in that the new designs, signed by a different engineer have been shown to have crossed out and penciled in "State" right of way to correct the reversal. This misleading document has allowed the residents to believe that the right of way issues are not under city control, but instead, nothing could be done because it was under the control of Caltrans. Caltrans did not have right of way. Caltrans has since had a surveyor file a right of way map with surveyor's notes that contradict this, confirming that this needs to be independently reviewed in a revised DEIR

Right of way and design details for the driveway entrances, most specifically the Hunt Club as to design and right of way issues and Palm drive as to super gradient issues calls for a revised DEIR. Details have continuously been excluded from public view by virtue of stating that 40

complete right of way and accurate access data is only available at the district branch. Prior designs were not signed by the engineer and showed a reversed right of way. 40

Recorded 1978 tract map for tract 6305 confirms the city was given the right of way and tract 6305 specifically did not dedicate the portion of right of way the includes 20' abutting Ortega where the private street openings are. This was done to insure safety by avoiding stacking and maintaining the setback areas for landscaping on the sides of each entry.

I would like to assert that all public comments to the MND be included and responded to should Caltrans revise the DEIR instead of abandoning project. I would also like to have as part of the record the 275 signatures to the petition against the widening. 41

Impact Analysis

The DEIR fails to adequately describe the area projects that are contingent on the widening Project. It fails to analyze the number of homes that would be allowed to be built without this added capacity. It fails to analyze impacts that extend beyond city limits to surrounding roadways as a result of the increased traffic and induced growth. 42

Induced Growth

It is unacceptable that our residents are already facing the prospect of severe water shortages that will be further impacted by encouraging the future development that this widening will provide the mitigation for. The Draft EIR fails to analyze adequately the induced growth and the impact on our water resources. Our residents and those of surrounding cities are already suffering from the noise, pollution, traffic, safety, aesthetics and diminution of the quality of life from the increased traffic. San Juan has been especially hit as we have out of county trash trucks on the Ortega imposed upon us as well as the onslaught of Ladera Ranch traffic. 43

This widening will only serve to induce growth and exacerbate the situation by providing additional mitigation for the traffic "capacity". This "capacity" is required for the proposed 14,000 homes to be built.

Inaccurate Information

Caltrans has listed inaccurate information with regard to public scoping, hearings that never took place and consensus of opinion. The public meetings that were to be held with the intention of "hearing the public's views" appear to be merely a "checklist" to satisfy CEQA. The widening was never a matter of "if" we wanted our scenic road widened, but instead, was more akin to how much damage we were willing to accept. 44

Caltrans and the project design team presented the widening with their possible mitigations as a "given" and asked "how high" would you like the sound walls, instead of would you like them at all, or more honestly, they should really have stated, "we would you like to

destroy the entry to your town so that we can increase the capacity for new developments that will use Ortega as their driveway to the I-5". 44

Of course, that isn't what was said and I'm sure the next question they will pose is, "where were you when this was being planned?" The unfortunate truth is that the public, the working Joes, are always the last to know. "Where were we? " We were raising our families, earning an honest living and building memories in our homes. We trusted our government agencies to do what was in the best interest of our communities, we didn't have time to read planning documents or go to council meetings or attend public hearings. We trusted. 45

Unfortunately, we have learned we can no longer trust, and that may be the saddest part of all, in this fight to save Ortega highway.

It appears that Caltrans is not in control. It appears by the number of consultants that have done the majority of the analysis, that there is such a large margin for error, simply because the process gets handed off, with no single entity being entirely responsible for their work product.. However, it is Caltrans that will face the criticism that will surely follow as this harmful widening project is exposed. 46

Caltrans has allowed other agencies and consultants to dictate what they wanted. In a value analysis meeting it was the design consultant that decided that it was best to remove the beautiful trees and sidewalks, because of where they wanted the pipeline to be placed. I believe the same consultant had the contract for the design of this project. These decisions were made regardless of the harm to our community and without public input.

There is the appearance that project development team had no intent to listen to the public as there is evidence that suggests that the conclusions for the road widening were already pre-determined, plans for the contractor were in place at the value analysis workshop. Some PDT members gave out misleading information, as has been reported before. 47

In the past it has even been difficult for the public to determine who the lead agency really was. At the 10-24-2006 meeting, we were told by San Juan officials that it was the county of Orange that was the lead agency. Documents suggest that the funding and project changes were initiated by OCTA from a request from the County of Orange.

Then, there is the interchange project that shows that both San Juan Capistrano and Caltrans are co-lead agencies. 48

Lead agency involvement is troubling in that if San Juan is opposed to the "lower Ortega widening", yet our staff is working as a partner on another section that should never have been piecemealed or segmented. This is one more reason that segmentation is improper and the DEIR should consider the entire project along Ortega.

<u>More predetermined outcome</u>

There are a number of public records requests that have proven to be troubling, that go directly to the issue of Caltrans having a "predetermined" outcome. The DEIR appears to have 49

ignored the arguments to the MND and has done very little to address the issues except to remove them if a legitimate argument could not be found in order to promote the furthering of this project.

Just a few of the many examples include the lack of any mention of the speed limit, since many people objected to this in the MND comments.

Revising the analysis down to PM1.0 to 1.9 This is significant as it appears to have removed an area that was considered environmentally sensitive (ESA), the removed area also contained small areas of wetland, which would have required consultation with the Coastal Commission.

Now, it appears that this area has been graded. Caltrans document confirms this in the 2nd supplement dated 10/07/08 for the "Supplemental Historical Resources Compliance Report, wherein it states (p.6 of 12):"Since all recent grading activities are beyond the project limits, a supplemental survey report was deemed unnecessary" 49

The public should be concerned that in the midst of this environmental document that the OCTA voted to specifically segment this part of the Ortega. Shouldn't the public be concerned that areas of gnatcatcher that went right up to the prior project limits are now no longer part of this DEIR? It is inappropriate to change the analysis terminus during the environmental review of the DEIR. The MND was a mixture of analysis on Ortega. DEIR should be revised to avoid piece-mealing. Prior analysis at one time studied and included documentation and analysis from 1.9 P.M. to prox 4.7 P.M..

Noise Analysis

It appears that the initial measurements were done by a Caltrans engineer (Yacoubi) and at some point, by at least 6-27-07, the analysis was revised by LSA. DEIR does not state with specificity, what part LSA played, when they became involved and what part of the study they had direct control, (if any) over. 50

The entire MND is to be considered in the DEIR, as little has changed since the request for the DEIR. Prior MND analysis shows that there appears to be an attempt to get rid of what can't be explained. In the MND, it appeared to imply that the North side of Ortega was studied. The placement of receptor sites on properties that had no initial sound analysis and showed these properties with the contour lines with numbers similar to expected db levels was misleading to the public. The study also gave an exact measurement for these sites that had never been measured. When asked, (at public hearing) how they measured these properties that I knew for a fact that measurements had never been done, I was told they weren't actually measured, they were modeled. 51

I have presented 80 pages of documents showing that "someone" was able to include the area in front of the Hunt Club for project inclusion in approx 2006, but certainly no earlier than 12-31-2004. All measurements in the MND, show the dates at being in Jan or Feb of 2004. It would 52

have been impossible for Caltrans to have noise analysis studies in this area, as the Hunt Club wasn't intended for widening at that point. Yet, it is curious that "measurements" appear in the DEIR, when in fact; I confirmed at the public hearing, speaking to both signatories on the document, that they did not in fact get actual measurements of this area of the north side. They conceded that the noise impact was simply a revision of the existing noise impact analysis that had been done, based on modeling.

The Draft EIR also fails to adequately study the effects of traffic noise on the residents abutting the highway. Decibel levels far exceed 50 db's. Caltrans widening of Ortega would exacerbate an already intolerable condition. 52

Final "Noise impact technical report addendum" asserts that the noise impacts were updated, this is misleading. There are no current existing noise levels to base future predictions from. One cannot base future predictions on noise levels that are outdated. LSA did not provide the original measurements. LSA supplied the 2007 analysis for the MND.

Please revise the DEIR and address noise and health concerns. There is now proof of health concerns due to noise & pollution. If Caltrans & the other agencies continue to support this ill-conceived idea of providing "road capacity" at the expense of the people that live in San Juan Capistrano, it will be done with full knowledge of the harm they are causing to our area residents. The safety issues were not adequately addressed and this is one more illustration of lack of concern for our town. Please drop this widening project or in the alternative, revise the DEIR. 53

Per Final Noise Impact Analysis DEIR: *"This technical report - The Traffic Noise Analysis for this project was prepared under the provisions of the California Department of Transportation Traffic Noise Analysis Protocol, which is based on 23 CFR, Part 772 "Procedures for Abatement of Highway Traffic Noise" (Federal Highway Administration).* ***However, the Draft Environmental Impact Report (EIR) including Section 2.2.7 was prepared under the provisions of CEQA only."***

Caltrans 2006 protocol traffic noise analysis requires Type I analysis. Further, "*If a project is considered controversial or the net effects of changes in topography and shielding are not obvious, a detailed analysis (see "Detailed Impact Analysis") is warranted regardless of whether the screening procedure indicates otherwise*". 54

Although Caltrans may no longer consider this a Federal Highway project to relieve the duty to measure noise according to the FHWA protocol, I believe this should have been studied, as the Ortega interchange would be using this protocol and it is certainly a segmentation of the same project.

According to Caltrans protocol: *"Implementation of Traffic Noise Model (TNM 2.5) - The Federal Highway Administration (FHWA) published a Notice of Proposed Rulemaking on August 20, 2004 to change the national traffic noise model required for use on Federal Aid projects to TNM. In an agreement reached with FHWA, Caltrans has agreed to require all new project noise*

studies, beginning after January 15, 2005, to use TNM version 2.5 or later for acoustic modeling of traffic noise. The exception to this requirement is for a reevaluation noise study of a project that was originally modeled using Sound 32 or Sound 2000."

Therefore, using the outdated 2000 modeling should be updated to the TNM version 2.5. Per Caltrans protocol: In using this requirement, it states:" *The results of this analysis should be provided to local agencies pursuant to 23 CFR 772.15, which requires Caltrans to inform local officials about estimated future noise levels and to provide information that will allow local communities to* **avoid noise-incompatible future land development**."

Certainly, Caltrans should not use or rely on an outdated study and claim it is simply "*reevaluating* a noise study". The fact remains, that this study was not performed adequately, did not measure the majority of receptor sites show, traffic has substantially increased since 2004, only 3 of prox 57 sites had 24 hour monitoring, placement of receptor, traffic month, the build out of 8,100 homes in Ladera ranch being completed after the initial sound measurements are just a few of the reasons that an entirely new sound study must be done and with the appropriate modeling required by the FHWA. Again, it appears Caltrans has used inappropriate and inadequate measurements. A revised DEIR with current modeling and current measurements utilizing the complete requirements are required. 54

Caltrans used an outdated model evaluating induced vibration (June 2004). *"This Protocol was developed by a team from several areas of Caltrans and FHWA. This Protocol is a complete revision of and supercedes the previous Traffic Noise Analysis Protocol (California Department of Transportation 1998b). Noise studies initiated before the publication date of this version of the Protocol may be completed using the requirements of the previous Protocol. In cases where it is anticipated that the date of the Record of Decision for the environmental document will occur beyond 2 years from the Protocol publication date it is recommended that the new Protocol be utilized".* (8-2006 noise protocol) The record of decision, where there is no Federal involvement is the date the CEQA EIR is CERTIFIED (TNAP A-2 2006). 55

The appendix C lists measurements that have no meaning to the average reader. This should have provided some context for average readers to grasp what is being measured. It states "sound 2000", but modeling shows Sound 32. Modeling has been updated and should have used 2.5 modeling.

Caltrans used NAC for highlighting unacceptable noise levels, instead of reviewing appropriate city and county noise levels. Current measurements are outside of the limits for both city and county. 56

Vibration analysis did not include a requirement per the Caltrans vibration manual wherein it states: *"Always include description, manufacturer, model, serial no. of each vibration equipment components used. It is also extremely important to include the date* 57

instruments were last calibrated, by whom, where the records are on file, and whether calibration was traceable to the NIST (National Institute of Standards and Technology, formerly NBS

LSA cites using Caltrans vibration manual, however numerous areas suggested or required in protocol were not followed. 57

Articles of significance

The following are new or updated studies that confirm negative health consequences for adults and children. Caltrans must take this into consideration when planning new roads in residential areas.

Traffic Noise Causes Heart Attacks

Jim Dawson

inside Science News Service

Mon Feb 2, 2009 4:40 pm ET

> *"People living in residential areas with high levels of noise from road traffic appear to suffer more heart attacks than people living in quieter neighborhoods, according to a new study by researchers at the Swedish medical university Karolinska Institute in Stockholm. Goran Pershagen, who led the study, said 1571 people from the Stockholm area who had suffered heart attacks between 1992 and 1994 were compared with a control group from the same area. The addresses of all the individuals were identified and the level of noise estimated.*
>
> *Exposure to air pollution and other heart attack risk factors were also gathered using questionnaires and interviews, the researchers said. Once people with impaired hearing or exposure to other sources of noise had been eliminated from the study, the researchers found that there was a 40 percent higher risk of a heart attack in people exposed to traffic noise exceeding 50 decibels - a relatively quiet level of noise; heavy traffic is usually measured at between 80 and 90 decibels.* 58
>
> *"More research will be needed to establish a definite correlation between road traffic noise and heart attacks but our results are supported by other studies showing the cardiovascular effects of noise," Pershagen said.*
>
> *The possible link between noise and heart attacks should be taking into account when planning new roads and residential areas, he added. The study was published in the journal Epidemiology".*

S.F. traffic noise risks health of 1 in 6

Rachel Gordon, Chronicle Staff Writer

Wednesday, October 8, 2008

> **(10-07) 19:16 PDT** -- Noise from traffic is putting nearly 1 in 6 San Francisco residents at risk for heart disease, high blood pressure and other stress-related illnesses, city public health officials have found.

The San Francisco Department of Public Health has ranked "highly annoyed" areas of the city - neighborhoods it says have noise so loud and so constant it could cause psychological and physical harm.

"There are real health impacts," Tom Rivard, senior environmental health specialist for the Department of Public Health, said Tuesday.

The assessment by the city and UC Berkeley researchers was based on population, traffic congestion, topography and decibel readings. Sophisticated three-dimensional maps pinpoint the noisiest areas of San Francisco, building by building, hour by hour.

Traffic noise is loudest in the South of Market area but affects the most people in the densely populated Chinatown, Civic Center and Tenderloin neighborhoods.

"Traffic," Rivard noted, "is the No. 1 contributor to the ambient noise level" in San Francisco.

But the constant hum from congestion is just one of many sounds that environmental health researchers find troubling. They're also concerned about racket from such sources as sirens, trains and exhaust fans.

Eventually, Rivard hopes to expand the department's model to include those noises to further highlight the problem and help shape building codes, land-use regulations and transportation policy.

Noise - especially at night - can keep people awake, adding to their stress level. And that, in turn, can contribute to high blood pressure, heart disease, depression and digestive problems, said Rivard, pointing to findings by the World Health Organization and the U.S. Environmental Protection Agency.

That doesn't surprise Victoria Sanchez, a 58-year-old housewife who lives on Cayuga Avenue in San Francisco's Mission Terrace district, tucked between Interstate 280 and Alemany Boulevard.

Her neighborhood isn't the noisiest, but it ranks high in concern because of its close proximity to major roads and freeways, which makes people in those locations more vulnerable to health problems, the study found.

"I wake up cranky sometimes because of all the noise," she said. "Sometimes it's hard to sleep."

Sanchez, who raised five children in her family home of more than 20 years, said that even on warm days she finds herself keeping her doors and windows shut tight to block out the cacophony of cars, trucks and buses. "Sometimes all you want is peace."

Sirens in the night

Across town, in another noisy neighborhood, Michael Pedersen is jolted awake many nights by sirens. He lives near a fire station at Polk and Post streets, where crews

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responded to more than 2,400 calls last year. The station is thought to be one of the busiest in the nation.

"We've got a real noise problem here. It's driving us crazy," said Pedersen, a sculptor who serves as safety committee chairman of the Lower Polk Neighbors group. "I have to sleep with earplugs. A lot of us do."

The neighborhood association has been pushing the Fire Department to reduce the use of sirens and air horns in the neighborhood. Fire Department brass has assured neighbors that all efforts will be made to comply with their request - as long as traffic safety isn't hampered.

60-65 decibels is normal

The noise level of someone speaking in a normal voice measures between 60 and 65 decibels, Rivard said. Anything above that, he said, puts people at risk of noise-related health problems. Researchers found that a siren from a passing fire engine in San Francisco emits 106 decibels. An increase of just 3 decibels doubles the acoustical energy emitted, meaning that the noise difference between a siren and a normal conversation is immense.

Rivard predicts that noise pollution will continue to affect more and more people, in part due to refashioned building codes. In Chinatown, for instance, the new public library branch there has a ventilation and air conditioning system that is drawing noise complaints from neighbors. A similar problem has cropped up at the City College branch on Valencia Street in the Mission District. The new surge of residential development projects in such areas as the South of Market, Mission Bay and the Bayview, also will add to the city's noise problems.

A new noise ordinance for San Francisco, sponsored by Supervisor Tom Ammiano and winding its way through the approval process, calls for tighter noise controls and would make it easier for city officials to enforce the regulations. It also sets new standards for allowable noise levels.

Hopes for ordinance

Rivard hopes the ordinance, coupled with the new mapping system, will give officials the tools they need to creatively tackle the problem. That could mean the construction of sound walls, curtailed operating hours for noisy businesses, such as night clubs and restaurants, or requiring them to better muffle the noise they generate.

It also could lead to measures to reduce traffic. Among the ideas: convert some one-way streets into two-way streets, improve transit to lure drivers out of their cars and restrict trucks on largely residential streets.

excerpts from: Spatial distribution of traffic induced noise exposures in a US city: an analytic tool for assessing the health impacts of urban planning decisions

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complete study Int J Health Geogr. 2007; 6: 24.Published online 2007 June 21. doi: 10.1186/1476-072X-6-24.

This entire document reveals inadequacies of Caltrans noise analysis.

> *"It was important to validate the noise predictions from TNM in an urban setting. A regression analysis suggests that the model may have underestimated noise for most noise levels found in community settings. One possible explanation for this may be greater acoustical reflections in an urban landscape, which might not be representative of the freeway settings in which the TNM model was originally developed. Accounting for variations in traffic speed, starting and stopping of traffic, and elevation changes within the city may also explain the underestimate of noise. Correspondingly, the 17% rate of high annoyance for the city may be a conservative estimate. Furthermore, traffic noise is only one component of community noise."*

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DEIR analysis with regard to the Noise consisted of consultant/Caltrans recertifying the old outdated information. The noise study, done in 2004, never studied the North side of Ortega, specifically between Calle Entradero and Via Cordova. Yet, it shows receptor sites. Only 13 of the prox. 57 receptor sites were ever measured, and none were re-measured. Yet you can speak to residents living along the Ortega who would confirm that the noise couldn't possibly be within the allowable ranges and they specifically asked that new noise studies be done. A number of these requests were in the comments to the MND. I request all public comments from prior response be included as the issues residents raised were valid and were not responded to in this DEIR.

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These residents have been ignored, because I believe any verifiable noise measurement would confirm what we all know to be the truth. That is, we believe that the noise study was not appropriately studied. One cannot rely on "modeling", using only 3 residents for 24 hour monitoring from 5 years ago, that was measured prior to 8,100 homes in Ladera being completed and occupied and not expect that a significant update of the sound study should have been done.

Interior noise levels were never measured and other forms of mitigation were never considered. Caltrans itself did a pilot program that did alternative mitigations for noise that included paying for new window and doors and interior acoustical treatments, that was shown to be more cost effective than barriers or sound walls. I am sending this as an attachment.

Caltrans has prepared to offer this type of interior mitigation to one property. Clearly, Caltrans did not find it necessary to look at the other residential neighborhoods, to determine that they would be affected with the increase of traffic and noise that the widening will cause. If traffic is expected to increase by nearly double, how can Caltrans not take these residents into consideration? To think that the traffic will only effect those within the 9/10ths of a mile that is NOW being considered in this segmented widening project is to think that the traffic magically vanishes at Calle Entradero.

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DEIR has failed to consider how much traffic the interchange will encourage and has failed to consider that now with the toll road no longer a viable consideration, that if La Pata opens, as it is planned, that the Talega communities would find it much quicker to proceed to Ortega and then to the I-5. The DEIR is inadequate and must be revised to look at how the entire surrounding area. If Ortega is widened, it becomes one of only two main arterials for all of the induced growth widening will encourage. 61

The widening project appears to come with a predetermined outcome, and has found it's way into newspaper articles. One Caltrans official was quoted during the MND public hearing in 2007 and stated that: *"The most the public can do is delay construction and even that remains unlikely" Independent News 7-27-07.*

I asked for a retraction, but the Caltrans chief information officer refused stating that the person quoted did not recall stating this and if so, it was taken out of context. This was troubling as it was during the public comment period. 62

This predetermined outcome may be because Caltrans has given up the majority of the oversight and has relied almost completely on outside consultants for the preparation and analysis of the environmental documents, even when Caltrans has the talent and ability to do so themselves. Had the documents primarily come from Caltrans, there would be much less speculation that this widening was serving outside interests.

Of the environmental documents, I don't believe Caltrans has been solely responsible for any of them. Caltrans purports that this project's purpose is to relieve traffic congestion and improve the flow, accommodate outside growth, provide consistency with local planning documents and the newly added category of "gap closure". I have previously touched on the reasons but want to stress the inadequately reasoned purposes again. 63

This project will not relieve existing traffic or improve the flow. Instead, by providing the mitigation for the Ranch plan, it insures that Ortega will provide the capacity to enable the possibility of 14,000 homes being built directly adjacent to the Ortega. 64

The road if widened, would induce growth. Any flow of traffic would be temporary at best and the area would then be left with twice the traffic, noise, pollution, and smog. One need only look at widening the El Toro interchange or Crown Valley to see that widening just continues the cycle of urban sprawl. What is unconscionable is that aside from the inevitable growth inducement that will be happening on San Juan Capistrano's border, is the fact that Caltrans and the OCTA have teamed up with the RCA and determined that this would be great for Riverside commuters to access our little town to drive through on their way to the freeway. 65

Caltrans statement that this is to accommodate planned growth is basically admitting to the induced growth effect. The referenced to "planned growth" has the potential to allow 14,000 homes *if the mitigations to increase the capacity (by road widening) is allowed.* Each phase or

planning area from the Ranch plan is required to go through additional environmental reviews that include this required road capacity. 65

Ortega is already unfairly burdened by Ladera traffic that provided some of the funding as mitigation for the widening to gain approval of over 8,100 homes. Had developers attempted to widen Ortega prior to the 8,100 homes were being built, the residences would have been aware of what was proposed and fought it, like we are doing now. Ladera had the opportunity to provide for their own roads that would benefit their own residences, but instead took advantage of the politics of the area, with the development being under county control. As a result, many San Juan residents were unaware of the devastating effects of this widening. 66

There also has appeared to be a concerted effort to purposefully mislead our community, which will be addressed later when I discuss more inadequacies of the DEIR as to presenting faulty and misleading information. 67

The logic in the regional traffic analysis escapes me as Ladera Ranch was built off of Antonio parkway without a secondary way out or access directly to the freeway. Instead, the small city of San Juan became the dumping ground. From a safety standpoint, another route should have been addressed at the time, however, Caltrans should address this now. There is still open land that may provide an alternate route, but that should at least have been studied if it would not have the environmental concerns that plague the Ortega. Caltrans DEIR did not adequately address alternatives and must be revised to comply with CEQA. Caltrans has provided different sound wall designs as though they were true alternatives. They are not. An alternative to having a different height or glass versus block retaining walls were not the intention of providing alternatives to CEQA. "Alternatives" mean that Caltrans should analyze another less damaging solution to the environment. The DEIR fails at this analysis. 68

Caltrans offers this widening project as their proposed solution to deficiency in the need statement. Instead, it appears that the current DEIR's sole mission is an attempt to hide or ignore the substantial negative impacts while focusing on a proposed solution for providing the connection for **Orange and Riverside** counties. Caltrans duty to curb urban sprawl and reduce congestion on our roads appears to be in direct conflict with widening the road to increase roadway capacity that will only serve the purpose of inducing growth and dramatically increasing green house gas (GHG) emissions. 69

In 2006, California enacted the Global Warming Solutions Act of 2006 (AB 32), which requires California to reduce its GHG emissions to 1990 levels no later than 2020. This represents a 30 percent decrease from business as usual. Senate Bill 375, (signed into law 10-08) is California's next step toward achieving AB 32's goal. This is a goal that policymakers say will require curbing "sprawl. Vehicle emissions account for approximately 40% of California's GHG footprint. SB 375 seeks to reduce transportation- oriented emissions by basing

transportation planning on GHG emission reduction targets and creating land use incentives to meet those targets.

This law requires the metropolitan planning organizations, which would be Southern California Association of governments (SCAG), in conjunction with the California Air Resources Board (CARB) to set the targets for 2020 and 2035 for auto and truck sector for each region and provide a sustainable communities strategy (SCS) as part of a regional transportation plan. The purpose of the plan is to reduce the amount of vehicle miles traveled and thus attain regional GHG reduction targets.

The question then is, why would Caltrans, who has the duty to try to attain these goals, actually be encouraging longer commutes? By providing more capacity along the Ortega, this further encourages Riverside commuters to live in one county while driving long commutes to access Orange County work centers. This would result in an **increase in vehicle miles traveled**, not to mention the **inducement of additional housing growth** to the east that the additional "road capacity" will provide. 69

To add insult to injury, widening the Ortega will bring in the Riverside commuters that will result in impacts felt throughout much of Orange County, as the majority of this traffic is headed north to Irvine, Anaheim, and workforce areas. These commuters will impact our freeways as well. It doesn't come as a surprise that the OCTA did not support SB 375, as the OCTA has been instrumental in pushing the lower Ortega widening.

Recently, Caltrans lost a lawsuit with similarities to the Ortega widening. Caltrans was attempting to add two additional lanes under the pretense of helping suburban commuters get to their downtown jobs more easily. The Environmental Council of Sacramento responded stating, "adding more highway lanes in Sacramento is like eating more when you are trying to lose weight". The plan became unpopular, much like the Ortega, because the smart residents realized that adding more lanes won't relieve congestion for long, and the lanes will quickly fill up again. More capacity, will lead to even more cars, using more gasoline and spewing out even more air pollution.

The Sacramento neighborhood groups sued Caltrans in 2007, stating it was another transportation project that benefited outside commuters at the expense of those who lived within the project limits. In July of 2008, the Sacramento Superior court agreed and ruled Caltrans must conduct another environmental review of the project to determine how the project will affect the overall "vehicle miles traveled: in the region and the associated impacts on air quality and ordered the state to consider how the project will affect greenhouse gas emissions and global warming. 70

Caltrans argued that the agency didn't have sufficient methods for measuring the climate change impact of the project. The Judge also ruled that the agency didn't sufficiently consider alternatives to the expansion, including mass transit options. This is also parallel to the Ortega

widening. There has been absolutely no mention of alternative modes of transportation and the alternative routes that have been mentioned and written about have been ignored.

Caltrans and the OCTA have been presented with alternative routes in the south orange coast major investment study and these routes, including the "beltway" or variations thereof, should have been included for study. 70

Caltrans used proper judgment in not fighting the ruling ordering the revisions to the DEIR, and State Attorney General Jerry Brown applauded the ruling and Caltrans agreement to comply. The Governor's office asked the state Air Resources Board to come up with guidelines for 2009 for agencies such as Caltrans on how to conduct greenhouse gas emission studies.

Similar court cases have also ruled that Caltrans did not adequately analyze the project's noise impacts. Again, another obvious problem with the DEIR is that Caltrans did not provide adequate noise analysis. In fact, because Caltrans shows approximately 57 receptor sites and their exact locations along with the confusing elevations that appeared to the average person to be the actual measurements, it appeared to be purposefully deceptive. 71

Caltrans states in their noise analysis that only 13 sites were tested and the rest used modeling that NEPA does not allow. The modeling was 2000 instead of 2.5, and there was no NADR performed. Although, this section of the Ortega does not involve the Federal Highway Administration, with different modeling requirements, had this project not been segmented, the modeling from NEPA would have been required. Segmenting of the widening project is yet another major topic that is at issue with the inadequacy of the DEIR.

As for the existing modeling, it is misleading. A revised DEIR is necessary. It is my opinion that had the outdated 2004 limited analysis been updated, it would have shown that the current traffic conditions already exceed the allowable db levels for both county and city general plan allowances. 72

In Gray v. County of Madera, 167 Cal.App. 4th 1099 (5th Dist. 2008) The court determined the EIR provided inadequate analysis on the incremental increase in noise that would result from the project. It did not consider that the noise levels in the area already exceeded general plan noise standards. As the court put it, "even though the noise added by the project might be insignificant when looked at in isolations, when added to an already high noise level, it could cause a tipping point of noise problems for the general public." 73

This certainly is the case with this DEIR. Not only do the noise levels currently exceed the general plans for both city and county db levels, but that the levels are far greater than they were in 2004. The study was flawed in that it was outdated, did not use representative measurements to base modeling, used modeling that is no longer recommended used NAC as the standard. The analysis was not done professionally, it lacked details and the placements of the microphone were contradicted from the pictures. There were no sound studies done at all on

the North side of Ortega in the Hunt Club, yet receptor site are shown as being placed on these properties. One has to read the study to understand that this was very misleading.

The study only included 3 24-hour measurements, taken at the time of year with the least amount of traffic and the 10 (10-minute measurements) were inadequate in both the amount of time measured but was not done at peak time. Further there were no interior measurements taken at all. Clearly, the interior noise levels are a required standard that must be tested for all development permits. 73

Caltrans ignored the fact and did not include in the study the analysis that was done in the late 1990's that showed that the City of San Juan tested some of the homes and already paid individual homeowners for noise abatement, as the noise levels exceeded the requirements well over a decade ago.

The noise study that was deficient for the MND, simply recertified the results instead of taking new measurements. Clearly, a number of residences asked for new sound measurements as they knew there noise levels could never be consistent with those that are required by both the general and the city general plan. 74

The noise study appeared to only argue that a sound wall could provide mitigations. Yet Caltrans did a pilot program that used interior abatements such as replacing windows, doors and adding air conditioning as an alternative to sound walls that would be ineffective due to the openings and topography of the affected residences. 75

Caltrans has also failed to adequately address the residences that are affected by the noise and traffic that are directly adjacent to the highway. This lack of analysis is contrary to the executive order regarding environmental justice. It is obvious that by avoiding the retirement community that lives in the mobile home park directly next to the project, that consists primarily of retired persons, it gives the appearance of trying to avoid or mislead in the DEIR as to how this project will affect those of different age or income brackets. These homes are approximately 30' from the Ortega and to not consider that the widening and the increased traffic will not affect them is ridiculous. This is not the only community that has been entirely ignored. The vast majority of the residential communities will be negatively affected. Caltrans should revise the DEIR to include all of the proposed projects and the projects that have been built since the data was collected. 76

Caltrans mitigation for the noise attenuation suggested noise-absorbing walls. Yet Caltrans has relied on the word of a company that "published a paper" and failed to prove that this mitigation could actually work. CEQA requires that the lead agency subject the draft environmental document to the lead agency's own review and analysis and that the document must reflect the independent judgment of the lead agency. The lead agency is responsible for the adequacy and objectivity of the information, conclusions, and findings in the CEQA document sent out for public and agency review and comment. Without a complete and thorough review of 77

the document, the lead agency may remain unaware of deficiencies in the document that it will be called upon to adopt or certify. References: CCR Title 14 § 15084 77

Given the numerous deficiencies in the DEIR, I ask that Caltrans stop further work on the widening project or in the alternative revise the DEIR. 78

Regards,

Lennie DeCaro

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Marsi + Chuck DeCosas (30982 Via Cristal San Juan Cap.)

Comment:
1. State has No money for expenses.
2. Schools need whatever money that becomes available.
3. We believe and agree to widening Ortega Hwy after Via Cristal, only to La Pata. 1
4. No "Sound-walls" needed.
5. No additions needed
6. No increase of speed to 65 mph

Re-evaluate our (SJC) needs for expanding with the extreme slow down as of 2008. Housing is down & driving is down. There will not be an additional homes & cars added to our town in the next 5-10 years. Stay focused in what the country is going through. No added costs or loans should be considered. 2
—— This is NOT an emergency —— project.

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Marsi + Chuck DeCasas (30982 Via Cristal San Juan Cap.)

Comment:
1. State has No money for expenses.
2. Schools need whatever money that becomes available.
3. We believe and agree to widening Ortega Hwy after! Via Cristal, only to La Plata. 1
4. No "Sound-walls" needed.
5. No additions needed
6. No increase of speed to 65 mph

Re-evaluate our (SJC) needs for expanding with the extreme slow down as of 2008. Housing is down & driving is down. There will not be an additional homes & cars added to our town in the next 5-10 years. Stay focused in what the country is going through. No added costs or loans should be considered. 2
—— This is NOT an emergency —— project.

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"Stephanie Doucette"
<stephd@
01/04/2009 03:01 PM

To <lower74eir_d12@ >
cc
bcc
Subject Ortega Highway widening

Caltrans District 12:

Widening scenic Ortega Highway will destroy San Juan Capistrano's beautiful view corridor and rural feel (the reason I moved here). It will also make life close to impossible for the people in the areas impacted by the widening to get out of their neighborhoods, forcing them into very fast traffic. Adding these lanes will simply encourage myriad out-of-towners to use San Juan simply as a pass through, adding to our traffic problems, not alleviating them. 1

You should be directing your efforts into extending La Pata through to San Clemente. San Clemente is the town that has doubled in population in the past decade, yet they are fighting that extension. 2

Stephanie Doiucette
27569 Via Sequoia
San Juan Capistrano, CA 92675

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Sandra Ewing

Comment: See Attached

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Sandra Ewing
27760 Somerset Lane
San Juan Capistrano, CA 92675

January 22, 2009

To whom it may concern,

I am very concerned about increased traffic on the Ortega at the Hunt Club entrance. **We need a signal**! Now it is dangerous to enter and the Hunt Club at the main gate. When the road is widened and possibly the speed will be increased, the highway will become more dangerous. I hope Caltrans isn't going to wait until someone is killed leaving or entering the Hunt Club. Not only would an accident, killing or gravely injuring someone be tragic, it would open a huge lawsuit for Caltrans. We need a signal at the entrance to the Hunt Club 1

Sandra Ewing

Sandra Ewing

"Falk" <coachkent@
01/27/2009 10:26 PM

To <lower74EIR_D12@
cc
bcc
Subject Ortega comments

We have lived on Via Sonora for 19 years. We are very concerned about the impacts that the widening of Ortega Hwy. will have on our quality of life and the environment of San Juan Capistrano. As a ninth generation native of San Juan Capistrano, I have seen the town grow from a small and beautiful village into a large city with too many people, cars, and congestion. I have worked in Rancho Santa Margarita for ten years. As I try to turn right onto Ortega Hwy, at approximately 7:00 a.m. each weekday morning, I feel as though I am taking my life into my hands trying to turn right. San Juan Hills High School will be increasing in size of its driving student body, the Mission Viejo Co. will be building extensively east of town, and commuters from Riverside County are all using Ortega Hwy at the time that I am trying to leave my Mission Park neighborhood. I face the same difficulty at 5:00 p.m. when I try to turn left to return home. I am against the widening of the Hwy. but I know that it is necessary for the increased amount of traffic. That being said, signals need to be installed at Entradero and Cristal to make it possible for residents, like me, to safely exit and re-enter from the neighborhoods. We should NOT have to wait for an accident to happen before signals are installed. It is devastating to realize that the best part of San Juan Capistrano will soon lose the rural, natural beauty that I grew up with. 1

Linda Dunn Falk
31121 Via Sonora
San Juan Capistrano, CA

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Carol Feezor

Comment:
Why is it so necessary to open the Ortega up to the San Bernardino county? We can easily get out to San Diego now. 1

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: RON FEEZOR

Comment:
ACCORDING TO TRANSPORTATION THERE IS NO PLAN TO ACCOMODATE A TRANSITION FROM A 5' BIKE PATH IN THE WIDENED SECTION OF SR 74 TO THE EXISTING ROADWAY WEST OF THE PROJECT AREA. I KNOW BIKERS MAY USE THE ROAD AS ANY OTHER VEHICLE BUT WITH NO BIKE LANE ONLY DISASTER CAN OCCUR. 1

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: RON FEEZOR

Comment:
KING THOMAS (LSA) COMMENTED THAT THE PROJECT AREA WILL LOOK LIKE THE WEST (EXISTING) LENGTH OF SR 74 RE LANDSCAPING. THAT IS ENTIRELY WRONG AS THERE ARE NO SOUND WALLS AND TALL RETAINING WALLS WEST OF THE PROJECT AREA. 2

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: RON FEEZOR

Comment:
IN MY OPINION IF WE KEEP THE SR74 AS IT CURRENTLY IS CONFIGURED THE PROJECTED 39000 DAILY USE WOULD BE DISCOURAGED AND POSSIBLY NOT OCCUR. 3

MAKE IT DIFFICULT AND NO ONE WILL USE IT.

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"Ron Feezor" <rfeez@

01/14/2009 08:17 PM

To <iower74EIR_D12@dot.ca.gov>
cc
bcc
Subject Comment

I attended the hearing in San Juan Capistrano tonight but wanted to add the folllowing comment .

Shouldn't the construction of the revised intersection of I-5 and SR74 be completed before SR 74 is widened? It seems like dumping more vehicles onto The Ortega before providing a way to get off is short sighted. 4

Ron Feezor

"Ron Feezor" <rfeez@

02/06/2009 01:19 PM

To <lower74EIR_D12@dot.ca.gov>
cc
bcc
Subject Street Modification

As it appears the widening of Ortega is going to happen, I would like to see a change to the street I live on.

The traffic will increase no matter what is being told to us and I see an even harder job of making a left turn from my street, Via Cuartel, therefore, I would like to see the street closed off at Ortega. The stree would then become a cul de sac. We have to go out of our way already to often enter Ortega because of traffic so why not just close it off. 5

This should be done without current homeowners losing any property and at no cost to the current homeowners.

Let's do it!

Ron Feezor 31261 Via Cuartel SJC

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"Missy Anderson"
<catchmissy@
01/30/2009 05:26 PM

To <lower74EIR_D12@ >
cc
bcc
Subject Ortega Widening

I am writing you to support any and all efforts to widen the Ortega Highway in San Juan Capistrano 1

Bill and Carol Fessenden

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"Pat Filippi"
<patspinkroses@
01/30/2009 07:53 PM

To <lower74EIR_D12@ >
cc
bcc
Subject Widing of the Ortega to CALTRANS

- How very sad this is...
- Sadly every bit as horrific as any Emanate Domain...
- All who move to San Juan Capistrano... did so... because of its charm and small town feeling...
- Drive the Ortega...one only needs to drive east in the fall and into the winter and see the beautiful trees all turning color...
- So here we are, with a state about to go bankrupt and they want to take away the beautiful trees and build walls...
- Spent twenty six million dollars on less than one mile widening... 1
- Give me a break...go somewhere else and do something that truly needs doing...Call anyone in SJC... we'll have suggestions for you...
- I wish all would send a note to our governor, the Register and anyone else who might listen... and tell of this travesty...
- Go away CALTRANS and leave us alone...go where your truly needed...
- I'm certain there are projects that are in dire need of twenty six million dollars...The Ortega is not one of them...!!!!!
- **Leave our sweet beautiful town alone... This absolutely makes NO sense...**

Patricia Filippi

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Ron & Vicki Geisler

Comment:
We are completely against the widening of Ortega Highway. The destroying of over 100 trees, the 20 foot retaining wall, the increased traffic, the increased speed limit, the increase of omnibusses coming off of the increased traffic, no signals, lack of our heritage, no more small town feel, the environmental impact to our children and seniors, lack of ability to be able to stroll down Ortega, instead of walking down a freeway. Find an alternate route. Extend the 241, do whatever you need to do, but don't destroy our community. 1

Ron & Vicki Geisler
30662 Hunt Club Dr. S.J.C., CA. 92675

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
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Please print:
Name: Gerry Hahn 02/07/09

Comment:

If there is a need to widen the Ortega Hwy as has been reported,..including the need of a Retaining Wall on the North Side of the road due to the slope of the existing terrain, there MUST be a Sound Wall opposite the Retaining Wall on the South Side of the Ortega Highway.

The Sound Wall will serve to offset the tremendous amount of noise that will 'boomerang' off the Retaining Wall into the neighboring community South of the Ortega Hwy.

This enormous bounce-back of noise will not only be damaging to the lifestyle of the residents,..but negatively affect the resale value of the prettiest little homes in the area. 1

No matter, when/if the Ortega Hwy is widened,..a Sound Wall on the South Side of the Highway is a MUST!

...a concerned resident.

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Sherry Hahn

Comment:

My husband and I are homeowners who live on the south side of the Ortega, in the area which is only 2-lane.

My understanding is that should the widening project be approved, it would require a retaining wall on the south side of the Ortega. The retaining wall and the increased traffic volume would increase the noise right outside our backyard. 1

If the widening proceeds, a soundwall must be constructed on the south side to lessen the impacts: noise pollution and degradation of our home value 2

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Gila Jones
<gilajones@s
02/14/2009 09:14 PM

To Lower74EIR_D12@
cc
bcc
Subject Opposition to widening of Ortega Highway

I am steadfastly opposed to the widening of Ortega Highway. My city is not a driveway to other destinations, and I resent it being treated as such. I feel CalTrans is simply looking at a map and deciding to route traffic through us without regard for the lives of the citizens of our area. Ortega Highway is an old road through an established area that was, unfortunately, not designed to be a major thoroughfare. I understand that more circulation is needed in our area, but this is a poor choice for it. 1

I do not feel your noise mitigation studies were properly done and I think they are inadequate. You are not considering changes to other roads in the region, or our landfill, or our new high school, etc., and how those changes will impact Ortega Highway. You are ignoring many important aspects of our city's General Plan, apparently because considering them is inconvenient and does not suit your purpose. Your draft EIR is woefully inadequate and not worthy of a state agency! 2

If the Ortega Highway is to be widened it should be done correctly. The studies done by CalTrans are a disaster. Stop trying to fix the facts to fit the solution you've decided upon and make some *honest* studies. My community is worth it. 3

Gila Jones
31221 Belford Drive
San Juan Capistrano, CA 92675

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Carla Kallen
<carlita722@
02/14/2009 11:53 PM

To <lower74eir_d12@ >
cc <
bcc
Subject FW: Oppose Ortega Widening

> To Whom It May Concern:
>
> I have been a resident of San Juan Capistrano for over 30 years. For the last 22 years I have lived with my husband and five children on Hunt Club Drive which intersects Ortega Hwy. at a point in the middle of the proposed widening project. I have read the EIR, and I am completely opposed to the proposed widening of Ortega Hwy. 1
>
> Our city's General Plan states that it is our policy to "preserve and enhance scenic transportation corridors." The plan to cut down 111 mature trees and install 15-25' retaining walls and sound walls along Ortega Hwy. is certainly not in keeping with this policy. 2
>
> The proposed widening would affect the cohesiveness of the neighborhood. The schools our children attend are on the south side of Ortega Hwy. We live on the north side. Our children will not be able to safely get to school when there is no proposed traffic signal at our intersection and no proposed sidewalk on the north side of Ortega Hwy. to walk along until the nearest signals at the intersections of Antonio or La Novia. Increased speed along Ortega would only make getting to school on the other side more difficult and dangerous. The neighborhoods on the north and south sides of Ortega need to stay integrated. 3
>
The area within the city limits of San Juan Capistrano is largely built out. Therefore we don't need to widen Ortega to accommodate the City's needs. This project is being driven by potential need and not actual need. Demographic trends in Riverside County and the plan to build 14,000 homes east of the city are what is causing the problem. The city of San Juan Capistrano has shouldered more than its fair share of the traffic from neighboring areas. Other options to accommodate this outside growth need to be explored and implemented This problem should not be resolved by San Juan Capistrano at our peril! 4
>
> Sincerely,
> Carla Kallen
> 30751 Hunt Club Drive
> San Juan Capistrano, Ca. 92675

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P-34

William J. Kindel
1614 Via Sage
San Clemente, CA, 92673
phone 949-492-8843 fax 949-492-6839 cell 949-370-9161
email: billkindel@

Jan. 5, 2009

Caltrans District 12 Office
attn: Scott Shelly
3337 Michelson Dr.
Suite 380
Irvine, CA
92612

Re; Proposal to widen SR 74 in San Juan Capistrano

Dear Mr. Shelly,

I am a 100+ mile a week bicycle rider who cringes every time I transit from Ave. Siega to SR 74 on my way to Antonio Parkway. There is a stretch of several hundred yards with no shoulder for a bicycle. I hope that the proposed improvements will include adequate provisions for safe bicycle travel on SR 74. 1

At present it is possible to ride safely from Dana Point up the San Juan Creek Trail to Calle Arroyo. The lack of a bicycle lane combined with truck traffic serving the county dump and heavy vehicle traffic makes the transition on SR 74 to Antonio Parkway unnecessarily dangerous to bicycles.

Thank you for your consideration.

Sincerely,

Bill

William Kindel

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"christopher king"
<kingofcapistrano@.
>

12/27/2008 01:50 PM

To lower74eir_d12@
cc
bcc
Subject EIR Expanding Ortega Highway

I am opposed to any extension or expansion of Ortega Highway.
In a nut shell. If you expand it you will expand the traffic using it.
There is no real reason to change Ortega Highway. It is a scenic route and should be left that way. Building big City Highway walls will destroy the Highways scenic feel and destroy the out look.
Big Walls will make it look like a freeway and not a village road.
Keep the road rural and scenic, and then impose a 30 mile per hour speed limit. A speed limit will help traffic flow, it will certainly help residence enter the Highway from their side turnings. 1
Also, place speed cameras along the Highway. Let the out of towners pay for the road and services related to the maintance.
Keep Ortega Highway as it is, and stop using illogical surveys as a reason to change it. Use the $26 million to help allow San Juan to grow, not cover it with concrete ugly walls and fill it with out of town traffic!
Resident of San Juan Capistrano.

christopher king
<kingofcapistrano@gmail.com
>

01/31/2009 10:17 PM

To Lower74EIR_D12@dot.ca.gov
cc
bcc
Subject Closure of Via Cuartel

From Mr. and Mrs Christopher King. 31301 Via Cuartel, San Juan Capistrano C.A. 92675

Dear Sir or Madam,
It has been evident for some time that the difficulty of getting out of Via Cuartel on to Ortega Highway has become almost impossible. Most traffic passing by is speeding and therefore it becomes virtually impossible to exit our road. It has become extremely dangerous and we are requesting that our road be blocked off and made in to a cul de sac. A safer exit on to Ortega can be used by us all. 2

It appears that more traffic due to more develpment is going to take place and the problem will have a catastrophic impact on our neighborhood. We can no longer tolerate this inaccesable and dangerous outlet. Turning in to Via Cuartel is even more of a challenge, traffic simply will not slow down to let us through. We are fearful of a serious accident occuring soon, perhaps to one of us. 3

Yours Sincerely, Jean and Christopher King.

"Cindie Lagos"
<cindielagos@
02/01/2009 12:03 AM

To <lower74EIR_D12@
cc "Kristy Allan" <Kristy@
<patbates@
<mneilsen@sa
bcc
Subject Ortega Widening

As a resident of San Juan Capistrano I am completely disturbed by this proposal to widen the Ortega.
It is only going to add more traffic coming into a small town who's infrastructure cannot handle more cars. There must be other ways for traffic to flow to the 5 frwy from the Ladera Ranch area and the other 14,000 homes planned to be built. I understand the need. Although, to destroy one of the few precious Historic towns in all of California, you will as planners be destroying a precious place and making it like the rest of Los Angeles. These streets are already to crowded, and by adding more lanes you will simply be putting more cars through this little town, with zero benefit to the town. More congestion does not mean more tourism. It will become a place to avoid. The rural avenue that we presently have, with the beautiful trees and view of the hills will be gone. 1
No one in Toscana Italy would be so crazy to destroy this kind of beauty and take it for granted like it is no big deal. We as Americans have to few towns of any true beauty or history. Mainly strip centers with the exact same stores and restraints repeated over and over again. Without any originality. Well San Juan Capistrano does have originality and a history and that gives it charm and interest and beauty. It is different and should be considered to be different and treated as unique and thought of as a unique place to be preserved in this ever changing environment of build and destroy. Build and then demolish after a few years because there was never anything of any true importance there anyway. Well this is not the case with San Juan Capistrano. I am ashamed of CalTrans as a state agency. They have no mindfulness as to what they will be destroying. To push ahead with something like this with careless indifference. Acting as if it is no big deal. We as people see the beauty, but money often is thought to be more important than beauty. We are the people that bought homes here, we pay our property taxes. We have rights to be heard. This is a wrong concept. What could you be thinking? 2
You would be taking all the oxygen that these huge trees produce and subtracting it from the environment. Presently they are reducing the CO_2 emissions. You subtract these trees and you add more lanes and more cars then you have a double negative as far as the air quality. No where in the EIR report has this been addressed or quantified. **You have an incomplete EIR report**. Any air quality engineer worth his or her salt would have made mention in this report the change in the quality of the air if this project goes through. **Any qualified and honest engineer would quantify the difference that will take place, would quantify this loss of oxygen and increase in airborne particulate and CO_2 emissions**. **This is disguised in your EIR** 3

report and it has been stated that the air quality will be within the standard air quality guidelines. This is false. It will greatly change the environment and air quality of the residents properties that have back yards that butt up to the Ortega, which is a rural road. 3

Residents will be justified to file a class action lawsuit for increasing the air pollution, destroying there peaceful neighborhood, reducing their quality of life by impacting the value of their major investments, their homes. Increasing cars, accidents, noise pollution, horns honking,subtracting beauty, making it impossible to walk across this rural road which people do presently, as well as horses. Why on earth is this made out to be a good thing. To benefit the few developers that want to build more homes that we don't need. There are may projects in California that need the assistance of CalTrans. That would dearly appreciate their assistance in improving their roads. San Juan Capistrano residents don't want this, don't favor it, will not take to it. You must also consider the health of the horses who live on this road and a ranch owner, Joan Irvine who this will certainly impact. Does Cal Trans truly wish to create such bad will and hatred in a town like San Juan Capistrano. There is an entire state that needs your work badly. Please make your improvements where they won't create destruction of a small town atmosphere, you don't really want to go down in history as the State agency that destroyed this Historic town. We are against this. We look at this project as destruction and not road improvements. Please figure out how to take the flow of traffic out San Antonio and hook up with the 73 to Newport. Also La Pata and hookup with the 5 frwy. Please take our comments seriously. Cal Trans is needed elsewhere. 4

Thank you.

Cynthia Lagos Nick.vcf

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: ROBERT LAVALOT · BOARD MEMBER VERDE SAN JUAN HOME OWNERS ASSOCIATION

Comment:
I WOULD LIKE TO ASK FOR A SLOW DOWN LANE ON ORTEGA HIGHWAY FOR RIGHT TURNS ONTO TOYON DRIVE. A RIGHT OF WAY EASMENT EXIST THAT WOULD ALLOW THIS. THERE IS A PROPOSED RETAINING WALL CLOSE BY BUT STOPS APPROX. 200 FT BEFORE TOYON. THE AREA FOR THE SLOW DOWN LANE IS FLAT AND WOULD NOT REQUIRE A RETAINING WALL. THERE ARE 14 HOUSES THAT USE TOYON DRIVE SOME WITH EXTENDED FAMILIES. TOYON IS OUR ONLY WAY IN OR OUT. THE LANE WOULD MAKE ORTEGA HIGHWAY SAFER. 1

PLEASE CONSIDER IT

THANK YOU

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

* Note: This comment was damaged by Postal Service, see next page for resubmitted comment card.

Caltrans

Public Comment Card
te Route 74 Lower Ortega Highway Widening
ft Environmental Impact Report (Draft EIR)

VALOT - 30621 HILLTOP S.J.C.

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DEAR VALUED POSTAL CUSTOMER:

I want to extend my sincere apology as your Postmaster for the enclosed document that was inadvertently damaged in handling by your Postal Service.

We are aware how important your mail is to you. With that in mind, we are forwarding it to you in an expeditious fashion

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We appreciate your cooperation and understanding and sincerely regret any inconvenience that you have experienced.

YOUR POSTMASTER

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: ROBERT C. LAVACOT

Comment:

Please, please add a signal light on Ortega Hwy somewhere between Antonio Parkway and the city limits. Morning traffic on Ortega is almost constant resulting in extremely long waits to make just a right turn onto Ortega from Toyon. It is impossible to make a left turn and extremely dangerous to even try. This is due to heavy traffic from Lake Elsinore and right turn traffic from Antonio Parkway (people heading for the I-5 freeway). 2

The signal light suggested would cause a timed break in traffic flow and allow for at least a safe turn onto Ortega hwy from the private roads leading into Ortega.

Thank you,
Robert Lavacot

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Smita Deshpande/D12/Caltrans/CA Gov
01/05/2009 10:33 AM

To scott_shelley@
cc
bcc
Subject Fw: Ortega widening

This should be included in our folder of comments.

Smita Deshpande, Branch Chief
Environmental Planning Branch 'A'
Caltrans District 12
(949) 724-2245
----- Forwarded by Smita Deshpande/D12/Caltrans/CAGov on 01/05/2009 10:32 AM -----

"Nasser Abbaszadeh" <NAbbaszadeh@

01/05/2009 09:57 AM

To "Smita Deshpande" <smita_deshpande@
"Ahmed Abou-Abdou" <ahmed_abou-abdou@
cc
Subject FW: Ortega widening

Just FYI.

Public Works Department Mission Statement –

"To enhance the quality of life and preserve the City's heritage and charm through timely response, effective design, environmental sensitivity, and infrastructure maintenance."

From: Jerry Lawrence [mailto:jplegend@
Sent: Saturday, December 20, 2008 2:18 PM
To: Laura Freese; Londres Uso; Mark Nielsen: Sam Allevato; Tom Hribar
Cc: Nasser Abbaszadeh; PatBates@
Subject: Ortega widening

Gentlemen and Ladies;
Attached is a letter I sent to the Capistrano Dispatch, outlining my views on the proposed Ortega widening project. As I point out in my letter, the best of the proposed designs is that outlined in Para. 1.5.4.4 of the Caltrans EIR, which yields 4 through lanes with minimum impact to the environment, neighborhoods and mature trees, etc. Please support this version of the proposal. 1
Sincerely,
Jerry Lawrence
Paseo Valencia

Ortega Widening

It is probably inevitable that the East end of Ortega highway to the city limits will be widened to 4 lanes. However, it should NEVER be widened to 6 lanes, as shown in the overall OCTA highway master plan. 2

The designs described in the current Environmental Impact Report however contain elements that would pave the way (no pun intended) to allow for 6 lanes at a later date. Primarily this includes adding 5 to 8 ft wide "bike lanes" (depending on the plan chosen) in the roughly 9 tenths of a mile project area. When questioned at the May public hearing however, the CALTRANS representative admitted that they were really "safety lanes" to meet the Standards for State Highways. The existing 4 lane portion of Ortega does not meet these "Standards" and no plan exists to retrofit that area. This extra roadway width and the acquisition of additional property to increase the total right-of-way width would facilitate the later conversion to 6 lanes. 3

There are no bicycle lanes in the current 4 lane portion of Ortega, so the planned lanes would not connect to any existing bicycle lanes. One of the justifications for the bicycle lanes is increased student access to the high school. I seriously doubt that many students would ride bicycles out Ortega and up La Pata through the heavy car and truck traffic to get to school.

CALTRANS does not propose to add traffic signals at any intersections in the area to facilitate pedestrian and horse crossings and allow traffic from the South side of Ortega to turn left toward town, as they would impede traffic flow. Instead, they propose that cars wanting to turn West toward town should first turn East, cross 2 lanes of traffic to the center painted median, and make a U-turn at the next available intersection against 2 lanes of oncoming traffic, a sure recipe for head-on accidents. 4

Paragraph 1.5.4.4 of the EIR is the most reasonable design presented, essentially maintaining the roadway width of the existing 4 lane section of Ortega, preserving most of the mature trees lining the roadway, with no bicycle lanes. It states: "The Department Project Development Coordinator did not approve the proposed 2 ft non-standard shoulders." It does not name this Czar with apparent veto powers. 5

Paragraph 1.5.1.9 of the EIR recommends approximately 2000 feet of 16 foot high sound walls as a "community enhancement". It also states that the City would fund the construction and maintenance of the sound walls, if the cost exceeded the CALTRANS standard cost allocations. Most of the community South of Ortega is downslope from the highway, so the noise is already somewhat attenuated. 16 foot high walls in the backyards of homes abutting the highway will look grotesque, potentially reduce property values, eliminate views, and obstruct the natural breezes, as well as become an irresistible magnet for graffiti. 6

I urge all residents in the affected area to make every effort to attend the public hearing on January 19th at Marco Forester Middle School and make their views heard. 7

Jerry Lawrence
San Juan Capistrano

"Jerry Lawrence"
<jplegend@ >
01/26/2009 01:08 PM
Please respond to
jplegend@

To lower74EIR_D12@dot.ca.gov
cc
bcc
Subject Comments on proposed Ortega widening

There are no bicycle lanes in the current 4 lane portion of Ortega, so the planned lanes would not connect to any existing bicycle lanes. One of the justifications for the bicycle lanes is increased student access to the high school. I seriously doubt that many students would ride bicycles out Ortega and up La Pata through the heavy car and truck traffic to get to school, and I have been informed that a student riding a bicycle on La Pata is subject to suspension.

Caltrans does not propose to add traffic signals at any intersections in the area to facilitate pedestrian and horse crossings and allow traffic from the South side of Ortega to turn left toward town, as they would impede traffic flow. Instead, they propose that cars wanting to turn West toward town should first turn East, cross 2 lanes of traffic to the center painted median, and make a U-turn at the next available intersection against 2 lanes of oncoming traffic, a sure recipe for head-on accidents.

Paragraph 1.5.4.4 of the EIR is the most reasonable design presented, essentially maintaining the roadway width of the existing 4 lane section of Ortega, preserving most of the mature trees lining the roadway, with no bicycle lanes. 8

Paragraph 1.5.1.9 of the EIR recommends approximately 2000 feet of 16 foot high sound walls as a .community enhancement.. It also states that the City would fund the construction and maintenance of the sound walls, if the cost exceeded the CALTRANS standard cost allocations. Most of the community South of Ortega is downslope from the highway, so the noise is already somewhat attenuated. 16 foot high walls in the backyards of homes abutting the highway will look grotesque, potentially reduce property values, eliminate views, and obstruct the natural breezes, as well as become an irresistible magnet for graffiti.

Instead of the proposed Plan 1 or 2, pursue .Plan 3., the most reasonable and economic plan that will provide the necessary 4 lanes and median through the study area:

1) Continue the existing four lane (approximate 62 foot right of way) Eastward through to the city limits, with no .bike lanes..

2) Provide a traffic .demand. signal, probably at the Entradero/Hunt Club intersection, to allow a pedestrian and horse crossing, and provide left turn access to Ortega from both the North and South sides. 9

3) Eliminate the proposed expensive and unaesthetic sound walls.

Sincerely,
Jerry & Shareen Lawrence
San Juan Capistrano

HELEN LEE
<helenlee@
02/14/2009 08:09 PM

To lower74EIR_D12@
cc
bcc
Subject Route 74 Ortega

Hello Mr. Scott Shelley,

As a person who lived in many big cities such as New York, Paris and Hong Kong, I have to say I love the energy of city life. I also love visiting small quaint towns that are ever disappearing in our country.

There are so many agency that protects things that are endanger, why not protect small towns. San Juan Capistano is a beautiful quaint town. There is a train station in the center of this quaint town where one can walk the around town and visits the 210 year old San Juan Mission by foot. San Juan is a beautiful Horse country and we must try our best to protect it. Widening Route 74 will encourage more traffic and will eventually destroy this beautiful quaint town. 1

There are many speedy drivers on Route 74 as this time. Feel free to check the records. Officers are there between the Hunt Club Road and La Novia writing up countless summons daily, putting a stop sign will help slow down the speedy drivers and keep our street safe.

Thank you very much for your attention.

Helen

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"Kim Lefner"
<klefner@
02/13/2009 12:45 PM

To <Lower74EIR_D12@ >
cc
bcc
Subject opposed to Ortega Hwy widening

To Whom it May Concern:

As a resident of San Juan Capistrano, I am opposed to CalTrans' stated plans to widen Ortega Highway in San Juan Capistrano, especially in light of the following issues that CalTrans has failed to address and the resulting impacts that have been minimized or dismissed by CalTrans. 1

CalTrans opted to do a less thorough study of the widening which states there would be 'no significant' impact on our community from such things as: the removal of pedestrian sidewalks and 110 mature trees, views blocked by sound and retaining walls, no stoplights or crosswalks to be provided despite increased traffic and speeds and the noise and polltuion, let alone measuring the effects of the increased traffic such a widening will surely promote. This is a ridiculous assertion in light of the many, severe impacts such a widening project will have on our community. 2

Among the many concerns from a safety standpoint is the fact that all intersections in the proposed project will fail to meet level of service "F" by year 2030 after the completion of the proposed widening, coupled with the fact that traffic signalization was deemed *unwarranted* by CalTrans based on an inadequate analysis performed in the year 2000 (9 years ago!). That analysis consisted of *pedestrians crossing the highway instead of measuring the number of cars on the highway* . This is simply outrageous and flies in the face of logic. In addition, the Class II bike lane proposed by CalTrans is now *sharing* a 5' shoulder. The shoulder isn't consistent with Federal Highway design standards, yet CalTrans is stating that the widening IS consistent with Federal Highway standards. Considering the lawsuits from bicyclists and joggers who have been hit while riding or jogging in bike lanes that are shared with shoulders (which have resulted in multi-million settlements), this is not only irresponsible planning but dangerous. Where is the concern for the safety of the bicyclists, joggers, pedestrians and the residents of San Juan? 3

I am also concerned about what impact the widening of Ortega will have on the historic character of our small town. Mission San Juan Capistrano has the oldest intact original church of all the California missions, located within a short distance of the Ortega freeway on and off ramps. To encourage even more traffic by widening Ortega Highway, especially with the existing proposal adding huge soundwalls, will effectively transform Ortega Highway into nothing more than one long freeway on-ramp, directly next to this historic treasure. Where is the concern for the impacts to the historic character of San Juan? 4

I ask that you please respect the concerns of our community and our desire to protect our quality of life.

Sincerely,
Kimberly Lefner
31182 Harmony Hall
San Juan Capistrano, CA 92675

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"Melissa Luker"
<melissa.luker@
01/30/2009 05:29 PM

To <lower74EIR_D12@
cc
bcc
Subject FW: Comments on Ortega Widening Proposal and EIR and Traffic Studies

To members of CALTRANS, Board of Supervisors, Citizens of San Juan Capistrano, and surrounding cities and counties impacted by this proposal,

First, I must commend CALTRANS representatives at meeting of January 14th at the Marco Forrester Middle School, who were extraordinarily professional and calm, despite being grilled countless times by homeowners very critical of "the plan." It was an impressive display of professionalism, and all representatives should be thanked. 1

I downloaded both the EIR study and the 578 pages of public comments. I've just finished reading both from cover to cover - and I challenge all CALTRANS officials involved to do the same. It was amazing to see what 8 intersections spread out over less than 2 miles could do to stir heartfelt and emotional response...CALTRANS, are you *really* listening? Below is an overview of main themes as posted by others in the public comments, with additional notes I've added. While they may at times seem flip and light hearted, they are the best way I know to point out serious detriments and issues. 2

Highlights of the Public Comments

- Pro-Widening Advocates - There were **less than 10** documented respondents who **wanted Ortega *widened*** – and the majority of those who *did* favor widening did so because their *homes were already severely impacted by the current traffic Ortega has. They simply* ***wanted a sound wall*** *to give them back use of their home & enjoyment of their lives.*
- CALTRANS Project Construction Sequence /Other Projects - The vast majority believe that I-5/Ortega interchange improvements and La Plata extensions **must come first**, before the first shovelful of soil is turned on Ortega's widening through San Juan Capistrano. (There were also strong feelings on additional extensions being considered, such as Avery through to Ladera Ranch). This is contrary to the presentation in January where it was hoped that both projects would be done simultaneously – because the interchange would take far longer! 3
- Trash Truck Traffic – *The above issue is even more vital with the heavy round trip Trash Truck traffic to the Prima Deschera Landfill that deafens all residents backing or near Ortega! Nearly 20% (19.1% by CALTRANS' stud) of all vehicular traffic on Ortega is large tractor-trailer traffic.*
- Tourism vs. Traffic – while we want downtown to be vital and alluring to visitors outside San Juan Capistrano, this project will have virtually NO affect because tourist buses don't come East on Ortega, but use the freeway (and thus, the I-5 interchange @ Ortega is the critical junction)
- The U-Turn Solution - While CALTRANS had their heart in the right place, the idea of turning right, to eventually make a U-turn (without a light!), to go the direction originally desired was universally panned. *It's hard to conceive of why it was listed as a solution – it builds additional traffic on an already busy street, while forcing cross traffic (u-turns) in a non-protected manner! Wait until the 3-point turns occur! The next logical step of this "solution" will be to prohibit any U-turns until*

reaching a safe place...Lake Elsinore, maybe?

- Local Access – Overwhelming comment surrounded the inability to turn into or out of our housing tracts at all times of the day. *Widening Ortega will only exacerbate this issue, as there will be fewer "gaps" to complete a turn. (This goes for the U-Turn solution as well!)*
- Speed – While it was a relief to hear in the January meeting that maximum design speeds will not exceed 45 MPH (Down from the earlier reported speed allowances of 55 or higher!), it still is in conflict with the current posted 40 MPH – a limit that was *so important to maintain* , it was designated a **double fine zone** (and the tickets written daily must contribute a double percentage point to what ever coffer they go to)
- Lost of Rural Feel – Between the loss of the canopy of over 100 mature trees, the "bowling alley" effect of large, un-natural walls on either side (with strong likelihood of graffiti adorning them -- and the additional city-born cost of removal!), removal of wandering sidewalks on one or both sides, there was *absolutely no upside to this proposal for residents of the city* !
- San Juan Capistrano **Bisected** – The vast majority of Ortega Hwy East of I-5 divides a completely residential and equestrian area. Yet residents aren't being given any relief in accessing their own town via walking, bike or horse through cross walks or additional lights. If a 300 HP ***car*** has trouble getting across two lanes of traffic to merge into a third, the image of kids or a horse successfully making the crossing are just plain ridiculous!
- San Juan Hills High School – This year they have freshman and sophomores (few, if any students currently drive), but in two years we'll have thousands of newly minted drivers making daily trips to and from school.
- Noise, Noise and More Noise – It was a primal scream for mercy ~ do not allow us to be unwilling victims/hosts of others living in homes yet to be built, damming the current paradise of San Juan Capistrano to become enslaved for some *future* development. The noise study results were heavily rejected with "come to my front yard between 4:30 ~ 7:30 am and then let's talk!"
- Ortega Current Drainage Issues Unresolved – Several residents noted the ongoing and very hazardous issue of local flooding that occurs east of Hunt Club. It's common to lose up to half of the west bound lane in places and not unusual to have run off completely *flood across all lanes during heavy rains* .
- Current Ortega Road Maintenance - It was only brought up a few times, and I was surprised. Right now, the current state of the Ortega Roadbed is seriously in need of repair along much of the length through San Juan Capistrano. There are already heavily "gatored" patches that will become potholes at the next big rain; ruts from the trucks in other places will lead to asphalt failure. And let's not forget the scrape that extends for over 1/4th of a mile east bound that remained unfixed for over a year (and for some reason is only half patched at the present time!). It this the level of service we'll inherit years after the proposed widening?

But all this was before the Environmental Impact Report was released. Was the wait worth it? While data, statistics and studies can be used in many ways, their interpretation and framing can radically alter the findings. There were numerous aspects that were cited in support of alternatives A and B, but upon closer examination were shown to be often contrary or misleading.

EIR Report Comments

There was a great deal of sleigh-of-hand in interpretation and presentation of the

information...and room for improvement if this becomes the final plan. Specifically;

- **Under S.2.1/ Project Purpose** – Why is CALTRANS considering this project? All four points really speak to moving traffic **through** our city, allowing access to **future** developments outside our city, and providing "improvements consistent with local documents" *What it doesn't list is the goal of* ***local access*** **of current San Juan Capistrano residents** to this highway that literally runs through some of their back yards. The effect of this "improvement" on those eight affected intersections *(already listed as "poor" for the affected intersections in the previous CALTRANS' sponsored traffic study* ***and projected to be downgraded to "failed" after the improvements) is NEVER DIRECTLY ADDRSSED. The only documentation presented in Table 2.1.5-1 "Mainline Level of Service Summary" is how traffic is moving ALONG Ortega – totally ignoring the total deterioration of the traffic coming out of and into the 8 side streets! THIS IS OUR MEASURE "M" MONEY WORKING AGAINST US!!!*** ***One of the primary goals of this plan must be to include the interests of the San Juan Capistrano citizens who are most directly affected by it! This is NOT reflected in the project purpose or by any of the supporting consideration or documentation.***
- Under Table S-1 "Visual and Aesthetics (Permanent) – There's almost a tone of glee in describing the addition curbs and gutters extending throughout the area (whoopee)! There will be landscaping, and tree replacement "**where feasible**" *But wait!* ***Don't think for a minute the "artist rendition" of that canopy of trees will once again soar over Ortega!*** ***No, no, no!*** *Because within 30' of a roadway edge with design speeds in excess of 35 MPH (ours will be at least 45 we're told) is considered a Clear Recovery Zone, and as such* ***NO TREE SHALL BE LOCATED THAT EXCEEDS A TRUNK DIAMETER OF FOUR (4) INCHES ~ AT MATURITY! Folks, we're talking giant shrubs at best – certainly nothing similar to what we already treasure! And the salt in the wound? It's measured from the EDGE of the road...so the ENTIRE area on either side of this project will ALL BE CONSIDERED A "CLEAR RECOVERY ZONE"***
- Utility Burial – Note that in the same section above, all utilities are to be buried underground. There is an important aspect that CALTRANS doesn't reference. Anyone who's driven up Crown Valley Drive from I-5 east through Mission Viejo has already witnessed the ugly truth – *moving multiple utilities is a very, very long and frustrating process.* ***Crown Valley widening was due to be completed in a little over 8 months – and it's now over 1.5 years and still not completed!*** *And they fewer utilities to coordinate! So imagine this timeline doubling or tripling as The Gas Co, Cox, or SDG&E work off their own sweet timeline – with no real authority or control by CALTRANS other than to finish it in a "timely manner"*
- Hydrology & Floodplain (Permanent) – Remember the current problem with Ortega flooding? How's that going to be solved? New drain covers! They do mention the possibility of "additional drain lines" but *nothing detailing the elimination of flooding, or altering the slope or crown of the road to prevent water from crossing Ortega. Oh and the erosion and debris that blocks those drains...well, hopefully they'll figure something out.* But we will get to enjoy bicycle-friendly drain covers!

- Noise (Temporary) – ***This section is woefully downplayed!*** *The promise of adhering to California DOT's "Sound Control Requirement" is NOT enough. There will be an enormous amount of additional, idling traffic, the on-going "**beep, Beep, BEEP**" of numerous pieces of equipment shifting into and out of reverse repeatedly, not to mention crew assembly points, destruction of current road bed, material deliveries, pile driving of the foundations of sound walls and much more will make this an on-going war zone ~ right outside some citizen's windows! WE ARE THE ONES BEING INCONVENIENCED WITHOUT ANY REAL BENEFIT! There needs to be serious discussions with the communities before anything begins about minimizing noise, or combining multiple noisy tasks simultaneously to minimize disruption (i.e. pile driving sound wall pylons while also removing existing road bed.) Clear restrictions on hours of operation with a hot line number to the project manager for violators must be provided. All operations should be restricted to Monday through Friday.*
- Noise (Permanent) – Why is there **no reference** to mandating use of rubberized asphalt for all lanes replaced on Ortega? This has been proven to substantially reduce noise (especially of multi-wheel vehicles, i.e. trucks), while offering the same durability of standard asphalt. Plus it's a recycled product (incorporating shredded truck tires, I believe), which should also work in favor of the environmental impact aspect?!?!
- Climate Change – **It's really, *REALLY* difficult to believe that there's no difference between the current "no build" options and alternates 1 and 2.** Does the use of recycled water and the use of whiter Portland cement (curbs & sidewalks) really negate the effects of a loss of a **mile long canopy of multi-story mature trees and the grass that used to be beneath them?** And what about the **addition of two long, wide lanes of black asphalt** (to be "shaded" with tall shrubs whose trunks will not exceed 4" at maturity)??? Then there's the matter of the **additional heat radiating from those two story sound walls** being baked in the sun (the brick front of my house is almost untouchable at the end of a summer day!). This is Seriously **FLAWED.** The statement about the use of landscaping cutting heat and CO_2 is accurate – but we'll be LOOSING landscape and mature trees, and replacing them with smaller, immature plantings whose size at maturity is best described as dwarf! This is a NEGATIVE that's somehow being spun as a positive! **Further more, the statement must be challenged that "the project will comply with San Juan Capistrano's Section 9-2:349 Municipal code and plant trees above and beyond what CALTRANS is impacting."** *Exactly how can that be possible if **the entire scope of your project falls into your own definition of Clear Recovery Zone for every area alongside the roadbed?** Will there be a "memorial" forest planted at the east end of Ortega just inside the project line (but far enough removed not to endanger traffic)? Or will there just be many more pigmy trees planted within the Clear Recovery Zone – which would satisfy the wording, but certainly not the intent! This seems like a charade whose reality can never come true.*
- Local Traffic Access (Turning on-to and off-of Ortega) - *At the bottom of page 87 of the "Traffic Conditions at Mainline and Intersections" section an interesting literary sleigh-of-hand occurs. All the information presented is based on using and unsophisticated Highway Capacity Manual (HCM) instead of a physically monitored & tracked study. For the six un-signaled intersections, it notes at current conditions, the average time to turn on or off Ortega is 50 second per vehicle. With the "no build" option, that rate would be 200 seconds per vehicle. **YET THE TIME IS NEVER MENTIONED FOR HOW LONG THAT TIME WOULD BE FOR EITHER ALTERNATE BUILD OPTION A OR B! Instead the famous "U-Turn" solution is presented promising "the delay experienced (by U-Turn) vehicles would***

be considerably less than the "no build" option" – but <u>no evidence is offered or mentioned</u>. Worse yet, the beginning of the paragraph notes "The side street delay analysis assumed certain gap acceptance parameters which may or may not be representative of actual conditions or driver behavior at (some or all) intersections"!!! This means that <u>all of this future impact is done on an abstract theoretical nature!</u> It was <u>not</u> based on <u>any</u> of the six intersections being physically surveyed by a traffic survey team to document actual turning time on to or off of any of those streets! Furthermore, it is <u>pure conjecture</u> that the U-Turn solution would work because 1) the right turn option is not measured in any reliable manner i.e. seconds to complete, 2) the U-Turn at the "next available street" is inconsistent for each of the six intersections (some would have to rapidly jump into a left hand turn pocket, while other intersections would require a much longer drive before that 'next" street was available, further 3) the affected car would now have to wait for <u>another gap</u> in the oncoming traffic (again, undocumented) and worse 4) any car now trying to enter Ortega (turning right) from that <u>same</u> intersection as the car making a U-turn in front of it will now be delayed further! *THIS ENTIRE ASPECT DEMANDS MUCH FURTHER DOCUMENTATION AND STUDY WITH ACTUAL SURVEY AS OPPOSED THE THEORETICAL CONJECTURE!!!*

- <u>Local Traffic/Missed Opportunities</u> – Of the six intersections, at least one (and possibly two) should be designed to incorporate a left turn "merge and acceleration" pocket onto Ortega, as they are "T" intersections. <u>The Via Errecarte would be a primary one</u> – the 12' wide painted median could be adjusted to allow a long acceleration lane west bound with almost a thousand feet before encountering the next intersection. This would require the driver to only cross east bound traffic, while able to "rest" and wait for a west bound opening, instead of requiring them both to occur at identical times.
- <u>Sound Wall Designs</u> – While the "key view" depictions were well done, *they failed to show that literally all the trees depicted would be removed, cleverly de-emphasizing the ugliness of both sound wall designs.* If you look at the depictions again, mentally removing the trees, then the <u>only option must be the design "A" with the clear panels inset</u> – and this design is still UGLY with its flat cinderblock wall supporting the panels. In deference to our centuries-old mission, <u>why can't those cinderblock portions be designed (and colored) to look "adobe like"</u> to lend some of our city's historic, rural feel if they must be installed? Even better would be a "natural rock" like design which would really make the walls blend and disappear! **Those that rallied against the clear panel design did so <u>not because they didn't like the look</u> <u>or the view preservation</u>, but because they were concerned about traffic sounds being "bounced" back**, rather than absorbed – *which is certainly a critical aspect.* Yet visiting the company's web site mentioned somewhere in the documentation (glassoundwalls.com?) it mentions the availability of sound-absorption glass panel design – this should be further investigated to protect resident's sight lines and lower traffic sounds, the two are not mutually exclusive!

The three proposed solution don't do enough to meet the current needs of the residents of San Juan Capistrano, nor will they succeed in completely solving the future needs of those using Ortega Highway to reach Interstate 5 from outside our city, which is CALTRANS' primary focus. *<u>There is a fourth alternative which is not listed nor under consideration</u>.* Note that within the EIR they've determined all utilities will be relocated underground ~why? Because, while it's expensive in the short term, it succeeds on every other level – eliminating visual

clutter, providing safer and more dependable operation and overall enhancing rather that detracting from the community. I challenge CALTRANS to think further out of the box – why not leave the current "Old Ortega" exactly as is, with all it's rural charms, canopy of trees and low speed limits, and take those two lanes in each direction and run them just under "Old Ortega" to provide a higher speed corridor unencumbered with traffic signals or cross traffic -- a direct access link from the eastern edge of San Juan to on and off ramps at I-5?

It would be the equivalent of adding a basement, with one side of the roadway being excavated down to allow forms to be poured for vertical walls and floors - utilities would also be relocated, with lighting provided to reduce the chance of accidents. After that a "lid" would be added to serve as the corridor ceiling as well as the base foundation for the "Old Ortega" roadway above ground, still staying within the original footprint of the roadway. After the south side or Ortega was completed, the other side would be done. The finished results would be that East/West travel in the corridor would be completely separated by a wall eliminating the chance of any head-on accidents. While the project would certainly cost more for initial construction, it would provide a higher level of service on all measurable levels. Consider:

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- Property values are retained, and perhaps enhanced within San Juan Capistrano while CALTRANS exceeds the needs of current and future traffic going through the city - it's a "win" by every measure!
- Note that there would probably be one, sole looser if this is built. Ticket revenues from the double fine zone would markedly decrease, if not disappear entirely!

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As a ten year resident of San Juan Capistrano I've personally witnessed the rise in traffic and congestion from commuters moving through our city on Ortega on my daily commute. This route should be protected as a scenic route, and agreeing with either alternate A or B will unquestionably destroy something that **can never be undone**. With the current re-design of the I-5/Ortega interchange, this is the perfect opportunity to invest our *Measure M funds* where current and future residents of Orange, San Diego and Riverside Counties can enjoy and appreciate for generations to come.

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If this fourth option is built as envisioned, it simultaneously overcomes **every single objection** listed within the 578 pages public comments, while also ***exceeding all performance parameters*** for Ortega Highway for both inter and intra city traffic through San Juan Capistrano (which NONE of the other three alternative achieve). There was a time when the 5/405 interchange, complete with "fly-over" carpool lanes was thought to be too expensive and impossible to engineer – but can we imagine going back to life before it was completed? This idea is no less revolutionary as it is necessary.

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I sincerely hope this leads to a better solution than what has been presented to date. Thank you for including us in this important process.

Your partner in success,

Melissa Luker

melissa.luker@

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"Joe Mankawich"
<jmank@
02/14/2009 03:52 PM

To "Save Ortega Highway" <saveortega@
<lower74EIR_D12@ >
cc
bcc
Subject Re: Reminder Ortega comments to Caltrans

Dear Mr. Shelley,

I wish to insure that my original comments be reintroduced to the Draft EIR comments for the Ortega Hwy Widening Project. The project, while convenient for Caltrans as a method to move traffic East and West in South Orange County, it now has negative impacts on the community that far outweigh the postives. To now create a major highway through the center of an established community is poorly concieved. Had this project been considered thirty years ago, the city could have planned for it. Zoning and planning would have been different and possible. To force this facility years later, in the middle of a quiet and developed neighborhood shows little consideration for what is there now. It is time for Caltrans to admit that they moved too slowly, with little foresight. The citizens of San Juan Capistrano should not suffer for Caltrans lack of vision. 1

Sincerely,

Joe Mankawich
31471 La Matanza
San Juan Capistrano, CA 92675

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Suzanne McCardle

Comment:
We are residents in the Hunt Club and feel that your proposed plan has not taken into account at all the concerns of our community. Not only is it unsafe to turn right at the present time it is impossible to turn left. With the widening it will only create more safety issues for us and our children that leave for school at peak hours. Also you have not paid any attention to the character of our town. It seems your only concern is to move people that don't live here a quicker way to the freeway - we must do every thing we can to stop this widening! 1

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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Rick Mercier
<RMercier@i

01/20/2009 09:07 AM

To lower74EIR_d12@
cc
bcc
Subject Ortega Highway

I am a resident in The Hunt Club and I do support the widening of Ortega Hwy. But please consider placing a signal somewhere in the widened area to provide breaks in traffic for the local housing tracts. A break would allow a safer entry to Ortega from neighborhoods on the north and south side of the hwy. 1

Rick E. Mercier
Vice President, CFO
Lucas & Mercier Construction, Inc.
Lucas & Mercier Development, Inc.
29712 Avenida de las Banderas
Rancho Santa Margarita, CA 92688

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"Anita Micalizzi"
<a-micalizzi@
01/30/2009 09:10 PM

To <lower74EIR_D12@ />
cc
bcc
Subject Comments on Ortega Widening Proposal and EIR and Traffic Studies

To members of CALTRANS, Board of Supervisors, Citizens of San Juan Capistrano, and surrounding cities and counties impacted by this proposal,

First, I must commend CALTRANS representatives at meeting of January 14th at the Marco Forrester Middle School, who were extraordinarily professional and calm, despite being grilled countless times by homeowners very critical of "the plan." It was an impressive display of professionalism, and all representatives should be thanked. 1

I downloaded both the EIR study and the 578 pages of public comments. I've just finished reading both from cover to cover - and I challenge all CALTRANS officials involved to do the same. It was amazing to see what 8 intersections spread out over less than 2 miles could do to stir heartfelt and emotional response...CALTRANS, are you *really* listening? Below is an overview of main themes as posted by others in the public comments, with additional notes I've added. While they may at times seem flip and light hearted, they are the best way I know to point out serious detriments and issues. 2

Highlights of the Public Comments

- Pro-Widening Advocates - There were less than 10 documented respondents who wanted Ortega *widened* - and the majority of those who *did* favor widening did so because their *homes were already severely impacted by the current traffic Ortega has. They simply wanted a sound wall to give them back use of their home & enjoyment of their lives.*
- CALTRANS Project Construction Sequence /Other Projects - The vast majority believe that I-5/Ortega interchange improvements and La Plata extensions must come first, before the first shovelful of soil is turned on Ortega's widening through San Juan Capistrano. (There were also strong feelings on additional extensions being considered, such as Avery through to Ladera Ranch). This is contrary to the presentation in January where it was hoped that both projects would be done simultaneously - because the interchange would take far longer! 3
- Trash Truck Traffic - *The above issue is even more vital with the heavy round trip Trash Truck traffic to the Prima Deschera Landfill that deafens all residents backing or near Ortega! Nearly 20% (19.1% by CALTRANS' stud) of all vehicular traffic on Ortega is large tractor-trailer traffic.*
- Tourism vs. Traffic - while we want downtown to be vital and alluring to visitors outside San Juan Capistrano, this project will have virtually NO affect because tourist buses don't come East on Ortega, but use the freeway (and thus, the I-5 interchange @ Ortega is the critical junction)

- The U-Turn Solution - While CALTRANS had their heart in the right place, the idea of turning right, to eventually make a U-turn (without a light!), to go the direction originally desired was universally panned. *It's hard to conceive of why it was listed as a solution - it builds additional traffic on an already busy street, while forcing cross traffic (u-turns) in a non-protected manner! Wait until the 3-point turns occur! The next logical step of this "solution" will be to prohibit any U-turns until reaching a safe place...Lake Elsinore, maybe?*
- Local Access - Overwhelming comment surrounded the inability to turn into or out of our housing tracts at all times of the day. *Widening Ortega will only exacerbate this issue, as there will be fewer "gaps" to complete a turn. (This goes for the U-Turn solution as well!)*
- Speed - While it was a relief to hear in the January meeting that maximum design speeds will not exceed 45 MPH (Down from the earlier reported speed allowances of 55 or higher!), it still is in conflict with the current posted 40 MPH - a limit that was *so important to maintain*, it was designated a **double fine zone** (and the tickets written daily must contribute a double percentage point to what ever coffer they go to)
- Lost of Rural Feel - Between the loss of the canopy of over 100 mature trees, the "bowling alley" effect of large, un-natural walls on either side (with strong likelihood of graffiti adorning them -- and the additional city-born cost of removal!), removal of wandering sidewalks on one or both sides, there was *absolutely no upside to this proposal for residents of the city!*
- San Juan Capistrano Bisected - The vast majority of Ortega Hwy East of I-5 divides a completely residential and equestrian area. Yet residents aren't being given any relief in accessing their own town via walking, bike or horse through cross walks or additional lights. If a 300 HP *car* has trouble getting across two lanes of traffic to merge into a third, the image of kids or a horse successfully making the crossing are just plain ridiculous!
- San Juan Hills High School - This year they have freshman and sophomores (few, if any students currently drive), but in two years we'll have thousands of newly minted drivers making daily trips to and from school.
- Noise, Noise and More Noise - It was a primal scream for mercy ~ do not allow us to be unwilling victims/hosts of others living in homes yet to be built, damming the current paradise of San Juan Capistrano to become enslaved for some *future* development. The noise study results were heavily rejected with "come to my front yard between 4:30 ~ 7:30 am and then let's talk!"
- Ortega Current Drainage Issues Unresolved - Several residents noted the ongoing and very hazardous issue of local flooding that occurs east of Hunt Club. It's common to lose up to half of the west bound lane in places and not unusual to have run off completely *flood across all lanes during heavy rains.*
- Current Ortega Road Maintenance - It was only brought up a few times, and I was surprised. Right now, the current state of the Ortega Roadbed is seriously in need of repair along much of the length through San Juan Capistrano. There are already heavily "gatored" patches that will become potholes at the next big rain; ruts from the trucks in other places will lead to asphalt failure. And let's not forget the scrape that extends for over 1/4th of a mile east bound that remained unfixed for over a year (and for some reason is only half patched at the present time!). It this the level of service we'll inherit years after the proposed widening?

But all this was before the Environmental Impact Report was released. Was the wait worth it? While data, statistics and studies can be used in many ways, their

interpretation and framing can radically alter the findings. There were numerous aspects that were cited in support of alternatives A and B, but upon closer examination were shown to be often contrary or misleading.

EIR Report Comments

There was a great deal of sleigh-of-hand in interpretation and presentation of the information...and room for improvement if this becomes the final plan. Specifically;

- Under S.2.1 / Project Purpose - Why is CALTRANS considering this project? All four points really speak to moving traffic through our city, allowing access to future developments outside our city, and providing "improvements consistent with local documents" *What it doesn't list is the goal of local access* of current San Juan Capistrano residents to this highway that literally runs through some of their back yards. The effect of this "improvement" on those eight affected intersections *(already listed as "poor" for the affected intersections in the previous CALTRANS' sponsored traffic study and projected to be downgraded to "failed" after the improvements) is NEVER DIRECTLY ADDRSSED. The only documentation presented in Table 2.1.5-1 "Mainline Level of Service Summary" is how traffic is moving ALONG Ortega - totally ignoring the total deterioration of the traffic coming out of and into the 8 side streets! THIS IS OUR MEASURE "M" MONEY WORKING AGAINST US !!!* ***One of the primary goals of this plan must be to include the interests of the San Juan Capistrano citizens who are most directly affected by it! This is NOT reflected in the project purpose or by any of the supporting consideration or documentation.***

3

- Under Table S-1 "Visual and Aesthetics (Permanent) - There's almost a tone of glee in describing the addition curbs and gutters extending throughout the area (whoopee)! There will be landscaping, and tree replacement "where feasible" *But wait! Don't think for a minute the "artist rendition" of that canopy of trees will once again soar over Ortega! No, no, no! Because within 30' of a roadway edge with design speeds in excess of 35 MPH (ours will be at least 45 we're told) is considered a Clear Recovery Zone, and as such NO TREE SHALL BE LOCATED THAT EXCEEDS A TRUNK DIAMETER OF FOUR (4) INCHES ~ AT MATURITY! Folks, we're talking giant shrubs at best - certainly nothing similar to what we already treasure ! And the salt in the wound? It's measured from the EDGE of the road...so the ENTIRE area on either side of this project will ALL BE CONSIDERED A "CLEAR RECOVERY ZONE"*
- Utility Burial - Note that in the same section above, all utilities are to be buried underground. There is an important aspect that CALTRANS doesn't reference. Anyone who's driven up Crown Valley Drive from I-5 east through Mission Viejo has already witnessed the ugly truth - *moving multiple utilities is a very, very long and frustrating process. Crown Valley widening was due to be completed in a little over 8 months -*

and it's now over 1.5 years and still not completed! And they fewer utilities to coordinate! So imagine this timeline doubling or tripling as The Gas Co, Cox, or SDG&E work off their own sweet timeline - with no real authority or control by CALTRANS other than to finish it in a "timely manner"

- Hydrology & Floodplain (Permanent) - Remember the current problem with Ortega flooding? How's that going to be solved? New drain covers! They do mention the possibility of "additional drain lines" but *nothing detailing the elimination of flooding, or altering the slope or crown of the road to prevent water from crossing Ortega. Oh and the erosion and debris that blocks those drains...well, hopefully they'll figure something out.* But we will get to enjoy bicycle-friendly drain covers!
- Noise (Temporary) - *This section is woefully downplayed! The promise of adhering to California DOT's "Sound Control Requirement" is NOT enough. There will be an enormous amount of additional, idling traffic, the on-going "beep, Beep, BEEP" of numerous pieces of equipment shifting into and out of reverse repeatedly, not to mention crew assembly points, destruction of current road bed, material deliveries, pile driving of the foundations of sound walls and much more will make this an on-going war zone ~ right outside some citizen's windows! WE ARE THE ONES BEING INCONVENIENCED WITHOUT ANY REAL BENEFIT! There needs to be serious discussions with the communities before anything begins about minimizing noise, or combining multiple noisy tasks simultaneously to minimize disruption (i.e. pile driving sound wall pylons while also removing existing road bed.) Clear restrictions on hours of operation with a hot line number to the project manager for violators must be provided. All operations should be restricted to Monday through Friday.*
- Noise (Permanent) - Why is there no reference to mandating use of rubberized asphalt for all lanes replaced on Ortega? This has been proven to substantially reduce noise (especially of multi-wheel vehicles, i.e. trucks), while offering the same durability of standard asphalt. Plus it's a recycled product (incorporating shredded truck tires, I believe), which should also work in favor of the environmental impact aspect?!?!
- Climate Change - It's really, *REALLY* difficult to believe that there's no difference between the current "no build" options and alternates 1 and 2. Does the use of recycled water and the use of whiter Portland cement (curbs & sidewalks) really negate the effects of a loss of a mile long canopy of multi-story mature trees and the grass that used to be beneath them? And what about the addition of two long, wide lanes of black asphalt (to be "shaded" with tall shrubs whose trunks will not exceed 4" at maturity)??? Then there's the matter of the additional heat radiating from those two story sound walls being baked in the sun (the brick front of my house is almost untouchable at the end of a summer day!). This is Seriously FLAWED. The statement about the use of landscaping cutting heat and CO_2 is accurate - but we'll be LOOSING landscape and mature trees, and replacing them with smaller, immature plantings whose size at maturity is best described as dwarf! This is a NEGATIVE that's somehow being spun as a positive! Further more, the statement must be challenged that "the project will comply with San Juan Capistrano's Section 9-2:349 Municipal code and plant trees above and beyond what CALTRANS is impacting ." *Exactly how can that be possible if the entire scope of your project falls into your own definition of Clear Recovery Zone for every area alongside the roadbed? Will there be a "memorial" forest planted at the east end of Ortega just inside the project line (but far enough removed not to endanger traffic)? Or will there just be many more pigmy trees planted within the Clear Recovery Zone - which would satisfy the wording, but certainly not the intent! This seems like a charade whose reality can never come true.*
- Local Traffic Access (Turning on-to and off-of Ortega) - *At the bottom of page 87 of the "Traffic Conditions at Mainline and Intersections" section an interesting literary sleigh-of-hand occurs. All the information presented is based on using and*

unsophisticated Highway Capacity Manual (HCM) instead of a physically monitored & tracked study. For the six un-signaled intersections, it notes at current conditions, the average time to turn on or off Ortega is 50 second per vehicle. With the "no build" option, that rate would be 200 seconds per vehicle. YET THE TIME IS NEVER MENTIONED FOR HOW LONG THAT TIME WOULD BE FOR EITHER ALTERNATE BUILD OPTION A OR B ! Instead the famous "U-Turn" solution is presented promising "the delay experienced (by U-Turn) vehicles would be considerably less than the "no build" option" - but no evidence is offered or mentioned. Worse yet, the beginning of the paragraph notes "The side street delay analysis assumed certain gap acceptance parameters which may or may not be representative of actual conditions or driver behavior at (some or all) intersections"!!! This means that all of this future impact is done on an abstract theoretical nature! It was not based on any of the six intersections being physically surveyed by a traffic survey team to document actual turning time on to or off of any of those streets! Furthermore, it is pure conjecture that the U-Turn solution would work because 1) the right turn option is not measured in any reliable manner i .e. seconds to complete, 2) the U-Turn at the "next available street" is inconsistent for each of the six intersections (some would have to rapidly jump into a left hand turn pocket , while other intersections would require a much longer drive before that 'next" street was available, further 3) the affected car would now have to wait for another gap in the oncoming traffic (again, undocumented) and worse 4) any car now trying to enter Ortega (turning right) from that same intersection as the car making a U-turn in front of it will now be delayed further! THIS ENTIRE ASPECT DEMANDS MUCH FURTHER DOCUMENTATION AND STUDY WITH ACTUAL SURVEY AS OPPOSED THE THEORETICAL CONJECTURE!!!

- Local Traffic/Missed Opportunities - Of the six intersections, at least one (and possibly two) should be designed to incorporate a left turn "merge and acceleration" pocket onto Ortega, as they are "T" intersections. The Via Errecarte would be a primary one - the 12' wide painted median could be adjusted to allow a long acceleration lane west bound with almost a thousand feet before encountering the next intersection. This would require the driver to only cross east bound traffic, while able to "rest" and wait for a west bound opening, instead of requiring them both to occur at identical times.
- Sound Wall Designs - While the "key view" depictions were well done, *they failed to show that literally all the trees depicted would be removed, cleverly de-emphasizing the ugliness of both sound wall designs.* If you look at the depictions again, mentally removing the trees, then the only option must be the design "A" with the clear panels inset - and this design is still UGLY with its flat cinderblock wall supporting the panels. In deference to our centuries-old mission, why can't those cinderblock portions be designed (and colored) to look "adobe like" to lend some of our city's historic, rural feel if they must be installed? Even better would be a "natural rock" like design which would really make the walls blend and disappear! Those that rallied against the clear panel design did so not because they *didn't like the look* or the view preservation, but because they were concerned about traffic sounds being "bounced" back , rather than absorbed - *which is certainly a critical aspect.* Yet visiting the company's web site mentioned somewhere in the documentation (glassoundwalls.com?) it mentions the availability of sound-absorption glass panel design - this should be further investigated to protect resident's sight lines and lower traffic sounds, the two are not mutually exclusive!

The three proposed solution don't do enough to meet the current needs of the residents of San Juan Capistrano, nor will they succeed in completely solving the future needs of those using Ortega Highway to reach Interstate 5 from

outside our city, which is CALTRANS' primary focus. *There is a fourth alternative which is not listed nor under consideration.* Note that within the EIR they've determined all utilities will be relocated underground ~why? Because, while it's expensive in the short term, it succeeds on every other level - eliminating visual clutter, providing safer and more dependable operation and overall enhancing rather that detracting from the community. I challenge CALTRANS to think further out of the box - why not leave the current "Old Ortega" exactly as is, with all it's rural charms, canopy of trees and low speed limits, and take those two lanes in each direction and run them just under "Old Ortega" to provide a higher speed corridor unencumbered with traffic signals or cross traffic -- a direct access link from the eastern edge of San Juan to on and off ramps at I-5?

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I sincerely hope this leads to a better solution than what has been presented to date. Thank you for including us in this important process.

Your partner in success,

Anita L. Micalizzi

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Peggy Miller

Comment:

Please — I am very much against widening Ortega Hwy!! 1

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

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Roger and Bernadine Monaco
30752 Shadetree Lane
San Juan Capistrano
California 92675

rogermonaco@
January 14, 2009

Request for Assistance
Eliminate wall blocking existing emergency access
Parcel 3 PM 137/40-42

Comment No. 1

Eliminate wall blocking existing emergency access

Parcel 3 PM 137/40-42

Caltrans and HDR Engineering originally left the emergency access (20-30 feet) to the property open. It was subsequently proposed to be walled up in January 2007. This is an unnecessary walling up of an existing emergency access to three high fire risk hillsides with an unnecessary 14-foot retaining wall (there is nothing to retain, it is graded at road level). Caltrans did not have this emergency access walled up in its preliminary plan. We had met and communicated with Caltrans on this issue for almost 15 years and they had shown this area to remain open until earlier this year. 1

I would like to request that Caltrans revert to its original plans and keep this emergency access open for safety and emergency reasons. This will also limit the unpleasant aesthetics of the long wall with no breaks and retain the emergency utility of this opening.

Comment No. 2

Possibility of elimination or minimization of entire Ortega Highway retaining wall at Eastern unincorporated County line - Parcel 3 PM 137/40-42

2

I have noticed as I attend the Ortega Highway widening meetings, that most people find the approximately 1,000 foot, 14 foot high retaining wall that greets travelers at the beginning, eastern entry point to the city of San Juan Capistrano as unsightly and inappropriate. Their objection relates to this eyesore becoming **a long billboard or palette of Graffiti** and also

eliminates the "scenic Ortega" look just as they leave the well thought out Rancho Mission Viejo section of the road.

This 850 foot 14 foot high Graffiti Billboard wall could be totally eliminated if the money earmarked to build the wall as well as the additional "right of way" funding is spent on the acquisition of additional land for its road construction from property owners who will have their property walled up. This would allow you to grade more deeply into the properties eliminating the need for most of the wall. Owners would have lost the utility of this walled land anyway and the marginal value to them as a result would be monetized. 2

If this can be accomplished, the Eastern entrance to the city of San Juan Capistrano maintains the "Scenic Ortega Highway corridor legacy" and you will have protected our city's entry from the urbanization blight on our historical pictorial equestrian community's entry point.

Background:

Your preliminary plans showed the dirt road access off Ortega Highway to Lot #3 (30752 Shadetree Lane, San Juan Capistrano) open with retaining walls beginning and ending on either side of the access. We had been told many times by city officials that this was a CALTRANS Project and issue and take it up with them. We did this and were pleased to see that the access would remain open after the widening. After January 2007, your plans changed and the entry was walled up with a continuous retaining wall.

Request:

Eliminate the wall at the property Ortega emergency access opening (APPROX. 20-30 FEET BREAK IN THE WALL)to allow fire and other emergency access to the three properties in this development. 3

Rationale for Request:

Keeping this area open and not walled up is critical to the full utilization of the property which is zoned RA (rural agriculture). It has many potential uses, which are impaired by walling up this area of the property. By walling up this small access area (not a driveway or road), the 3 parcels acreages affected by this action takes away the utility of these small farm properties. The only other access to these properties flat land is 100 feet above this point and as a result is not a practical access for this utility. All of the small farm / equestrian utility is located at the flat property base and requires some form of access to be used. Much of the property value was attributable to the utility of the base portion of the property for equestrian or agricultural purposes.

Public Benefit:

Beneficial access to three properties for fire and emergency.

If this area had not been accessible 18 months ago, the owner might not be alive. He was at the bottom of the property during a dog attack and was left bleeding and unable to move. The paramedics were able to quickly access him on Ortega and perform emergency procedures to save his life because of this emergency access. Access from the top of the property is not practical due to the grade.

Provides access for brush and fire clearing of properties.

It is used on rare occasion to clear brush to prevent any fire danger

To keep the land clear of weeds and excess tree growth this access allows for the annual clean up for the three properties situated there. This large area could not be kept clear and maintained without this access for debris removal due to the steepness of the grade.

Allows for a break in the unsightly wall and maintains a view of the pasture and equestrian land.

This is a historic area constructed by the original ranch on the property by the CCC during the Depression in the 1920s. It adds to the pastoral setting of "scenic Ortega".

When we attended the City Council meeting on the Ortega Highway widening project on May 30, 2006, the preliminary Caltrans plans were posted on the wall showing our emergency access entry still in existence. At this City Council meeting it was stated that the city council wanted to limit the large expanses of unattractive walls in order to keep a rural look as much as possible along the city portion of "scenic Ortega". 3

In a letter received by us on January 5, 2007 it was stated "the dirt road leading to your property from Ortega Highway will be eliminated" and walled up. We had been informed by CALTRANS a few months earlier that the existing emergency access area would remain open, as blocking with an unattractive wall was not necessary and would incur unnecessary cost.

Preserves a San Juan Capistrano Equestrian property.

Without the right to retain this emergency access the property utility is greatly diminished, especially its "small farm" and equestrian designation. San Juan Capistrano is losing much of it's equestrian property, this would end up being added to this list due to lack of access of corral and stable area of property.

The Ortega area is not used for a driveway or access as the grade is far too steep (over 20% grade). This area has served as a secondary emergency access for the flat base of the "pie shaped lot". Most of our property borders Ortega Highway. The city already has taken almost half an acre from our usable acreage on our "small farm zoned" parcel.

Reducing uninterrupted expanse of Ortega Highway retaining wall at Eastern unincorporated County line 4

I have noticed as I attend the Ortega Highway widening meetings, that most people find the approximately 1,000 foot, 14 foot high retaining wall that greets travelers at the eastern entry point to the city of San Juan Capistrano as unsightly and inappropriate. Their objection relates to this eyesore becoming a long billboard or palette of Graffiti and also eliminates the "scenic Ortega" look just as they leave the well thought out Rancho Mission Viejo section of the road. Our "driveway" as delineated on page 1-11 in the latest Caltrans report would break up this wall expanse and add an additional 20+ feet of un-walled open space along the north side of Ortega highway. 4

Preservation of our Property Rights-Small Farm (RA) zoning rights

We wish only to rescind and reclaim the relinquishment of the existing driveway access so that our rights under the zoning ordinances are preserved and maintained for the property (2.1 acres). We have no other means of access other than where the existing old farm access driveway currently exists. If it is walled up as planned, the property will no longer maintain reasonable access required under our RA zoning rights.

Over the past 15 years we have developed pads, corrals, and equestrian trails on the property. Access to our property for its zoned and approved use is an integral part of the rights of property ownership in San Juan Capistrano. If access rights are taken, our ability to use the property for its intended use will be destroyed.

Because this property is so steep, and all usable equestrian (flat) land is found at the base of the pie shaped lot the only available access for the properties utility is from the existing Ortega Highway opening. Without this old farm road access, it is impossible to keep the property safe, maintained properly, and used for equestrian or farm (Agricultural) as its zoning allows. The slope from the top of the property drops over 100 feet down to the bottom of the property where the corral and equestrian area of the property exists. This makes it impossible for vehicular delivery of supplies e.g.hay deliveries, maintenance and horse transport (horse trailer access) except from the existing opening on Ortega Highway. 5

The Caltrans walling up this 20-30 foot access at the existing driveway entry point severs the highest and best use of the property.

Similar to "The Oaks" driveway rights on Ortega Highway directly across from our existing driveway, it is necessary for similar if not more dramatic reasons (note: "TheOaks" is a flat acreage, ours is a hillside acreage with no alternative entry point).

The following are our rights as stated in the San Juan Capistrano Municipal Code:" The purpose of the Residential/Agricultural (RA) District is to: (A) Provide for the maintenance and use of land for small farms and Orchards...and(B)...provide for large lot, rural residential uses

including but not limited to, low-density areas where the topography is amenable to estate-type developments. The principal use permitted by the zoning rights are crop and tree farming with the accessory use of non-commercial horse keeping and animal raising. We wish only to preserve these rights by continuing to have access to our property for the purposes stated in the code. 5

The original Caltrans Ortega widening plans called for connecting our property to the San Juan Equestrian trail system and no walling up at the flat base acreage of our property. With the original planned equestrian trail now being converted to a bike trail and center median and the utility of our property being eliminated by walling up the 20-30 feet in question, it is probably more practical for Caltrans to purchase the land having only marginal utility under its current planned use and eliminate a wall by grading more deeply into the owners property. The owners rights have been greatly compromised by these changes and they should be remedied or compensated for such damages. Again, my preference is to keep the 30 foot break in the wall originally in the Caltrans designs but if this is too difficult most probably the three owners affected would probably consider a land purchase as this land is made essentially worthless by the walling of this 20-30 foot section. 6

Thank you for your consideration. Please feel free to contact us for any information. We would be happy to send you our most recent topo of the area.

Summary

My primary concern is the unnecessary walling up of an existing 20-30 foot emergency access to three high fire risk hillsides with an unnecessary 14-foot retaining wall in this area. The City staff told us for many years that the Ortega Widening was a Caltrans project so we had to talk with them about the Ortega access to our property. For the last 4-5 years we proceeded under the assumption that it would remain open after our meeting with Caltrans engineers. The Preliminary Caltrans Plans showed that it would remain open after the widening was completed. Caltrans assured us that the City would certainly want to work with us on this and they would make the necessary changes if they received a letter from the City allowing the access. Caltrans wanted to maintain any existing openings and minimize the impact of the widening on the homeowners already affected. 7

Thank you for your consideration.

Sincerely,

Bernadine and Roger Monaco

30752 Shadetree Lane

San Juan Capistrano, CA 92675

MONACO PROPERTY ACCESS RIGHTS REINSTATEMENT REQUEST

(Eliminate walling up of emergency property access entry point on Ortega Highway)

PARCEL 3PM 137/40-42

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: JOHN NUCCIO; 30937 STEEPLECHASE DR.

Comment:
THE TRAFFIC CONDITIONS IN THE EIGHT YEARS WE HAVE LIVED HERE HAVE GOTTEN WORSE. IT WAS ALWAYS DIFFICULT TO MAKE A LEFT TURN FROM EITHER GATE TO GO EAST ON ORTEGA BUT NOW IT'S SEEMINGLY IMPOSSIBLE. WE HAVE HAD BOYS WHO HAD TO MAKE THAT LEFT TURN IN THE MORNINGS TO GO TO SCHOOL AND WE FORBID THEM TO MAKE THAT TURN AND FORCED THEM TO GO RIGHT AND THEN USE A LEFT TURN LANE TO TURN AROUND. IF ORTEGA WAS A 4 LANE HIGHWAY WITH NO SIGNAL, THEN ENTERING THE HUNT CLUB DURING PEAK HOURS OR MAKING THAT LEFT EXIT TURN WOULD BE IMPOSSIBLE AND VERY DANGEROUS. I DON'T THINK SOMEONE NEEDS TO GET KILLED IN A SERIOUS ACCIDENT IN ORDER TO GET A SIGNAL INSTALLED. THE IMPOSSIBLE TRAFFIC IS CLEARLY PROJECTED TO INCREASE BY 50% IN THE FUTURE. 1

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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"Ed G. Paniagua"
<epan@
01/26/2009 07:58 AM

To <lower74eir_d12@ >
cc
bcc
Subject Public Comment Card - sr74 Lower Ortega Hwy Widening

Sound Wall on the south side is necessary

Considering there is a retaining wall going up on the north side of the street and the anticipated increase in traffic, a sound wall is a requirement for this build.

I live at 31023 Via Solana which places Ortega Hwy 'in my backyard'. Even the current noise levels can be considered unacceptable. 1

I invite any representative from DOT, CalTrans, or the city for that matter to visit my backyard and personally sample the noise levels. Weekdays, 7am-9:30am and 3:30pm-6pm are the worst traffic times.

Regards,
Ed G. Paniagua
31023 Via Solana
San Juan Cpistrano, CA 92675
epan@

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Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: JOY PARR

Comment: We will lose small town feeling. 1
Not considering needs or safety of residents living in area.
Not addressed how residents can turn right or left out of their area. 2
Save on average 20 seconds for drivers using highway. 3

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

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Joan Priestley
<joanpriestley@
02/14/2009 08:18 AM

To Lower74EIR_D12@
cc
bcc
Subject opposition to widening of Ortega Highway in San Juan Capistrano

I, Joan Priestley, oppose the widening of the 74 highway (Ortega Highway) in the City of San Juan Capistrano for the following reasons;

-
-
- Sidewalks are required per FHWA to be on both sides of the street. Students walking to San Juan Hills on the North side of Ortega have no trail or sidewalk from east of Hunt Club & no way of walking or crossing safely. Is someone to die before something will be done? There is a tape from the 2006 joint council hearing for the surprising answer to that one! 1
- Our city's general plan has a proposed trail that was to extend from the Hunt Club to prox Ave. Siega. We are an equestrian community. Why is there no trail or equestrian crossing? 2
- Coastal commission was not consulted for review for runoff to San Juan Creek or environmentally sensitive area that included wetlands. 3
- All intersections in the proposed project will fail to meet level of service "F" in 2030 AFTER the completion of the proposed widening! (per our independent consultant) 4
- Traffic signalization deemed unwarranted, based on inadequate analysis in 2000, consisting of counting pedestrians crossing the highway, instead of measuring the number of cars. 5
- It is believed traffic signalization is warranted. 6
- U-turns, as suggested by Caltrans do not contain adequate geometrics to safely allow. U-turns further confound traffic, causing accidents and delay and increasing greenhouse gas emissions. 7
- Class II Bike lane is now sharing a 5' "shoulder"! The shoulder is not consistent with Federal Highway design standards. Caltrans stated that the widening was consistent to FHWA standards to the Office of planning & research. Sharing a bike lane & shoulder are not recommended either. 8
- In what appears to be an effort to not answer major issues, the DEIR has simply excluded them, i.e., the speed limit that was mentioned at 60mph in the MND (initial study p2-40) is now not adequately addressed. How can you provide analysis in a DEIR without the speed limit assessed? Operating speeds were to increase by 15-20 mph in the MND, but failed to address safety issues with this. 9
- Why hasn't Caltrans addressed that the city of San Juan has included a traffic signal at Ave. Siega in their Capital Improvement plans. Caltrans must properly analyze traffic with this proposed improvement. 10
- Caltrans hasn't appropriately identified the ramifications of the enormous traffic that is shown to be generated upon the completion of La Pata, especially in light of the toll road not being approved. 11
- Inadequate mitigation analysis. There were no interior noise levels measured, and no other mitigations analyzed for those properties without sound walls. 12
- Completely ignored the numerous other residences that will also be affected. It is ridiculous to think that the mobile homes, Belford Terrace, Mission Springs, etc are not also gravely effected by the increase in traffic and noise, yet they have been ignored, simply because their property is outside of where the widening takes place. Ortega highway has been improperly piecemealed and segmented. At least four Ortega projects should have been considered together for impacts. 13
- Why did Caltrans use out-of-date and inaccurate sound analysis? The average person is misled into thinking that all of the receptor sites included "actual" measurements. They did not. Instead, the entire north side of the Hunt Club wasn't measured and of the less than two dozen receptors "actually" measured, only 3 were for 24 hours. The measurements were inadequate and out of date. Residents are well aware of the great increase in traffic noise over recent years and have requested new measurements, because they know the measurements exceed the allowable DB levels in the general plan of both the county and the city. 14
- Caltrans hasn't properly considered that this widening, with added traffic and noise, will affect our entire town. The traffic will increase dramatically when the access from Riverside is made easier with this widening. This widening is being touted as a "regional solution" from the OCTA who teamed with the Riverside County Transportation Authority for "solutions". Further inappropriate segmentation for widening closer to Riverside will induce further traffic from Riverside 15

commuters. Directly in conflict with greenhouse gas emission goals. OC roads are unfairly burdened to accommodate Riverside commuters and will induce further growth for east of Antonio& Riverside County. 15

- Del Obispo will face dramatic increases in traffic as widening induces more development, which will pass through San Juan on their way to Dana Point Harbor. 16
- Rancho Viejo Road will become even more congested, as motorists will attempt to avoid the interchange and use J Serra to access the freeway. Rancho Viejo will already be impacted by the future developments planned. 17
- Segmentation of highway. The area that contained the wetlands, (albeit small) and abutted area bordering the gnatcatcher is no longer part of the analysis. OCTA requested this area be segmented. This area has now been graded, with the claim that it has environmental review completed. Documentation needs to be provided. Segmentation took place after the MND and just a few months prior to the release of the DEIR! 18
- Pedestrian studies show that crosswalks without a traffic signal are 7.5 times more likely to have accidents, yet Caltrans hasn't evaluated this. Caltrans isn't even providing crosswalks or stop signs. Imagine the accidents with kids trying to dart across 60 mph traffic with NO crossings. Whose child will be the first to get hurt? Will Caltrans do something then? 19
- Storage leak LUST. Again, area of a prior leak has not been included. 20
- Soils reports needed for 40-foot depths for footings. 21
- FDA for the sidewalks. There are no sidewalks or trails beyond Hunt Club drive on North side within city limit. They have FDA sidewalks east of Siega, but ignore sidewalks east of Hunt club drive. 22
- Caltrans plans 5' shoulders on both sides of the highway (Draft p. 16). Requiring taking 10', not 6' as some sections have shown, from the north side of the area between Calle Entradero and Hunt Club drive, leaving inadequate buffer from equestrian trail, and sidewalks. These shoulders will likely become an "additional lane:" Caltrans offers conflicting info, stating roadway will be either 78 or 79' in project area, resulting in taking a minimum of 15' from the right of way between Calle Entradero & Hunt Club Drive. 23
- Caltrans ignored our city's general plan that included a proposed trail extension at Hunt Club drive 24
- Super gradient for the driveways that do not comply with OCFA requirements aren't shown. How is this resolved? 25
- No actual driveway design or addressing how to safely accessing various driveways. No detailed plans. 26
- Widening is not consistent with our general plan or that of the MPAH from the OCTA. Primary arterial can handle no more than 30,000 ADT. This project will exceed this amount. Ortega is consistent with general plan of secondary arterial. OC Primary arterial MINIMUM speed is designed for 55 mph. No safety analysis at that speed is offered. 27
- Road widening is not consistent with Orange County or Caltrans "primary arterial designation" which is 84' pavement width or 100' w/row. Yet Caltrans stated it is consistent with design standards. (ref OC highway design manual p. 37 of 83)& roadway must increase by 10' if left turn pocket is required (pocket is planned) . Caltrans, Orange County, & SJC are inconsistent with primary arterial definition 28
- Ranch EIR assumed 6,000 senior housing units, using .33 for projected traffic counts, if housing mix changes, the traffic will be dramatically higher. 29
- Scenic highways require additional right of way requirements. We are currently scenic highway eligible but will never be if the widening & sound walls take place. 30
- OC design standards require 8' sidewalks for primary arterials (20,000 to 30,000 ADT). This widening approach has numerous inconsistencies and does not conform to OC or State highway standards. 31
- Bias-false information was given out. Were you even notified of the public hearing? 32
- Sound absorbing walls are not proven effective; challenge statistical documentation. 33

"Dale Rosenfeldt"
<rosesfe@
12/01/2008 05:23 PM

To <lower74EIR_D12@
cc
bcc
Subject Please Don't Widen The Ortega in San Juan

Smita,

Here is an article I wrote that was printed in our local paper last year. While humorous, we did move here because of the rural feeling this part of town evokes. We will lose the small town charm and rural feeling not to mention all the beautiful trees if the Ortega is widened. 1

Thank you.

Dale Rosenfeldt
GM Standards for Excellence
949 400 3445
rosesfe@

The Ortega.doc

"The" Ortega - another Study Proposed...

I am not in favor of the widening of "the" Ortega. My husband feels it's inappropriate for us to move into town and cry NIMBY (not in my backyard) but I think everyone is entitled to have an opinion. And everyone is certainly entitled to my opinion. When I return home from a client appointment I leave some of the stresses of the day behind as I make my way along the 3 mile journey east to our development. The rural feeling - a result of mature trees, historic homes, even a windmill and red barn make the drive a rewarding one were it not for one thing: other drivers. This article is not about the highly charged debate being waged between Caltrans and the city it is about civility on the road.

Only in California do we use "The" in referring to highways. The 405, the 5, the 55. Our highways are so venerable they warrant an article. "The" Ortega is special, everyone agrees on this but it is a thoroughfare with Ladera Ranch, Rancho Santa Margareta, Coto , Elsinore and beyond East of us with more development slated. Many of the drivers I pass, or who pass me to be more exact, don't live in San Juan. That's certainly OK: it's the way they drive that concerns me.

Now I admit that behind the wheel I tend to be cautious, they called it defensive driving when I was in high school. Several years ago I flew clients to Arizona to see an effective business model they might adapt to their operation. Because I drove the rental car, to this day they still tease me about driving like an old lady. If the orthopedic shoe fits I'll wear it but I merely travel at the speed limit. On "The" Ortega it's 40 and 45, at least along the stretch I traverse, but I cringe as I approach the sign that warns: Do not pass. This is where it gets ugly.

I have nothing against pick-up trucks or baseball caps but young men in both are often the first to step on it, pass me on the right and

show me their middle finger in the process. Being a lady I refrain from reciprocating although tempting. If the speed limit isn't a deterrent the vehicle in front of you dictates just how fast you can go. It's a simple fact and I am always behind another motorist, often a big rig or garbage truck. Of course young men aren't the only culprits, sometimes its young women in luxury SUV's who aggressively tail gate or pass. Recently a blond in an Escalade who was all over the road finally cut me off enabling me to see that "she'd rather be playing tennis" as revealed by her license plate frame. I muttered under my breath that we'd all rather she was playing tennis. She was at the time, however, talking animatedly on her cell phone and driving The Ortega. On another occasion I was in the right lane and looked to my left to see a woman in a red convertible – top down - who was texting – the new DUI. I stared at her; she shrugged and resumed her typing. Obviously she would "rather be texting" but she was both texting and driving: a disconcerting of not deadly combination.

I often see motorcycle officers hidden in the beautiful trees near the Para Adobe and Harrison House and as an alternative the CHP sometimes install electronic "your speed is" units in the meridian which is a nicer reminder for speeders than a ticket. But nothing seems to deter these determined commuters. Will dinner get cold if these Elsinore residents don't speed across the Ortega? Better to microwave it than to never enjoy it.

I guess what disturbs me most is not the way these motorists drive but their uncontrollable desire to express their disdain for how I drive: its one thing to tailgate or pass on the right, but quite another to gesture. Although I stated earlier that I have refrained from returning these gestures because I am a lady and consider myself a polite person there is another reason it is unwise. In reading the sheriff's blotter I discovered that the driving itself, the gestures or both have

led to several instances of what we now call "road rage". I don't want my car door kicked in as was reported by a motorist on October 23rd.

So will widening the Ortega eliminate the unsavory combination of aggressive drivers compelled to communicate their frustration to others? I doubt it. Perhaps in addition to the Caltrans "Initial Study with Proposed Mitigated Negative Declaration" and it's "Visual Impact Assessment Route 74 Route Widening Project" assessment (yes the word Route appears twice in the title) some behavioral scientists should be hired, at taxpayers' expense of course, to assess the impact of "Route 74 Route Widening" on civility. Or we can skip the study as I suspect the un-neighborly behavior described in this article is simply the result of poor upbringing.

"Dale Rosenfeldt"
<rosesfe@(
02/11/2009 08:00 PM

To <lower74EIR_D12@
cc
bcc
Subject The Ortega Project

History: This message has been replied to.

Hi,

I write for the local paper "The Capistrano Dispatch". This was printed in the last edition and expresses my grave concern about widening the Ortega in San Juan Capistrano. Thanks for taking the time to read it. 4

Dale Rosenfeldt
GM Standards for Excellence
949 400 3445
rosesfe@

Balls and Boxes.docx

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Christina Sandy
<csandy42@
01/30/2009 07:34 PM

To lower74EIR_D12@
cc
bcc
Subject Comments on Ortega Widening Proposal and EIR and Traffic Studies

Dear Sir/ Madam,

I am very concerned about the plans that have been presented and have particular concerns as regards the lack of adequate traffic abatement, the overwhelmingly unsightly appearance of the noise abatement walls as proposed, the danger presented for residents turning onto the Ortega from streets on the eastern end approaching Antonio and the lack of adequate options to disburse commercial traffic off the Ortega. 1

I urge Caltrans to reconsider its proposal before proceeding with its plans. Thank you for inviting comments and participation.

Regards,

Christina and Warren Sandy
30951 Via Errecarte
SJC, CA 92675

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"Bob Sanford"
<robertcsanford@
02/13/2009 11:40 PM
Please respond to
"Bob Sanford"
<robertcsanford@

To <lower74EIR_D12@ >
cc
bcc
Subject DEIR for Ortega Highway Widening in SJC - Attn: Scott Shelley

I am opposed to the widening of the Ortega Highway on the eastern side of our San Juan Capistrano. For anyone that has driven the Ortega Highway, it is obvious from the design of the highway that there was no intention to ever widen the highway. The highway was constructed in the early 1930s for low speed traffic. The highway was never intended to be a major high-speed east-west thoroughfare. It is a highly dangerous and inefficient highway that was not designed to carry the number of people that it currently carries. The additional traffic flow from Riverside County to Orange County that will be facilitated by debottlenecking the section in eastern San Juan Capistrano will increase the number of accidents, injuries, and deaths on the highway. The most dangerous portions of the highway are currently located in Riverside County. California DOT cannot ignore the impacts on the safety of the rest of the Ortega highway and just reference EIRs for other construction projects that may or may not be completed on the Orange County portions of the Ortega Highway. California DOT must adequately evaluate the impacts on the safety and the increase in accidents, injuries, and deaths for the Ortega highway from Lake Elsinore to San Juan Capistrano. 1

There have been numerous studies by the California Air Resources Board (CARB) and the South Coast Air Quality Management District (SCAQMD) regarding the high level of toxic air contaminants including diesel particulate matter emitted from diesel-fired internal combustion engines and the health impacts of these toxic impacts. The health impacts are especially severe for young and elderly citizens. Both CARB and the SCAQMD have made great efforts to reduce the toxic emissions and health impacts from diesel fired engines. The proposed widening of the Ortega highway will remove the current choke point from the unpopulated area east of the city to increase traffic flow, including the number of diesel fueled trucks, through the populated areas of the city between the project and the I-5 freeway. New choke points will be established in populated areas of the San Juan Capistrano, including points near the St. Margaret's Episcopal School at La Novia and the Senior Living Homes at Rancho Viejo. With both the I-5 freeway and the Ortega highways bisecting our small town, the citizens of San Juan are already exposed to high levels of tuck traffic. The proposed project will increase the number of diesel-fueled trucks in our city and expose the citizens of San Juan, young and old alike, to higher levels of toxic air contaminants. 2

California DOT must perform a health risk assessment to assess the impact of increased truck traffic and increased truck idling on the citizens of San Juan Capistrano. The EIR does not adequately evaluate the impact of the proposed project on the air quality within the City of San Juan Capistrano. California DOT should also evaluate whether alternative routes for getting traffic from Antonio to the I-5 will have reduce the negative health impacts of the project. The Citizens of San Juan should not be required to shoulder all of the negative impacts of increased traffic flow from Riverside County and increased development in surrounding areas. 3

Thank you for the opportunity to comment on the EIR.

Sincerely,

Bob Sanford

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sato.r@
02/09/2009 11:09 PM

To lower74EIR_D12@
cc saveortega@
bcc
Subject Widening of Ortega Hwy

To Whom It May Concern,

I have been a resident of San Juan Capistrano for the past 9 years and I would like to let you know that I am totally opposed to the widening of Ortega Highway through our town.

I have noticed, especially over the past year that Ortega Highway has become more congested and noisy.

1

I often travel from San Juan Creek Rd, to La Novia onto Ortega and then onto the 5 Freeway and have experienced growing delays in the morning. What once took 5 minutes, now takes as long as 20 minutes. Also, in the early morning, as early as 5:00 AM, it's not unusual to hear the noise of cars (and trucks) as they travel down Ortega...this noise was almost non-existent 5 years ago!

While I'm not a traffic engineer, I cannot see how, with the additional anticipated ADT's (average daily trips) growing from 24,000 to 42,000, on Ortega, the widening will fully address the problems of congestion, noise not to mention other quality of life issues; increased polution, safety decreased and property values.

2

There truly needs to be a "Viable Alternative" planned out, presented to and then approved by the residence of San Juan Capistrano. An Alternative that would divert traffic away from Ortega and in my opinion away from San Juan Capistrano completely.

Regards,

Richard Sato

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<handcschneider@
12/30/2008 09:30 AM

To lower74eir_d12@
cc
bcc
Subject ortega highway

Hello:
I am writing to you concerning the plans to widen ortega highway in san juan capistrano. The one mile stretch that is being considered is not the traffice problem. Tjhe traffic problem is at the interchange of ortega and the 5 freeway. There should have been a stonehill exit off the 5 and a better on/off system at the interchange with ortega in san juan capistrano. By caltrans spending over 20 million dollars to work on a mile stretch of highway is the way to go. You will ruin th beauty of enetering San Juan Capistrano. Yes, Ortega maybe a major street, but it is also the entrance into San Juan which is a historic town We are also a rural town - yes growth always is present, but there are other means to put traffic through. La Pata should be connected to San Clemente and out to the five freeway. Another look at the 241 out to the five freeway - another route other than going near the state park. The 26 million dollars could be used more wisely than one a mile stretch of the 74. Please, listen to the residents of San Juan - we don't want you to ruin our historic entrance and the beauty of ortega highway in San Juan Capistrano. 1
Sincerely,
C. Schneider

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February 11th, 2009

Caltrans District 12 Office
Attn: Scott Shelley
3337 Michelson Dr., Suite 380
Irvine, CA 92612-8894

Re: Widening Ortega Highway:

Dear Scott and Whom It May Concern,

I am writing in regards to widening Ortega Highway in San Juan Capistrano. I live right off Ortega Highway in Mission Springs. My desire to buy in this neighborhood was because of the quaint small town feel that San Juan Capistrano offers. It is the only area in South Orange County that has this wonderful charm. 1

My concerns with the widening of the highway are:

1. Currently, when I make a left turn out of my neighborhood onto Ortega there are times that I have to wait 5 to 10 minutes to get across the highway. There is a constant line of traffic headed east or west bound and there is no middle divider for me to pull into and wait for the west bound traffic so lighten up so I can merge in safely. With widening Ortega will only create even more traffic and more hazard driving conditions for the residences. 2

2. Air quality and condition – With the proposed plan to widen the highway you are looking at cutting down the trees to create the room for the extra lanes. The trees help clean the air from the car's emissions. Not only are you cutting down the trees we are looking at more cars on the road and lessening the quality of air that we will all be breathing. 3

3. Infrastructure of San Juan Capistrano – As I stated above part of the charm of San Juan Capistrano is the small town feel it has. The streets within the town starting at La Novia and Ortega are already completely congested and cannot handle anymore traffic. At rush hour I have sat on HWY 5 Southbound waiting to get up to the Ortega light – there are time is has taken me 20 minutes to turn left onto Ortega from that freeway exit. It is extremely dangerous sitting on HWY 5 in the slow lanes waiting to creep up to the actual exit. 4

I feel my concerns are valid and I completely oppose the widening of the Ortega Highway. I appreciate you taking all of our concerns into consideration.

Respectfully,

Emily Schulz
31011 Via Estenaga
San Juan Capistrano, CA 92675

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"Bill & Katie Shreve"
<wshreve@
02/14/2009 10:51 PM

To <lower74EIR_D12@(
cc
bcc
Subject Public Comment Regarding Ortega Highway Route 74

To whom this may concern:

We are writing to you to express our opposition of the widening of Ortega Highway Route 74 between Calle Entradero and La Pata. We are fortunate to live in this charming and historic town of San Juan Capistrano. Widening Ortega will tarnish the unique quaintness of our city. 1

We have had concerns for safety on Ortega Highway for some time now. The way cars and trucks speed, combined with the morning and afternoon rush hour traffic, make it virtually impossible to make a left turn onto Ortega Highway out of the Hunt Club neighborhood. A report that we received states that no stoplights are planned at Hunt Club Drive or Calle Entradero. If the plan is to widen the road, then certainly even more cars will pass through. Therefore, turns will become even more difficult. Entering and exiting our neighborhood will become more dangerous as well. 2

Sincerely,

William and Katie Shreve

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<janquest@
01/12/2009 03:14 PM

To lower74EIR_D12@
cc
bcc
Subject Widen Ortega

If CalTrans is able to go through with the expansion it will change the character of our town forever. 1

Orange County is short of funds, the State of California is running out of money, yet, CalTrans wants to spend $26 million dollars to widen one mile of Ortega Highway, so that a bottleneck which might last for ten or fifteen minutes in 2035 might be averted. The City has designated the Ortega Highway as a scenic corridor. Although the State of California has not made that designation it is eligible for State recognition. It will not be a scenic corridor after the expansion. 2

Your own report states that the proposed project would cause "direct or indirect impacts to a number of resources in the human, physical and natural environment." There are two historic adobes on Ortega which are on the National Registry of Historic Places. While these adobes are not part of the actual expansion, trucks and equipment will be going up and down Ortega pass these historic structures day in and day out for over two years. They will be impacted. Now there are a number of old established trees along Ortega. The City has a tree ordinance that says that trees cannot be removed unless they are diseased and if they are removed a new tree much be planted. In its wisdom, CalTrans has stated that they will remove the old trees and replace them with new young trees. No mention in the EIR report on who will take care of the new trees. 3

Why is the expansion necessary? Because according to the EIR report, by 2035 Orange County will grow by 25% and Riverside County will grow by 140% and the only place that CalTrans sees this traffic going is through a scenic highway in Historic San Juan Capistrano! This is outrageous! Take a portion of Riverside County and build a new road to go into Orange County. Do no expect our historic community to carry the brunt of traffic for two counties! 4

Jan Siegel

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MARK S. ASHWORTH*
CARISSA A. ASHWORTH-JOHNSON
J. STANLEY DEMAREE
ANDREA TAYLOR GEE

*A Professional Corporation

February 12, 2009

Smita Deshpande
Environmental Branch Chief
Attn: Scott Shelley
Caltrans District 12
3337 Michelson Drive, Suite, 380
Irvine, CA 92612-8894

Re: State Route 74 Lower Ortega Highway Widening Draft Environmental Impact Report (Draft EIR)

Dear Mr. Shelley:

This firm represents Joan Irvine Smith in connection with the proposed widening of State Route 74 (Ortega Highway) in the City of San Juan Capistrano (the "Project"). Ms. Smith is also represented by Shute, Mihaly & Weinberger LLP who presented comments on her behalf regarding the entire Project. This letter provides supplemental comments and questions about the impact of the Project to Ms. Smith's property (the "Smith Property") that fronts along Ortega Highway and that will be directly impacted by the Project. Our comments are as follows:

1. The noise studies described in the EIR did not evaluate the impact of the Project upon the Smith Property. The Smith Property is occupied by several families who live there full time that will be impacted by the noise. The Project will appear to increase traffic noise on the Smith Property as a result of (i) increased traffic along Ortega Highway, (ii) the construction of a retaining wall on the north side of Ortega Highway directly across from the Smith Property that will reflect noise onto the Smith Property, and (iii) the removal of a wall of vegetation located on the Smith Property along the boundary with Ortega Highway. What noise impact will these three changes have upon the Smith Property? Will any steps be taken to mitigate these noise impacts? 1

2. The EIR shows that material vegetation on the Smith Property lies within a temporary construction easement, but does not describe what will happen to the vegetation. Ms. Smith was told at the hearing held in 2

January 2009 (the "Hearing") that the vegetation will likely be removed. She was also informed that the design for the area has not been completed. Will the vegetation be removed, and if so, will it be replaced after completion of the Project? 2

3. The EIR includes studies that indicate that several trees will be removed along the borders of Ortega Highway, but the specific trees are not identified. Many 200 year old oak trees lie within the proposed construction easement along the border of the Smith Property. Will any of these trees be removed or otherwise impacted by the Project? 3

4. Ms. Smith was informed at the Hearing that the slope on the Smith Property that abuts Ortega Highway will be "rebuilt." No details were available about how the design of the new slope, or whether this work will damage or kill the trees or other vegetation within the construction easement. What is the scope of the work that will be performed on the slope and what is the proposed design of the slope? Will the grade of the slope be increased thereby eliminating Ms. Smith's ability to use the slope? 4

5. The EIR discloses that significant cut and fill work will be performed in connection with the Project, and that in some locations as much as 8 feet of fill will be added. The EIR does not adequately describe the location of the cut and fill and no information about the fill was available at the Hearing. Will any fill be located on the Smith Property within the construction easement? Will Ortega Highway be raised along the Smith Property above its present elevation and by how much? If so, what impact will raising Ortega Highway have upon the points of ingress and egress to the Smith Property? What impact will raising Ortega Highway have upon traffic noise that impacts the Smith Property? 5

6. The EIR did not contain detailed information about drainage from Ortega Highway onto the Smith Property. At the Hearing Ms. Smith was informed that no storm water would drain from Ortega Highway onto the Smith Property, but that all water would be transported to the north side of Ortega Highway where it would run into storm drains. Can you describe how the Smith Property will be impacted by changes to drainage? Will Ortega Highway be raised along the Smith Property in order to allow storm water to drain to the north instead of the south? 6

7. The EIR shows a material construction easement on the Smith Property but does not describe what activities will take place within the 7

construction easement or how long the construction easement will be used. Please describe such activities and explain how such activities will be kept separate and apart from the residential and equestrian uses of the Smith Property. Will the construction easement be used for the staging of materials or equipment? Will access to the Smith Property from Ortega Highway be blocked during construction of the Project? 7

The EIR lacks sufficient information on the above points to allow Ms. Smith, or the responsible agencies involved, to adequately understand the environmental impacts of the Project upon her Property. Further, Ms. Smith was unable to obtain material additional information about the Project at the Hearing. We request answers to the above questions on her behalf as well as the opportunity, following receipt of such answers, to comment upon the Project and to express her opinion about the desirability of the Project to the various responsible agencies. Without answers to the questions posed, neither Ms. Smith nor the various responsible agencies may make an informed decision about the environmental impact of the Project. 8

Sincerely,

MARK S. ASHWORTH

MSA/dk
cc: Laurel L. Impett, AICP
Joan Irvine Smith

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Christine Speed
<csmarbella@ >
02/13/2009 07:57 PM

To Lower74EIR_D12@
cc Yvonne Tschaikowsky
<yvonne_tschaikowsky@
mnielsen@
bcc
Subject State Route 74 Widening Project

Dear Mr. Shelley,

I am against the Ortega Highway widening project. Your EIR states that the widening is necessary to anticipate the traffic needs of future development. That future development is not coming from San Juan Capistrano. And while the City of San Juan Capistrano has no standing to influence development beyond our borders, there is no reason why we should support the widening of an artery that will bring that traffic right into our downtown area and add to our current congested distress. 1

An alternative route could be created by your agency to direct the future flow of traffic onto the I-5 and to Pacific Coast Highway in a manner that does not have such a negative environmental impact on our city and I urge you to consider it: 2

Why don't you drop the plans for widening the Ortega and for a new I-5 interchange at Ortega, and instead, extend La Pata Road to Stonehill Drive and create a state of the art interchange there? Currently, La Pata Road is a road to nowhere. Yet it is strategically linked to Antonio Parkway. It is pure wastefulness to have this throughfare simply dead end at the dump. Likewise, the Stonehill interchange is wastefully underutilized in an area where there is more land for expansion. Virtually next door, it could so easily divert commuter traffic away from the city the center. And unlike the Ortega, Stonehill Drive actually corresponds to an excellent network of roads on the West side of the I-5 that could also receive commuter traffic headed for the coast. It is a superior location for your investment. 3

I am not a city planner, so it depresses me to have to point such an obvious alternative to those who are the experts in this field. This solution would be somewhat more costly. But you would prevail in making your case by referring to the overwhelming support you would receive from the citizens of San Juan Capistrano. The shortfall would not be in the interchange budget if that were simply moved from one place to the next. It would be in the difference between widening the Ortega and creating a new link from La Pata to Stonehill Drive. That cost differential could be funded by the Stimulus Bill. 4

Furthermore, I would like to remind you that Caltrans is not a private company for whom the only thing that counts is the financial bottom line. You are a state agency with a mandate to seriously consider and avoid any negative externalities your actions impose on the citizens of California. Currently, your proposals are poised to inflict severely negative environmental damage upon our community in the form of devastating traffic overcrowding. 5

I believe that mine is a superior solution to the traffic problem that you are legitimately concerned with and I sincerely ask you to

adopt it.

5

Christine Speed
42 Plaza Vivienda
San Juan Capistrano
CA 92675

"Mark Speros"
<marksperos@

01/30/2009 02:45 PM

To <lower74EIR_D12@ <patbates@
<mnielsen@
<luso@
cc <jvolzke
<ngarrett@
<rnordquist@
bcc

Subject Comments on Ortega Widening Proposal and EIR and Traffic Studies

To members of CALTRANS, Board of Supervisors, Citizens of San Juan Capistrano, and surrounding cities and counties impacted by this proposal,

First, I must commend CALTRANS representatives at meeting of January 14th at the Marco Forrester Middle School, who were extraordinarily professional and calm, despite being grilled countless times by homeowners very critical of "the plan." It was an impressive display of professionalism, and all representatives should be thanked.

I downloaded both the EIR study and the 578 pages of public comments. I've just finished reading both from cover to cover – and I challenge all CALTRANS officials involved to do the same. It was amazing to see what 8 intersections spread out over less than 2 miles could do to stir heartfelt and emotional response...CALTRANS, are you *really* listening? Below is an overview of main themes as posted by others in the public comments, with additional notes I've added. While they may at times seem flip and light hearted, they are the best way I know to point out serious detriments and issues.

Highlights of the Public Comments

- **Pro-Widening Advocates** - There were **less than 10** documented respondents who **wanted Ortega *widened*** – and the majority of those who *did* favor widening did so because their *homes were already severely impacted by the current traffic Ortega has. They simply **wanted a sound wall** to give them back use of their home & enjoyment of their lives.* 1
- **CALTRANS Project Construction Sequence/Other Projects** - The vast majority believe that I-5/Ortega interchange improvements and La Plata extensions **must come first**, before the first shovelful of soil is turned on Ortega's widening through San Juan Capistrano. (There were also strong feelings on additional extensions being considered, such as Avery through to Ladera Ranch). This is contrary to the presentation in January where it was hoped that both projects would be done simultaneously – because the interchange would take far longer!
- **Trash Truck Traffic** – *The above issue is even more vital with the heavy round trip Trash Truck traffic to the Prima Deschera Landfill that deafens all residents backing or near Ortega! Nearly 20% (19.1% by CALTRANS' stud) of all vehicular traffic on Ortega is large tractor-trailer traffic.*
- **Tourism vs. Traffic** – while we want downtown to be vital and alluring to visitors outside San Juan Capistrano, this project will have virtually NO affect because tourist

buses don't come East on Ortega, but use the freeway (and thus, the I-5 interchange @ Ortega is the critical junction)

- **The U-Turn Solution** - While CALTRANS had their heart in the right place, the idea of turning right, to eventually make a U-turn (without a light!), to go the direction originally desired was universally panned. *It's hard to conceive of why it was listed as a solution – it builds additional traffic on an already busy street, while forcing cross traffic (u-turns) in a non-protected manner! Wait until the 3-point turns occur! The next logical step of this "solution" will be to prohibit any U-turns until reaching a safe place...Lake Elsinore, maybe?*
- **Local Access** – Overwhelming comment surrounded the inability to turn into or out of our housing tracts at all times of the day. *Widening Ortega will only exacerbate this issue, as there will be fewer "gaps" to complete a turn. (This goes for the U-Turn solution as well!)*
- **Speed** – While it was a relief to hear in the January meeting that maximum design speeds will not exceed 45 MPH (Down from the earlier reported speed allowances of 55 or higher!), it still is in conflict with the current posted 40 MPH – a limit that was *so important to maintain* , it was designated a **double fine zone** (and the tickets written daily must contribute a double percentage point to what ever coffer they go to)
- **Lost of Rural Feel** – Between the loss of the canopy of over 100 mature trees, the "bowling alley" effect of large, un-natural walls on either side (with strong likelihood of graffiti adorning them -- and the additional city-born cost of removal!), removal of wandering sidewalks on one or both sides, there was *absolutely no upside to this proposal for residents of the city* !
- **San Juan Capistrano Bisected** – The vast majority of Ortega Hwy East of I-5 divides a completely residential and equestrian area. Yet residents aren't being given any relief in accessing their own town via walking, bike or horse through cross walks or additional lights. If a 300 HP ***car*** has trouble getting across two lanes of traffic to merge into a third, the image of kids or a horse successfully making the crossing are just plain ridiculous!
- **San Juan Hills High School** – This year they have freshman and sophomores (few, if any students currently drive), but in two years we'll have thousands of newly minted drivers making daily trips to and from school.
- **Noise, Noise and More Noise** – It was a primal scream for mercy ~ do not allow us to be unwilling victims/hosts of others living in homes yet to be built, damming the current paradise of San Juan Capistrano to become enslaved for some *future* development. The noise study results were heavily rejected with "come to my front yard between 4:30 ~ 7:30 am and then let's talk!"
- **Ortega Current Drainage Issues Unresolved** – Several residents noted the ongoing and very hazardous issue of local flooding that occurs east of Hunt Club. It's common to lose up to half of the west bound lane in places and not unusual to have run off completely *flood across all lanes during heavy rains* .
- **Current Ortega Road Maintenance** - It was only brought up a few times, and I was surprised. Right now, the current state of the Ortega Roadbed is seriously in need of repair along much of the length through San Juan Capistrano. There are already heavily "gatored" patches that will become potholes at the next big rain; ruts from the trucks in other places will lead to asphalt failure. And let's not forget the scrape that extends for

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over 1/4th of a mile east bound that remained unfixed for over a year (and for some reason is only half patched at the present time!). It this the level of service we'll inherit years after the proposed widening?

But all this was before the Environmental Impact Report was released. Was the wait worth it? While data, statistics and studies can be used in many ways, their interpretation and framing can radically alter the findings. There were numerous aspects that were cited in support of alternatives A and B, but upon closer examination were shown to be often contrary or misleading.

EIR Report Comments

There was a great deal of sleigh-of-hand in interpretation and presentation of the information...and room for improvement if this becomes the final plan. Specifically;

- **Under S.2.1/ Project Purpose** – Why is CALTRANS considering this project? All four points really speak to moving traffic **through** our city, allowing access to **future** developments outside our city, and providing "improvements consistent with local documents" *What it doesn't list is the goal of* ***local access*** **of current San Juan Capistrano residents** to this highway that literally runs through some of their back yards. The effect of this "improvement" on those eight affected intersections *(already listed as "poor" for the affected intersections in the previous CALTRANS' sponsored traffic study* ***and projected to be downgraded to "failed" after the improvements) is NEVER DIRECTLY ADDRSSED. The only documentation presented in Table 2.1.5-1 "Mainline Level of Service Summary" is how traffic is moving ALONG Ortega – totally ignoring the total deterioration of the traffic coming out of and into the 8 side streets! THIS IS OUR MEASURE "M" MONEY WORKING AGAINST US!!! One of the primary goals of this plan must be to include the interests of the San Juan Capistrano citizens who are most directly affected by it! This is NOT reflected in the project purpose or by any of the supporting consideration or documentation.*** 1
- **Under Table S-1 "Visual and Aesthetics (Permanent)** – There's almost a tone of glee in describing the addition curbs and gutters extending throughout the area (whoopee)! There will be landscaping, and tree replacement "**where feasible**" *But wait!* ***Don't think for a minute the "artist rendition" of that canopy of trees will once again soar over Ortega!*** *No, no, no! Because within 30' of a roadway edge with design speeds in excess of 35 MPH (ours will be at least 45 we're told) is considered a Clear Recovery Zone, and as such* ***NO TREE SHALL BE LOCATED THAT EXCEEDS A TRUNK DIAMETER OF FOUR (4) INCHES ~ AT MATURITY! Folks, we're talking giant shrubs at best – certainly nothing similar to what we already treasure! And the salt in the wound? It's measured from the EDGE of the road...so the ENTIRE area on either side of this project will ALL BE CONSIDERED A "CLEAR RECOVERY ZONE"***

- **Utility Burial** – Note that in the same section above, all utilities are to be buried underground. There is an important aspect that CALTRANS doesn't reference. Anyone who's driven up Crown Valley Drive from I-5 east through Mission Viejo has already witnessed the ugly truth – *moving multiple utilities is a very, very long and frustrating process.* ***Crown Valley widening was due to be completed in a little over 8 months – and it's now over 1.5 years and still not completed!*** *And they fewer utilities to coordinate! So imagine this timeline doubling or tripling as The Gas Co, Cox, or SDG&E work off their own sweet timeline – with no real authority or control by CALTRANS other than to finish it in a "timely manner"*
- **Hydrology & Floodplain (Permanent)** – Remember the current problem with Ortega flooding? How's that going to be solved? New drain covers! They do mention the possibility of "additional drain lines" but *nothing detailing the elimination of flooding, or altering the slope or crown of the road to prevent water from crossing Ortega. Oh and the erosion and debris that blocks those drains...well, hopefully they'll figure something out.* But we will get to enjoy bicycle-friendly drain covers!
- **Noise (Temporary)** – ***This section is woefully downplayed!*** *The promise of adhering to California DOT's "Sound Control Requirement" is NOT enough. There will be an enormous amount of additional, idling traffic, the on-going "**beep, Beep, BEEP**" of numerous pieces of equipment shifting into and out of reverse repeatedly, not to mention crew assembly points, destruction of current road bed, material deliveries, pile driving of the foundations of sound walls and much more will make this an on-going war zone ~ right outside some citizen's windows! WE ARE THE ONES BEING INCONVENIENCED WITHOUT ANY REAL BENEFIT! There needs to be serious discussions with the communities before anything begins about minimizing noise, or combining multiple noisy tasks simultaneously to minimize disruption (i.e. pile driving sound wall pylons while also removing existing road bed.) Clear restrictions on hours of operation with a hot line number to the project manager for violators must be provided. All operations should be restricted to Monday through Friday.*
- **Noise (Permanent)** – Why is there **no reference** to mandating use of rubberized asphalt for all lanes replaced on Ortega? This has been proven to substantially reduce noise (especially of multi-wheel vehicles, i.e. trucks), while offering the same durability of standard asphalt. Plus it's a recycled product (incorporating shredded truck tires, I believe), which should also work in favor of the environmental impact aspect?!?!
- **Climate Change** – **It's really, *REALLY* difficult to believe that there's no difference between the current "no build" options and alternates 1 and 2.** Does the use of recycled water and the use of whiter Portland cement (curbs & sidewalks) really negate the effects of a loss of a **mile long canopy of multi-story mature trees and the grass that used to be beneath them?** And what about the **addition of two long, wide lanes of black asphalt** (to be "shaded" with tall shrubs whose trunks will not exceed 4" at maturity)??? Then there's the matter of the **additional heat radiating from those two story sound walls** being baked in the sun (the brick front of my house is almost untouchable at the end of a summer day!). This is Seriously **FLAWED.** The statement about the use of landscaping cutting heat and CO_2 is accurate – but we'll be LOOSING landscape and mature trees, and replacing them with smaller, immature plantings whose size at maturity is best described as dwarf! This is a NEGATIVE that's somehow being spun as a positive! **Further more, the statement must be challenged that "the**

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project will comply with San Juan Capistrano's Section 9-2:349 Municipal code and plant trees above and beyond what CALTRANS is impacting." *Exactly how can that be possible if* ***the entire scope of your project falls into your own definition of Clear Recovery Zone for <u>every</u> area alongside the roadbed?*** *Will there be a "memorial" forest planted at the east end of Ortega just inside the project line (but far enough removed not to endanger traffic)? Or will there just be many more pigmy trees planted within the Clear Recovery Zone – which would satisfy the wording, but certainly not the intent! This seems like a charade whose reality can never come true.*

- **<u>Local Traffic Access (Turning on-to and off-of Ortega)</u>** - *At the bottom of page 87 of the "Traffic Conditions at Mainline and Intersections" section an interesting literary sleigh-of-hand occurs. All the information presented is based on using and unsophisticated Highway Capacity Manual (HCM) instead of a physically monitored & tracked study. For the six un-signaled intersections, it notes at current conditions, the average time to turn on or off Ortega is 50 second per vehicle. With the "no build" option, that rate would be 200 seconds per vehicle.* ***YET THE TIME IS NEVER MENTIONED FOR HOW LONG THAT TIME WOULD BE FOR EITHER ALTERNATE BUT OPTION A OR B! Instead the famous "U-Turn" solution is presented promising the delay experienced (by U-Turn) vehicles would be considerably less than the "no build" option" – but <u>no evidence is offered or mentioned</u>. Worse yet, the ending of the paragraph notes "The side street delay analysis assumed certain acceptance parameters which may or may not be representative of actual conditions driver behavior at (some or all) intersections"!!! This means that <u>all of this future impact is done on an abstract theoretical nature!</u> It was <u>not</u> based on <u>any</u> of the intersections being physically surveyed by a traffic survey team to document actual turning time on to or off of any of those streets! Furthermore, it is <u>pure conjecture</u> that the U-Turn solution would work because 1) the right turn option is not measured in any reliable manner i.e. seconds to complete, 2) the U-Turn at the "next available street" is inconsistent for each of the six intersections (some would have to rapidly jump into a left hand turn pocket, while other intersections would require a much longer drive before that 'next" street was available, further 3) the affected car would now have to wait for <u>another gap</u> in the oncoming traffic (again, undocumented) and worse 4) any car now trying to enter Ortega (turning right) from that <u>same</u> intersection as the car making a U-turn in front of it will now be delayed further!*** *THIS ENTIRE ASPECT DEMANDS MUCH FURTHER DOCUMENTATION AND STUDY WITH ACTUAL SURVEY AS OPPOSED THE THEORETICAL CONJECTURE!!!*
- **<u>Local Traffic/Missed Opportunities</u>** – Of the six intersections, at least one (and possibly two) should be designed to incorporate a left turn "merge and acceleration" pocket onto Ortega, as they are "T" intersections. <u>The Via Errecarte would be a primary one</u> – the 12' wide painted median could be adjusted to allow a long acceleration lane west bound with almost a thousand feet before encountering the next intersection. This would require the driver to only cross east bound traffic, while able to "rest" and wait for a west bound opening, instead of requiring them both to occur at identical times.
- **<u>Sound Wall Designs</u>** – While the "key view" depictions were well done, *they failed to show that literally all the trees depicted would be removed, cleverly de-emphasizing the ugliness of both sound wall designs.* If you look at the depictions again, mentally

1

removing the trees, then the only option must be the design "A" with the clear panels inset – and this design is still UGLY with its flat cinderblock wall supporting the panels. In deference to our centuries-old mission, why can't those cinderblock portions be designed (and colored) to look "adobe like" to lend some of our city's historic, rural feel if they must be installed? Even better would be a "natural rock" like design which would really make the walls blend and disappear! **Those that rallied against the clear panel design did so not because they *didn't like the look* or the view preservation, but because they were concerned about traffic sounds being "bounced" back**, rather than absorbed – *which is certainly a critical aspect.* Yet visiting the company's web site mentioned somewhere in the documentation (glassoundwalls.com?) it mentions the availability of sound-absorption glass panel design – this should be further investigated to protect resident's sight lines and lower traffic sounds, the two are not mutually exclusive!

The three proposed solution don't do enough to meet the current needs of the residents of San Juan Capistrano, nor will they succeed in completely solving the future needs of those using Ortega Highway to reach Interstate 5 from outside our city, which is CALTRANS' primary focus. *There is a fourth alternative which is not listed nor under consideration.* Note that within the EIR they've determined all utilities will be relocated underground ~why? Because, while it's expensive in the short term, it succeeds on every other level – eliminating visual clutter, providing safer and more dependable operation and overall enhancing rather that detracting from the community. I challenge CALTRANS to think further out of the box – why not leave the current "Old Ortega" exactly as is, with all it's rural charms, canopy of trees and low speed limits, and take those two lanes in each direction and run them just under "Old Ortega" to provide a higher speed corridor unencumbered with traffic signals or cross traffic -- a direct access link from the eastern edge of San Juan to on and off ramps at I-5? 1

It would be the equivalent of adding a basement, with one side of the roadway being excavated down to allow forms to be poured for vertical walls and floors – utilities would also be relocated, with lighting provided to reduce the chance of accidents. After that a "lid" would be added to serve as the corridor ceiling as well as the base foundation for the "Old Ortega" roadway above ground, still staying within the original footprint of the roadway. After the south side or Ortega was completed, the other side would be done. The finished results would be that East/West travel in the corridor would be completely separated by a wall eliminating the chance of any head-on accidents. While the project would certainly cost more for initial construction, it would provide a higher level of service on all measurable levels. Consider:

- The route would meet the primary goal of rapidly getting traffic from Antonio Parkway to the I-5, but without needing to slow it for any lights, cross traffic, while also allowing for a higher design speed.
- With the re-design of the I-5/Ortega interchange, the north bound on-ramp and northbound off ramp could take advantage of the grade change to offer a direct access lane spilling directly into and out of the below-ground corridor from the freeway without need for a signal. South-bound on and off ramps could be accommodated with a dedicated lane covering the ingress and egress of the corridor's single lane emergence

just east of Rancho Viejo and then channeled across the freeway bridge crossing.

- CALTRANS gains a "free" additional lane each direction – two below ground with at least one (and in places two) above ground lanes in each direction!
- **No sound walls would be required** as all through traffic noise would be confined underground!
- Safer/Quieter Truck Travel with no cross traffic for accident reduction and direct access to their primary destination – *Prima Deschera Landfill*
- San Juan Hills H.S. traffic offered additional protection as mixture with truck traffic limited to La Plata and brief span of Ortega before allowing them to split and cross over on "Old Ortega"
- All intersections within San Juan Capistrano that cross "Old Ortega" benefit from vastly improved level of service since through traffic is now eliminated
- **No loss of mature trees or landscaping as these would remain undisturbed!**
- Faster Emergency Vehicle access both within town and for crews headed through town!
- Homeowners adjacent to Ortega "given back" the use of their home and yards *without the need of installing double paned windows, air conditioners and other required mitigations to be paid for by CALTRANS.* Residents can sleep with windows open without truck traffic awakening them at all!
- Bicycle lanes on both sides, with equestrian access and meandering sidewalks are maintained and further enjoyed in a more rural setting.
- Much lower climate impact as heat load from additional lanes and sound walls eliminated , while mature vegetation left in place. An added benefit may be recognized in running recycled water supply lines to existing sprinkler runs along "Old Ortega" to further benefit environmental conservation efforts!
- Noise from large groups of weekend motorcycle riders and be either 1) restricted to using the underground corridor, or subjected to a decibel limit (as Laguna Beach has imposed) to further limit noise impacts on neighboring areas of Ortega 1
- Property values are retained, and perhaps enhanced within San Juan Capistrano while CALTRANS exceeds the needs of current and future traffic going through the city – it's a "win" by every measure!
- Note that there would probably be one, sole looser if this is built. Ticket revenues from the double fine zone would markedly decrease, if not disappear entirely!

As a twelve year resident of San Juan Capistrano (and working within the city for over six years) I've personally witnessed the rise in traffic and congestion from commuters moving through our city on Ortega on my daily commute. This route should be protected as a scenic route, and agreeing with either alternate A or B will unquestionably destroy something that **can never be undone**. With the current re-design of the I-5/Ortega interchange, this is the perfect opportunity to invest our *Measure M funds* where current and future residents of Orange, San Diego and Riverside Counties can enjoy and appreciate for generations to come.

If this fourth option is built as envisioned, it simultaneously overcomes **every single objection** listed within the 578 pages public comments, while also ***exceeding all performance parameters*** for Ortega Highway for both inter and intra city traffic through San Juan Capistrano (which NONE of the other three alternative achieve). There was a time when the 5/405 interchange, complete with "fly-over" carpool lanes was thought to be too expensive and impossible to engineer – but can we imagine going back to life before it was completed? This idea is no less revolutionary as it is necessary.

I sincerely hope this leads to a better solution than what has been presented to date. Thank you for

including us in this important process.

Your partner in success,

Mark Speros

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http://www.eset.com

Gordon Stefenhagen
<gs3day@
01/04/2009 03:51 PM

To lower74EIR_D12@
nabbaszadeh@
cc
bcc
Subject Ortega widening

Mr. Deshpande; reviewing the issue, I really feel taxpayer money could be put to better use than widening this stretch of road which will only increase traffic to the 5 Freeway, not to mention more speed issues etc. Great for city revenue but overall not a winning situation. Plus HIGH cement walls are great for freeways but for residents who cherish their trees and green belts, not an appealing situation. Put more effort into the Ortega interchnge and less into this project or drop it altogether. Thank you. Gordon Stefenhagen. 1

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"Tressa Strom"
<tressas@

02/05/2009 09:37 AM

To <Lower74EIR_D12@
cc
bcc
Subject Ortega Highway

History: This message has been replied to.

This project will impact habitat and endangered species, as well as creating a watershed erosion problem. We saw the mess that was made to the canyon during your last project. Where can we get a copy of the environmental report? 1

I travel 74 on a regular basis. The traffic flows at a decent rate of speed at this time. What do you think will happen when there are 2 lanes and each direction? It will create an even more hazardous drive as those that want to speed will have a perfect opportunity. 2

LEAVE THIS CANYON ALONE!!

Tressa Coco
Tustin, CA

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February 13, 2009

P-65

Attn: Scott Shelly
CALTRANS : District 12
3337 Michelson Dr. Ste. CN-380

SENT VIA EMAIL AND FEDERAL EXPRESS

We are writing to express our strong objections to the Ortega Widening Project, which we believe will destroy our community and a significant number of residential properties, including our own (28101 Ascot Lane). It is our conviction that the Draft EIR is inadequate, misleading with respect to potential project impacts and community concerns, and fatally flawed. Our concerns include the following:

- Sidewalks are required per FHWA to be on both sides of the street. Students walking to San Juan Hills on the North side of Ortega have no trail or sidewalk from east of Hunt Club & no way of walking or crossing safely. Is someone to die before this safety issue is recognized and addressed?
- Our city's general plan has a proposed trail that was to extend from the Hunt Club to prox Ave. Siega. We are an equestrian community. Why is there no trail or equestrian crossing? Eliminating the equestrian amenities will have a significant adverse impact on our community. San Juan Capistrano is widely recognized as an equestrian friendly community.
- Coastal commission was not consulted for review for runoff to San Juan Creek or environmentally sensitive area that included wetlands.
- We have been advised by our independent consultant that All intersections in the proposed project will fail to meet level of service "F" in 2030 AFTER the completion of the proposed widening!
- The process of concluding that Traffic signalization is unwarranted, in 2000, consisted of counting pedestrians crossing the highway, instead of measuring the number of cars. This analysis is fatally flawed and will ultimately result in lost lives. 1
- The geometry of the highway is inadequate to facilitate U-turns as proposed by Caltrans. Further, U-turns will confound traffic, causing accidents and delay and increasing greenhouse gas emissions.
- Class II Bike lane is now sharing a 5' "shoulder"! The shoulder is not consistent with Federal Highway design standards. Caltrans stated that the widening was consistent to FHWA standards to the Office of planning & research. Sharing a bike lane & shoulder are not recommended either.
- In what appears to be an effort to avoid answering major issues, the DEIR has simply excluded them, i.e., the speed limit that was mentioned at 60mph in the MND (initial study p2-40) is now not adequately addressed. How can you provide analysis in a DEIR without the speed limit assessed? Operating speeds were to increase by 15-20 mph in the MND, but failed to address safety issues with this.
- Why hasn't Caltrans addressed that the city of San Juan has included a traffic signal at Ave. Siega in their Capital Improvement plans. Caltrans must properly analyze traffic with this proposed improvement.
- Caltrans hasn't appropriately identified the ramifications of the enormous traffic that is shown to be generated upon the completion of La Pata, especially in light of the toll road not being approved.

- Inadequate mitigation analysis. There were no interior noise levels measured, and no other mitigations analyzed for those properties without sound walls.

- Completely ignored the numerous other residences that will also be affected. It is ridiculous to think that the mobile homes, Belford Terrace, Mission Springs, etc are not also gravely effected by the increase in traffic and noise, yet they have been ignored, simply because their property is outside of where the widening takes place. Ortega highway has been improperly piecemealed and segmented. At least four Ortega projects should have been considered together for impacts.

-
- Why did Caltrans use out-of-date and inaccurate sound analysis? The average person is misled into thinking that all of the receptor sites included "actual" measurements. They did not. Instead, the entire north side of the Hunt Club wasn't measured and of the less than two dozen receptors "actually" measured, only 3 were for 24 hours. The measurements were inadequate and out of date. Residents are well aware of the great increase in traffic noise over recent years and have requested new measurements, because they know the measurements exceed the allowable DB levels in the general plan of both the county and the city. We can state with certainty that existing noise levels on our property already exceed permissible levels.

- Caltrans hasn't properly considered that this widening, with added traffic and noise, will affect our entire town. The traffic will increase dramatically when the access from Riverside is made easier with this widening. This widening is being touted as a "regional solution" from the OCTA who teamed with the Riverside County Transportation Authority for "solutions". Further inappropriate segmentation for widening closer to Riverside will induce further traffic from Riverside commuters. Directly in conflict with greenhouse gas emission goals. OC roads are unfairly burdened to accommodate Riverside commuters and will induce further growth for east of Antonio& Riverside County. 1
- Del Obispo will face dramatic increases in traffic as widening induces more development, which will pass through San Juan on their way to Dana Point Harbor.
- Rancho Viejo Road will become even more congested, as motorists will attempt to avoid the interchange and use J Serra to access the freeway. Rancho Viejo will already be impacted by the future developments planned.
-
- Segmentation of highway. The area that contained the wetlands, (albeit small) and abutted area bordering the gnatcatcher is no longer part of the analysis. OCTA requested this area be segmented. This area has now been graded, with the claim that it has environmental review completed. Documentation needs to be provided. Segmentation took place after the MND and just a few months prior to the release of the DEIR!
-
- Pedestrian studies show that crosswalks without a traffic signal are 7.5 times more likely to have accidents, yet Caltrans hasn't evaluated this. Caltrans isn't even providing crosswalks or stop signs. Imagine the accidents with kids trying to dart across 60 mph traffic with NO crossings. Whose child will be the first to get hurt? Will Caltrans do something then?
- .
- Soils reports needed for 40-foot depths for footings.
-
- FDA for the sidewalks. There are no sidewalks or trails beyond Hunt Club drive on North side within city limit. They have FDA sidewalks east of Siega, but ignore sidewalks east of Hunt club drive.
-
- Caltrans plans 5' shoulders on both sides of the highway (Draft p. 16). Requiring taking 10', not 6' as some sections have shown, from the north side of the area between Calle Entradero and Hunt Club drive, leaving

inadequate buffer from equestrian trail, and sidewalks. These shoulders will likely become an "additional lane:" Caltrans offers conflicting information, stating roadway will be either 78 or 79' in project area, resulting in taking a minimum of 15' from the right of way between Calle Entradero & Hunt Club Drive.

-
- Caltrans ignored our city's general plan that included a proposed trail extension at Hunt Club drive.

- Super gradient for the driveways that do not comply with OCFA requirements aren't shown. How is this resolved?
-
- No actual driveway design or addressing how to safely accessing various driveways. No detailed plans.
-
- Widening is not consistent with our general plan or that of the MPAH from the OCTA. Primary arterial can handle no more than 30,000 ADT. This project will exceed this amount. Ortega is consistent with general plan of secondary arterial. OC Primary arterial MINIMUM speed is designed for 55 mph. No safety analysisat that speed is offered. 1
-
- Road widening is not consistent with Orange County or Caltrans "primary arterial designation" which is 84' pavement width or 100' w/row. Yet Caltrans stated it is consistent with design standards. (ref OC highway design manual p. 37 of 83)& roadway must increase by 10' if left turn pocket is required (pocket is planned) . Caltrans, Orange County, & SJC are inconsistent with primary arterial definition .
-
- Ranch EIR assumed 6,000 senior housing units, using .33 for projected traffic counts, if housing mix changes, the traffic will be dramatically higher.
-
- Scenic highways require additional right of way requirements. We are currently scenic highway eligible but will never be if the widening & sound walls take place.
-
- OC design standards require 8' sidewalks for primary arterials (20,000 to 30,000 ADT). This widening approach has numerous inconsistencies and does not conform to OC or State highway standards.
-
- Sound absorbing walls are not proven effective; challenge statistical documentation.

Existing noise levels already exceed current city and county standards, yet Caltrans hasn't done a new noise study. Numerous residents know the sound study wasn't valid; DEIR used same outdated measurements & recertified

- Our county has allowed increased capacity for the Dump and extended the hours of operation. This wasn't analyzed. 2

- The new high school was not fully utilized with all grades & the district boundaries were drawn in a way that will encourage further traffic up the Ortega and could result in significant increases in time to get to school. Areas off of Rancho Viejo, prox 5 minutes from Capo are now required to attend SJHS. Unbiased Analysis please.

- Health effects relating to living next to a freeway. Recent study shows traffic noise causes heart attacks! 3

- No sidewalks on the North side will split our community, literally. How can anyone walk their dog or cross the street for school?

- Traffic alternatives to the widening were not considered, such as other transit opportunities or potential Avery extension.

- The right of way is actually under the city's jurisdiction and this is why Caltrans requires San Juan to pay for the upkeep. The Hunt Club retained the right of way at their intersections, yet ROW has been misleading.

- Caltrans asked for the city to obtain a letter of support for removing the sidewalk, yet no one ever submitted this request to our community association.

- City Council offered a letter to Caltrans suggesting removal of the widening from the area that is consistent
- with the geometric of 64' wide or existing 4 lane geometric.

- Low to moderate exposure to former leakage of underground storage tank at RMV property (LUST) would impact widening site. ISA study done in 2000 with letter 3-07 stating findings are still valid.

- HOT SPOT ANALYSIS FOR PM 2.5-10 needs to review Ortega interchange, carbon emissions- no speed limit listed in the DEIR (unlike the MND), therefore, higher speed = greater noise, lower speed and eventual traffic signal = higher green house gas. New Global warming requirements for CEQA not adequately addressed.

- The entire Ortega should never have been segmented into different areas without reviewing as one project.

- Pipeline project that is part of this widening, yet not part of the analysis.

- Noise attenuation now has replaced the term "sound wall" with "noise barrier" and the North side sound walls that were studied and show on the plans are now termed "retaining walls". (Appendix I)Caltrans admits the parallel sound walls will increase noise, but they are relying on unproven technology that "absorptive walls" will reduce the reflective increases in noise. Caltrans hasn't committed to any design and depending on the whims of their final design, the walls may or may not be built, with the ability to change entirely after the final DEIR. (p. 39) "Noise barriers are not a commitment" 3

- NES supplement (p.18 of 128) states the newly widened road would be between 78 & 79 feet. If, as Caltrans states, that the geometric from Calle Entradero is 62.3 feet, then this would be taking a minimum of prox 15' from the ROW area in front of the Hunt Club,... all trees, lighting, buffer to our trail.....GONE! They also propose a small retaining wall, taking even more of the 5' that would be left, leaving inadequate room for even a sidewalk. This is inconsistent with other parts of the analysis. (Road is actually 64' right now).

- Caltrans describes five roadway intersections and sometimes refers to six. No detailed designs.

- CALTRANS INDICATES THAT A NUMBER OF WHAT THEY CALL SLIVER PROPERTIES WILL BE TAKEN THROUGH EMINENT DOMAIN YET THE DOCUMENTS ARE UNCLEAR AS TO THE EXACT LOCATION OF THESE SLIVER PROPERTIES. WE BELIVE THAT OUR PROPERTY IS AMONG THOSE IDENTIFIED BUT WE ARE UNABLE TO CONFIRM THIS FROM THE DOCUMENT AND HAVE RECEIVED NO RESPONSE TO OUR INQUIRY. FURTHER CALLING THIS A SLIVER PROPERTY IS MISLEADING AS THE VALUE OF OUR ENTIRE PROPERTY WILL BE DESTROYED! IF ANY OF OUR PROPERTY IS TO BE AQUIRED THROUGH EMINENT DOMAIN< WE MUST BE COMPENSATED FOR THE FULL VALUE OF OUR PROPERTY!

We urge Caltrans to extend the public comment period and redo the EIR to address the issues raised above as well as in the letter prepared by Christopher M Deleau of SCHMITZ & Associates which represents tour interests through the Hunt Club Community Association of which we are a member. It is critical to accurately access all of the issues and recognize the impact on all citizens and communities rather than solely the special interests. Failure to do so woll result in protracted and expensive litigation that is best avoided. 4

Thank you for your consideration in this matter and we look forward to your response.

Sincerely,

Benjamin and Cheryl Trosky
28101 Ascot Lane
San Juan Capistrano, Ca 92675

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justice4l

P-66

From: "Yvonne Tschaikowsky" <yvonne_tschaikowsky@
To: <saveortega@
Sent: Wednesday, January 14, 2009 5:12 PM
Subject: Ortega widening

To: CalTrans District 12
State Route Widening Project
Public Hearing 1/14/09

I am unable to attend tonight's meeting, but would like to submit these comments regarding the proposed widening of the Ortega within San Juan Capistrano's city limits.

In my opinion the widening will ruin our lovely town. We all know the long list of disastrous steps that will occur; huge retaining and sound walls, removal of 100+ trees, increased speeds, lack of traffic signals, dangerous conditions for local residents trying to enter or exit their neighborhoods, increased sound & emission pollution, loss of countryside views, threat of harm to historical landmarks from continual road vibration. 1

As it stands, the two lane section of the Ortega serves as a calming feature, slowing traffic speeds and creating 'gaps' which enable residents to safely enter or exit the Ortega.

This proposed widening will make it possible for MORE out-of-area commuters to use our town to reach the I-5 FASTER. 2

And what is the benefit to the community of San Juan Capistrano? None that I can think of.

Thank you for consideration of these comments.

Yvonne Tschaikowsky
27367 Paseo Placentia
San Juan Capistrano

Windows Live™: Keep your life in sync. Check it out.

Yvonne Tschaikowsky
<yvonne _tschaikowsky@

02/12/2009 10:57 PM

To <lower74eir_d12@dot.ca.gov>
cc
bcc
Subject Comments on Draft EIR for Lower Ortega Highway 74 widening

To Whom it may concern at CalTrans, I feel that the Draft EIR prepared on the Lower Ortega Highway 74 widening is inadequate because it does not address the following issues: 3
T
>a>Caltrans ignored our city's general plan that included a proposed trail extension at Hunt Club drive

- >Super gradient for the driveways that do not comply with OCFA requirements aren't shown. How is this resolved? 4
- >No actual driveway design or addressing how to safely access various driveways. No detailed plans. 5
- >Widening is not consistent with our general plan or that of the MPAH from the OCTA. Primary arterial can handle no more than 30,000 ADT. This project will exceed this amount. Ortega is consistent with general plan of secondary arterial. OC Primary arterial MINIMUM speed is designed for 55 mph. No safety analysis at that speed is offered. 6
- > Road widening is not consistent with Orange County or Caltrans "primary arterial designation" which is 84' pavement width or 100' w/row. Yet Caltrans stated it is consistent with design standards. (ref OC highway design manual p. 37 of 83)& roadway must increase by 10' if left turn pocket is required (pocket is planned) . Caltrans, Orange County, & SJC are inconsistent with primary arterial definition 7
- Ranch EIR assumed 6,000 senior housing units, using .33 for projected traffic counts, if housing mix changes, the traffic will be dramatically higher. 8
- >Scenic highways require additional right of way requirements. We are currently scenic highway eligible but will never be if the widening & sound walls take place. 9
- >OC design standards require 8' sidewalks for primary arterials (20,000 to 30,000 ADT). This widening approach has numerous inconsistencies and does not conform to OC or State highway standards. 10
- > Existing noise levels already exceed current city and county standards, yet Caltrans hasn't done a new noise study. Numerous residents know the sound study wasn't valid; DEIR used same outdated measurements & recertified. 11

>Our county has allowed increased capacity for the Dump and extended the hours of operation. This wasn't analyzed. 12

Thank you.

Yvonne Tschaikowsky
<yvonne_tschaikowsky@l

02/13/2009 10:11 PM

To <lower74eir_d12@dot.ca.gov>
cc
bcc
Subject Draft EIR on the Lower Ortega Highway 74 widening

To Caltrans in reference to the Draft EIR on the widening of the Lower Ortega Highway 74 within San Juan Capistrano's city limits.

Question: Will the proposed widening in a residential area be a benefit to the community of San Juan Capistrano? 13
Answer: No. It will benefit outside traffic from the Riverside area and future development just east of our city limits in their access to the I-5.

Question: Will the increased volume of outside traffic passing through a residential area benefit San Juan Capistrano's economy? 14
Answer: No. Most commuters from the east will not likely be coming into our downtown to shop, dine & such. This widening is for access to the I-5!

Question: Will the increased speed limit be a benefit our community? 15
Answer: No. It will result in more noise.

Question: Will the 20 ft high sound walls be a benefit to our community? 16
Answer: No. They will be aesthetically ugly, destroy countryside views, and very likely not offset the noise from the added traffic and increased speeds.

Question: Will the lack of traffic signals be a benefit to our community? 17
Answer: No! The lack of signals will make it dangerous and nearly impossible for local residents along the Ortega to exit or enter their neighborhoods, while at the same time allowing an increased amount of outside traffic to move non-stop at increased speeds!

Question: Will the widening of the Ortega destroy a beautiful & historic tree-lined route? 18
Answer: Yes.

Question: Will planting new smaller trees here & there in town make up for the loss of 100+ mature trees? 19
Answer: No.

Question: Does the widening of the Lower Ortega offer enough benefits to the community of San Juan Capistrano to offset the losses? 20
Answer: No.

Please, Caltrans, find another way for traffic from Riverside and proposed new developments to access the I-5 without destroying the beautiful & historic Ortega within San Juan Capistrano's city limits. 21

Thank you.

Yvonne Tschaikowsky
27367 Paseo Placentia
San Juan Capistrano

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Tucker Maryann
<mtucker28028@>
02/13/2009 02:14 PM
Please respond to
mtucker28028@

To Lower74EIR_D12@
cc
bcc
Subject Lower 74 Ortega Widening comments Re: EIR

To Scott Shelley, CalTrans, District 12:
I am asking Cal Trans to do another sound study that is thorough, longer lasting, and involving every person who will be affected by the increased truck noise if the widening takes place. We need sound walls on the south side of Ortega between Calle Entradero and Via Cordova as well as further east. The sound studies were done several years earlier and the traffic has increased since then. The noise already wakes me up at 4:30 to 5:00 AM even without the widening. 1

The speed limit should stay at 40 mph along residential areas of Ortega so we residents can keep our sanity, sleep, and keep living in our homes. The proposed 65 mph limit is outrageous! It will be exceedingly noisy and very dangerous, especially given the large number of huge diesel trucks that use this road day and night. 2

Thank you and I hope CalTrans seriously considers the residents' requests!

Sincerely,
Maryann Tucker
28028 Paseo Alba
San Juan Capistrano, CA 92675
mtucker28028@

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Dan Valentine
<valentine_dan@:
02/14/2009 10:32 AM

To Lower74EIR_D12@
cc
bcc
Subject Ortega

To Scott Shelley, CalTrans, District 1

Three issues;

1. Noise - I live on Via Sonora between Calle Entradero and Via Cordova. Sound wall #1 was eliminated and we would like to request more sound studies to reinstate the sound wall. Improved infrastructure means more vehicles and noise. Cars are not the issue. It's the big rig trucks. 1

2. Speed Limit - Need to remind Cal Trans and commuters that this is a residential area. Increase traffic will make it more difficult to enter the Ortega. Please keep the speed limit to 40 mph. Any proposal to increase the speed limit is jeopardizing our safety for a few minutes added to non-residents commute. Completely unacceptable. 2

3. Lights - Few residents want lights. However, if we Cal Trans does increase the speed limit we will have no other alternative. Lights should only run during rush our and then turn to blinking yellow to remind commuters that other vehicles are trying to enter the road. 3

Sincerely,
Dan Valentine
31081 Via Sonora
San Juan Capistrano, CA 92675

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February 6, 2009

Subject: State Route 74

Dear CALTRANS:

Generations of San Juan Capistrano residents have given countless hours and hundreds of thousands of dollars to maintain the rural atmosphere of our unique village. The widening of State Route 74 will not be conducive to this end. 1

The tree lined entrance/exit (State Route 74) is so much more valuable than the widening of the road. The esthetic and environmental value for current and future citizens should be a strong consideration by CALTRANS. 2

Please do not be a part of destroying that which so many have given so much to preserve.

Sincerely,

Reg Villamil
Phyllis Villamil

Reg & Phyllis Villamil
25971 Calle Ricardo
San Juan Capistrano, CA 92675

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Phyllis Watson
<salphyl@
02/13/2009 09:59 PM

To lower74EIR_D12@
cc
bcc
Subject Draft EIR for Ortega highway widening

To whom it may concern:

My family and I are deeply concerned about the proposed project to widen Highway 74 (Ortega Highway). There are so many flaws that is hard to address them all, but listed below are a few of them. Please halt this project immediately until all of our concerns may be addressed. On the top of our list is the lack of concern for the safety of pedestrians, teenage drivers, and residents living along the highway. 1

1. The widening of the Ortega Highway should not be considered before the inadequate interchange onto Interstate 5 is fixed. If the widening is done before the interchange is completed, then there will be way more traffic congestion than ever before. Imagine cars barreling down a nice wide highway, only to come to a complete standstill at an inadequate interchange. 2

2. The lack of planned traffic signals is based on inadequate analysis that consists of counting pedestrians crossing the highway, instead of counting the number of cars. In addition, many studies show that crosswalks without traffic signals are 7.5 times more likely to have accidents, yet Caltrans did not address this in the draft EIR. With NO crosswalks or stop signs planned, imagine all the accidents with kids darting across the highway on their way to high school!! What a lack of concern for the safety of our residents. 3

3. Caltrans did not take into account the recent rejection of the proposed Foothill-South Tollroad by the Coastal Commision. Without this tollroad, it is ever the more likely that the extension of La Pata will be completed very soon, which will result in enormous traffic that Caltrans never identified in their study. In turn, the projected noise levels are inaccurate in the study reported in the draft EIR. In addition, Caltrans used inaccurate sound analysis to project noise levels. Not all sites included "actual" measurements; instead, the entire north side of the Hunt Club wasn't measured, and of the less than two dozen receptors "actually" measured, only 3 were measured for 24 hours. Residents have requested that new measurements be made, because they know that the measurements exceed the allowable DB levels in the general plan of both the county and the city. We ask that Caltrans respect the concerns of the residents and make new accurate measurements of the noise levels. 4

4. Sidewalks are required per FHWA to be on both sides of the street. The report does not indicate that there would be any sidewalks or trails east of Hunt Club Drive. IIn fact, OC design standards require 8 foot sidewalks for primary arterials, so the proposed widening does not conform to OC or State highway standards. The Ortega highway was never intended to be a primary arterial for the very reason that there is just no way it can conform to the OC and state highway standards for a primary arterial. The Ortega highway is consistent with the general plan of second arterial. 5

5. Caltrans ignored our city's general plan that included a proposed trail extension at Hunt Club Drive. The EIR never addressed this issue. 6

6. Traffic alternatives were not considered in the draft EIR. There is the potential Avery extension and other transit opportunities. These must be considered as alternatives. 7

7. The draft EIR completely ignored the numerous residences that will also be affected: Belford Terrace, Mission Springs, the mobile homes, etc will most certainly also be affected by the increased traffic and noise, yet they have all been ignored, simply because their property is outside of where the widening takes place. 8

8. The North side sound walls that were studied and show on the plans are now termed "retaining walls." Caltrans has not committed to any design of sound walls, so they may or may not be built, which is of great concern for us residents who have to deal with the increased noise. 9

9. The draft EIR fails to address issues regarding speeds on the highway. A primary arterial highway has a minimum speed of 55 mph, but the Draft EIR does not address this issue--it just avoids mentioning the speed limit, and hence fails to address safety issues that come up with the high speeds. 10

10. The city of San Juan Capistrano has a traffic signal at Ave. Siega in their capital improvement plans, but Caltrans does not address this issue in the DEIR. 11

There are many more deficiencies in the DEIR which I have not included. Please drop the proposal to widen the Ortega Highway for these reasons. We need to have a complete and accurate EIR before we go any farther in the consideration of this project. First fix the interchange, and only then can we consider the widening of Ortega HIghway. 12

Thank you very much.

Phyllis Watson and family
28076 Via Rueda
San Juan Capistrano, CA 92675

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Kathleen M. Zaleski pg 1

Comment:
I have been a resident of San Juan Capistrano for 20 years living on Via Cordova. Via Cordova is off of Ortega Hwy across from the main entrance to the Hunt Club. One Friday evening in October I drove my children to an activity in a home ~~at~~ on Felipe in Mission Viejo. Ordinarily I would turn right on Ortega to Antonio to reach Felipe. Since there was traffic heading that way, I instead turned left and took the freeway to Oso Parkway. I thought that with Oso being a 6-lane avenue that there would be less traffic there. I was wrong. I got off the freeway to find 3-lanes of bumper-to-bumper traffic from at least Cabot Rd to well past Marguerite Pkwy. It took me 10 minutes to get from the freeway to Marguerite - a distance normally covered in about 2 minutes. It proved to me that more lanes does not mean 1

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

Caltrans

Public Comment Card
State Route 74 Lower Ortega Highway Widening
Draft Environmental Impact Report (Draft EIR)

Please print:
Name: Kathleen M. Zaleski Pg 2

Comment:

traffic relief! We will end up ruining the scenic nature of Ortega Hwy for no reason. Is there traffic on Ortega – Yes. Is there "bad" traffic on Ortega? – Yes – for about an hour a day. The rest of the time the traffic is very manageable. I know because I turn left onto Ortega many times each day – at all hours – on all days of the week. There are times I drive the "back way" rather than turning on to Ortega. But those times are few compared to the number of times I turn left. Those few times are well worth the preservation of the scenic Hwy. There must be some other reason than traffic for the widening of Ortega. Those reasons are not worth it. 1 2

PUBLIC COMMENT PERIOD: December 1, 2008 to January 30, 2009. The Draft Environmental Impact Report and supporting technical studies are available for review and comment at Caltrans District 12 Office, 3347 Michelson Drive, Suite 100, Irvine, CA; the City of San Juan Capistrano, Planning Services Office, 32400 Paseo Adelanto; and the San Juan Capistrano Regional Library, 31495 El Camino Real. The document can be viewed online at: http://www.dot.ca.gov/dist12/Lower74_DEIR.html

WRITTEN COMMENTS: Provide written comments during the public meeting or mail to Caltrans District 12 by folding, stapling, and sending this card to the address on the reverse. In addition, comments can be e-mailed to: lower74EIR_D12@dot.ca.gov.

6. Public Hearing Comments
January 14, 2009 Transcript

T-1 through 11

STATE ROUTE 74

LOWER ORTEGA HIGHWAY WIDENING

Public Hearing taken at Marco Forster Middle School, 25601 Camino Del Avion, San Juan Capistrano, California, commencing at 6:00 p.m., Wednesday, January 14, 2009, before Katherine Jones, CSR No. 10097.

PAGES 1 - 39

1 APPEARANCES:

2

3

4 AHMED ABOU-ABDOU

5 KING THOMAS

6 CHESTER BRITT

7

8

9 COMMENTS BY:

10 TREVOR DALE

11 LENNIE DE CARO

12 SUZANNE MC CARDLE

13 ED CONNOR

14 JEFF SCHOFF

15 SHAREEN LAWRENCE

16 RENEE VANSMAALEN

17 JIM DUSSINGER

18 CYNTHIA LAGOS

19 ROSEMARY MC CABE

20 CARLA KALLEN

21

22

23

24

25

1 Wednesday, January 14, 2009; 6:00 p.m.

2 San Juan Capistrano, California

3

4

5 ** PUBLIC COMMENTS *

6

7 TREVOR DALE: Trevor Dale, D-a-l-e. T-1

8 I'm a 38-year resident, and when I moved 1

9 there, there were 6000 people; we now have 36,000

10 people. My reason for coming tonight is to support

11 2002 strategic traffic study the City paid for,

12 which, basically, says that the widening of the

13 Ortega Highway is the last part of the regional

14 traffic solution, not the first part. 2

15 My concern is that by following 2002's

16 strategic traffic study, we can come up or end up

17 with the best possible traffic solution, which would

18 be a regional, not just a local. I cannot support

19 the widening of the Ortega Highway at this point

20 until a regional solution is agreed upon.

21 LENNIE DE CARO: L-e-n-n-i-e, D-e, T-2

22 C-a-r-o.

23 This is a great project for Riverside. 1

24 This is a great project for 14,000 homes that this 2

25 widening will provide the mitigation for. But this

1 is a crappy project for San Juan Capistrano. The
2 project draft EIR summarizes the project's need as
3 quote, unquote, accommodating planned growth and
4 development in surrounding areas. It's sad that San
5 Juan Capistrano must become the sacrificial lamb in
6 becoming the freeway, not the driveway, to another
7 highway the I 5. The DEIR is shameful.
8 Unfortunately, what we have at work is
9 interests that only want to use our City to provide
10 the traffic capacity that allows for the entitlement
11 of 14,000 homes that will be allowed east of our
12 City to move forward.
13 It's shameful that the noise study that
14 shows that my home has a receptor was never even
15 studied. Even worse, an adequate and up-to-date
16 sound study will prove that the neighbors along the
17 Ortega are already over burdened with DB levels that
18 exceed the maximum of 65, and that the increasing
19 amount of traffic will make our noise levels
20 unbearable. The mitigations with sound walls will
21 not work, they will not conform to our scenic
22 highway, and they will bounce the noise to the
23 opposing sides of the street.
24 It is also shameful in a state that's
25 trying to reduce greenhouse emissions that this

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1 widening will actually encourage commuters from
2 Riverside County to burden our roads with their
3 traffic.
4 Why hasn't Caltrans adequately addressed
5 the carbon emissions from the explosion of cars that
6 will be using this route to Riverside. This route
7 excludes the use of the miles per hour in the
8 previous mitigated declaration where it was stated
9 to be about 60 miles per hour.
10 I asked then, without knowing the speed
11 limit, how can one gauge and prepare a noise study?
12 Their speeds may allow carbon emissions to be lower,
13 but they'll increase the noise and dangers to the
14 community.
15 I feel very sorry for the good people that
16 work at Caltrans that know this is all political.
17 This has nothing to do with helping our traffic
18 problem. Our only problem is that the powers to be
19 determine that San Juan's Ortega highway was a
20 convenient solution to their agenda.
21 I wish you could understand how much we
22 love our town and know how destructive this will be
23 to San Juan. Please put yourselves in our position,
24 some of us have lives here for decades and we have
25 memories that we don't want to lose. Please don't

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1 widen the Ortega. 10

2 SUZANNE MC CARDLE: Suzanne McCardle, M- T-3

3 C, C-a-r-d-l-e.

4 I think the most important thing it do is

5 ask why would this community wants this widening?

6 And the answer is a resounding no, They do not want 1

7 it. And the reasons being that this community here

8 is a small town and the integrity of it will totally

9 be ruined by changing a highway into a freeway.

10 The reason that especially the people in

11 the Hunt Club do not want this project to go forward

12 is because at this moment it is already impossible 2

13 for our children or ourselves to even make a

14 left-hand turn going on to the Ortega so that they

15 can get to school. It is also very hard to make a

16 right-hand turn when we are trying to get out in the 3

17 morning or late in the afternoon.

18 So there is a definite safety factor here

19 that really, I think, Caltrans has totally missed.

20 They are planning on getting rid of our sidewalks so 4

21 our children -- we don't even have sidewalks to walk

22 on. They talk about having a bike lane, which is

23 ridiculous because it ends, and so where does it go?

24 I mean, it's -- we just cannot understand, as a 5

25 community, how they could have come up with this.

1 The other issue is changing the miles per
2 hour from 40 miles an hour to 65 miles an hour.
3 So again, what they're planning is
4 ongoing, to changing it from a highway to a freeway.
5 And it does nothing for our community because these
6 are people who are just using that highway to get to
7 the freeway and not to use any of their revenue in
8 this community.
9 So I think it is time for our community to
10 stand up to this, to say no, and to let them find a
11 different way for all of these commuters to get to
12 where they need. We are trying tired of being used
13 and we will do everything possible to stop this
14 widening.
15 The other factor, also, is there was no
16 consideration, really, put into the beauty of San
17 Juan Capistrano with them taking out 110 trees and
18 putting up sound walls that would be ghastly. Who
19 would like to live in a tunnel going to and from
20 their homes? That's a few of the things -- time for
21 them to find arterial routes.
22 One last issue is that I think it is
23 ridiculous that they would go ahead and even think
24 of this widening before they correct the issue of
25 the freeway situation. Because what happen if they

do the widening before they correct the freeway on and offramp is that people will rush down and there will be the worse traffic jamb ever because they can't even get on the freeway.

So if they are willing to sit down with the community and really ask what it is that they need, we're willing to talk to them. And that would be talking about safety issues, beautification of our City, and a really long-term way to fix this.

** PRESENTATION **

CHESTER BRITT: I want to thank everyone for coming tonight, taking time out of your schedules. I'm Chester Britt, I'm with Arellano & Associates. We're here with Ahmed Abou-Abdou. We also have King Thomas, who is the project manager for the LSA team. There you are on the left. You'll be hearing from both of them in just a second.

This is the presentation for the State Routh 74, Lower Ortega Winding Highway Project. When you came in today, you should have signed in. If you did not sign in, I would please ask you to do so before you leave. We'd like to have a record of

1 everyone who attended the meeting. There's a
2 sign-up sheet in the back.
3 There was available, a number of handouts
4 which I want to just make reference to real quickly.
5 There was a colorful project fact sheet which is
6 back and front, and has information about the
7 project. There was also a comment sheet which looks
8 like this (indicating). It has lots of room for to
9 you write in a comment and also has information on
10 the bottom about the due date of those comments.
11 We'll get into that in just a second.
12 We want to be aware of this comment card.
13 It was also designed as a mailer. If you turn it
14 around -- if you want to make this home tonight and
15 fill it out later, you're more than welcome to do
16 that. You'll have to fold it in half and put a
17 stamp and staple it together and mail it back to us.
18 There is also the documents -- the
19 environmental documents over here to my left.
20 There's a sign that says, "Environmental Documents",
21 that's -- there are people stationed ore there where
22 if you have not seen the documents, you can take a
23 look at those tonight.
24 There's also topical handouts at the
25 various station which are scattered around the room

1 which I'll get into many a minute, as well. There's
2 information about the right-of-way and other things
3 related to sound walls -- various handouts at those
4 stations.
5 I also want to talk about the meeting for
6 plat itself. This is an open-house format. We have
7 the various topical stations scattered around the
8 room, and just if you haven't been able to visit all
9 of those yet, I'll read them off for you. We have a
10 table to my left, right-of-way table, we have a
11 noise table, we have the environmental documents, we
12 have environmental issues.
13 The court reporter is back in the corner,
14 right here, if you wave your hand. We have the
15 comment card table, which is back here. And to my
16 right, we have a traffic table, visual and
17 acoustics, and then project design.
18 At each of these tables we have experts
19 from Caltrans and the technical consultant team
20 which will be stationed there. They'll be available
21 to answer your questions one on one. If you have
22 any questions, they'll take the time to go through
23 whatever issues you want to go through with them in
24 person.
25 If you'd like to make a comment with the

1 court reporter, you're welcome to do that tonight.
2 And she'll be here for the rest of the night. And
3 then a comment cards, as well, back there. And
4 there's a box where if you fill out the comment if
5 you want to do it in person, you can fill it out an
6 drop it in the box either before you leave on the
7 way out, there's a box, or there's a box actually at
8 the table, as well.
9 We are going to make a short presentation.
10 The presentation is, first, going to cover
11 information about the project and the findings of
12 the project and summary findings of what we found
13 out in the study. And then that will be followed by
14 a presentation by King Thomas, who is going to give
15 the environmental project process and what we're
16 going through environmentally to look at this.
17 Then we'll do a breakout session for the
18 remainder of the night where you can mill around and
19 ask your questions. Once you feel like you've got
20 your questions answered, then you can make a comment
21 before you leave and everyone will have a chance to
22 do that.
23 I did mention that the comment card was
24 designed as a self-mailer. There is a due date. If
25 you want to send a comment in and do it at home and

1 mail it into us, you have to have it postmarked by
2 January 30. It is written on here to submit your
3 comments by January 30, but it does need to be
4 postmarked by January 30, so that is the due date
5 for comments. I want to make sure you're very aware
6 of that. Comments that are either given to the
7 court reporter, filled out tonight, or mailed in
8 separately, they all carry exactly the same weight.
9 They're all exactly the same. They will all be read
10 and they will become part of the formal record.
11 All of the comments will be placed into
12 the final environmental document, they'll being
13 categorized by like comments and some kind of
14 response will be given to those categories of
15 comments. So there's no guarantee that line item by
16 line item -- there will be a response to every
17 single sentence that's written. But there will be
18 responses given to categories, comments, and groups
19 together for efficiency.
20 I believe that's, basically, it. And with
21 that, I want to introduce Ahmed from Caltrans, he's
22 the Caltrans engineer and design project manager and
23 he'll be giving a presentation about the project.
24 AHMED ABOU-ABDOU: Thank you, Chester.
25 Good evening, Ladies and Gentlemen. My name is

1 Ahmed Abou-Abdou. One point of clarification, I'm
2 the Caltrans project manager in the design aspect of
3 the project. I'm managing the project. We have
4 experts here to address any of your concerns.
5 With that, let me go ahead and start the
6 PowerPoint presentation for the State Route 74
7 proposed improvements.
8 The project location, as you see on this
9 map is from to the City and County line. Brief
10 history, the project was determined in 1997,
11 informal scoping meeting was held in July of 2000.
12 2004, the department provided conceptual plans to
13 the City for input. The plans proposed 1500 feet of
14 12 to 15 feet concrete retaining walls on the north
15 side. 3400 feet of 16-feet high masonry walls on
16 south side. This would allow for widening of an
17 additional lane each direction, each side of the
18 existing facility. So the widening that was
19 proposed initially was to the south and to the
20 north.
21 The City did not approve of the masonry
22 walls and widening on both sides of the highway,
23 which would have resulted in the right of way
24 acquisitions along on both sides. Based on City
25 input Caltrans has modified its design to allow

1 views of the canyon and mountains and enhance the
2 canyons connecting the area, maintain south side of
3 the curb, and allow for widening only to take place
4 on the north side of the facility.
5 The City provided a letter of support to
6 Caltrans in June 2006 for the project design with
7 certain assumptions, such as, removal of the
8 meandering sidewalks from Calle Entradero to Via
9 Cordova. Funding the landscaping, sound wall
10 treatments and materials that exceeded Caltrans
11 standards. And maintenance of the project features
12 that are within the City limits or outside of the
13 Caltrans right-of-way. The initial study proposed
14 MND has prepared and circulated in July 2007. A
15 public meeting was held same month.
16 Due to the nature of the comments that we
17 received, the Department decided not to approve the
18 MND in and prepare a EIR. A notice of preparation
19 was circulated for public review in January of 2008
20 for 30 days. And we began a 60-day Draft EIR
21 circulation period on December 1, 2008, and we're
22 holding the public meeting today.
23 Existing and planned development and
24 growth. As a result of the existing development in
25 the area and existing traffic demands, coupled with

1 the projected growth and forecasted traffic for
2 Ortega Highway, the proposed project is a response
3 to existing and future traffic needs.
4 Traffic congestion is forecasted to
5 increase from 27,000 average daily traffic in 2008
6 to 389,000 average daily traffic in 2035. Traffic
7 increase will map with our without this project. If
8 the project does not move forward, there will be
9 severe congestion within the project limits.
10 Why widen State Route 74? I'll go over
11 the recognized need and project purpose. The
12 recognized need is a key connection between
13 Riverside and Orange County. There are no nearby
14 alternate parallel routes that exist and it's a
15 primary access into San Juan Capistrano. The
16 purpose is to provide consistency with local and
17 regional planning documents such as general plans
18 and massive plan of Orange County Transportation
19 Authority projects.
20 Again, recognized need, Orange County's
21 population to increase from 2.8 million in 2000, to
22 3.7 million in 2035. 25 percent increase.
23 Riverside County will increase from 1.5 million in
24 2000 to 3.6 million in 2035. 140 percent increase.
25 Also traffic congestion will increase from 27,000

1 average daily traffic in 2008, to 39,000 average
2 daily traffic in 2035.
3 The corresponding purpose is to
4 accommodate plans, growth, and development in the
5 area, relieve existing and future traffic
6 congestion. This will be a choke point, because as
7 you know, the facility is west of and will be a
8 facility with the current widening of the county
9 portion from the City/County line to La Paz and
10 improve flow on State Route 74.
11 Continuing with the need, increasing
12 traffic on State Route 74, basically, is degrading
13 level of service. Level of service is D to E in
14 a.m. peak, and D in p.m. peak, and deteriorate to E
15 and F in 2035. The corresponding purpose the
16 project would close the gap between existing four
17 lanes west of Calle Entradero, and four lanes west
18 of the County line.
19 The project alternatives. We have a
20 no-build alternative. And Build Alternative 1
21 eliminates the sidewalk north of State Route 74 from
22 Calle Entradero to east of Hunt Club Drive.
23 Build Alternative 2 retains the sidewalk
24 but reconstructing the meandering to a straight
25 sidewalk with retaining walls north of State Route

74 from Calle Entradero to Hunt Club Drive. If you don't know, the current sidewalk is actually a three-foot sidewalk, but what we are replacing it with is a 5-foot sidewalk -- State sidewalk instead of the meandering, because of highway constraints.

Why does the project have to be widened from Calle Entradero to Via Cordova. This was asked several times, so we thought a slide is appropriate. Currently, between Calle Entradero to Via Cordova, there are already two through lanes in the westbound direction. However, there's only one through lane and left turn pocket in the eastbound direction.

Extending the roadway, widening Calle Entradero in the eastbound direction is necessary to provide two through lanes, one right turn pocket, a median, and a minimum allowable shoulder, which will act as a Class II bicycle lane.

The project components are adding one travel lane in each direction, reconstructed sidewalks, intersection improvements, reconstruction of driveways, drainage improvements, addition of pedestrian and bicycle facilities, retaining walls, noise attenuation devices, utilities, aesthetics, enhancements, pavement rehabilitation.

The speed limit. Basically, I was

1 approached by several people, that the facility
2 would be 65-mile-per-hour facility and that is not
3 true. Currently, we are designing this for a
4 45-mile-per-hour speed limit. That's the design
5 speed limit. However, the actual posted speed limit
6 will be posted after speed survey is conducted and
7 completed.
8 And essentially, Caltrans -- let me
9 explain. It's not -- it cannot exceed the 45-mile
10 per hour because that's the maximum design speed
11 limit, but the actual posted will be based on the 85
12 percentile of the actual speeds, but, you know, with
13 the understanding that it cannot exceed the maximum
14 design speed.
15 Additional lanes, widening would occur
16 primarily on the north side of the State Route 74.
17 Currently, there are 12-foot lanes in each direction
18 and no median in the project area. The project
19 would provide one new 12-foot lane in each
20 direction, as well as a 12-foot painted median.
21 Q Sound walls and retaining walls. The
22 proposed retaining walls are shown in light blue, as
23 you see here, and I'll go through the locations with
24 a different slide. And the proposed sound walls are
25 shown in light green (indicating). Essentially,

1 from the Via Cordova or Hunt Club Drive, all the way
2 to the Via Errecarte.
3 Two sound walls from Via Cordova to Via
4 Cristal and Via Cristal to Via Cordova. Both sound
5 walls would follow the alignment of the existing
6 garden walls, if you see here, it's kind of dark,
7 but this is the existing garden wall for the
8 association of the homes, and our proposal is to
9 build the sound walls from the highway side and
10 avoid touching the garden wall section.
11 Sound wall types considered. There are
12 two sound wall designs being considered, a glass
13 sound wall and Sound Fighter walls. The glass
14 panels -- it's not glass, it's tempered Pera glass
15 -- Pera glass will retain existing views of south
16 hills and San Juan Creek Valley. It will provide
17 light and transparency for adjacent homes.
18 Basically, it would be two steel columns and the
19 panels would slide between these two steel columns
20 to provide the transparency.
21 The Sound Fighter project which is on the
22 right here, Item B, would eliminate potential
23 reflected noise to the residents on the north side.
24 From implementation of the sound walls on the south
25 side of SR74, but would be opaque.

1 The retaining wall location, as I went
2 through the previous couple of slides, basically, we
3 have five retaining walls proposed for Build
4 Alternative 1, and seven proposed for Alternative 2.
5 And I'll go through the list. The two additional
6 sound retaining walls for Alternative 2 would be
7 from Hunt Club to accommodate the sidewalk.
8 The front of the walls of the retaining
9 walls would be covered with landscape materials to
10 meet the City's aesthetic requirements and to blend
11 the engineering structure into the natural
12 environment.
13 Bicycle facilities, a 5-foot wide paved
14 shoulder would be provided throughout the project on
15 the side and roadway to accommodate stripes on road
16 bicycle facilities consistent with OCTA's master
17 plan of bike ways and San Juan's general plan. The
18 edge of the payment would have concrete.
19 Additional components. On the north side
20 of SR74, driveways would be modified, on the north
21 side only. All existing drainage facilities would
22 be modified to intercept flows at the proposed edge
23 of payments. Additional drainage systems would be
24 added on the north side of State Route 74. No
25 drainage would be added to the south side. However,

1 existing drainage on the sewage side from Avenida
2 Siega to City County line would be modified. The
3 project would require some temporary construction,
4 but no displacements.
5 Proposed construction schedule, if all
6 goes well and according to the current plan, the
7 start of the construction would be in fall of 2011
8 for a period of about 18 months to two years.
9 Construction for 2014. That concludes mine. Let me
10 introduce King Thomas.
11 KING THOMAS: Thank you, Ahmed. I'm King
12 Thomas project manager with (indiscernible) &
13 associates. It's a consultation firm responsible
14 for preparation of the EIR. And first of all, I'd
15 like to start off and briefly discuss a few of the
16 milestone events in the environmental process
17 leading us to where we are today. Ahmed touched on
18 some of that in his presentation on the project
19 history. Now you get to hear from the environmental
20 perspective.
21 First of all, Caltrans prepared an
22 environmental document called an "initial study"
23 that was anticipating to resolve in a declaration,
24 and that was in 2007. And due to the level of
25 comments that we got on that document, they decided

1 to prepare an EIR which is a higher level
2 environmental document.
3 The environmental impact report was
4 released for -- actually, Notice of Preparation went
5 out in January of 2008, and as a followup to that,
6 there's a focus meeting with the community in May of
7 2008 and that was for the purpose of followup to the
8 notice of preparation and to apprise the public,
9 basically, the status of the environmental impact
10 report and its preparation.
11 Comments received on notice of the
12 reparation and initial study have been addressed in
13 the content of the EIR. And also, the technical
14 studies, for example, visual, noise, many of the
15 stations that you see here today, air quality, all
16 those types of things were updated in support of
17 that EIR.
18 The EIR was circulated for a 60-day public
19 review period. The normal period is 45 days. Since
20 it was over the holidays, we did allow an additional
21 15 days for holidays. You could have started
22 December 1st, 2008, and then over with as Ahmed said
23 on January 30, 2009. The draft EIR is available for
24 public review at the Caltrans offices up in Irvine
25 at 3337 Michaelson Drive, Suite 100, and that's also

1 available at City offices, and also at the San Juan
2 Capistrano Regional Library, as most of you probably
3 know, 31495 El Camino Real.
4 CEQA requires that all the substantial
5 environmental comments be addressed in the EIR. And
6 that's what we did. The EIR evaluates two
7 alternatives. The first one is alternative one, and
8 that was the basic alternative that was put forth
9 and evaluated and the initial study that was done in
10 2007.
11 And that one would basically -- the
12 difference in the two alternatives that we knew is,
13 basically, that Alternative 1 would remove the
14 sidewalk -- from Calle Entradero to North Drive on
15 the west side of 74. Due to public comments on
16 that, Caltrans came up with a second alternative,
17 Alternative 2, that would put the sidewalk back from
18 a straight sidewalk from Calle Entradero over to
19 Hunt Club Drive. Meandering sidewalks could not be
20 accommodated without additional widening on the
21 south side.
22 One other thing I'd like to touch on --
23 let's see, some of the comments received during the
24 initial study process that we heard from the public
25 since then, some of the main comments seem to be

1 losses of meandering sidewalks, visual impacts,
2 basically, from the project features such as sound
3 barriers and retaining walls, and also the removing
4 of vegetation, including the trees, and the
5 installation -- the community actually asked for
6 installation of a traffic signal within the project
7 limits. So you might ask what has Caltrans done to
8 respond to those comments. The loss of meandering
9 sidewalks, they came up with Alternative 2, that we
10 put the sidewalk back from Calle Encardero to Hunt
11 Club Drive.
12 Visual. During the project, visual
13 requirements for the walls will be coordinated with
14 the City. Trees will be placed per the City
15 ordinance, and landscaping will be added to project
16 features to soften those.
17 Traffic signal. Caltrans conducted a
18 study. Basically, what they have to do in order to
19 install a signal, to look at signal warrants,
20 certain requirements that have to be met for them to
21 install a signal. They conducted a study for that
22 and it didn't meet any of the eight warrants.
23 One other thing, a comment that we get
24 frequently is about the community character and how
25 the project might affect the character of the

1 community. And one of the things you might consider
2 is when you go to the west of the project limits,
3 basically, is already widened to four lanes, and the
4 character, what you would see after this project, is
5 consistent with what you could see all the way to
6 the freeway.
7 Another question that we frequently get
8 asked is basically what was the driving need for the
9 project? The project has shown on the Orange County
10 master plan of arterial highways, this segment of 74
11 is shown as a four-lane roadway. That master plan
12 is, basically, maintained by Orange County
13 Transportation Authority, and it's, basically a
14 County-wide train for all the existing and proposed
15 transportation facilities within the County. It
16 actually has a board back there that shows the 34,
17 master plan.
18 The roadways on the master plan, according
19 to the site, the traffic demand -- and they're also
20 based on the local elements, City circulation
21 elements, which also shows it's a four-lane. One
22 thing I noticed, City circulation elements must be
23 consistent with master plan in order not to
24 jeopardize funding for transportation projects.
25 That concludes the presentation.

I think Chester said the purpose of the meeting is to answer questions. We've got technical experts in the stations around the room. I encourage you sincerely to ask questions. Please come around and talk to us and introduce yourselves. To either ask for them an somebody -- thank you very much for your comment can.

** PUBLIC COMMENTS (continued) **

ED CONNOR: Ed, C-o-n-n-o-r, 30651 Steam Chase Drive, San Juan Capistrano. T-4

I want to strenuously object to the unorthodox, unlawful, and deceptive practice of Caltrans to notice this as a public hearing when this is nothing more than a public information session at which no public testimony, much less any questions in a public forum are being allowed. If Caltrans noticed this as a public hearing, they are bound by law to conduct a public hearing. 1

I've never experienced being told to go over to a corner and speak to a court reporter, and I find this a violation of due process, unlawful, and insulting.

I came prepared tonight to make comments

1 to an informed board of decision makers. There are
2 no decision makers here tonight. The public will
3 not be allowed to speak or interface or communicate
4 with any decision makers who will decide or fate for
5 the next many years to come.
6 As a result of having come here prepared
7 to make oral comments, I now have to make written
8 comments, and it may well be with my schedule, I
9 will not be able to do that, and again, I've been
10 misled and defrauded by this public agency that this
11 was going to be a public hearing, when two speakers
12 who got up there and called it a public meeting. So
13 that's bait and switch, it's a lie and it's
14 deception.
15 I've never experienced this with any
16 public project ever in the 30 years that I've been
17 involved in land use matters. I've never
18 experienced this. The EIR is inadequate and
19 defective. The environmental setting doesn't even
20 come close to talking about the six major
21 developments that abut this corridor. The
22 discussion of alternatives is inadequate because
23 nothing was done to model, there was a traffic
24 signal as we requested a year ago.
25 The mitigation measures don't provide for

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1 a traffic signal. The EIR does not reflect the fact
2 that the Hunt Club, where I live, has only one way
3 in and out. We have no back way out of our
4 community, and one egress/ingress that's Ortega
5 Highway, and if they're going to add thousands and
6 thousands of more cars to an already dangerous
7 situation, they need to provide a traffic signals so
8 that we can get in and out.
9 I challenge and defy Caltrans to identify
10 one other example of where there is a community of
11 170 homes that does not have a signal that allows
12 you to get out on to a major arterial. There is
13 none in south county, but they're proposing to do
14 one now.
15 The EIR is also inadequate as to the
16 description of adverse environmental impacts. I
17 will attempt to set this forth writing, but I am
18 absolutely outraged and dumb founded that I'm
19 sitting here in the back corner of some middle
20 school having to speak to a court reporter and not
21 getting the due process constitutional right to be
22 able to talk to a decision maker who is going to
23 decide my fate. Thank you.
24 JEFF SCHOFF: Jeff, S-c-h-o-f-f, Schoff.
25 The comment is that alternate routes were

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T-5

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1 considered years ago and have seemed to be pushed
2 under the rug and should be reconsidered.
3 SHAREEN LAWRENCE: S- h- a- r- e- e- n, T-6
4 Lawrence.
5 Putting in two more lanes on Ortega
6 Highway is not addressing the traffic congestion.
7 We need alternate routes. We need the toll road, we
8 need Avery. We need to get alternate routes, get
9 more routes, have an access to the freeway. That's
10 why they're coming through there, they're not coming
11 through because they're going to do anything in San
12 Juan, I can tell you that.
13 And the other thing that was really
14 unnerving to me is the proposal to have the traffic
15 turn right on to Ortega off of, say, Via Cristal,
16 and go up, and to make a U-turn into the traffic to
17 go west on Ortega is not going to work. We can't
18 even get across Ortega. What makes them think if
19 you come up here that you're going to be able to
20 make a U-turn and go west? They need to really give
21 us alternate routes and rethink this U-turn
22 business. Amen.
23 RENEE VANSMAALEN: R-e-n-e-e, T-7
24 V-a-n-s-m-a-a-l-e-n.
25 Basically, I had a large concern. I was

1 in the first projection for the first sound wall.
2 I'm in between Calle Entradero and Via Cordova.
3 When I came tonight to ask them to show me what
4 reason the sound wall was changed, I'm not satisfied
5 at all with the answer I received. They're showing
6 me a study from 2004. They're telling me that, in
7 essence, the sound level there is acceptable versus
8 the sound of my neighbors less than 2000 feet away.
9 Because I'm the last house before the next sound
10 wall -- the new sound wall.
11 The other thing I'm concerned with is that
12 whatever sound measurements were done, I volunteered
13 my backyard three times last summer to have Caltrans
14 come in with monitoring equipment. They never
15 showed up. A neighbor of mine volunteered three
16 houses down. His monitoring was done, but the
17 equipment, he was told, broke halfway through the
18 monitoring. So as far as my understanding, there
19 was no official monitoring of the sound, since the
20 study they showed me from 2004.
21 My other concern is that there's been a
22 high school that's opened up since then. I'm not
23 sure Caltrans is aware of the dynamics of that high
24 school. Meaning that there are currently only
25 freshman and sophomore that go to that school.

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1 Along with that, San Juan Capistrano cut bus
2 service. Every single morning, the children are
3 driven to school by their parents and picked up in
4 the evening. So the traffic has gone up.
5 I'm just as a person that lives there
6 lives on the back of that highway concerned that
7 they still, to me, have not satisfied their
8 determination that my area does not merit a sound
9 wall, versus somebody who lives less than 1000 feet
10 away. Thank you.
11 JIM DUSSINGER: Jim, D-u-s-s-i-n-g-e-r.
12 I'd like to know why alternative roads are
13 not an answer, versus widening of the Ortega.
14 That's question Number 1.
15 Two, I'd like a new sound study made
16 because the sound study that they made was prior to
17 one, the high school opening, two, the extended
18 traffic from Ladera Ranch. If the area is to
19 increase in growth, the sound definitely will go up
20 -- the high school itself only has two classes. In
21 the next couple years, we have two more classes for
22 the high school and only one way in and one way out.
23 Is there alternative plans to provide access to the
24 high school, such as San Juan creek road?
25 The last question I have is if you widen

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T-8

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this road now, will the interchange at Ortega Highway be widened in time to meet the oncoming traffic? Is the Ortega Interchange going to improved? I guess that's it.

CYNTHIA LAGOS: Cynthia, l- a- g- o- s.

I am against the widening of the Ortega for four different reasons: Number 1 would be air quality, cutting down over 100 trees, you're subtracting that oxygen from our air quality, our present air quality. You're widening the roads, which would mean more traffic coming in at a higher speed which forces more CO2 emissions into the air. You now have a double negative. More CO2 emissions, zero oxygen coming in, and trees use CO2, but if there aren't trees, there they're not using the CO2, double negative on the air quality.

Then there's a noise pollution, that many more cars coming in four lanes is going to bring even more noise pollution. People's backyards are bumper -- they're aligned with the 74 Highway. So they're right smack dab on that rural road. It's not any longer going to be a rural road. Their property values that have already dropped substantially because of this, and because of this economic crisis we're in, are going to dump even

T-9

1 further.

2 When the people bought those properties,
3 there was no such talk of widening this road. There
4 needs to be a better solution, not only for the
5 property owners, but for the small historic town of
6 San Juan Capistrano. It's a small town without the
7 infrastructure to allow more and more cars to be
8 bottlenecking into it. There's nowhere for them to
9 go. So if they figure -- if they're widening this
10 road to bring the people from Ladera onto the
11 freeway through the Ortega, they should really shoot
12 them east and west on San Antonio and La Pada
13 (phonetic) where they can pick up the three lanes on
14 Crown Valley or on Oso Parkway or on Avery. They
15 need to keep them from going into the small town.

16 Then you have horse property also, right
17 there on the Ortega. You have Joan Irvine's -- I
18 don't know how many hundreds of horses that are
19 going to be breathing this stagnant air with
20 hundreds more particulate of debris and carcinogens
21 in it. You're affecting the health of all her
22 animals. You're affecting the health of all people
23 with asthma in the area. People cross the street on
24 the Ortega with their dogs to go for walks in the
25 morning. People are going to be hit, horses are

1 going to be hit, horses cross the street every day.
2 They go up into the hills on the horse trails. This 6
3 is not the location for widening.
4 The last thing that I think is important
5 is the distribution of this small historic town. It
6 will implode, it will be a place people do not want
7 to come. It's a very special place now, but even 7
8 now, it's too crowded when you're trying to get from
9 one place to another. Right now, it's too crowded
10 and very frustrating.
11 You bring four more lanes and dump all the
12 load of people from Ladera, and everybody else into
13 this small town, it will be bottlenecked to the 8
14 point people don't want to come to San Juan anymore,
15 they will avoid coming to our restaurants because
16 they cannot even get into the town. And I care very
17 much -- I do not live on the Ortega, but I care very
18 much about the noise pollution, the air quality, the
19 people -- my friends, all the people I know that
20 have properties at the Hunt Club which are
21 million-dollar homes that are going to be affected,
22 and their property values are going to come down.
23 I care about all these issues I mentioned. 9
24 The health of Joan Irvine's horses, our rural
25 setting will be destroyed and turned into a freeway,

highway, very much against the ecology and the direction we should be going. We are looking not at progress, but at destruction if Caltrans puts this widening through. I'm very much against it. I think a class action suit by the property owners of this area will have to take place, will have to get this stopped. And that's my comment on the subject. 9

ROSEMARY MC CABE: Rosemary McCabe. T-10

My concern is the actual safety of the people who live in San Juan. San Juan is known as a walking City. A lot of people walk in this City. And I believe that the four lanes as opposed to two lanes will make the entire City a more dangerous place. People that drive from Riverside to the 5, they're forced to slow down when they hit this single lane going in one direction, and that's for the benefit of everybody along the Ortega, not just within this project zone. 1

It forces people to realize they're entering a small town, "I have to slow down, there's going to be a lot of people here." The guy talked about to see what it's like when you go up to the La Pada area, that's dangerous. It feels really fast to me and wide open, and just, cars are zooming, and when you get to where it narrows, it feels feel much

1 clearer and feels safer to me because it is much
2 slower there. And I think it forces people to be
3 aware that they're entering a small city. So I
4 think all of their driving habits are more put on
5 alert because of this, and I think our children are
6 safer for it. So that's one of my issues.
7 I don't understand the need for the
8 project. I'm looking at this traffic study here
9 where it says that peak hour vehicles served -- and
10 this was right off the document -- the existing
11 2006, there's 2,600 vehicles served existing now in
12 the a.m. with no project, 20,030 in the year 2030,
13 we're looking at 20,399. The numbers actually go
14 down.
15 There's going to be less traffic in 2030
16 with the no-build alternative. With the build
17 alternative, with the project, we're looking at
18 3220. 800 cars -- I would assume it's hours, peak
19 hour vehicle served, so it's 800 more. So this is
20 clearly not in our best interest, and I can't
21 believe the additional automobiles, the additional
22 traffic, will result in equal or lower air quality
23 measures. What is it CO2s?
24 So I think this clearly says it's not in
25 anybody's best interest to build in alternative.

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1 It's not. It does nothing -- the project does
2 nothing for people trying to make left-hand turns.
3 Across the board, you get poor grades. It doesn't
4 seem to change much.
5 Also, I think that the whole entire
6 project is based on obsolete data. The need that --
7 his figures, this projected growth, 27,000 going up
8 to 39,000, I believe that these were based on 2006.
9 That's what I think one of the people here told me.
10 2006 was the peak of the buying and housing frenzy,
11 and people were going out to Riverside County to buy
12 and doing these long commutes.
13 Riverside County now is really not doing
14 well, and nobody's building anything, as far as I
15 can see. And I think that this is obsolete data.
16 And I understand the idea that, oh, it's going to
17 rebound, this is a temporary thinking, but it might
18 be temporary, but it might be a profound shift also.
19 If it is a profound shift, these are definitely
20 obsolete data. I think we need to redo this with a
21 more updated population projection.
22 I question the 45 miles an hour. And I
23 can't find it. I had read in the original document
24 it could be 55, which means 60. People always go
25 further than the allowed speed limit if there's no

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1 resistance, and we're taking away the resistance.
2 So the speed is going to be faster and it doesn't
3 address the safety issues. I believe the
4 alternative is to put La Pada through; I think
5 that's what needs to go through, instead of putting
6 all traffic through San Juan.
7 CARLA KALLEN: C-a-r-l-a, K-a-l-l-e-n.
8 I live in the Hunt Club just off Hunt Club
9 Drive, and I've lived in San Juan for over 30 years,
10 and I'm totally opposed to this project. I don't
11 think it's going to do anything to benefit the City
12 of San Juan. I don't really think it's going to
13 help the people in Riverside that are trying to come
14 here, either because they're used to driving the
15 Ortega Highway, which is a windy road anyway. I
16 think it's all about 14,000 homes that are going to
17 be built just past Antonio there in the ranch.
18 So I think it's serving the ranch, but not
19 benefiting us, and it's -- $26 million is a lot of
20 money for something that's going to give us a level
21 of service -- of traffic of grade C. I don't think
22 it's worth it. That's all I want to say.
23 (Whereupon the proceedings concluded)
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T-11
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1 STATE OF CALIFORNIA)
2) SS.
COUNTY OF LOS ANGELES)
3
4
5 I, KATHERINE JONES, Certified Shorthand Reporter
6 No. 10097 in the State of California, duly empowered to
7 administer oaths, certify:
8 That said public hearing was taken before me at
9 the time and place therein set forth and was taken down by
10 me in shorthand and thereafter transcribed under my
11 direction and supervision, and I hereby certify that the
12 foregoing deposition is a full, true, and correct transcript
13 of my shorthand notes so taken.
14 I further certify that I am neither counsel for,
15 nor related to any party to said action, nor in anywise
16 interested in the outcome thereof.
17 IN WITNESS WHEREOF, I have hereunto subscribed my
18 name on this 23rd day of January 2009.
19
20
21
22 _____
23 KATHERINE JONES, CSR No. 10097
24
25

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Final Environmental Impact Report

Appendix J

Volume II: Responses to Comments

State Route 74

Lower Ortega Highway Widening

ORANGE COUNTY, CALIFORNIA
DISTRICT 12 – ORA – 74, PM 1.0/1.9
EA 086920
SCH# 2007071038

Prepared by the

State of California Department of Transportation

November 2009

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1.1 Responses to Comments

As required by the California Environmental Quality Act (CEQA) Guidelines Section 15087, a public notice of availability of the Draft Environmental Impact Report (DEIR) for the State Route 74 (SR-74 or Ortega Highway) Lower Ortega Highway Widening Project was published as a display ad in the *Orange County Register* and *La Opinion* on January 11, 2006. The DEIR was initially circulated for public review for a period of 60 days, from December 1, 2009, to January 30, 2009. Copies of the DEIR were distributed to the State Clearinghouse, the Governor's Office of Planning and Research (15 copies), and other federal, State, and local agencies. Copies of the DEIR were available for public review at the California Department of Transportation (the Department) District 12, the City of San Juan Capistrano (City), and the San Juan Capistrano Public Library. A copy of the distribution list for the DEIR is provided in Attachment A to this document.

In response to a request by the City, the public review period was extended to February 14, 2009. Public notices to notify the public regarding the extended public review period were published in the *Orange County Register* on February 2, 2009, and *La Opinion* on January 30, 2009.

A total of 89 comments on the DEIR were received during the public review period. Comments were received from State agencies, regional and local agencies, organizations and businesses, and private citizens. The 89 comments also included 11 public comments that were recorded by a court reporter during the public hearing for the project held on January 14, 2009. Substantive comments that relate to environmental issues are thoroughly addressed in this Final EIR (FEIR). In some cases, corrections to the DEIR are required or additional information is provided for clarification purposes. However, some of the comments do not present significant environmental issues, or they request the incorporation of additional information in the DEIR that is not relevant to environmental issues. Such comments do not require a response, pursuant to Section 15088(a) of the CEQA Guidelines.

Section 15088 of the State CEQA Guidelines, Evaluation of and Response to Comments, states:

a) The lead agency shall evaluate comments on environmental issues received from persons who reviewed the draft EIR and shall prepare a written response. The lead

agency shall respond to comments received during the noticed comment period and any extensions and may respond to late comments.

b) The lead agency shall provide a written proposed response to a public agency on comments made by that public agency at least 10 days prior to certifying an environmental impact report.

c) The written response shall describe the disposition of significant environmental issues raised (e.g., revisions to the proposed project to mitigate anticipated impacts or objections). In particular, major environmental issues raised when the lead agency's position is at variance with recommendations and objections raised in the comments must be addressed in detail, giving the reasons that specific comments and suggestions were not accepted. There must be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice.

d) The Response to Comments may take the form of a revision to the Draft EIR or may be a separate section in the final EIR. Where the Response to Comments makes important changes in the information contained in the text of the Draft EIR, the lead agency should either:
   1. Revise the text in the body of the EIR; or
   2. Include marginal notes showing that the information is revised in the Responses to comments.

Information provided in this Response to Comments document clarifies, amplifies, or makes minor modifications to the DEIR. Many comments raise similar or identical issues. To address these comments, a single general response is provided and subsequent responses refer to the general response.

Many of the comments received during public review of the Initial Study with Proposed Mitigated Negative Declaration (IS/with proposed MND) were received again during public review period of the DEIR. All substantive comments previously received for the IS/with proposed MND were addressed within the DEIR. (See the matrix in Attachment B, which references where these substantive comments were addressed within the environmental document.)

No major changes have been made to the information contained in the DEIR as a result of the responses to comments, and no significant new information has been added. Therefore, this Response to Comments document is being prepared as a separate section of the FEIR.

1.1.1 Index of Comments Received

The following is an index list of the agencies, groups, and persons who commented on the DEIR prior to the close of the public comment period. The comments received have been organized in a manner that facilitates finding a particular comment or set of comments. Each comment has been organized into one of the following five categories: (1) State Agencies, (2) Regional/Local Agencies, (3) Organizations/ Businesses, (4) Public Comments, and (5) Public Meeting Transcript.

This division is the basis for the numbering of each comment. Each commenter has been assigned a numbered code. This numbered code is combined with sequential numbering for each comment. For example, Comment S-1-1 refers to the first comment in the letter from the Native American Heritage Commission (NAHC).

1.1.1.1 State Agencies

S-1 NAHC

1.1.1.2 Regional/Local Agencies

L-1 City of San Juan Capistrano City Council Member Sam Allevato
L-2 City of San Juan Capistrano–Chatten-Brown & Carstens
L-3 City of San Juan Capistrano Mayor Mark Nielson

1.1.1.3 Organizations Businesses

O-1 Hunt Club Community Association
O-2 Hunt Club
O-3 Joan Irvine Smith and Save Ortega

1.1.1.4 Public Comments

P-1 Devon Allen
P-2 Laurie and Jim Allen
P-3 Deborah Baileys
P-4 Steven and Jamie Bell
P-5 Cathleen Brannon
P-6 Diane Bravender
P-7 Scott Bull
P-8 Emily Burke
P-9 Ilse Byrnes
P-10 Ilse Byrnes

P-11 Barb and Dan Campion
P-12 Barb Campion
P-13 The Chichi Family
P-14 Art Cusolito
P-15 Heather Davis
P-16 DEBAIRCALGAL
P-17 Lennie DeCaro
P-18 Lennie DeCaro
P-19 Lennie DeCaro
P-20 Lennie DeCaro
P-21 Marisa and Chuck DeCasas
P-22 Stephanie Doucette
P-23 Sandra Ewing
P-24 Linda Falk
P-25 Carol Freezor
P-26 Ron Freezor
P-27 Bill and Carol Fessenden
P-28 Pat Filippi
P-29 Ron and Vicki Geisler
P-30 Gerry Hahn
P-31 Sherry Hahn
P-32 Gila Jones
P-33 Carla Kallen
P-34 Bill Kindel
P-35 Christopher King
P-36 Cynthia Lagos
P-37 Robert Lavacot
P-38 Jerry Lawrence
P-39 Helen Lee
P-40 Kim Lefner
P-41 Melissa Luker
P-42 Joe Mankawich
P-43 Suzanne McCardle
P-44 Rick Mercier
P-45 Anita Micalizzi
P-46 Peggy Miller
P-47 Roger and Bernadine Monaco

P-48 John Nuccio
P-49 Ed G. Paniagua
P-50 Joy Parr
P-51 Joan Priestley
P-52 Dale Rosenfeldt
P-53 Christina and Warren
P-54 Bob Sanford
P-55 Richard Sato
P-56 C. Schneider
P-57 Emily Schultz
P-58 Bill and Katie Shreve
P-59 Jan Siegel
P-60 Joan Irvine Smith
P-61 Christine Speed
P-62 Mark Speros
P-63 Gordon Stefenhagen
P-64 Tressa Strom
P-65 Benjamin and Cheryl Trosky
P-66 Yvonne Tschaikowsky
P-67 Maryann Tucker
P-68 Dan Valentine
P-69 Reg and Phyllis Villamil
P-70 Phyllis Watson
P-71 Kathleen M. Zaleski

1.1.1.5 Public Meeting Transcript

T-1 Trevor Dale
T-2 Lennie DeCaro
T-3 Suzanne McCardle
T-4 Ed Connor
T-5 Jeff Schoff
T-6 Shareen Lawrence
T-7 Renee Vansmaalen
T-8 Jim Dussinger
T-9 Cynthia Lagos
T-10 Rosemary McCabe
T-11 Carla Kallen

1.1.2 General Responses to Comments Received

Many of the comments received during the public review period for the DEIR raise similar or identical issues, such as visual impact, the need for a traffic signal, noise impact, air quality impact, and the need to study alternative routes. To address these comments, a single general response is provided for each similar or identical issue, and subsequent responses refer to the general response.

GENERAL RESPONSE NO. 1 – VISUAL IMPACTS

Many comments were received regarding the visual impacts associated with the removal of mature trees and vegetation, construction of sound walls, and loss of visual character affecting Ortega Highway's eligibility for classification as a State Scenic Highway.

Loss of Mature Trees/Vegetation

The removal of trees for the project contributes to the significance of the project's impacts on the visual quality of the SR-74 transportation corridor. As acknowledged in the EIR, significant visual impacts would remain with implementation of the proposed project. As described in Section 2.1.6 of the EIR, the visual impact of tree removal is reduced by the overall existing tree coverage in the project viewshed (as depicted on Figures 2.1.6-7 through 2.1.6-11) and would be further reduced by replacement trees that would be planted with implementation of Mitigation Measure V-1. As part of the project design consideration, the Department will make efforts to minimize tree removal within the project area. Also, it should be noted that the majority of existing trees to the south of State Route 79 (SR-79) would remain, as most of the proposed widening would occur to the north of SR-74. A majority of existing trees on the south side of SR-74 will remain, as most of the widening occurs on the north side of SR-74. As discussed in Mitigation Measure V-1, the Department plans to replace all trees removed as part of the proposed project at a minimum 2:1 ratio. However, the final replacement ratio, which may be greater than 2:1, will be determined when the planting plan submitted by the Department to the City of San Juan Capistrano during final design is approved. Not all trees will be replaced within the proposed right-of-way (ROW). Due to limited space within the project limits, some trees may be replaced at an off-site location to be determined during final design.

Sound Barrier/Retaining Walls

The visual analysis conducted for the EIR evaluated both sound barriers and retaining walls anticipated for the project and identified potential impacts and minimization measures due to Ortega Highway's potential eligibility designation as a State Scenic Highway. The Department incorporates context-sensitive design elements (i.e., utilizing different types of walls, such as glass walls, compared to Sound Fighter® walls) as part of the proposed project in order to adhere to California Scenic Highway guidelines where feasible. Context Sensitive Solutions (CSS) is a process that allows for early collaboration of all stakeholders to develop solutions and gain consensus on design elements that are compatible with the context of a project area. For additional information on CSS, please refer to the Directors Policy No. 22 or the Department's Landscape Architecture context sensitive website http://www.dot.ca.gov/hq/LandArch/cs_solutions/index.htm.

The proposed retaining walls would not alter views through the project area due to existing sloping topography that already blocks views. Also, the proposed sound walls would not reduce public views toward surrounding hills and the San Juan Creek Valley, as views through the project site are already limited due to existing walls and dense vegetation.

The DEIR states that the introduction of wall features would significantly increase the visible hardscape in the area. However, Mitigation Measures V-1 through V-3 are recommended to significantly reduce the visible hardscape. Aesthetic treatments for sound walls and retaining walls, such as simulated rock surfaces and landscape plantings, are being considered to screen views of the proposed walls. The use of transparent materials for the proposed sound walls is also being considered to maintain views from the roadway. The maintenance of the sound barriers and retaining walls (particularly related to graffiti removal) would be considered in the selection of the materials for these structures. Examples provided in the DEIR were only preliminary conceptual designs to give an idea of the possible impacts to the viewshed. The final design concept for the aesthetic treatment (i.e., color, texture, construction materials, addition of foliage) of sound barriers and retaining walls will be determined during final design in coordination with the City of San Juan Capistrano.

State Scenic Highway

SR-74 is "eligible" for listing as a designated State Scenic Highway and is not an officially designated State Scenic Highway. The status of a proposed State Scenic Highway changes from eligible to officially designated when the local governing body applies to the Department for Scenic Highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway.

When a city or county nominates an eligible Scenic Highway for official designation, it must identify and define the Scenic Corridor of the highway. Scenic Corridors consist of land that is visible from the highway ROW, and primarily comprise scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor's boundaries. The city or county must also adopt ordinances, and zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. They should be written in sufficient detail to avoid broad discretionary interpretation and should demonstrate a concise strategy to effectively maintain the scenic character of the corridor. These ordinances and/or policies make up the Corridor Protection Program.

Upon designation for eligibility, the Department requires the following steps in order to receive the Scenic Highway designation:

The city or county with jurisdiction over lands adjacent to the highway would be required to contact the Department District Scenic Highway Coordinator and then complete the following steps:

1. Conduct a visual assessment of the route to determine whether it meets the current Scenic Highway criteria and to what extent, if any, development has intruded on the scenic views.

2. Submit a Scenic Highway Proposal to the District Scenic Highway Coordinator. The package should include a letter of intent by the local governing body, maps showing the Scenic Corridor and existing zoning, a map overlay of development in the corridor, and a narrative description of the scenic elements. The District and State Scenic Highway Coordinators review the proposal, and if it is determined that the corridor meets the scenic criteria,

the applicant proceeds to the next step. If the route fails this review, it is not advisable to continue seeking official designation.

3. Prepare and adopt a Corridor Protection Program. The District and State Scenic Highway Coordinators review the protection program. If it is determined that the program meets the legislative standards, a recommendation to designate the highway as scenic is forwarded to the Department Director.

As discussed in Section 2.1.6 of this EIR, the County Master Plan of Arterial Highways (MPAH) and the City designate Ortega Highway as a Primary Arterial highway, a four-lane divided roadway. Based on the City's General Plan, Scenic Corridors include designated arterials contained in the Circulation Element. Therefore, it is assumed that SR-74 is considered a designated City Scenic Corridor, as the Circulation Element designates SR-74 as a Primary Arterial highway. The San Juan Capistrano General Plan includes policies pertaining to designated Scenic Corridors within the City, which include the following:

> *Image and Identify*
> Community Design Goal 3: Preserve and enhance natural features.
>
> Policy 3.3: Preserve and enhance scenic transportation corridors, including Interstate 5 and the railroad.
>
> *Scenic Corridors*
> Major travelways, including both vehicular and rail, provide the public with a visual image of the quality of life envisioned by the community. The following design criteria is provided to ensure that these scenic corridors are developed with a sense of care to aesthetic values:
>
> - Buffer to screen existing unsightly features outside of the right-of-way;
> - Use of innovative design features for bicycle, sidewalks, equestrian trails, boundary walls, and parkways; and
> - Attention to building design features that are proposed adjacent to a scenic corridor.

The District Scenic Highway Coordinator has not received any applications for Scenic Highway approval for SR-74.

The widening of Ortega Highway is planned as a long-range roadway improvement. Ortega Highway is to be widened to four lanes, from Calle Entradero to the east

City/County limits (Table C-6 of the City's Circulation Element). Therefore, the proposed widening has been known since the designation for "eligibility" was applied to SR-74 at the project site. Additionally, as stated in the DEIR, the Department will work with appropriate agencies to ensure the protection of Scenic Corridors to the maximum extent feasible. Impacts to Scenic Corridors (i.e., degradation and obstruction of scenic views) from the proposed project will be considered as an integral part of its project planning, project development and maintenance operations. The Department will make every effort to identify solutions to minimize or mitigate visual impacts as a result of the proposed project. Examples of such solutions include using varying types of building materials; replanting grasses, shrubs, and trees where feasible; and other types of architectural treatments for the structural elements of the project. Architectural treatments would be determined in consultation with the Department District Landscape Architect and the City of San Juan Capistrano during the Plans, Specifications, and Estimates (PS&E) phase (Mitigation Measure V-2). Therefore, with implementation of the recommended Mitigation Measures V-1 and V-2, impacts in this regard are considered to be less than significant.

GENERAL RESPONSE NO. 2 – TRAFFIC SIGNAL/PEDESTRIAN CROSSING

Many comments raised concerns that there is an existing safety issue for vehicles entering and exiting SR-74 from local streets and that this condition would worsen in the future due to increased traffic resulting from the widening. Additionally, there were concerns that it will be dangerous for pedestrians (including students from nearby schools) and equestrians to cross the highway within the project area. Therefore, residents in the area are requesting that a traffic signal and/or pedestrian/equestrian crossing be installed at one of the intersections within the project limits as part of the proposed project.

Based on the results of the traffic analysis conducted for the project (July 2008), the proposed project would not result in an increase in traffic volumes on SR-74. The design speed for the new roadway is 45 miles per hour (mph). The actual posted speed limit will be established based on the results of a speed zone survey that will be conducted after the completion of construction, when the project becomes operational. The existing speed posted within the project limits is 40 to 45 mph.

Traffic Signal

As documented in Section 2.1.5.3 of the EIR, the Department conducted two separate signal warrant evaluations prior to circulation of the DEIR. The signal warrant analysis is used by the Department to determine whether a traffic signal is warranted along a State Highway. The Department has eight criteria/factors that are considered before a signal light may be installed. These criteria are known as signal warrants. The eight types of signal warrants are identified below:

Warrant 1 – Eight-Hour Vehicular Volume
Warrant 2 – Four-Hour Vehicular Volume
Warrant 3 – Peak Hour
Warrant 4 – Pedestrian Volume
Warrant 5 – School Crossing
Warrant 6 – Coordinate Signal System
Warrant 7 – Crash Experience
Warrant 8 – Roadway Network

A traffic control signal is considered only when one or more of these warrants are met. Traffic signal light studies took place in 2000 and again in 2008. The results of both the 2000 and the 2008 studies concluded that within the project area, none of the intersections along SR-74 met the criteria to warrant a traffic signal. As stated in Section 1.5.1.9, implementation of the project would not preclude installation of a traffic signal at a later date should traffic conditions change and signal warrants be met. The City of San Juan Capistrano could also construct the traffic signal, in coordination with the Department, and be responsible for maintenance of the signal. Traffic exiting local streets and attempting to turn left onto westbound SR-74 would incur extended delays due to a lack of gaps in the through traffic. In order to avoid extended traffic delays, the project is providing eastbound left-turn lanes at the unsignalized intersections to allow vehicles to turn right onto eastbound SR-74 and complete a U-turn at the next available intersection.

Pedestrian/Equestrian Crossing

As discussed in Section 2.1.1.3 of the EIR, the existing trail system, which accommodates biking, hiking, and equestrian uses in the area, would be preserved. No modifications are proposed to the existing multiuse trails as part of the proposed project. In addition, there is a lack of continuous sidewalks located within the existing project limits.

Due to the lack of continuous sidewalks within the existing project area, the Capistrano Unified School District provides bus service for high school students living more than 2.5 miles (mi) from San Juan Hills High School, which includes students living within the Hunt Club. Therefore, students of the high school who live within the Hunt Club will not need to cross Ortega Highway in order to get to school.

Private equestrian trails identified as the East and West Hunt Club Trails are located outside the project limits on the north side of SR-74. The existing East and West Hunt Club Trails, as well as the associated Hunt Club feeder trails, have been identified on the north side of SR-74 between the Hunt Club entrances. These feeder trails, also located outside the project limits, would not be impacted by the proposed project. An additional recreational trail is identified on the south side of SR-74 as the Siega Trail, and is located along Avenida Siega. The Siega Trail would not be impacted by the proposed project.

The Department is aware that the City of San Juan Capistrano requested an equestrian crossing on Ortega Highway to connect the existing trail systems north and south of the highway. However, if the City identifies the need for an equestrian crossing, the Department will work with the City separately from the SR-74 Lower Ortega Highway Widening project to determine whether it is feasible to do so. Although there are no existing pedestrian or equestrian crosswalks within the project limits, there is an equestrian crosswalk located approximately 0.4 mi west of the western project limits at the intersection of Belford Drive and Ortega Highway.

GENERAL RESPONSE NO. 3 – NEED FOR BICYCLE FACILITIES

Many comments raise concerns that bicyclists who utilize SR-74 will no longer be able to safely ride their bicycles due to the increased speeds and lack of a designated bike lane. Designated bike lanes should be present on both sides of SR-74 and be compliant with State Highway standards.

Department Deputy Directive 64 (DD64) states that Department policy is to accommodate the need for and importance of nonmotorized travelers. The proposed project is consistent with DD64. Class II (striped on-road) bicycle facilities are provided in the design of both Build Alternatives. A minimum 5-foot (ft) paved shoulder would be provided throughout the project limits on each side of the roadway to accommodate the Class II bike lane. From Avenida Siega to the City/County limits, the shoulder/bike lane will transition to an 8 ft wide shoulder to merge with the County widening project to the east. These facilities would be in conformance with

the Orange County Transportation Authority (OCTA) Commuters Bikeways Strategic Plan (CBSP).

The Class II bike lane provided as part of the project would facilitate bicycle travel through limits by providing a dedicated lane. A 5 ft paved shoulder would be provided on each side of the roadway to accommodate Class II (striped on-road) bicycle facilities. Hence, the project is consistent with local (City General Plan Circulation Element), regional (OCTA CBSP), and statewide policies to support alternative means of transportation.

GENERAL RESPONSE NO. 4 – TRAFFIC PROJECTIONS

Many comments expressed concern that by increasing the capacity of the highway, the Department would be encouraging people to use Ortega Highway more frequently or settle in areas located east of the City limits. This would create more congestion and would induce growth.

The purpose of the proposed widening project is to increase the capacity of the highway to relieve existing and future traffic congestion and improve the flow of traffic on SR-74, accommodate planned growth and development in the surrounding areas, provide a gap closure (to provide a continuous four-lane highway), and provide improvements consistent with local planning documents. The additional lanes would provide the needed capacity to meet the current and future traffic demand, to reduce traffic congestion, and to reduce travel time.

As discussed within the EIR (Section 2.1.2.2), to assess potential growth-inducing impacts of the SR-74 widening, the development status of existing, planned, and unplanned surrounding land uses were evaluated. The proposed SR-74 widening from Calle Entradero east to the City/County line would not have any growth-inducing effect in the immediate area because the adjacent land is built out and/or already entitled for suburban (mostly single-family) residential uses. Immediately east of the City/County line, development in unincorporated Orange County is approved as part of the Ranch Plan. Widening SR-74 would serve this planned growth. However, the proposed SR-74 roadway improvements would not be considered growth-inducing for the following reasons:

- Development of the Ranch Plan is not conditioned on the widening of SR-74 within the project limits and may occur even without implementation of the SR-74 Lower Ortega Widening project.

- The Ranch Plan is included in the County Projections, and as shown in Section 1.3 of the EIR, the proposed Build Alternatives would improve the levels of service (LOS) along the SR-74 mainline. Therefore, the proposed SR-74 improvements would not provide capacity beyond what is needed to serve the existing and approved development, and would not encourage intensification of existing and planned land uses. The proposed project would accommodate planned growth and development in the surrounding areas, meeting one of the project purposes outlined in Chapter 1 of the EIR.
- Growth on the Ranch Plan property would not be able to exceed the level already approved by the County because restrictions associated with the Ranch Plan approvals limit the amount of overall development. This has been established through provisions of the General Plan and zoning. Infrastructure to serve the Ranch Plan development will be provided as part of the land development project, and the impacts of the required infrastructure improvements have been addressed as part the environmental documentation for the Ranch Plan.
- The actions taken by the Ranch Plan landowner and the County to approve development adjacent to the proposed SR-74 improvements were independent of the proposed SR-74 Lower Ortega Highway Widening project. The Ranch Plan is an approved project that will be developed with or without the proposed project.

In addition, the proposed SR-74 improvements would also not influence development in western Riverside County. The job projections for Riverside County show an approximate increase in jobs of 763,000 by 2035. However, SR-74 is near capacity (existing and projected future condition) during commute hours and will not generate more commuting to Orange County.

GENERAL RESPONSE NO. 5 – PROJECT DESCRIPTION

Alternatives Considered

Several comments were raised that requested additional alternatives to widening the roadway be considered. Some residents living adjacent to the project limits on SR-74 do not believe that they should shoulder the burden of the existing and future regional traffic problems.

As stated within Section 1.5.4.2 of the EIR, no infrastructure for multimodal transportation presently exists to connect Riverside County to State Route 241 (SR-241) and Interstate 5 (I-5), and construction of new infrastructure could have substantial impacts to environmental resources and would require large amounts of

property acquisition. In addition, alternative routes to circumnavigate SR-74 were considered but later eliminated because they would result in increased travel times for eastbound and westbound travelers. In addition, alternatives that would improve transportation facilities beyond the project limits, such as the extension of Stonehill Drive and upgrading the existing I-15/Stonehill Drive interchange, would not meet the project purpose of providing a gap closure on SR-74.

As discussed in 2.1.5.3 of the EIR, the No Build Alternative would not meet the purpose and need to enhance capacity in the long term, because traffic demand will exceed capacity and speeds will vary greatly, which would result in significant delays. Traffic congestion through the project limits is expected to worsen in the 2035 future conditions, increasing from 27,000 average daily traffic (ADT) in 2008 to 39,000 ADT in 2035. Therefore, the No Build Alternative would not address existing and forecast traffic conditions and would have significant impacts to traffic and transportation.

The Build Alternatives, however, would result in temporary and long-term changes to traffic volumes and circulation as a result of construction by meeting the purpose and need to enhance capacity in the long term. Table 2.1.5-1 in the EIR shows that under the Build Alternatives, the mainline would experience no delays or minimal delays, and traffic congestion through the project limits is expected to decrease in 2035 with the implementation of this project. Therefore, Build Alternatives 1 and 2 would improve the LOS in the project area and would have a beneficial impact on traffic and transportation. Traffic and transportation impacts are considered less than significant.

Emergency Vehicle Access

Several comments identified a concern with emergency access from SR-74 to existing properties fronting the highway. According to some commenters there was a concern for steeper driveway gradients, that may be as steep as 23 percent, which exceeds the Orange County Fire Authority (OCFA) requirement of a 10 percent slope for emergency vehicle access. This will make it increasingly harder for emergency vehicles to access homes located north and south of the project limits.

The proposed maximum final slope for the private driveways in the City with project implementation would be less than 20 percent. None of the driveway slopes would exceed their existing maximum slope gradient. The Department's responsibility is to maintain the existing access points to a State Highway and maintain current conditions. The City of San Juan Capistrano would be responsible for allowing/

permitting these local roads to exceed 10 percent. The proposed widening project's reconstruction entails only a very small portion of these roads/driveways, where they intersect with SR-74.

Undergrounding of Utilities

Several comments were received that requested that overhead utilities be undergrounded within the project area as part of construction.

The project will replace all utilities in kind. The decision to underground utilities is not determined by the Department. Instead, the decision to underground utilities is made by the utility company. Therefore, any requests for the undergrounding of utilities should be directed to the associated utility company.

GENERAL RESPONSE NO. 6 – INADEQUATE TRAFFIC ANALYSIS

Several comments have stated that the numbers provided within the traffic studies are outdated or incorrect, and that subsequent mitigation measures for traffic-related impacts are inadequate.

The *Draft State Route 74 Lower Ortega Highway Widening Traffic Study* (July 2008) evaluated the project in a 2035 time frame, comparing the No Build Alternative with the Build Alternatives. The traffic forecast data used for the analysis was prepared using the South County Sub-Area Model (SCSAM), which in turn was derived from the Orange County Transportation Analysis Model (OCTAM) Version 3.1. The SCSAM has undergone certification by OCTA and therefore is consistent with the subarea modeling guidelines established by that agency. Consistency requirements ensure that traffic model data are derived in a regional context, in this case with OCP-2004 demographic projections for Orange County and General Plan land use build out for the Cities of Mission Viejo, San Juan Capistrano, and Laguna Niguel, and the communities of Las Flores and Ladera Ranch. For the Rancho Mission Viejo (RMV) area east of the City, the land use plan as approved in 2004 and modified under a subsequent Settlement Agreement was used in the traffic forecast assumptions.

Other considerations used in the traffic forecast database included future roadways in south Orange County, including MPAH additions such as La Pata Avenue and a southward extension of SR-241 along the recently adopted alignment. A more detailed discussion of the assumptions used in the analysis is included in the 2008 Draft Traffic Study.

As discussed in the previous paragraphs, the traffic volumes for analyzing the future 2035 conditions were developed based on the SCSAM traffic model. Within the traffic model, the growth from 2008 to 2035 is estimated based on the projected development in the region, and the 2035 traffic volumes are forecast based on this growth. The forecast 2035 traffic is then assigned to the future 2035 circulation system (street network) which includes Ortega Highway. Since the process of developing these traffic volumes does not take into account geometry (the number of lanes), the future 2035 volumes along SR-74 for the No Build and Build conditions are identical. It should be noted that the Traffic Study did include a section that discussed the growth-inducing impacts of the widening project.

The traffic forecast model generally includes mechanisms that identify the characteristics of trips made from a residential use to other uses. These mechanisms would account for trips made by parents to drop their children off at school.

Based on the information contained in the traffic studies, and as shown in Table 2.1.5-1, the No Build Alternative would not meet the purpose and need to enhance the capacity of SR-74 in the long term. Table 2.1.5-1 (Mainline LOS Summary) shows that for the SR-74 mainline, the peak-hour traffic volume in one traffic direction increases from 1,550 vehicles per hour (vph) in 2008 to 2,123 vph in 2035. The table also shows that under the No Build Alternative the mainline would operate at LOS F. LOS F implies that the traffic will be heavily congested and speeds will be less than 35 mph. The higher through traffic volumes along SR-74 would result in increased delays for vehicles exiting the minor streets and intending to turn left due to the lack of gaps in the through traffic that would allow these vehicles to complete the left turn. Traffic demand will exceed capacity and speeds will vary greatly, which will result in significant delays. Traffic congestion through the project limits is expected to worsen in the 2035 future conditions, increasing from 27,000 ADT in 2008 to 39,000 ADT in 2035.

Based on the projected growth, by 2035 the traffic volume along Ortega Highway is projected to increase by approximately 35 to 45 percent compared to the existing volume. The growth in traffic would result in higher congestion along Ortega Highway and potential diversion of traffic to other parallel facilities in the region. The traffic analysis shows that 2035 peak-hour demand volumes will exceed the capacity of the No Build Alternative. Under such circumstances, queuing would occur at the merge sections (from two lanes in each direction to one lane in each direction), and peak-hour traffic demand would spread onto the shoulders (increase in the length of

congestion). In other words, the length of the peak hour would be increased, and this section of Ortega Highway would be congested for longer periods of time. As shown in the Traffic Study, widening Ortega Highway to a four-lane facility would reduce congestion at the merge areas (to the east and west) and reduce the period of time when the roadway is congested.

GENERAL RESPONSE NO. 7 – INCREASE IN NOISE/NOISE ANALYSIS

Some public comments have indicated concern regarding a permanent increase in noise, the approach/methodologies used to evaluate noise impacts, and mitigation (including evaluation of noise reflection).

Noise Analysis Approach

The noise study for the proposed project was evaluated pursuant to the guidelines and requirements of CEQA.

Since the project is on a State Highway facility, traffic noise impacts and noise abatement measures were also evaluated in accordance with the Department Traffic Noise Analysis Protocol (Protocol). A traffic noise impact would occur if noise-sensitive land uses would experience a predicted noise level that would be substantially higher than existing levels.

The Department Sound 32/2000 noise model was used to establish the existing traffic noise levels and predict future traffic noise levels. Sound 32/2000 is a program based on the Federal Highway Administration (FHWA) Highway Noise Prediction Model and the methodology in the FHWA, FHWA-RD-77-108. The program was fitted with the CALVENO noise emission levels for use on highway projects within California.

Noise-sensitive land uses within the project limits were identified through land use maps, aerial photography, and site inspection. Noise-sensitive land uses for each activity category are listed in the Protocol. These land uses include single- and multifamily residences, picnic areas, recreation areas, playgrounds, motels, hotels, schools, churches, libraries, and hospitals. If existing noise levels are high, traffic noise impacts can occur even when there is no project-related increase in noise. Mitigation measures such as noise abatement are provided when significant noise impacts occur.

Based on the Protocol, unusual and extraordinary noise abatement is considered if noise-sensitive land uses would experience a severe traffic noise impact of

75 A-weighted decibels (dBA) equivalent continuous noise level (L_{eq}) or higher, or an increase in traffic noise levels of 30 dBA or more above existing noise levels. Noise abatement measures for consideration under this category can include constructing sound walls that are not reasonable or providing interior noise abatement measures such as building facade upgrades (e.g., double-paned windows and air-conditioning so that windows can be closed for a prolonged period of time).

To meet the requirements of CEQA on a State Highway facility, the methodology used to evaluate noise impacts and mitigation/abatement measures was determined according to the Protocol and Department CEQA guidance.

Traffic Noise Projections

The proposed project would not increase traffic volumes. However, it would increase traffic noise levels due to an improved LOS by increasing the duration of free-flowing traffic. In addition, traffic noise levels would increase because the project would move traffic closer to noise-sensitive land uses. The proposed project did not result in a substantial increase. Receptor 31 K5 was projected to experience an exterior level of 75 dBA, and interior noise mitigation was identified.

Noise Reflection

Noise reflections only occur when there are sound walls or retaining walls on both sides of the roadway that have a width-to-height ratio of 10:1. Sound walls and retaining walls proposed for the project and located on both sides of the roadway would not have a width-to-height ratio of 10:1. Therefore, the proposed noise barriers and retaining walls would not cause an increase in the noise levels within the project area or degrade the performance of the sound walls.

GENERAL RESPONSE NO. 8 – SEGMENTATION OF PROJECT

The Project Study Report (PSR) has indicated that the original intent of the project was to widen from Via Cordova to the La Pata Avenue/Antonio Parkway intersection. The proposed widening within the County portion of the project has been approved, and the remaining portion located within the City of San Juan Capistrano limits has been evaluated within this DEIR. Therefore, some have the opinion that the project appears to have been segmented and the analysis has been piecemealed to accommodate the County portion of the project. In addition, some say there are some inconsistencies regarding the beginning point of the project. The original starting

point was at Via Cordova in the PSR, and now the starting point is at Calle Entradero. The additional area widened seems unnecessary.

The project limits studied in the PSR approved on December 15, 1997, included Via Cordova to the La Pata Avenue/Antonio Highway intersection. The decision to extend the project limits to Calle Entradero was made in order to provide 5 ft shoulders and to create continuity by providing two continuous lanes in each direction (eastbound and westbound) on SR-74.

A PSR is a preliminary engineering document that is prepared early in the scoping/ development of a project for the purpose of defining potential alternatives and does not define the limits of a project under CEQA. Projects routinely undergo substantial modifications following the PSR phase, including lengthening or shortening the project limits based on traffic studies, existing and projected LOS deficiencies, the availability of funding, funding deadlines, and jurisdictional boundaries. The widening of SR-74 from Calle Entradero to the City/County line (Lower 74 Widening project) stands on its own merit and would warrant implementation with or without the widening of SR-74 east of the City/County line. The purpose of the Lower 74 Widening project is to widen SR-74 to address an existing and projected future LOS deficiency resulting from insufficient traffic capacity on SR-74 within the project limits from Calle Entradero to the City/County line.

The widening of SR-74 from the City/County line to the intersection of La Pata Avenue/Antonio Parkway (County widening project) is covered under the Ranch Plan FEIR 589 (County of Orange, November 2004) and the Addendum to the FEIR 589 (July 2006). Both of these documents include evaluations of the widening of SR-74 from the City/County line to east of the La Pata Avenue/Antonio Parkway intersection. In addition, other resource agencies prepared subregional planning programs that included the widening of this section of SR-74 in their assumptions. The project to widen SR-74 from the City/County line to east of the La Pata Avenue/ Antonio Parkway intersection is funded by the County of Orange and is environmentally cleared under the environmental documents discussed above. The Lower 74 Widening project from Calle Entradero to the City/County line, a distinct and separate project, is funded by the Department and is environmentally cleared under the Lower 74 Widening EIR. The environmental documents and the cumulative analyses for each of these projects took into consideration the development of the other project and evaluated the environmental impact of implementing both projects.

SR-74 is already four lanes (two lanes in each direction) west of the Lower 74 Widening project limits (west of Calle Entradero), but will be widened to four lanes east of the Lower 74 Widening project limits by implementation of the County widening project. Therefore, the Lower 74 Widening project is needed as a gap closure to provide four continuous through lanes on SR-74.

In summary, the widening of SR-74 from Calle Entradero to the City/County line cannot be construed as segmenting or piecemealing a project under CEQA for the following reasons: (1) the Lower 74 Widening project stands on its own merit whether or not SR-74 is widened east of the City/County line; it is a distinct and separate project designed to serve a specific need and purpose; (2) it is needed as a gap closure; (3) it and the County widening project are located within different jurisdictions and have different sources of funding; and (4) the Lower 74 Widening project and County Widening project east and west of the City/County line are each covered under their own environmental documents and cumulative impacts analyses that took into consideration the development of the other project and evaluated the environmental impact of implementing both projects, and considered the implementation and impacts of both projects.

GENERAL RESPONSE NO. 9 – AIR QUALITY DEGRADATION

Several comments were received regarding the preparation of the air quality analysis. Some commenters have expressed a general disbelief that the Lower Ortega project is a roadway improvement project and that it would result in improvement of air quality.

The principal intent of the air quality analysis is to show that the project is included in area plans, which take into account the air quality effects of all regional transportation projects. In general, the theory is that roadway improvement projects, such as this one, will reduce air quality impacts due to reduced traffic congestion. All vehicles produce far greater emissions when moving slowly through a heavily congested area because the vehicles' engines operate less efficiently at low speeds and because the vehicles remain in a congested area much longer. Table 2.2.6-4 in the EIR shows that the forecast increase in regional traffic with and without the project will result in very small increases in criteria pollutant emissions. However, this table does not attempt to include the effect of improvements in traffic flow. Therefore, it is expected that the negligible increase shown in Table 2.2.6-4 overstates the actual change resulting from the project.

Table 2.2.6-4 Change in Regional Vehicle Emissions (lbs/day)

Pollutant	2035 Baseline Emissions	2035 With Project Emissions	Project-Related Increase
CO	626,518	626,542	24
ROG	30,413	30,415	2
NO_X	146,654	146,659	5
SO_X	3,348	3,349	1
PM_{10}	32,072	32,073	1
$PM_{2.5}$	19,919	19,920	1

Source: LSA Associates, Inc., November 2008.
CO = carbon monoxide
lbs/day = pounds per day
NO_x = nitrogen oxide
O_3 = ozone
$PM_{2.5}$ = particulate matter less than 2.5 microns in diameter
PM_{10} = particulate matter less than 10 microns, but greater than 2.5 microns in diameter
ROG = reactive organic gases
SCAQMD = Southern California Air Quality Management District
SO_x = sulfur oxide

The improvement in air quality is not based on the comparison of the future project traffic impacts to the existing traffic impacts, but rather on comparison of the future project traffic impacts without the project versus with the project. The traffic levels will increase independent of this project, and as stated in Section 2.2.1.2 of the Air Quality Assessment Report for this project, "Traffic congestion through the project area is expected to increase with the continued growth in the region. By 2035, the LOS on SR-74 is projected to deteriorate to substandard levels. The mainline would operate at LOS F in 2035 in the peak hours if SR-74 is not improved. There would be considerable delays, and the operating speed would be less than 35 miles per hour." This type of traffic congestion would result in a much greater negative impact on the local air quality than that same volume of traffic flowing freely. Even if the overall traffic level increases due to the improved traffic flow, it is expected that the resulting emissions will still be far below the level of emissions that would result from highly congested traffic.

GENERAL RESPONSE NO. 10 – CLIMATE CHANGE/GREENHOUSE GASES

Several comments were received regarding the adequacy of the climate change analysis. Some commenters have expressed a general disbelief that the Lower Ortega

Highway project is a roadway improvement project and that it would not result in a significant impact to global climate change.

Regarding the global climate change analysis, there are currently no State or federal methodologies or thresholds applicable to this project for greenhouse gas (GHG) emissions. However, the amount of GHGs emitted by vehicles is affected by all the same factors as described above in Response to Comment #9. Table 2.5.2-2 in the EIR shows that the expected increase in regional traffic with and without the project will result in a very small increase in GHG emissions. This table does not attempt to include the effect of improvements in traffic flow. It is expected that the small increase shown in Table 2.5.2-2 overstates the actual change resulting from the project.

As stated in the Executive Summary section of the Air Quality Assessment Report and Section 2.2.6.3 of the EIR, "The proposed project will not generate new vehicular traffic trips since it will not construct new homes or businesses. However, there is a possibility that some traffic currently utilizing other routes would be attracted to use the improved facility, thus resulting in slight increases in vehicle miles traveled (VMT) within the region. However, it is not anticipated that the proposed project would result in any significant increase in regional vehicle emissions, including those that contribute to global warming/climate change."

Implementation of the proposed project would remove mature trees along SR-74. However, these trees will be replaced at a ratio of more than 2:1. In addition, a mature tree only removes 48 pounds of carbon dioxide (CO_2) per year,[1] or 0.13 pounds per day. This is very low compared to the 340,000,000 pounds of CO_2 generated per day in Southern California. Therefore, the removal and replacement of trees along SR-74 would have a less than significant impact on short-term, long-term, and cumulative global warming/climate change.

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[1] Source: McAliney, Mike. Arguments for Land Conservation: Documentation and Information Sources for Land Resources Protection, Trust for Public Land, Sacramento, CA, December, 1993.

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1.2 Comments from State Agencies

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1.2.1 Native American Heritage Commission

S-1-1

As described in Section 2.1.7 of the DEIR, a records search was completed and the results discussed in the DEIR.

S-1-2

As described in Section 2.1.7 of the DEIR, an archaeological survey was completed for this project. Results of the survey and consultation with the State Historic Preservation Officer (SHPO) have determined that the Manriquez Adobe archaeological site (Primary No. 30-176750), considered eligible for the National Register of Historic Places (National Register) and the California Register of Historical Resources (California Register) for this project only, will be protected from any potential effects with the establishment of an Environmentally Sensitive Area (ESA). Details are presented in the Archaeological Survey Report (ASR), which is included as Attachment 1 to the Historic Property Survey Report (HPSR) completed in January 2007.

S-1-3

As discussed in Section 2.1.7 of the DEIR, Native American consultation for the proposed project was completed by the Department District 12 Archaeologist. In 2001, representatives of the Juaneño Band of Mission Indians – Acjachemen Nation and the Juaneño Band of Mission Indians were contacted. In 2006, representatives of the Juaneño Band of Mission Indians – Acjachemen Nation, Juaneño Band of Mission Indians, and the Cahuilla Band of Mission Indians were contacted. In 2008, representatives of the Gabrielino Tongva Indians of California Tribal Council and the Juaneño Band of Mission Indians were contacted. Requests were made to keep the Native Americans informed as to project developments and construction finds, and offers were made to provide Native American monitors. Copies of all letters sent and received are provided in Attachment 1 of the ASR included in the January 2007 HPSR.

It is Department policy that if cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area must be diverted until a qualified archaeologist can assess the nature and significance of the find. NAHC's advice regarding the use of a Native American monitor to ensure

proper identification of and care given to cultural resources that may be discovered will be taken into consideration.

S-1-4

The DEIR includes avoidance and minimization measures in Section 2.1.7.4 addressing discovery of unknown buried resources during construction.

S-1-5

See Response to Comment S-1-3 regarding consultation with Native American representatives. Additionally, avoidance and minimization measures are included in the DEIR and all cultural technical reports regarding treatment of human remains encountered during construction activities.

S-1-6

See Response to Comment S-1-5 regarding treatment of human remains discovered during construction.

S-1-7

The Manriquez Adobe archaeological site is situated partially within the area of potential effects (APE). For this project only, the site has been determined eligible for listing in the National Register. However, the portion of the site that is within the APE is a noncontributing portion of the site, and as proposed, the project will result in no adverse effect to the site with the establishment of an ESA Action Plan. Details appear in Attachment 4 of the 2007 HPSR and Attachment 5 of the July 2008 Supplemental Historical Resources Compliance Report (SHRCR).

1.3 Comments from Regional/Local Agencies

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1.3.1 Sam Allevato–City of San Juan Capistrano City Council Member

L-1-1

The Councilman's comments regarding the project area being a "chokepoint" are acknowledged and will be considered as part of the decision-making process for the proposed project. The purpose of the proposed project is to alleviate traffic congestion and improve the LOS on SR-74 through the project limits. The improved LOS on SR-74 as a result of the proposed project are anticipated to facilitate travel for all users of this section of SR-74, including emergency services vehicles and students traveling within the project area.

A response to this comment is already included in the General Responses to Comments.

L-1-2

The Councilman's comments regarding safety concerns within the project area are acknowledged and will be considered as part of the decision-making process for the proposed project.

L-1-3

The Councilman's comments regarding incorporation of aesthetic treatments to reduce visual impacts and retain the scenic quality within the project area are acknowledged. Aesthetic treatments for sound walls and retaining walls, such as simulated rock surfaces and landscape plantings as a visual buffer, are being considered to screen views of the proposed walls. The final design concept for the aesthetic treatment (i.e., color, texture, construction materials, addition of foliage) of sound barriers and retaining walls will be determined during final design in coordination with the City.

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1.3.2 City of San Juan Capistrano

L-2-1

The comment is an introductory statement regarding the adequacy of the DEIR. See Responses to Comments L-2-2 through L-2-53, which provide specific responses to comments raised by the City. The City's request for recirculation of the DEIR is acknowledged. There have been no issues identified during the public review that would require recirculation of the DEIR.

L-2-2

There have been several stakeholder meetings between the Department and the City starting in 2004. For example, an informal agency scoping meeting was held on July 19, 2000. In addition Value Analysis (VA) Workshops were conducted on October 5, 2006, and October 10 through October 13, 2006. The purpose of the workshops was to focus on alternatives that would improve operations and safety, minimize impacts, and reduce costs, if possible. Please see Section 3.1.4, Public Agency Consultation and Coordination, for more information regarding these meetings. Based on these meetings and comments received during public review of the IS/with proposed MND, a second alternative (Alternative 2) was evaluated within the DEIR. Please see General Response No. 1, Visual Impacts, regarding the potential visual impact of the project and regarding the SR-74 Scenic Landscape Corridor.

L-2-3

The project description provided in Section 1.4 of the DEIR is adequate to provide reviewers with an understanding of the project components. Each of the bullet points in Comment L-2-3 is addressed below:

- **Timing of Construction.** The project does not include nighttime construction.
- **Sound Walls.** The sound walls have been included as a project design feature to address concerns raised by the City and the local residents. The Department is committed to constructing the sound walls as long as they are acceptable to the community.
- **Noise Barrier Construction.** Two design variations for the noise barriers have been identified, along with the construction materials to be used in these two designs described in Section 1.5.1.8 of the DEIR. The design of each barrier type

is shown in Figure 1-5 and depicted in the visual simulations provided in Figures 2.1.6-9 and 2.1.6-10.

- **Timing of Noise Barrier Construction.** Noise barriers would be constructed during the construction phase of the project and would be operational at project opening.
- **Retaining Wall Types/Heights.** The retaining walls would be constructed using concrete, as shown in Figures 2.1.6.-8 and 2.1.6-11. As discussed in Section 2.1.6.6, aesthetic treatment of the walls will be developed in consultation with the City. A range of wall heights is provided since the actual height of the retaining walls is dependent on the elevation of the existing ground surface at the foot of the walls and the adjacent topography.
- **Retaining Wall/Noise Barrier Endpoints.** The design of the endpoints of the sound walls and retaining walls will be finalized during the design phase of the project and is not known at this time.
- **Undergrounding of Utilities.** See General Response No. 5, Project Description, regarding the undergrounding of existing aboveground utilities.
- **Landscaping.** As described in Section 2.1.6.6, the landscape palette will include trees, shrubs, ground cover, and vines (primarily native and/or drought-tolerant). The landscape palette would be developed in consultation with the City.
- **Tree Replacement.** See General Response No. 1, Visual Impacts, regarding tree removal/replacement.
- **Staging.** Construction staging is addressed in Section 1.5.1.12 of the DEIR.
- **Grading.** Cut-and-fill for the project is discussed in Section 1.5.1.5 of the DEIR. The environmental process is generally conducted based on preliminary project design. Therefore, the amounts of grading and cut and fill are not known at this time and will be determined during final design.
- **Northerly Driveways.** Refer to General Response No. 5, Project Description, regarding private driveway modifications.

The project description outlined in Section 1.5 of the DEIR provides adequate information related to the design features of the project to provide reviewers with an adequate understanding of the proposed project and alternatives under consideration. As described above, the DEIR discusses each of the items identified by the City.

L-2-4

Please see Responses to Comments L-2-5 through L-2-61.

L-2-5

The DEIR states that significant impacts would result upon project implementation. In particular, impacts pertaining to increased hardscape and the change in character/ quality at the project site would be significant. Mitigation measures have been recommended to reduce the appearance of hardscape and to include specific architectural treatments for proposed structures in order to create a character/quality similar to the project area. Although the recommended mitigation measures would work to reduce these impacts, visual impacts within the viewsheds along the project would remain significant and unavoidable. Per CEQA Guidelines Section 15126.4(a), "...measures may specify performance standards, which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." Multiple mitigation measures recommended in the DEIR state generally what types of architectural treatments may be used, with a goal of reducing a particular impact. Therefore, specific performance standards (i.e., reducing the appearance of hardscape, reducing potential light and glare) are effective for mitigating significant effects, which may be accomplished in more than one way.

Per CEQA Guidelines Section 15093(b), "When the lead agency approves a project, which will result in the occurrence of significant effects, which are identified in the final EIR but are not avoided or substantially lessened, the agency shall state in writing the specific reasons to support is action based on the final EIR and/or other information in the record." As stated in Section 1.5.4 of the DEIR, the Department will provide, in writing, a statement of overriding considerations with regard to long-term visual impacts for the project.

Also, please refer to General Response No. 1, Visual Impacts.

L-2-6

Key View Selection Process

A viewshed analysis was performed for the proposed project, as provided in Section C, Project Viewshed, of the Visual Impact Assessment (RBF 2008). A viewshed is a subset of a landscape unit and comprises all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the proposed project. The viewshed also includes the locations of viewers likely to be affected by visual changes brought about by project features.

The majority of views of the project site include those from the westbound and eastbound travel lanes of SR-74, as well as limited views from hillside residential dwelling units (to the north and south of San Juan Creek) that are located within the canyon; refer to Figure 4 (Viewshed Map) in the Visual Impact Assessment. Views from the adjoining urban, rural, and agricultural development in the project area exist. Based upon a site visit conducted on March 24, 2008, the majority of views of the project area are from residents immediately adjacent to and other land uses to the north and south of the project site. Existing topography, structures, and landscaping/ vegetation screen views from other uses located farther away from the project area.

Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a number of Key Views that would most clearly display the visual effects of the project from publicly accessible areas. Key Views also represent the primary viewer groups that would potentially be affected by the project. Preliminary Key View locations were selected in consultation with Department staff prior to conducting the site reconnaissance. During site reconnaissance, the Key View locations were verified as the existing viewshed, and sensitive viewer groups represented by each selected Key View were identified in order to determine the most representative locations that would portray the project's visual impacts from publicly accessible locations throughout the project site. Upon site reconnaissance, Department staff verified that public views toward the project site from sensitive uses were limited and that the potential for visual change along the project site is most severe along SR-74 (as represented by travelers along SR-74). Views from pedestrian and equestrian users were analyzed, as represented by Key Views 1 and 3.

CEQA does not require an EIR to provide photo simulations of a project from every available public view. Key Views were selected, in consultation with the District Landscape Architect, from publicly accessible areas along the project site that represent sensitive uses and the greatest areas of potential visible change. The following viewpoints were not selected as a result of the following.

Adjacent Streets. Viewpoints along publicly accessible neighborhood streets to the north and south of SR-74 would have limited views toward project features (i.e., sound walls and retaining walls), and therefore would not have significant visible changes.

Eastbound from Key View 1. A viewpoint in the vicinity of Key View 1, looking eastbound, was not selected, as the proposed widening would take place to the north of SR-74 in this area. No trees would be removed to the south of SR-74 in the vicinity of Key View 1. Therefore, Key View 1, looking westbound, represents the greatest potential visible change in this area from sensitive viewers.

View from South Side Residents' Perspective. As stated above, Key Views are intended to represent publicly accessible areas. CEQA does not require visual impacts to be analyzed from private views. Refer to the Adjacent Streets analysis provided above.

Closer View of Entrance to the Fruit Stand. The intent of Key Views is to represent typical public views toward project features. Most views within this portion of the project site are from local commuters and other drivers using SR-74. These viewers are usually traveling at high speeds (approximately 35 mph) along SR-74. These viewers would experience a narrower cone of vision than a typical viewer, and the views would be for a shorter duration of time. Therefore, a close view to the entrance of the fruit stand would not represent a typical public view, as seen by the majority of viewers along this portion of the project site.

View Simulations from the Hunt Club. A specific Key View from a publicly accessible area at the Hunt Club, looking south toward the project site, would not represent the greatest possible change along this portion of the project site. The project would not widen SR-74 to the south in this area, and the proposed wall features to the north would not be readily visible to these sensitive users. However, it should be noted that pedestrian and equestrian users would have visible impacts from project implementation, as represented by Key View 1.

Residents from the North Side of SR-74. The majority of residents to the north of SR-74, whose properties do not adjoin the project, would have minimal views due to existing topography and intervening vegetation. As stated above, Key Views are intended to represent publicly accessible areas. CEQA does not require visual impacts to be analyzed from private views. Refer to the Adjacent Streets analysis provided above.

A response to this comment is already included in the General Responses to Comments.

L-2-7

The following provides a discussion of the differences in severity of impacts between Key Views 1 and 2.

Key View 1

As stated on page 27 of the DEIR, Key View 1 would result in a moderate to moderately high change to character/quality and a high viewer response to that change for both Alternatives 1 and 2. Both Build Alternatives would include removal of the existing sidewalk and ornamental landscaping and replacement with proposed roadway, curb and gutter, and ornamental landscaping (see Figure 2.1.6-7). Both alternatives would also remove mature trees and the existing meandering sidewalk, which currently contributes to a rural landscape within this suburban setting. However, implementation of Alternative 2 would replace the sidewalk with a meandering sidewalk. In addition, Alternative 2 would include two additional retaining wall structures (approximately 3–5 ft in height). Therefore, although Alternative 2 would replace the sidewalk on the north side of SR-74 between Calle Entradero and Hunt Club Drive, Alternative 2 increases the developed appearance of the site and would change the rural/suburban landscape to a more suburban landscape.

Implementation of the measures outlined below in Section 2.1.6.6 that require landscaping and aesthetic enhancements would enhance pedestrian and driver environment and reduce the appearance of hardscape. Please refer to Mitigation Measure V-1, Section 2.1.6.6.

With implementation of the recommended mitigation measures, the impacts associated with the replacement sidewalk (Alternative 2) would be reduced. Additionally, recommended mitigation for both Alternatives 1 and 2 would enhance the pedestrian- and driver-scale environment and reduce the appearance of hardscape. However, although these mitigation measures would reduce the moderate to moderately high visual impacts, the high viewer awareness of these impacts would result in a moderately high visual impact. Therefore, the visible change in character/ quality at Key View 1 would remain moderately high for Alternatives 1 and 2.

Key View 2

As stated on page 27 of the DEIR, Key View 2 would result in a moderately high change to character/quality and a moderately high viewer response to that change for both Alternatives 1 and 2. Changes would include an increase in hardscape features

(three retaining walls ranging from 2 to 20 ft in height, curb and gutter, and the widened roadway) and removal of roadside vegetation adjacent to residents (see Figure 2.1.6-8). The proposed retaining walls would increase the dominance of hardscape features and result in increased light reflectivity from the additional concrete. Implementation of the measures outlined in Section 2.1.6 pertaining to landscaping (i.e., replacement of ornamental landscaping) and aesthetic enhancement applied to the retaining walls would enhance the pedestrian- and driver-scale environment and reduce the appearance of hardscape. The proposed planting and aesthetic treatments would reduce the possibility of adverse visual impacts and maintain the rural character of the community. Therefore, with a reduction in the visible hardscape and maintenance of the rural character of the community, impacts in this regard would be reduced to less than significant for Alternatives 1 and 2.

As stated on page 27 of the DEIR, the severity of the visible hardscape impacts from the noise barrier would vary depending on what architectural treatments are implemented. The visible encroachment would be greater with the decorative Sound Fighter® wall (moderately high) than with the Plexiglas® noise barrier (moderate). Implementation of mitigation would require the installation of landscaping that is compatible with the existing landscaping along proposed wall features and adjoining hillsides. New landscaping would include trees (where feasible), shrub/groundcover mass planting, and vines on opaque sound walls and/or retaining walls to soften the hardscape features and reduce the adverse environmental impacts (such as glare and radiant heat). Also, to maintain consistency with the existing infrastructure (i.e., walls, sidewalks) in the project area, architectural treatments for the structural elements of the project would be implemented. With implementation of the measures described in Section 2.1.6.6, visible impacts from opaque wall structures would be reduced.

A response to this comment is already included in the General Responses to Comments.

L-2-8

See General Response No. 1, Visual Impacts, with regard to SR-74 as a designated eligible State Scenic Highway.

A response to this comment is already included in the General Responses to Comments.

L-2-9

See General Response No. 1, Visual Impacts, regarding graffiti on the proposed sound and retaining walls.

A response to this comment is already included in the General Responses to Comments.

L-2-10

The proposed project would not include new street lighting or signalized intersections. Portions of the project site that have existing street lighting would require the relocation of those light fixtures within the new ROW. Relocation of the street lights would not create new sources of light and glare, nor would they direct lighting onto sensitive uses. The project would also be required to be consistent with the City's standards for Street Lighting (Municipal Code, Title 7, Chapter 7). Therefore, impacts associated with the replacement of existing lighting are less than significant.

The widening of the roadway would not create new sources of light and glare. The project area already has sources of lighting from vehicle headlights along SR-74. Project implementation would not result in an increase in visible headlights. Also, the majority of the project would widen SR-74 to the north. Existing sloping topography to the north of SR-74 and intervening vegetation screen the majority of public views toward vehicle headlights. Impacts associated with vehicle headlights are considered less than significant.

The proposed Plexiglas® sound walls would be built on steel beams immediately in front of the existing garden walls and would have precast panels at the bottom of the glass wall. Therefore, the first 5 ft of wall (from ground level up) would consist of an opaque material, and the remainder of the wall would be a translucent material. The vehicle headlights would reflect off the lower portions of the wall. Also, large trees along the proposed sound walls would mostly remain in place upon project implementation and would further reduce the potential for light reflectivity along the Plexiglas® portions of the sound walls. Therefore, impacts associated with reflection of vehicle headlights off the Plexiglas® walls are less than significant.

A response to this comment is already included in the General Responses to Comments.

L-2-11

The existing landscape within the vicinity of the proposed sound wall features is currently heavily landscaped, and an existing wall is present. The existing landscaping consists of large mature trees that are greater than 16 ft in height. The new sound walls may cast new shadows, as compared to existing conditions. However, these shadows would only occur during certain times of the year in the morning and evening hours, as the sun rises and sets. Upon implementation of the project, the new sound walls would not contribute significantly to additional shadowing, as compared to the existing condition, and impacts in this regard are considered less than significant.

A response to this comment is already included in the General Responses to Comments.

L-2-12

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-13

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-14

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-15

The asphalt batch plant is located beyond the limits of the project and is not part of the project. Therefore, analysis of potential noise impacts from the asphalt batch plant is not required. Also, see General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-16

The "projected construction traffic" refers to the predicted traffic volumes associated with construction of the project. Construction traffic volumes would be minimal when

compared to the existing traffic volumes on Ortega Highway and other affected streets, and the associated noise level change will not be perceptible. Over a period of time, the change in traffic noise from project construction vehicles would not be perceptible. Construction noise impacts were not analyzed for 2035.

L-2-17

The threshold for groundborne vibrations related to construction activities is the potential to damage buildings. Perceptible groundborne vibration related to construction is considered a community annoyance and is not considered significant. Vibration levels of 0.098 and 0.268 peak particle velocity (PPV) (inches per second [in/sec]) are well below the vibration threshold that would damage nearby buildings. Therefore, construction-related groundborne vibration is considered within acceptable ranges. In addition, potential vibration impacts were thoroughly addressed in the DEIR and the noise study. Also, see General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-18

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-19

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

L-2-20

Sound barriers are included in the project design as community enhancements and are not required as mitigation for potentially significant noise impacts. The Department is not requesting that the City finance project mitigation measures.

First, noise impacts fall under noise abatement, not mitigation, and noise abatement for the project is addressed by the sound walls proposed as part of the project. Second, generally sound walls provided as part of a project are the Department's standard design (e.g., standard masonry block walls), which is generally adequate for noise abatement purposes. The local jurisdiction and/or residents of the project area may request consideration of additional wall improvements beyond the standard Department sound wall design (e.g., Plexiglas® or Sound Fighter® sound walls).

L-2-21

The Department's Protocol does not require the analysis of reflective noise. Regarding reflective noise, please see General Response No. 7, Increase in Noise/Noise Analysis regarding noise impacts.

L-2-22

This is an introductory paragraph. See Responses to Comments L-2-23 through L-2-26, which specifically address the traffic issues raised by the commenter.

L-2-23

The traffic analysis included in the DEIR shows that traffic volume increases by 2035 would not exacerbate traffic congestion, but instead would relieve congestion by reducing the queuing at merge sections (from two lanes in each direction to one lane in each direction) and decreasing the period of time for which the highway is congested. Based on the analysis, in the future (i.e., 2035), if the project is not implemented, the vehicles traveling along SR-74 will experience longer queues (vehicles stacking up for a longer distance) and longer waiting periods for the queues to dissipate during the peak hours. After implementation of the widening project, these queues and waiting periods will be reduced due to the increase in capacity (one additional lane in each direction).

The impacts due to the increase in future 2035 traffic at the I-5/Ortega Highway interchange are not a result of the proposed widening project. The increase in traffic is a result of proposed future development in the region. The widening project does not generate traffic, and Section 2.1.2 of the DEIR analyzes the growth-inducing impacts of the proposed project, which are minimal. The proposed widening of SR-74 from two lanes to four lanes increases its capacity and thus makes this facility more attractive for drivers who have the option of taking a different route to travel from one point to another. Hence, due to the increased attractiveness of this section of SR-74, the traffic using this facility will increase. This traffic is not attributed to any growth in the region but is a result of changes in travel patterns of the users. The Traffic Study analyzes the impact of this increased traffic on the proposed project area and concludes that the impacts are minimal. Hence, based on traffic forecasting, the conditioning of the project should not be based on the prior implementation of the interchange project.

A multimodal alternative is discussed in Section 1.5.4.3 of the DEIR. Based on the current OCTA bus system map, there are no existing bus routes on SR-74. Pedestrian and bicycle facilities are discussed in Section 1.5.1.3 of the DEIR. Please refer to General Response No. 3, Need for Bicycle Facilities, for additional information on this subject.

L-2-24

Currently, Ortega Highway is a four-lane facility from I-5 to Calle Entradero. The section of Ortega Highway between La Novia Avenue and Calle Entradero is a four-lane facility without any pedestrian crossings and has four unsignalized intersections. The widening project proposes to continue the same characteristics of the roadway from Calle Entradero to the City limits. Note that the widening project provides for sidewalks (one on each side) on the highway. The highway is a State facility, and this section of SR-74 is not designated as a school route by the National Center for Safe Routes to School, maintained by the University of North Carolina Highway Safety Research Center with funding from the United States Department of Transportation FHWA. Therefore, compliance with the FHWA's "Safe Route to School Program" is not applicable.

None of the analyzed intersections within project limits warrant a traffic signal based on the traffic volume (see General Response No. 2, Traffic Signal/Pedestrian Crossing). The proposed widening project does not encourage the need to make an "indirect left turn" (a right turn followed by a U-turn), but presents it as an alternative for vehicles that experience a high delay at a stop-controlled intersection along Ortega Highway. A similar situation currently exists along the existing four-lane section of Ortega Highway between La Novia Avenue and Calle Entradero, where U-turns are not prohibited at any of the existing unsignalized intersections. Because the proposed widening project does not encourage the need to make an "indirect left turn," a detailed analysis of the requirements for U-turns has not been performed. Additionally, all lane widths have been designed to Department standards, allowing adequate area for U-turns by automobiles.

Even though the traffic analysis presented in the DEIR shows high delays on side streets at unsignalized intersections along Ortega Highway, a signal is not warranted at these locations. The side street volumes are very low (much lower than the minimum requirement of 75 peak-hour vehicles) and do not warrant a traffic signal based on peak-hour volume.

The Minagar analysis does not provide a source for the 2030 future volumes for analyzing the signal warrants. Also the side street volume on Via Cordova and Avenida Siega increases from the existing conditions (which are very low) to future 2030 conditions even though the communities that these streets serve are completely built out. Because the communities served by Via Cordova and Avenida Siega are completely built out, the side street volume will not increase from existing conditions to 2030. Therefore, it cannot be assumed that the side street volumes at the intersections of Via Cordova/Ortega Highway and Avenida Siega/Ortega Highway would increase in the future (2030) conditions and thus warrant a signal at these locations.

L-2-25

The proposed widening project does not encourage the need to make an "indirect left turn," but presents it as an alternative for vehicles that experience high delay at a stop-controlled intersection along Ortega Highway. A similar situation currently exists along the existing four-lane section of Ortega Highway between La Novia Avenue and Calle Entradero, which does not prohibit U-turns at any of the existing unsignalized intersections. Since the proposed widening project does not encourage the need to make an "indirect left turn," a detailed analysis of the requirements for U-turns has not been performed.

L-2-26

The traffic analysis utilized the SCSAM, which is derived from OCTAM, Version 3.1. The SCSAM has undergone certification by the OCTA and is consistent with the subarea modeling guidelines established by that agency. The local traffic model used in the City's Strategic Transportation Plan is based on OCTAM Version 3.1.

The future regional growth is not overestimated, and is in fact based on OCP-2004 (which includes the Ranch Plan) demographic projections (used in the traffic model) for Orange County and General Plan land use build out for the Cities of Mission Viejo, San Juan Capistrano, and Laguna Niguel, and the communities of Las Flores and Ladera Ranch.

Future planned and funded roadway improvements and extensions were included in the traffic analysis for the future scenarios. These included the MPAH additions, such as La Pata Avenue, and southward expansion of SR-241 along the adopted alignment. As a conservative approach, future roadway extensions that were not funded, such as

San Juan Creek Road and Camino Las Ramblas to La Pata Avenue, were not included in the analysis. Additionally, the future northward extension of Alipaz Street in the City was not included. Based on assumptions for the traffic analysis, existing traffic volume data, intersection geometrics, and percent truck volumes are all included in the Traffic Study.

The layout of the Ortega Highway widening project does not propose moving the existing curb along the northern edge at the intersection with Hunts Club Drive. Hence, the existing distance of 110 ft will be maintained with implementation of the proposed widening project. Therefore, implementation of the project will not result in a distance between the gates along Hunts Club Drive and the edge of pavement or curb line along Ortega Highway that violates the County of Orange Standard Plans, which require a minimum distance of 100 ft.

L-2-27

According to California planning law, as referenced in Chapter 4, Required Elements of a General Plan, of the General Plan Guidelines, and as noted in every element of the City's General Plan, each element of a General Plan must be independent from but also consistent with the other elements of the General Plan. Consistency between the Circulation and Land Use Elements is extremely important, as noted on page 5 of the City Circulation Element, since the circulation system identified in the Circulation Element is determined by the planned development identified in the Land Use Element.

As noted in the comment, the Circulation Element identifies the portion of SR-74 within the study area as a Primary Arterial (four-lane divided roadway) from Camino Capistrano to the easterly City boundary (Figure C-2), and the widening to four lanes from Via Cordova to the eastern limits is identified in Table C-6.

Land Use Goal 7 focuses on maintaining neighborhood character, and the policies associated with this goal focus on minimizing the effects of new development on existing neighborhoods. SR-74 is an existing facility within the study area. The design of the project has been developed in consultation with the Project Development Team (which includes the City), and compatibility with the local residential uses and the existing character is taken into consideration. Given the limited ROW within the project area, retaining walls have been included in the project design to limit the number of additional properties to 10 sliver acquisitions. Construction of the proposed project without retaining walls would have required use

of a larger amount of private property from adjacent residences and would have required partial and/or full acquisitions of property. This increased level of property acquisition would have had greater impacts on the neighborhood/community character and cohesion than the Build Alternatives under evaluation. Additionally, the Department has committed to provisions of noise barriers along the south side of the roadway and appropriate aesthetic treatments that will be coordinated with the City and that further minimize the effects on neighborhood character. The current design incorporates features that limit impacts to neighborhood character and therefore is considered consistent with Goal 7.

Land Use Goal 2, and specifically Policy 2.2, relate directly to controlling and directing growth so that community character is preserved. Given that the proposed project addresses existing congestion and future congestion associated with planned development identified in Land Use Element, the proposed improvements are consistent with Goal 2 and Policy 2.2.

The proposed project is consistent with Conservation and Open Space Goal 4. There are no uses designated for historic or conservation preservation or public safety purposes. SR-74 is designated as a Scenic Corridor in the City's General Plan. See General Response No. 1, Visual Impacts, regarding the proposed project's compliance with the Scenic Corridor design criteria. Given that the roadway design complies with the Scenic Corridor design criteria, the proposed project is consistent with this goal.

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for pedestrian, bicycle, and equestrian crossings and bicycle facilities. The proposed project is consistent with Circulation Goal 4 (minimize the conflict among automobiles, commercial vehicles, pedestrians, horses, and bicycles) since Alternative 2 provides sidewalks within landscaped areas to the north and south and on-road bicycle lanes in each direction, and since it maintains the existing southerly sidewalk. See Responses to Comments L-2-14 and L-2-19 regarding noise.

L-2-28

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding equestrian crossings.

L-2-29

See General Response No. 3, Need for Bicycle Facilities.

L-2-30

See General Response No. 1, Visual Impacts, regarding tree removal and replacement. Please refer to Mitigation Measure V-1 in the FEIR, which states the following:

> Trees, including coast live oak trees, that are removed as a result of the proposed project will be replaced by the California Department of Transportation (Department) at a minimum 2:1 ratio in accordance with Chapter 29 of the Project Development Procedures Manual for Replacement Highway Planting Policy or the Department's Landscape Architecture Program with General Highway Planting Policy, within the project limits or in suitable locations within the project area or the region. It is recommended that trees be replaced with native species.

L-2-31

The comment is correct in stating that a batch plant for asphalt concrete will be required for the proposed project. The comment is also correct in stating that the batch plant will be required to adhere to Department Standard Specifications Section 39-3.06 limiting the emissions generated by asphalt concrete plants. However, the comment is incorrect in stating that the batch plant will be located within a predominantly residential area. The batch plant will be located beyond the limits of the project and is not part of the project; therefore, no additional measures will be required.

L-2-32

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding growth, and General Response No. 9, Air Quality Degradation, regarding air quality. The widening project does not generate traffic, and Section 2.1.2 of the DEIR analyzes the growth-inducing impacts of the proposed project, which are minimal. Hence, the DEIR acknowledges that there will be growth-inducing impacts (as seen in the air quality analysis) that have been analyzed and that these impacts would be minimal. The existing volume along SR-74 is approaching capacity for a facility that has one lane in each direction. Based on future projections, the 2035 volumes would exceed the capacity of one lane in each direction. Adding one lane in each direction (the proposed widening project) would double the facility's existing capacity. There are

no other feasible intermediate alternatives, such as adding half a lane in each direction, that would allow design of a facility without excess capacity.

L-2-33

Although there may be other projects within the project area that would be under construction at the same time as the proposed project, compliance with the City's noise ordinance from all projects within the area would reduce cumulative construction noise impacts to a less than significant level. With regard to construction, see General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

Build Alternatives 1 and 2 would increase the impervious area at the project site, which would increase surface runoff that would have the potential to more effectively transport pollutants into San Juan Creek. However, as discussed in Section 2.2.2.4, the Department's Storm Water Management Plan (SWMP) requires incorporation of all necessary best management practices (BMPs) to meet permit requirements. Lower SR-74 currently does not have any treatment BMPs in place. Treatment BMPs would be designed to treat the runoff from the widening of the roadway as well as the existing pavement to the Maximum Extent Practicable (MEP) per the Department National Pollutant Discharge Elimination System (NPDES) permit requirements. Preliminary project design includes biofiltration swales, which target roadway pollutants, including total suspended solids, metals, and trash. Therefore, the potential increase in pollutant loading from motor vehicle discharges and the increased runoff would be offset by the inclusion of BMPs that treat runoff. The receiving water for the proposed project, San Juan Creek, is impaired for bacterial indicators. However, roadways are not a source of pathogens, including bacteria; therefore, the proposed project would not contribute to the existing impairment. For these reasons, water quality impacts are not considered to be cumulatively considerable.

L-2-34

The City's comment that the DEIR include deferred mitigation is acknowledged. The DEIR includes mitigation measures for potentially significant visual and noise impacts. These mitigation measures are included in the Minimization and Mitigation Summary (Appendix B of the DEIR). Text has been added to Section 2, Introduction, which describes the Department's responsibility in implementing and monitoring the measures identified in Appendix B to meet the requirements of Section 15126.4 of the CEQA Guidelines.

L-2-35

Please see Response to Comment L-2-34.

L-2-36

See General Response No. 1, Visual Impacts.

L-2-37

See General Response No. 5, Project Description, regarding utilities. As stated in Section 1.5.1.10, all utilities, such as power, gas, sewer, and telephone lines, impacted by this project will be relocated or replaced in kind within the project limits. Undergrounding of utilities would be considered, where feasible, to further reduce visual impacts; however, undergrounding of utilities is contingent upon many factors. Given the uncertainty of the feasibility of undergrounding, the impact analysis and its conclusions do not rely on the undergrounding of utilities to reduce potential visual impacts.

L-2-38

Per DEIR Section 10.0, Dust Control; Section 16-1.02, Preservation of Property; Section 16-1.03, Construction; Section 16-1.04, Removal and Disposal of Materials; and Section 7-1.13, Disposal of Materials Outside the Highway Right of Way, the project would be required to implement specific measures that would minimize potential visual impacts. As directed by the Engineer, certain shade and ornamental trees and plants shall be preserved (as specified). Those trees and plants shall be fully protected from injury by the Contractor at the Contractor's expense. Trees shall be felled in such a manner as not to damage standing trees, plants, and improvements that are to be preserved. Also, materials removed shall be disposed of at locations not visible from the roadway. The roadway and adjacent areas shall be left with a neat and finished appearance.

L-2-39

A Traffic Management Plan (TMP), a standard condition placed on all construction projects, is designed to minimize construction activity-related motorist delays, queuing, and accidents by the effective application of traditional traffic-handling practices and innovative approaches. It is not necessary to include the TMP in this

phase of the planning process; the TMP is generally developed during the design phase of the project.

L-2-40

The Storm Water Pollution Prevention Plan (SWPPP) will be implemented during the construction phase of the project. As discussed in Section 2.2.4 of the DEIR, the SWPPP will address all water control regulatory requirements. The NPDES permit requirements approved by the State Water Resources Control Board (SWRCB), which necessitate implementation of a SWPPP, were approved based on their ability to prevent significant impacts to water quality. The NPDES permit is periodically updated with new requirements. The proposed project would comply with the current permit requirements. Refer to Response No. L-2-33 regarding runoff after construction. There are no mitigation measures identified in the DEIR; therefore, the commenter's statements regarding deferral of mitigation are not relevant.

L-2-41

The potential for dewatering during construction activities was acknowledged in the DEIR, and compliance with appropriate NPDES requirements was identified. Dewatering of groundwater is regulated by the Regional Water Quality Control Board (RWQCB). Specific limits on concentrations of pollutants are set forth as part of the permit application review and approval. Treatment of groundwater prior to discharge may be required. Determination of whether or not groundwater dewatering is required does not change the permit requirements that would apply to the project because any contaminated water would need to be treated prior to discharge. There are no mitigation measures identified in the DEIR; therefore, the commenter's statements regarding deferral of mitigation are not relevant.

L-2-42

The final roadway limits will not be determined until the final design phase of the project. Therefore, the Final Geotechnical/Structures Design Report for the project cannot be prepared until after the final roadway limits are determined. As stated in Section 2.2.3.4, liquefaction is known as an existing potential concern in certain areas within the project limits. Therefore, the project shall include deepened foundations and/or increased depth of piles as needed. The DEIR does not indentify any potentially significant geological/soil impacts that require mitigation, and no mitigation measures have been identified. Given that there are no mitigation measures

identified in the DEIR, the commenter's statements regarding deferral of mitigation are not relevant.

L-2-43

See General Response No. 5, Project Description, for a discussion of the alternatives.

L-2-44

See General Response No. 5, Project Description, regarding the alternatives considered.

L-2-45

See General Response No. 5, Project Description, for a discussion of the alternatives, including the State Route 73 (SR-73) Extension.

L-2-46

The FHWA has designated 13 controlling criteria as being of primary importance for highway safety, 12 of which are designated as Department Mandatory standards. The 12 ft lane width and 8 ft shoulder width are standards that are Mandatory.

Exceptions can be made to Mandatory standards but not without sound justification and the approval of the Department Headquarters Design Coordinator.

For the Ortega Highway widening project, an exception was made to minimize environmental ROW impacts by reducing the shoulder width from 8 ft to 5 ft. A width of 5 ft would still allow for bicycles, disabled vehicles, and pedestrians in areas without a sidewalk. Further reduction in the shoulder width and reduction in the lane width would compromise the safety and the capacity of the highway.

L-2-47

See Responses to Comments L-2-48 through 51, which address the additional mitigation requested by the City.

L-2-48

See General Response No. 1, Visual Impacts. A raised median requires a left shoulder, which requires more ROW. Therefore, a raised median was not considered.

With regard to proposed architectural treatments (i.e., rolled curbs) to maintain consistency with the existing infrastructure (i.e., walls, sidewalks) in the project area, architectural treatments for the structural elements of the project shall be determined in consultation with the Department District Landscape Architect and the City during the PS&E phase (Mitigation Measure V-2). This comment will be considered by the decision makers. Also, theme elements shall be determined in consultation with the Department District Landscape Architect and the City during the PS&E phase (Mitigation Measure V-3). This comment pertaining to the inclusion of rolled-up curbs and terraced retaining walls will be considered by the Department as part of the final design.

L-2-49

See General Comment No. 7, Increase in Noise/Noise Analysis.

L-2-50

Thank you for the suggestion to use rubberized asphalt. The use of rubberized asphalt is not required under the Department's Protocol. However, the Department may consider the use of rubberized asphalt to reduce traffic noise.

L-2-51

The Department does not have a mechanism to artificially constrain the future size of a transportation facility. Construction of the proposed project is consistent with the size of the facility identified on the MPAH, is consistent with the Circulation Element of the City of San Juan Capistrano General Plan, and is also consistent with the Route Concept Report approved February 1986. For the segment of Post Mile (PM) 0.5 to PM 4.6, the Route Concept Report recommends adding one lane in each direction to provide a four-lane conventional highway. OCTA is responsible for maintaining the MPAH. An upgrade in the MPAH classification of SR-74 within the project limits would require an amendment to the MPAH in coordination with the City and OCTA. The Department's existing SR-74 ROW within the project limits and the future ROW with the proposed project would not accommodate a six-lane facility. Any future proposal to expand this facility beyond four lanes would need to be coordinated with the City and OCTA, and additional project planning and environmental analysis would need to be conducted.

L-2-52

See Responses to Comments L-2-43 through L-2-46 and General Response No. 5, Project Description, regarding the range of alternatives, and Responses to Comments L-2-47 through 51 regarding additional mitigation measures requested by the City. No new feasible alternatives or mitigation measures have been identified by the Department that would require recirculation of the DEIR.

L-2-53

The City's comments regarding adequacy of the project description, mitigation measures, and alternatives analysis is acknowledged. See Responses to Comments L-2-3 through L-2-52, which respond these comments. No new significant impacts or substantial increase in the severity of an impact have been identified, and no feasible alternatives or mitigation measures that would lessen the significant impacts have been identified. Additionally, the project description provided in the DEIR was adequate to provide reviewers a meaningful document for review. Pursuant to Section 15088.5, given the above conclusions, recirculation of the document would not be required.

L-2-54

Refer to Response to Comment L-2-6 and General Response No. 1, Visual Impacts.

L-2-55

Refer to Response to Comment L-2-6 pertaining to methodologies for Key View selection. The following viewers were included in the analysis.

SR-74 Travelers. Many drivers commute from Riverside to south Orange County via SR-74 every day. The existing ADT and peak-hour volumes within the project limits on SR-74 (both directions) were approximately 25,000 and 2,430 vph, respectively, for 2008.

Daily commuters have an increased awareness of views from the road due to the unique transition from a rural to a suburban landscape. Drivers traveling along the project site would likely perceive detailed views of the proposed features. Passengers have a heightened awareness of a wide range of views.

Community Residents. Numerous residents live near the project area, some of whom have long-duration middleground views of SR-74. Structures, landscaping, and/or slopes currently screen most views of SR-74 from residents.

Based on the General Plan, as previously discussed, residents are concerned with their community's sense of place, pedestrian-scale development, and preservation and enhancement of the City's natural features, scenic transportation corridors, and important viewsheds. As a result, residents are likely to have a high concern for the project and its effect on views from their homes and neighborhoods.

Local Street Users. Many bicyclists and pedestrians using SR-74 each day have moderate duration views of the project site. There are a few frontage streets that have direct and indirect views of the project. Local street users would have a high awareness of the project.

Recreation Uses. Horseback riders who utilize the adjoining equestrian trail would have foreground and middleground views of the project site for longer periods of time.

These recreation users may be concerned about the appearance of the project. The equestrian trail users would have an acute awareness of the proposed project features. Horseback riders would have a moderate degree of concern about the effect of the proposed roadway widening on their riding experience.

It should be noted that CEQA does not require that visual impacts be analyzed for private residences, but rather that public views be analyzed. Also, the Visual Impact Assessment analyzed the worst-case scenario for the project with regard to wall heights and cut-and-slope activities, as proposed.

All of the above-referenced sensitive viewers were considered in the Key View selection process and the analysis within the Visual Impact Assessment conducted for the project. The Visual Impact Assessment also analyzes the project's worst-case scenario for proposed grading activities. Key Views not only represent commuters, but also pedestrians, equestrians, and bicyclists. It should be noted that the eastern portion of the project site cannot be accessed by pedestrians, equestrians, and bicyclists, as sidewalks and bike lanes are currently not available.

L-2-56

Photosimulation Methodology

As part of the Visual Impact Assessment, the project site was visited to take photographs and make observations from viewpoints that were selected in consultation with the Department Landscape Architect. The camera locations were recorded utilizing global positioning system (GPS) equipment. Primary photographs were taken using a used the Fuji G-617 Panoramic camera with a 1:8/105-millimeter lens that yields an accurate representation of human visual perception. A backup Nikon D1X digital camera with a fixed 50-millimeter lens was also used.

The visual simulation specialist created a three-dimensional wire frame model using computer-aided design and drafting (CADD) files. Imaging software was used to align the computer model to the site photographs. The computer model was then superimposed over photographs from each of the viewpoints, and minor camera alignment changes were made to all known reference points within view. Foreground masking of objects was performed with Adobe Photoshop to enhance realism.

The selected Key Views represent the areas of greatest visible change (i.e., landform, vegetation, and new structures). As discussed above, the visual simulation specialist utilized CADD files for the project to construct a three-dimensional computer model that includes proposed cut of slope and areas of fill. This computer model was then superimposed onto each Key View photograph, thus illustrating the extent of the proposed grading activities.

L-2-57

See General Response No. 1, Visual Impacts.

L-2-58

As stated on page 17 of the DEIR, temporary visual effects during construction, such as construction activity, staging sites, truck hauling, excavation activity, and construction area signage, are anticipated under both Build Alternatives. The visual effects related to construction activity are short-term and would cease after completion of construction. Any adverse effects due to vegetation clearing would gradually cease over time as replacement vegetation matures. Construction-related visual impacts would be minimized by implementing Department Standard

Specifications for Construction. Temporary visual impacts are considered less than significant. Also, refer to Response to Comment L-2-37.

L-2-59

See Response to Comment L-2-7. Also, refer to General Response No. 1, Visual Impacts, with regard to graffiti impacts, and Response to Comment L-2-11, with regard to potential shade and shadow impacts.

L-2-60

See General Response No. 5, Project Description, regarding the undergrounding of overhead utilities. Aboveground utilities are not required to be undergrounded as part of the project description, as they are currently part of the existing conditions. The project would not be contributing to negative impacts associated with this existing condition. Therefore, mitigation is not required. Additionally, as stated on page 41 of the DEIR, the project would be required to incorporate the following minimization measure: "All utilities that are to be moved shall be placed underground, where feasible. The Department will coordinate with the appropriate service provider and the City." Undergrounding of utilities would be considered, where feasible, to further reduce visual impacts; however, undergrounding of utilities is contingent upon many factors. Given the uncertainty regarding the feasibility of undergrounding, the impact analysis and its conclusions do not rely on the undergrounding of utilities to reduce potential visual impacts.

Refer to General Response No. 1, Visual Impacts, with regard to the required planting plan (to be approved by the City's Planning Commission) and graffiti removal.

Refer to Responses to Comments L-2-5, L-2-7, and L-2-36 regarding the proposed minimization and mitigation measures that would reduce potential impacts from proposed wall features, landscape removal, and increased appearance of development along the project site.

L-2-61

See Response to Comment L-2-5 regarding the adequacy of the visual analysis.

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1.3.3 Mayor Mark Nielson–City of San Juan Capistrano

L-3-1

The DEIR was initially circulated for public review for a period of 60 days, starting December 1, 2008, and ending January 30, 2009. In response to the City's request, the public review period was extended to February 14, 2009. Public notices to notify the public regarding the extended public review period were published in the *Orange County Register* and on the Department's website on February 2, 2009, and in *La Opinion* on January 30, 2009.

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1.4 Comments from Businesses/Organizations

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1.4.1 Hunt Club Community Association–Submitted by Edmond Connor for Connor, Fletcher & Williams LLP

O-1-1

The commenter's objection to the DEIR is acknowledged.

O-1-2

CEQA Public Resources Code Section 21177, which states that "Only persons who presented data to the agency may sue," does not define a public hearing under CEQA. This section also allows that public comments may be "oral" or "in writing."

Article 13, Section 15202, Public Hearings, (a), of the CEQA Guidelines states the following: "CEQA does not require formal hearings at any stage of the environmental review process. Public comments may be restricted to written communications." Therefore, a public hearing as described in this comment is not required under CEQA; public comments may be oral or in writing, or may be restricted to written communications; and the public hearing held on January 14, 2009, at the Marco Forster Middle School in San Juan Capistrano is consistent with the requirements of CEQA.

O-1-3

The comment is an introductory statement. See Responses to Comments O1-1-4 through O1-1-12 for specific responses to the issues raised in the comment.

O-1-4

The DEIR accurately reflects the relationship of the local streets and SR-74 to these local intersections, which provide access to local residents. The arterial network modeled in the traffic analysis includes the operational characteristics of the existing local roadways and the vehicle movements from these residential areas, which are accommodated in the modeling. Given that the EIR and technical analyses describe the physical conditions at the intersections and use this as the baseline condition for determining the significance of environmental impacts, the EIR analysis is consistent with Section 15124 of the CEQA Guidelines.

O-1-5

The Traffic Study includes a peak-hour analysis for existing (2008) conditions at all intersections along Ortega Highway within the project limits. The peak-hour traffic volumes are shown in Figures 2-1 and 2-2 in the Traffic Study for the proposed project. Based on the peak-hour volume, the intersections (including the intersection with Hunt Club Drive) do not warrant signals at any locations in existing (2008) and future (2035) conditions. The traffic analysis shows that during the peak hours there are enough gaps for vehicles to enter and exit from Hunt Club Drive. The Traffic Safety section in the DEIR reviews safety at all existing intersections by examining the frequency and severity of accidents along this stretch of Ortega Highway. Based on the accident rate summary, the actual accident rate within the project limits is lower than the average accident rate occurring on highways with similar traffic volumes and road conditions.

Currently, Ortega Highway is a four-lane facility from I-5 to Calle Entradero. The section of Ortega Highway between La Novia Avenue and Calle Entradero is of a similar length, and is a four-lane facility without any pedestrian crossings but with four unsignalized intersections.

O-1-6

See Response to Comment O-1-5.

O-1-7

See General Response No. 2, Traffic Signal/Pedestrian Crossing. Based on the traffic analysis presented in the DEIR, a signal is not warranted at any of the unsignalized intersections along Ortega Highway within the project limits. The side street volumes are very low (much lower than the minimum requirement of 75 peak-hour vehicles) and do not warrant a traffic signal based on peak-hour volumes.

O-1-8

Section 2.1.5 of the DEIR includes figures and tables that present the findings of the traffic analysis. For example, Figures 2-1 and 2-2 show a.m. and p.m. peak-hour traffic and ADT at intersections and roadway segments along Ortega Highway, respectively. The traffic analysis calculated the delays based on actual traffic counts at intersections along Ortega Highway for existing (2008) conditions. In the calculation of these side street delays, standard universal gap acceptance parameters

that are consistent with the Highway Capacity Manual (HCM) are used. Using these parameters to estimate the delays does not mean that actual traffic conditions were not analyzed. The side street delays listed in the tables are provided in the Traffic Study. The average time in seconds that would be required for a turning vehicle to find a gap in the traffic and make a turn is reported as delay (listed in the tables). It should be noted that the proposed project is not responsible for the unacceptable delays anticipated on side streets in the future. The delays would occur regardless of implementation of the proposed project.

Regarding the comment that the traffic information is cryptic and undecipherable, traffic studies are technical in nature and contain many acronyms and terms that are commonly used in traffic analyses and are specific to the traffic discipline. All acronyms used in the traffic section of the DEIR are defined in Appendix E (List of Acronyms) of the DEIR. A summary of the results of the traffic technical analysis is presented at a level generally understandable by someone with a junior-high-school-level education.

O-1-9

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the signal warrant analysis and pedestrian crossing. The EIR does not identify any potentially significant traffic impacts, and identification of mitigation is not required.

O-1-10

See General Response No. 2, Traffic Signal/Pedestrian Crossing, and Response to Comment L-2-24 regarding traffic signals and the U-turns mentioned by the commenter.

O-1-11

See Responses to Comments O-1-7 and O-1-9 regarding the need for a traffic signal to mitigate traffic impacts.

O-1-12

Pursuant to Section 15126.6 of the CEQA Guidelines, analysis of alternatives is required to eliminate or reduce the significant impacts of the project. No significant traffic impacts have been identified, and therefore, identification of an alternative that

addresses traffic impacts is not required. See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding traffic signals and pedestrian crossing.

O-1-13

Attachment B to this Response to Comments document includes a matrix showing how substantive comments on the IS/with proposed MND have been addressed. The author has not identified the manner in which the DEIR has not addressed these comments. The statement regarding visual, air quality, noise, traffic, growth-inducing, and biological impacts identified in the IS/with proposed MND is considered the opinion of the commenter.

O-1-14

The commenter's observations regarding traffic conditions at the Hunt Club gate are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-15

The commenter's support for a traffic signal at Hunt Club Drive and observations regarding traffic conditions at the Hunt Club are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-16

The commenter's opposition to the proposed project, support for a traffic signal at Hunt Club Drive, and observations regarding traffic conditions at the Hunt Club are acknowledged. See General Response No. 2, Traffic Signal/Pedestrian Crossing, and Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-17

The commenter's request to widen SR-74 from east of Hunt Club Drive to La Novia, if traffic solutions to avoid congestion on Ortega Highway are not found, is acknowledged. The project limits initially studied in the PSR approved on December 15, 1997, were from Via Cordova to the La Pata Avenue/Antonio Parkway intersection. The decision to extend the project limits westerly to Calle Entradero was made in order to provide standard 5 ft shoulders on the roadway and to create continuity by providing two continuous lanes in each direction (eastbound and westbound) on SR-74 from Calle Entradero to the City/County line.

O-1-18

The Traffic Study includes a peak-hour analysis for existing (2008) conditions at all the intersections along Ortega Highway within the project limits. The peak-hour traffic volumes are shown in Figures 2-1 and 2-2 in the Traffic Study. Based on the peak-hour volumes, the intersections (including the intersection with Hunt Club Drive) do not warrant signals at any locations in existing (2008) and future (2035) conditions. The traffic analysis shows that during the peak hours there are enough gaps for vehicles to enter and exit from Hunt Club Drive. The Traffic Safety section of the DEIR reviews safety at all the existing intersections by examining the frequency and severity of accidents along this stretch of Ortega Highway. Based on the accident rate summary, the actual accident rate within the project limits is lower than the average accident rate occurring on highways of similar traffic volumes and road conditions. See Response to Comment O3-13. Currently, there are no traffic signals within the project limits. This project does not warrant any signals at the existing intersections. However, in the future, should there be a need for a signal/pedestrian crossing, the current design does not preclude the opportunity to install a signal.

O-1-19

The commenter's request to limit the widening from east of Hunt Club Drive to the City boundary is acknowledged.

O-1-20

The commenter's support for a traffic signal at Hunt Club Drive is acknowledged.

O-1-21

The commenter's support for a traffic signal at Hunt Club Drive is acknowledged.

O-1-22

The commenter's observations regarding traffic conditions at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-23

The current configuration (from four lanes to two lanes) creates a bottleneck, which results in extended periods of congestion and delay along Ortega Highway. The

commenter's support for a signal at Hunt Club Drive is acknowledged. See General Response No. 2, Traffic Signal/Pedestrian Crossing, and Response to Comment O-1-5 regarding traffic signal demands.

O-1-24

The commenter's support for the No Build Alternative is acknowledged. See General Response No. 1, Visual Impacts.

O-1-25

See General Response No. 5, Project Description, regarding the alternatives considered.

O-1-26

The commenter's observations regarding traffic conditions at Hunt Club Drive and support for a traffic signal at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-27

The commenter's opposition to the proposed project is acknowledged. See General Response No. 1, Visual Impacts.

O-1-28

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for a traffic signal in the project area.

O-1-29

The commenter's observations regarding traffic conditions at Hunt Club Drive and support for a traffic signal at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-30

The commenter's observations regarding traffic conditions at Hunt Club Drive and support for the proposed widening and a traffic signal at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-31

The commenter's support for a traffic signal at Hunt Club Drive is acknowledged.

O-1-32

The commenter's observations regarding traffic conditions at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-33

Based on the traffic projections included in the traffic analysis of the DEIR, only 6 percent of the total traffic on Ortega Highway in 2030 will originate from Riverside County.

O-1-34

The traffic analysis for the project included consideration of existing and future projected truck traffic through the project limits. The Department has no authority regarding the volume of trash trucks on Ortega Highway or the amount of trash accepted by the County of Orange from other counties.

O-1-35

SR-74 would still need to be widened within the SR-74 Lower Ortega Highway Widening project limits even if no more houses were to be built east of San Juan Capistrano. Part of the project's purpose and need is to relieve existing traffic congestion and to provide a gap closure. Without the proposed project, in 2035 the LOS on SR-74 is projected to be LOS F. LOS F is defined as "Heavily congested traffic. Demand exceeds capacity and speeds vary greatly, considerable delays." The 2035 with project LOS is projected to be between LOS B (stable traffic flow, no delays) and C (stable traffic flow with minimal delays) within the project limits.

O-1-36

Please see General Response No. 1, Visual Impacts, regarding the potential visual impact of the SR-74 Lower Ortega Highway Widening project.

O-1-37

The commenter's observations regarding traffic conditions at Hunt Club Drive and support for construction of a traffic signal at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-38

Ortega Highway (SR-74) is currently a four-lane highway at the intersection with La Novia Avenue, and the widening project will not change the existing configuration at this location.

O-1-39

The commenter's statements regarding the future increase in noise and air pollution are acknowledged. The design speed of the widening project is 45 mph. Please see General Response No. 2, Traffic Signal/Pedestrian Crossing, for information regarding how the speed limit will be determined once the project becomes operational.

O-1-40

The commenter's statement regarding the project's effect on the "historical town feel" and Mission San Juan Capistrano is acknowledged. Mission San Juan Capistrano is located 1.3 mi west of the project site and is outside the area that would be affected by noise and vibration from the proposed project The DEIR identified visual and community impacts as significant after mitigation. These significant impacts are addressed in the Statement of Overriding Considerations for the proposed project in the FEIR.

O-1-41

The commenter's observations regarding traffic conditions at Hunt Club Drive and support for construction of a traffic signal at Hunt Club Drive are acknowledged. See Response to Comment O-1-5 regarding the traffic delay analysis.

O-1-42

The commenter's statement regarding maintaining the neighborhood is acknowledged.

O-1-43

The commenter's opposition to tree removal in the corridor is acknowledged. See General Response No. 1, Visual Impacts.

The commenter's request to eliminate tree removal from the project impacts is acknowledged. See General Response No. 1, Visual Impacts, regarding tree removal and replacement.

O-1-44

Mission San Juan Capistrano is outside the area of impact for the SR-74 Lower Ortega Highway Widening project and will not be damaged by construction or operation of the project. The following is an explanation regarding the potential for groundborne vibration as a result of the project. The threshold for groundborne vibration related to construction activities is the potential to damage buildings. Perceptible groundborne vibration related to construction is considered a community annoyance and is not considered significant. Vibration levels of 0.098 and 0.268 PPV (in/sec) are well below the vibration threshold that would damage nearby buildings. Therefore, construction-related groundborne vibration is considered within acceptable ranges. In addition, potential vibration impacts were thoroughly addressed in the DEIR and in the noise study. Also, please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impact.

O-1-45

See Responses to Comments O-1-5 and L-2-26 (last paragraph) regarding the traffic delay analysis and impacts at the Hunt Club gatehouse, respectively.

O-1-46

See Responses to Comments O-1-5 and L-2-26 (last paragraph) regarding the traffic delay analysis and impacts at the Hunt Club gatehouse, respectively. The commenter's opposition to the widening is acknowledged.

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1.4.2 Hunt Club Community Association–Christopher Deleau for Schmitz & Associates, Inc.

O-2-1

In the letter from Tracey Lavelle, Public Information Officer for Department District 12, dated February 5, 2009 (your Attachment 4), Ms. Lavelle stated that there were no final design and/or final grading plans available because the project is currently in the DEIR phase. In addition, Ms. Lavelle has stated that reference materials relating to the project from a third party, which were used to develop plans for the environmental document, were available for review to any member of the public wishing to review the information within the context of the California Public Records Act. Please note that the environmental process is generally conducted based on preliminary project design, and detailed ROW information will not be available until the design phase of the project.

O-2-2

The conceptual plans were provided in Appendix G of the DEIR and depict the proposed project alternatives. The scale of the plans is 1" = 50". Although the plans are at a reduced scale, they provide adequate information for the reader of the EIR to discern the impacts of the proposed Alternatives.

O-2-3

A discussion of the potential air quality impacts associated with the project's construction is included in Section 2.2.6.3 of the DEIR. The standard conditions and mitigation measures listed in Section 2.2.6.4 would apply to all construction activities, including grading for retaining walls.

O-2-4

See Response to Comment O-2-1 above regarding the project ROW. The proposed maximum final slope of private driveways in the City with project implementation would not exceed 20 percent. None of the driveway slopes would exceed their existing maximum slope gradient following implementation of the project. The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final

design phase of the project. Jurisdiction of ROW will be clearly established in the final design phase.

O-2-5

The three projects mentioned in this comment are exclusive of each other. The proposed project is not related to or dependent on the widening of SR-74 east of the City boundary or the I-5/SR-74 Interchange Improvement project. Note that the effects of change in traffic patterns due to implementation of the I-5/SR-74 Interchange Improvement project or SR-74 widening to the east on the proposed project should not be mistaken as the dependence of the projects on each other. The traffic analysis in the DEIR takes into account the effect of change in traffic conditions due to the implementation of the I-5/SR-74 Interchange Improvement project and the widening of SR-74 east of the City boundary. See General Response No. 8, Segmentation of Project.

O-2-6

The layout of the Ortega Highway widening project does not propose moving the existing curb along the northern edge at the intersection with Hunt Club Drive and slightly (8–10 ft) moves the existing curb along the northern edge at the intersection with Calle Entradero. Currently, both these streets have gates located at 110 ft from the edge of pavement or curb line. Implementation of the widening project will not result in a distance between the gates (Hunt Club Drive and Calle Entradero) and the edge of pavement or curb line along Ortega Highway that violates the County of Orange Standard Plans, which require a minimum distance of 100 ft, enough to satisfy the stacking requirement.

O-2-7

See Responses to Comments O-1-5 and O-2-6 regarding traffic delays at Hunt Club Drive and Calle Entradero and regarding stacking at the gatehouses, respectively.

O-2-8

See Response to Comment O-1-5 regarding traffic delays at Hunt Club Drive and Calle Entradero and General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for a traffic signal. The first part of this comment states that "Vehicles traveling on the highway (post project) will be traveling at higher rates of speed …" The actual speed limit will be determined once the project becomes

operational, but will not exceed the 45 mph design speed for the project. Vehicles cannot legally exceed the posted speed limit for the project. Speeds during free-flow conditions (off-peak hours) may be up to 45 mph and will likely be less during congested conditions during peak hours. Therefore, the comment regarding vehicle speed and less reaction time does not apply.

O-2-9

The postproject lane configurations are shown on the conceptual plans included in Appendix I of the DEIR. The project would not change the lane configurations at the Hunt Club Drive ingress/egress point.

O-2-10

See General Response No. 6, Inadequate Traffic Analysis, regarding the project's growth-inducing effects and Response to Comment O-1-5 regarding traffic delays. The existing left- and right-turn lanes at all the intersections will be maintained with the proposed widening project. This will ensure safe and independent (from through traffic) operation of turning traffic.

O-2-11

See General Response No. 5, Project Description, regarding bicycle lanes. A 5 ft paved shoulder (consistent with the Department standards described in the HDM) will be provided on each side of the roadway to accommodate a Class II bicycle facility. The bike path is not provided to access local schools located to the west of the I-5 interchange.

O-2-12

See Responses to Comments L-2-25 and O-1-5 regarding traffic delays. The EIR does not identify potentially significant impacts requiring mitigation. The eastbound left-turn lanes are provided as part of the project design.

O-2-13

The DEIR did not identify any significant traffic impacts. The traffic analysis in the DEIR shows that the widening project will reduce the delay experienced by turning vehicles (left turn/right turn in and out of side streets) at all unsignalized intersections when compared to the No Build scenario. Hence, the widening project will reduce the

projected delays at all the study intersections. Also, it should be noted that, due to the low turning volume (fewer than 10 vehicles) in the peak hours at most of the intersections, very few vehicles would experience the high (more than 50 seconds) delay.

O-2-14

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for a traffic signal.

The Minagar August 23, 2007, Traffic Report regarding the IS/with proposed MND referenced in this comment does not disclose all the underlying assumptions that are used to derive the future turning movement volumes at intersections. Due to this, the results in that study (signals warranted in 2030 projections at both the Via Cordova and Avenida Siega intersections) cannot be verified.

O-2-15

As discussed in the traffic analysis within the DEIR only future funded projects (consistent with CEQA) are included in the analysis. Thus, the signalization of the intersection of SR-74/Avenida Siega, an unfunded improvement, is not included in the analysis. This signal is included in the City's Capital Improvement Program (CIP) for 2010–2011. These improvements are funded through the Capistrano Circulation Fee Program (CCFP), which is not adequately funded from 2009 through 2015 (e.g., has a negative balance). As acknowledged in the Staff Report to the City Council, grants and bond funding are being pursued for these projects; however, should the grants or bond funding be unavailable, staff would need to reevaluate and reprogram projects. Thus, the signal is not a funded project and was not included in the traffic analysis.

O-2-16

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

O-2-17

A TMP, a standard condition placed on all construction projects, is designed to minimize construction-activity-related motorist delays, queuing, and accidents by the effective application of traditional traffic-handling practices and innovative

approaches. The TMP is generally developed during the design phase of the project and is not required during the environmental phase of the project. No significant short-term traffic impacts were identified and mitigation is not required. The commenter's suggestion regarding deferred mitigation is unwarranted.

O-2-18

See Response to Comment O-3-15.

Construction fencing placed outside the State ROW would be within a temporary construction easement (TCE) that would be negotiated with the property owner during the design and ROW phase of the project. Any temporary closures of the existing private equestrian trail would be coordinated with the Hunt Club.

O-2-19

The comment requests that the public review period for the DEIR be extended to provide for a meaningful opportunity for public participation and interaction with Lead Agency officials. Section 15105 of the CEQA Guidelines states the following: "The public review period for a draft EIR should not be less than 30 days nor longer than 60 days except in unusual circumstances. When a draft EIR is submitted to the State Clearinghouse for review by state agencies, the public review period shall not be less than 45 days, ..."

In the case of the Lower 74 Widening project, the DEIR was submitted to the State Clearinghouse for review by State agencies; therefore, the public review period required by CEQA is 45 days. The Department used a 60-day public review period for the DEIR beginning on December 2, 2008, and ending on January 30, 2009, in order to allow additional review time due to the Christmas and New Year's Day holidays that fell during the review period. Subsequently, the City sent a letter dated January 7, 2009, to the Department requesting a 30-day extension of the public review period for the DEIR. The Department responded to the City's request by adding an additional 15 days to the public review period for the DEIR, which extended the review period to February 14, 2009. Therefore, the public review period for the Lower 74 Widening project DEIR was 75 days, which is a full 30 days more than required by CEQA and which provided more than adequate time for the public to review the DEIR.

The comment states that the DEIR does not provide the public with enough information to be adequately informed or to demonstrate that the Lead Agency has made a reasoned effort to analyze the project's impacts. A complete and thorough project description is provided in Chapter 1 of the EIR. In addition, preliminary design layout plans, including typical cross sections, for both Build Alternative 1 and Build Alternative 2 are provided in Appendix G of the EIR. These plans provide dimensions from the centerline of SR-74, which are adequate to determine the general impact to adjacent properties.

The comment states that public meetings held for the Lower 74 Widening project have been highly ineffective in providing the public with answers or information on the scope of the project. During the public participation process for the prior IS for the Lower 74 Widening project, three public workshops were held (May 30, 2006; October 24, 2006; and January 22, 2007) and a public meeting was held on July 24, 2007, during public circulation of the draft IS. More detailed information regarding the scope of the workshops and public meeting is provided in Chapter 3 of the DEIR. During the public participation process for the DEIR, a focused community meeting was held on May 13, 2008, and a public hearing was held on January 14, 2009, during the public review period for the DEIR. Large exhibits of the project plans, including the proposed sound walls and retaining walls, and view simulations of postproject key views, were displayed at the January 14, 2009, public meeting, and various Department staff, environmental consultants, and public outreach consultants were available to answer questions from the public. The Department specifically chose this informal format for the public hearing because it provides the opportunity for one-on-one question–and-answer dialog between the Department and the public. In addition, this meeting format has proven to be highly effective in providing information to the public on past Department projects. As demonstrated by the public participation process described above, the Department has made an extraordinary public outreach effort for this project that exceeds the requirements of CEQA.

O-2-20

The commenter's request for revision and circulation of the DEIR is acknowledged. No new or substantive changes that would require recirculation of the DEIR have been identified. Please refer to Response to Comment L-2-53 for additional information regarding the need for recirculation of the DEIR.

1.4.3 Joan Irvine Smith and Save Ortega Submitted by Shute, Mihaley & Weinberger LLP

O-3-1

As a result of the previous meetings and consultations, and the nature of the public comments received on the IS/with proposed MND, the Department decided that an EIR would be prepared to analyze the environmental impacts for the proposed SR-74 widening from Calle Entradero (PM 1.0) to the City/County limits. Each substantive environmental comment received on the IS/with proposed MND was considered and addressed in the DEIR. These comments can be found in Appendix H (bound separately). A matrix showing how substantive comments on the IS/with proposed MND were addressed in the preparation of the EIR is provided as Appendix A to this document.

O-3-2

The commenter's statements regarding the adequacy of the DEIR are introductory in nature and are acknowledged. Please refer to Responses to Comments O-3-3 through O-3-34, which provide specific responses to each of the three key issues raised in this comment.

The incorporation of the comments on the IS/with proposed MND by reference is acknowledged. These comments were provided on a different environmental document IS/with proposed MND than is currently under review (EIR), and as such cannot be directly correlated to the EIR analysis. A matrix has been provided in Appendix B to this document that identifies how substantive comments were addressed in the preparation of the DEIR. Unless the commenter has provided specific comments as to where the comments on the IS/with proposed MND relate directly to the documentation and analysis provided in the DEIR, reference to these comments is acknowledged but no further response is required. Section 15204(c) of the CEQA Guidelines states that: "Reviewers should explain the basis for their comments, and should submit data or references offering facts, reasonable assumptions based on facts, or expert opinion supported by facts in support of the comments." Merely referring to the prior comments on the IS/with proposed MND without identifying specifically how these comments relate to the documentation provided in the DEIR does not require a response per Section 15204(c).

O-3-3

The comment is an introductory statement regarding the adequacy of the project description in the DEIR. No substantive issues relating to the details of the project description are identified and no further response is required. Please refer to Responses to Comments O-3- 4 through O-3-8, which provide specific responses to issues raised regarding the project description in the DEIR.

O-3-4

The following is a response to each of the bullet items in this comment. The level of information in the DEIR regarding project design and construction activities provides adequate information for the reviewer to evaluate the short-term construction impacts of the proposed project.

- This project is designed to meet the purpose and need. Please refer to Section 1.3 for additional information regarding the desired operating conditions.
- The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final design phase of the project.
- As stated in DEIR Section 1.5.1.12, "construction for this project is expected to start fall of 2011 and be completed in the fall of 2013." The hours of construction will be in compliance with the Department Standard Specifications, as described in Section 2.2.7. Construction traffic will be minimal when compared to existing traffic volumes on Ortega Highway and other affected streets. DEIR Table 2.2.7-6 lists the typical construction equipment anticipated to be used during project construction.
- Cut and fill for the project is discussed in Section 1.5.1.5 of the DEIR. The environmental process is generally conducted based on preliminary project design.
- Project fill will come from an environmentally cleared borrow site and excess cut, if any will be disposed of at a facility approved for such use. The location of and route to these facilities will be determined by the contractor prior to project construction.
- As described in Section 1.5.1.9, all streetlights affected by the widening of SR-74 would be relocated and replaced in kind. New lighting as part of the project is not anticipated. As described in Section 2.1.6, the landscape concept and plant palette

(landscape plan) shall be determined in consultation with the Department District Landscape Architect during the project design phase.

O-3-5

Please see General Response No. 8, Segmentation of Project. It is not clear from the commenter's remarks how the four projects identified in the comment are dependent on the proposed project, and this is considered the opinion of the commenter. Each of the projects identified has been determined to be a separate project that can be constructed independent of any of the other projects or the proposed project.

O-3-6

Please see General Response No. 8, Segmentation of Project, regarding the relationship of the proposed project to the widening of Ortega Highway to the east.

O-3-7

The I-5/SR-74 Interchange Improvement project is independent of the proposed project. The purpose of the interchange project is to reduce existing and forecast congestion and delay at this interchange. Widening of Ortega Highway for less than 1 mi within the study area does not substantially affect the existing need for the interchange improvement.

It appears that the commenter is referring to the SR-74 Safety Improvement Project, which was completed in the spring of 2008. This 3 mi project extends from San Juan Hot Springs to the Orange County/Riverside County line and adds 4 ft shoulders; increases existing lane widths to standard, improving existing turnouts and adding two new turnouts; improves drainage facilities into San Juan Creek; adds safety enhancements to limit rock slides and rumble strips in the median; and improves sight distance by removing protruding rock walls. The purpose of this project was to improve sight distance and provide more room for motorists to safely maneuver within the project area. No capacity enhancements were provided. This project is also independent of the proposed project since it improves safety within a particular area along SR-74.

O-3-8

The San Juan Capistrano Ortega Highway Pipeline Project was approved by the City in 2008. An IS/with proposed MND was approved by the City for the pipeline project. The project description for the IS/with proposed MND described how the project would be constructed at the same time as the roadway project; however, it did not conclude that the pipeline was interdependent on the construction of the roadway project. It was merely planned for construction at the same time as any widening of SR-74 to avoid or minimize potential environmental effects. Construction of the pipeline is needed to increase the reliability and quality of potable water service and fire protection needs within this portion of the City, which are not related to the any improvement of the roadway. Rather than the proposed project being dependent on the pipeline project, the IS/with proposed MND review anticipates construction of the roadway within the project area and to the east.

O-3-9

The comment is an introductory statement regarding the adequacy of the impact analysis and identification of mitigation measures in the DEIR. No substantive issues relating to the project impacts or mitigation are identified, and no further response is required. Please refer to Responses to Comments O-3-10 through O-3-33, which provide specific responses to issues raised regarding the project impacts and mitigation described in the DEIR.

O-3-10

The commenter's opinion regarding the adequacy of the traffic studies conducted for the proposed project is acknowledged. Please refer to General Response No. 6, Inadequate Traffic Analysis, and General Response No. 4, Traffic Projections, regarding traffic projections/traffic analysis and the adequacy of the traffic analysis.

O-3-11

The existing traffic analysis was based on Department count data collected in September 2008 and is included as an appendix to the Traffic Study.

O-3-12

The 2008 Draft Traffic Study evaluated the project in a 2035 time frame, comparing the No Build Alternative with the Build Alternatives. The traffic forecast data used for the analysis was prepared using the SCSAM, which in turn was derived from OCTAM Version 3.1. The SCSAM has undergone certification by OCTA and thereby is consistent with the subarea modeling guidelines established by that agency. Consistency requirements ensure that traffic model data are derived in a regional context, in this case with OCP-2004 demographic projections for Orange County and General Plan land use build out for the Cities of Mission Viejo, San Juan Capistrano, and Laguna Niguel, and the communities of Las Flores and Ladera Ranch. For the RMV area east of the City, the Land Use Plan, as approved in 2004 and modified under a subsequent Settlement Agreement, was used in the traffic forecast assumptions.

Other considerations used in the traffic forecast database included future roadways in south Orange County, including MPAH additions such as La Pata Avenue and a southward extension of SR-241 along the recently adopted alignment. These two roadway extensions are included in the traffic model used for developing the future forecast volume. A more detailed discussion of the assumptions used in the analysis is included in the *Draft State Route 74 Lower Ortega Highway Widening Traffic Study* (July 2008).

O-3-13

The statement in the comment that "the project would certainly not decrease traffic congestion at the six intersections located within the project limits" is not true. The intersections along Ortega Highway within the project limits will fail in the future (2035) irrespective of the widening project (under No Build conditions). Hence, the unacceptable delays at study intersections in the future (2035) should not be construed as a project-related impact. As shown in Table 3-2 of the Traffic Study, the widening project would reduce the projected delays for turning vehicles at all the study intersections.

See Responses to Comments L-2-25 and O-1-8 regarding ingress and egress from local arterials onto SR-74 and regarding delays at local arterials, respectively. The comment regarding the adopted LOS standard for City of San Juan Capistrano (LOS D) and for the Department (LOS C/D) per the Brohard report is noted. The

roadway width at intersections within the project limits is adequate for automobiles to make a legal U-turn.

O-3-14

See General Response No. 2, Traffic Signal/Pedestrian Crossing, and Response to Comment O-3-13. Currently, there are no traffic signals within the project limits. This project does not warrant any signals at the existing intersections. However, in the future, should there be a need for a signal/pedestrian crossing, the current design does not preclude the opportunity to install a signal.

Per the Brohard report, "an equestrian crossing of Ortega Highway is required to connect the trail systems north and south of the highway." There are no existing pedestrian or equestrian crosswalks within the project limits. However, there is an equestrian crosswalk located approximately 0.4 mi west of the western project limits at the intersection of Belford Drive and Ortega Highway. None of the intersections within the project limits meet signal warrants. Therefore, no pedestrian or equestrian crosswalks are proposed as part of this project. However, no existing equestrian crosswalks will be removed as part of the proposed project.

The proposed speed limit for widened SR-74 will be 45 mph, which is the same as the existing speed limit on this section of the highway. The traffic safety section in the DEIR reviews safety at all the existing intersections by examining the frequency and severity of accidents along this stretch of Ortega Highway. Based on the accident rate summary, the actual accident rate within the project limits is lower than the average accident rate occurring on highways of similar traffic volumes and road conditions. Hence, at this point it is speculative to suggest a higher accident rate.

As noted in the Brohard report, the bicycle lanes are 5 ft wide and meet the Department standard for a Class II bicycle lane. A Class II bicycle facility can be provided along the stretch of SR-74 within the project limits.

O-3-15

See Response to Comment O-2-17 regarding temporary traffic impacts during construction.

O-3-16

Construction of the County widening project is anticipated to be completed prior to construction of the SR-74 Lower Ortega Highway Widening project. Therefore, these projects will not be under construction at the same time. The proposed project's contribution to cumulative construction effects, in consideration of other projects within the RSA (primarily the RMV Ranch Plan, Middle Ortega Safety project, and SR-74 and the La Pata Avenue/Antonio Parkway project), is considered less than significant because each of the cumulative projects would be required to incorporate its own respective mitigation measures. For a discussion of cumulative temporary construction impacts related to each topical section, please refer to Section 2.4 of the EIR.

See Response to Comment O-2-17 regarding temporary traffic impacts during construction.

O-3-17

Comment noted. Please refer to Responses to Comments O-3-18 through O-3-22.

O-3-18

Section 3.4 of the Air Quality Assessment (referenced in Section 2.2.6 of the DEIR) discusses the types of land uses that are sensitive to air quality impacts and provides a general overview of the sensitive land uses along the project alignment. Furthermore, the air quality analysis and section of the DEIR evaluate the potential short-term and long-term impacts of the proposed project.

The South Coast Air Quality Management District (SCAQMD) has established air quality monitoring stations to track the air pollutant concentrations throughout the South Coast Air Basin (SCAB). The data listed in Table 2.2.6-2 of the DEIR was provided to establish the existing exceedances of the ambient air quality standards (AAQS) within the project region of the SCAB. None of the data listed in Table 2.2.6-2 was used in determining the project impacts.

O-3-19

Since the construction activities for this project are anticipated to take less than 5 years, there is no additional construction analysis.

O-3-20

The comment states that the DEIR fails to evaluate the long-term operational air quality impacts of the proposed project. However, Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emissions impacts, and the global warming impacts. The 44 percent increase in vehicle trips along SR-74 is due to area growth and not due to the proposed project. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

O-3-21

Section 6.7 of the Air Quality Assessment (referenced in Section 2.2.6 of the DEIR) discusses the cumulative impacts of the proposed project. As the project would reduce vehicle congestion along SR-74 without increasing vehicle trips, the project would not result in any long-term cumulative impacts. Also, please refer to General Response No. 9, Air Quality Degradation.

O-3-22

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

O-3-23

Please refer to General Response No. 10, Climate Change/Greenhouse Gases. Since construction activities for this project are anticipated to take less than 5 years, additional construction analysis is not required.

O-3-24

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

O-3-25

Thank you for your comment regarding the World Health Organization's recognition of health-related problems due to traffic noise exposure. Your comment has been noted and will be taken into consideration during the decision-making process for this

project. Regarding traffic noise impacts and construction-related noise impacts, see General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

O-3-26

The DEIR and its associated Appendix I describe the location of noise-sensitive receptors within the project area. In addition, figures showing the locations of sensitive receptors are provided in Appendix I. The selections of sensitive receptors shown in the figures are representative of potentially affected sensitive receptors as defined in Code of Federal Regulations (CFR) 772 and as defined in the Protocol. The horse ranch and the farm are not considered noise sensitive per the Department's Protocol. See General Response No. 7, Increase in Noise/Noise Analysis, regarding aspects of the comment.

O-3-27

Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impact.

O-3-28

Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impact.

O-3-29

The column labeled "Future 2035 Build" in Table 2.27-10 in the DEIR does not reflect the analysis of noise abatement (sound walls). Tables I-2 and I-3 in Appendix I of the DEIR and Tables C and D in the *Final Technical Noise Impact Analysis Report Addendum* contain the sound wall analysis. Sound walls were evaluated at five heights (8, 10, 12, 14, and 16 ft) at each location. Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impact.

O-3-30

See Response to Comment L-2-56 with regard to the photosimulation methodology used. Also, refer to General Response No. 1, Visual Impacts.

The project proposes incorporation of one of two types of sound walls, the Sound Fighter® wall or the Plexiglas® sound wall. Per CEQA Guidelines, the project is required to analyze the potential impacts associated with any project feature that may

be implemented. Therefore, the DEIR states that the project's visual impacts would vary depending on the project feature implemented. As stated on page 27, the DEIR goes on to state that the severity of the visible hardscape impacts from the sound wall would vary depending on what architectural treatments are implemented. The visible encroachment would be greater with the decorative Sound Fighter® wall (moderately high) than with the Plexiglas® noise barrier (moderate). With implementation of the measures described in Section 2.1.6.6, which require landscaping and aesthetic enhancements, visible impacts from opaque wall structures would be reduced.

See Response to Comment L-2-6 with regard to Key View selection and the photosimulation methodology used.

See Response to Comment L-2-60 with regard to the recommended Mitigation Measure V-1 pertaining to a required planting plan.

See Responses to Comments L-2-60 and L-2-61.

O-3-31

As discussed in Section 2.2.2.4 of the DEIR, Construction Site BMPs will comply with the SWRCB-approved Department SWMP and will be implemented as necessary to control erosion, prevent siltation, and handle materials and waste properly. BMPs may vary from location to location and day to day, depending on progress and conditions. Refer to Responses to Comments L-2-33 and L-2-40 for a response to operational water quality and for a response to construction-related water quality, respectively.

O-3-32

Please see General Response No. 4, Traffic Projections, regarding the contribution of trips from Riverside County that currently use, and are projected in the future to use, the project area, and General Response No. 10, Climate Change/Greenhouse Gases, which discusses project VMT and its effect on GHG emissions. As discussed in Section 2.1.3.1.3, the proposed project would have a short-term beneficial effect on employment by generating direct and indirect employment opportunities. Direct temporary employment would involve jobs directly created by highway construction activity. Indirect jobs would involve workers in construction-related industries. Construction activities associated with the proposed project would potentially have a

net benefit on the local economy through the increase in temporary employment and additional goods and services purchased by construction workers in the City.

As discussed in Section 2.1.3.1.3 of the DEIR, the proposed project will not have an effect on population and housing. Please refer to Response to Comment O-3-2 regarding comments on the IS/with proposed MND.

O-3-33

Please see General Response No. 4, Traffic Projections, regarding the growth-inducing impacts of the proposed project and Response to Comment O-3-2 regarding responses to comments on the IS/with proposed MND.

O-3-34

Please see General Response No. 5, Project Description, regarding the project alternatives considered.

The alternative developed in the Brohard report proposes providing only two through lanes along Ortega Highway for the majority of the length within the project limits. The alternative also suggests providing a 10 ft median and intersection improvements (additional lanes) at one centralized intersection, which will be signalized. This alternative does not address the purpose of this project, which is to relieve congestion, improve the traffic flow (along the highway [through lanes]), accommodate planned growth and development in the surrounding areas, provide improvements consistent with local planning documents, and gap closure. This alternative will only benefit a very small percentage of users, while the majority of the users (high volume [percentage]) will continue to experience excessive delay and congestion along Ortega Highway. The alternative assumes that the additional demand (future traffic) will be diverted to other alternate routes, which is very unlikely. Based on the traffic analysis (included in the DEIR), 5,500 ADT trips would be diverted to alternate routes as a result of substantial queue buildup during peak periods. Note that the projected volume along Ortega Highway within the project limits in 2035 conditions is 39,000, out of which only 5,500 ADT would be diverted during the peak periods. Hence, the alternative proposed in the Brohard report cannot be considered as a reasonable alternative.

The comment regarding the provision of bus service along Ortega Highway is noted. Currently, there is no bus service (OCTA or Riverside Transit Agency [RTA]) along

this stretch of Ortega Highway. Providing a bus route along any corridor generally requires a feasibility study, which includes estimating potential ridership and justifying the cost of running and maintaining bus service along that route. The option of providing a bus route can be explored separately and is independent of the widening project.

A multimodal alternative evaluated in Section 1.5.4.3 of the DEIR was eliminated from further consideration because it did not contain elements to enhance the capacity of SR-74 to better accommodate future traffic demands.

As discussed in Responses to Comments O-3-10 through O-3-33, no additional significant impacts have been identified that would require evaluation of additional alternatives.

The request for recirculation of the DEIR is acknowledged. However, there have been no issues identified during the public review that would require recirculation of the DEIR.

O-3-35

The commenter's request for revisions and recirculation of the DEIR is acknowledged and will be considered in the decision-making process for the project.

1.5 Comments from the Public

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1.5.1 Devon Allen

P-1-1

The commenter's support for evaluating alternative roadway improvements is acknowledged. See General Response No. 5, Project Description, regarding alternatives considered, including improvements outside the project corridor.

P-1-2

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emissions impacts, and the global warming impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

P-1-3

The commenter's opposition to the proposed project and opinion that the proposed project is unneeded is acknowledged. There are existing and forecast traffic congestion within the project corridor that would be addressed by the proposed improvements. See General Response No. 6, Inadequate Traffic Analysis.

P-1-4

Based on the projected growth by 2035, the improvement/implementation of certain other routes in the region would not alleviate the congestion along this section of Ortega Highway.

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1.5.2 Laurie and Jim Allen

P-2-1

The commenters' support for Alternative 1 to retain more trees within the study area is acknowledged.

P-2-2

The commenters' opposition to the noise barriers on the south side of SR-74 is acknowledged. Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise reflections from the proposed noise barriers.

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1.5.3 Deborah Baileys

P-3-1

The commenter's opposition to the proposed project is acknowledged. This comment will be considered as part of the decision-making process for this project.

P-3-2

See Responses to Comments O-1-5, O-1-33, and O-3-14.

P-3-3

See Responses to Comments O-1-5, O-1-33, and O-3-14.

P-3-4

See Responses to Comments O-1-5, O-1-33, and O-3-14.

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1.5.4 Steven and Jamie Bellomo

P-4-1

Via Cuartel to SR-74 is outside the project limits. The possibility of closing Via Cuartel is a matter for consideration by the City and the neighborhood, and is not associated with the SR-74 Lower Ortega Highway Widening project.

P-4-2

The increase in traffic is a result of proposed future development in the region. The widening project does not generate traffic, and the DEIR includes a section (within the Traffic Analysis section) that analyzes the growth-inducing impacts of the project, which are minimal. The Via Cuartel street connection to the SR-74 is outside the limits of the proposed widening project.

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1.5.5 Cathleen Brannon

P-5-1

The Department will obtain all applicable environmental permits from resource agencies that have jurisdiction over the proposed project area. The proposed project is well outside of the Coastal Zone, as defined pursuant to the Coastal Zone Management Act; therefore, consultation with the California Coastal Commission (CCC) is not required.

Impacts identified to waters and wetlands on the project site are limited to roadside drainages and an isolated disturbed wetland that appears to be the result of urban runoff. Direct and indirect impacts to potentially jurisdictional features that discharge to San Juan Creek are discussed in Section 2.3.2.3 of the DEIR. The project will be subject to the requirements of the RWQCB, as well as applicable NPDES permit and SWPPP requirements that regulate runoff into local water bodies, including San Juan Creek. Compliance with these regulations requires that the Department minimize or eliminate potentially detrimental elements from runoff (e.g., sediment, pollutants) prior to the runoff discharging into San Juan Creek. Additional avoidance and minimization measures are listed in Sections 2.3.2.4 and 2.2.2.4 of the DEIR. As indicated in the DEIR, impacts related to runoff into San Juan Creek are expected to be less than significant with incorporation of avoidance and minimization measures and compliance with existing regulations.

The proposed project is not within the Coastal Zone, and the project would not discharge into an ESA.

P-5-2

The increase in traffic is a result of proposed future development in the region. The widening project does not generate traffic, and the DEIR includes a section (within the traffic analysis section) that analyzes the growth-inducing impacts of the project, which are minimal. See Response to Comment O-1-33.

Regarding the comment on added traffic and noise, see General Response No. 6, Inadequate Traffic Analysis, and General Response No. 7, Increase in Noise/Noise Analysis.

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-5-3

The environmental impact of widening SR-74 for the County widening project is addressed in the environmental document for the County project. Please see General Response No. 8, Segmentation of Project, regarding project segmentation.

P-5-4

The design has not been finalized and the precise number of trees along the ROW that will be removed or otherwise adversely affected cannot be determined.

See Response to Comment L-2-60 with regard to the recommended Mitigation Measure V-1, which pertains to the removal and replanting of trees. Please also refer to General Response No. 1, Visual Impacts.

1.5.6 Diane Bravender

P-6-1

The commenter's opinion regarding the motives of those who support the project is acknowledged.

P-6-2

The commenter's request to have the I-5/SR-74 interchange and La Pata Avenue extension complete before construction begins on the proposed project is acknowledged and will be considered as part of the decision-making process for this project. The I-5/SR-74 Interchange Improvement project is currently scheduled for construction prior to this project. The County of Orange is currently in the planning and development stage for the La Pata Avenue extension. The schedule for project approval and construction is unknown at this time.

P-6-3

Thank you for your comment, your comment has been noted. Please refer to Response to Comment O-1-34 for additional information regarding the volume of trash trucks on Ortega Highway.

P-6-4

The commenter's statement that tourists will not be affected by the proposed project since tour buses do not travel east is acknowledged. The statement does not raise any questions regarding the adequacy of the DEIR and is considered the opinion of the commenter.

P-6-5

See Responses to Comments L-2-24 and L-2-25.

P-6-6

See Responses to Comments L-2-24 and L-2-25.

P-6-7

Thank you for your comment, your comment has been noted.

P-6-8

Please refer to General Response No. 1, Visual Impacts, regarding the visual impact of the project. Although there are areas where the project would construct walls on both sides of the roadway, these walls would not create a "bowling alley" effect. Many mature trees to the south of SR-74, along the proposed sound walls, would remain after project construction. Therefore, the visibility of the sound walls would be reduced. Also, sidewalks on the south side would be maintained and Build Alternative 2 would replace the existing sidewalk that would be removed under Build Alternative 1.

P-6-9

Please refer to Response to Comment O-3-14.

P-6-10

The commenter's statement regarding the use of SR-74 by students is acknowledged. The statement does not raise any questions regarding the adequacy of the DEIR and is considered the opinion of the commenter.

P-6-11

Thank you for your comment, your comment has been noted.

P-6-12

The project includes drainage improvements that would adequately convey runoff away from the road and would not exacerbate existing conditions. As discussed in Section 2.2.1.3 of the DEIR, the additional flow resulting from the project would travel via a new underground storm drain system that outfalls to San Juan Creek outside the project limits. The existing drainage conditions will be improved by the addition of new drainage inlets and pipes in the new roadway.

P-6-13

The project limits would be refurbished when the project is constructed, or it will revert to the standard Department maintenance schedule for State Highways.

P-6-14

The comment is an introductory statement regarding the adequacy of the DEIR. Please refer to Responses to Comments P-6-16 through P-6-26 for specific responses to questions raised by the commenter.

P-6-15

The comment is an introductory statement regarding the adequacy of the DEIR. Please refer to Response to Comment P-6-16 through P-6-26 for specific responses to questions raised by the commenter.

P-6-16

The commenter's statement that the purpose of the project should address the needs of the residents living adjacent to SR-74 is acknowledged. Please refer to General Response No. 6, Inadequate Traffic Analysis, regarding the Traffic Analysis for the project, and please see General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding access to Ortega Highway from local streets. Also, please refer to Response to Comment O-1-8 regarding the delay at local intersections with SR-74.

P-6-17

Refer to General Response No. 1, Visual Impacts, regarding the loss of trees and Response to Comment L-2-6 regarding the photosimulation methodology used. Also, it should be noted that the required Clear Recovery Zone applies to tree replacement, not existing trees that would remain in place upon project implementation. The existing trees that would remain in place would not be required to be removed. Please refer to Response to Comment P-5-4 for additional information regarding the removal and replacement of trees as part of the proposed project.

P-6-18

Under Table S-1, under Visual and Aesthetics (Permanent), the minimization measure states that "All utilities that are to be moved shall be placed underground, **where feasible**, in coordination with the California Department of Transportation (Department) and the City." In addition, as stated in Section 1.5.1.10 of the DEIR, "all utilities such as power, gas, sewer, and telephone lines impacted by this project would be relocated or replaced **in-kind** within the Project Limits." The duration of

undergrounding activities would be one factor in determining the feasibility of undergrounding existing utilities within the project area.

P-6-19

Refer to Response to Comment P-6-12. The existing drainage conditions will be improved by the addition of new drainage inlets and pipes.

P-6-20

Please refer to General Response No. 7, Inadequate Traffic Analysis, regarding noise impact.

P-6-21

Please refer to Response to Comment L-2-50.

P-6-22

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-6-23

See Responses to Comments L-2-25 and O-1-8.

P-6-24

The traffic turning left from the side streets onto Ortega Highway at a majority of the intersections is less than 10 vehicles in the peak hour. The maximum projected peak-hour traffic making a left turn from Via Errecarte to Ortega Highway is six vehicles. Due to this low volume, an acceleration lane along the median at this location was not considered.

P-6-25

Please refer to General Response No. 7, Inadequate Traffic Analysis, regarding noise impact.

P-6-26

The commenter's suggestion to construct a tunnel on SR-74 from the City/County line to the I-5/SR-74 interchange is acknowledged. A tunnel would be substantially

more expensive than the Build Alternatives currently considered for the Lower SR-74 Widening project. In addition to the increased expense, substantial ROW impacts would result from constructing a junction to split off the tunnel traffic from the traffic that would use the existing aboveground roadway. Additionally, construction of the tunnel as suggested would require substantial aboveground disruption of the existing environment and local community due to the extensive excavation and subsurface construction needed, resulting in greater environmental impacts over a longer length than the proposed project. To construct this alternative, the environmental impacts of the proposed project would still result and greater impacts to properties to the west would be generated. Cost, ROW impact, and environmental impacts alone would rule out further consideration of the tunnel alternative.

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1.5.7 Scott Bull

P-7-1

The commenter's support for sound walls on the south side of the roadway are acknowledged. Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding the noise impact of the project.

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1.5.8 Emily Burke

P-8-1

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project. As described in the DEIR, the proposed project would help the residents of the City by increasing the capacity of SR-74, relieving existing and future traffic congestion, and improving the flow of traffic on SR-74.

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1.5.9 Ilse Byrnes

P-9-1

According to the San Juan Capistrano Recreational Trail Map, there is a proposed equestrian/hiking/biking trail (identified as the Portola Pass Trail) located along the north side of SR-74 that will connect the East and West Hunt Club Trails at the intersection of Palm Hill Drive and SR-74. The proposed trail would continue in an east-west direction along the north side of SR-74 until the intersection of Shadetree Lane and SR-74. There are no proposed trail connections to connect the existing Siega Trail, located on the south side of SR-74 along Avenida Siega, to the Hunt Club Trail, located on the north side of SR-74, west of Palm Hill Drive. Therefore, the widening of SR-74 within the project limits will not eliminate any planned trail connections with Avenida Siega.

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1.5.10 Ilse Byrnes

P-10-1

The Manriquez Adobe archaeological site does not contain any above-surface evidence of the adobe, and there is no certain knowledge that subsurface adobe exists. In any event, the portion of the site that may contain archaeological (subsurface) remains will be treated by an ESA Action Plan and thus will be protected from project-related construction activities (DEIR Section 2.1.7.2). The Parra Adobe is located outside the APE and will not be impacted by any project-related construction activities or vibration impacts.

P-10-2

The commenter's statement regarding the loss of mature trees being unacceptable is noted and will be taken into consideration as part of the decision-making process for the project. Please refer to General Response No. 1, Visual Impacts, regarding the loss of mature trees.

P-10-3

The commenter's concern regarding the proposed project's effect on the community character is acknowledged. Impact to community character is identified in the DEIR as a significant impact after mitigation and will be addressed in the Statement of Overriding Considerations for the project.

P-10-4

The existing East and West Hunt Club Trails, the associated Hunt Club feeder trails, and the Siega Trail would be maintained during the proposed project. No modifications are proposed to the existing multiuse trails as part of the proposed project. There are no existing pedestrian or equestrian crosswalks within the project limits.

P-10-5

The commenter's concern regarding the proposed project's effect on the community is acknowledged.

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1.5.11 Barb and Dan Campion

P-11-1

The commenters' support for the project is acknowledged and will be considered as part of the decision-making process for this project.

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1.5.12 Barb Campion

P-12-1

The commenter's support for the project is acknowledged and will be considered as part of the decision-making process for this project.

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1.5.13 The Chichi Family

P-13-1

The proposed design speed limit along Ortega Highway after implementation of the widening project will be 45 mph.

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1.5.14 Art Cusolito

P-14-1

See Responses to Comments O1-5 and O2-6.

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1.5.15 Heather Davis

P-15-1

The commenter's opposition for the project is acknowledged and will be considered as part of the decision-making process for this project.

P-15-2

The commenter's concern regarding the proposed project's effect on the community character is acknowledged. Impact to community character is identified in the DEIR as a significant impact after mitigation and will be addressed in the Statement of Overriding Considerations for the project.

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1.5.16 DEBAIRCALGAL

P-16-1

See Responses to Comments O-3-14 and P-13-1.

P-16-2

The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final design phase of the project. Please refer to General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts to sensitive receptors north of SR-74.

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1.5.17 Lennie DeCaro

P-17-1

All comments received on the IS/with proposed MND have been addressed by information incorporated into the DEIR.

P-17-2

All comments received on the IS/with proposed MND have been addressed by information incorporated into the DEIR.

P-17-3

Please refer to Response to Comment L-3-1 regarding extension of the public review period.

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1.5.18 Lennie DeCaro

P-18-1

Please refer to Response to Comment L-3-1 regarding extension of the public review period.

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1.5.19 Lennie DeCaro

P-19-1

Please refer to Response to Comment L-3-1 regarding extension of the public review period.

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1.5.20 Lennie DeCaro

P-20-1

The commenter's opposition to the proposed project and comments regarding the adequacy of the EIR are acknowledged.

Thank you for your comment and your interest in this project. Your comment will be considered as part of the decision-making process for this project. Please see General Response No. 5, Project Description, regarding consideration of alternatives to the project.

P-20-2

There is no federal funding for this project and no trigger for environmental clearance of the project under National Environmental Policy Act (NEPA). The project will be funded with State and local funds and will be environmentally cleared under CEQA only. No NEPA clearance is required. Therefore, the assignment of NEPA environmental review responsibility to the Department as of July 1, 2007, has no bearing on this project.

P-20-3

Subsequent to approval of the DEIR, the 2008 RTIP was approved in November 2008 and lists the project description as "Widen Route 74 from 2 Lanes to 4 Lanes (in San Juan Capistrano from Calle Entradero to City/County Line. Widen From 2 Lanes to 4 Lanes). Regarding the PM limits, pages vii and 1 of the DEIR list the project limits as PM 1.0 to 1.9, which is correct.

P-20-4

Please see General Response No. 8, Segmentation of Project, regarding the western project limit at Calle Entradero.

P-20-5

See Response to Comment P-20-3 regarding the Regional Transportation Improvement Program (RTIP) project description. See General Response No. 8, Segmentation of Project. The Department's purview is transportation facilities, and it

is not responsible for approval of development proposals. The County of Orange has approved the development associated with the Ranch Plan.

P-20-6

The comment regarding the SR-91 project in 2000 and the comment regarding the ASR, RMV, and its consultants, and the safety issue do not apply to the SR-74 Lower Ortega Highway Widening project; therefore, no response has been provided. The 2008 RTIP lists the project as being funded as part of the 2008 State Transportation Implementation Program (STIP) Augmentation. Please see General Response No. 8, Segmentation of Project, regarding why the project limits begin at Calle Entradero. Please see General Response No. 1, Visual Impacts, regarding tree removal and visual impacts.

P-20-7

Please refer to General Response No. 8, Segmentation of Project, regarding why the project widening begins at Calle Entradero.

P-20-8

The post miles are correct, as stated in the DEIR, and the project limits are from Calle Entradero to the City/County line.

P-20-9

Thank you for your comment. The text, "limited sight distance and difficulties in negotiating sharp curves" has been deleted from the project description and is not included in the FEIR. Please refer to General Response No. 8, Segmentation of Project, regarding project segmentation.

P-20-10

The referenced text on page 1 of the DEIR, "provides access to hillside private properties" ("properties" is plural), does not indicate that Strawberry Lane, Toyon Drive, and Palm Hill Drive provide access to a single residence and does not indicate that these roads are private driveways. The project description and associated figures identify the intersections as roadways and not as driveways.

P-20-11

Driveways will be reconstructed at the existing gradient or flatter.

P-20-12

Please refer to Response to Comment L-2-27 regarding consistency with the County and City designations for Primary Arterials, primarily regarding ADT. The commenter's statements regarding the previous designation of SR-74 as a Secondary Arterial and San Juan Creek Road as a Primary Arterial are acknowledged. The reconstructed sidewalk will meet Americans with Disabilities Act (ADA) requirements.

P-20-13

See General Response No. 6, Inadequate Traffic Analysis, regarding existing and forecast traffic impacts (in particular, the proposed project's effect on growth inducement).

P-20-14

Existing SR-74 within the project limits is not wide enough to accommodate an additional two traffic lanes (one lane in each direction). Therefore, the statement, "in an area that is already the appropriate geometric to accommodate 4 lanes" is incorrect. See Response to Comment P-20-13 above. Also, please see General Response No. 1, Visual Impacts, regarding tree removal.

P-20-15

See General Response No. 5, Project Description, regarding consideration of alternatives to the project and General Response No. 6, Inadequate Traffic Analysis, regarding inducement of growth in Riverside County.

P-20-16

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emission impacts, and the global warming impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Please refer to General

Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

P-20-17

Future planned and funded roadway improvements and extensions were included in the traffic analysis for the future (2035) scenario. As a conservative approach, future roadway extensions that were not funded were not included in the analysis. San Juan Creek is not a funded project and thus is not included in the traffic analysis.

P-20-18

See General Response No. 8, Segmentation of Project, regarding existing and future lane geometrics on SR-74 from I-5 to the County widening project east of the City/County line.

P-20-19

The increase in traffic is a result of proposed future development in the region. The widening project does not generate traffic, and the DEIR includes a section (within the Traffic Analysis section) that analyzes the growth-inducing impacts of the project, which are minimal. See Responses to Comments O-1-5 and P-13-1.

P-20-20

See Response to Comment P-20-19.

P-20-21

Please refer to General Response No. 3, Need for Bicycle Facilities, regarding the Class II Bike lanes provided as part of the project. It should be noted that the bike lanes would be within the 5 ft paved shoulder that is not wide enough to accommodate additional travel lanes. The Department has no plans to widen SR-74 to six lanes at this time, and any future upgrade to six travel lanes would require additional ROW and would need to be evaluated in a new environmental document.

P-20-22

The traffic analysis was based on growth projections consistent with OCP 2006. The traffic generated by specific projects like RMV (senior housing) does not drastically

change the regional traffic patterns and has very little impact on the traffic projections for 2035.

P-20-23

The effects of the La Pata Avenue extension on the traffic growth along Ortega Highway were analyzed in the traffic analysis. The increase in traffic along Ortega Highway between 2008 and 2035 is due to the projected development in the region and is not a result of other capital improvement projects such as the La Pata extension.

P-20-24

The project limits were defined logically to begin at Calle Entradero because Ortega Highway is already a four-lane highway west of Calle Entradero. See Response to Comment O-3-15 for construction-related impacts.

P-20-25

To determine the project impact to homes located less than 25 ft from the roadway at the corner of SR-74 and Calle Entradero, the noise from the proposed project at the southeast corner of SR-74 and Calle Entradero was evaluated with worst-case traffic conditions for 2035. The measurements for the future noise levels for the first row of receptors were projected at 72.8 dBA L_{eq}. Noise levels projected for the second row of receptors were projected at 60.3 dBA L_{eq}. Based on these results, the DEIR determined that there would not be a substantial noise increase and no noise mitigation would be required. Please refer to General Response No. 7, Noise Impacts/ Noise Analysis, regarding the requirements and methodology for conducting the noise analysis.

P-20-26

The commenter's request for an analysis of removing improvements in front of the Hunt Club is acknowledged. Any build alternative within the project corridor would require improvement in front of the Hunt Club to provide continuous roadway improvements. There are no feasible build alternatives that would not require improvements in front of the Hunt Club.

P-20-27

See General Response No. 5, Project Description, regarding alternatives considered. The No Build Alternative is thoroughly evaluated in the DEIR.

P-20-28

See General Response No. 5, Project Description, regarding alternatives considered, including TSM strategies and modal alternatives. See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding why the project does not include installation of a traffic signal at any of the existing unsignalized intersections within the project limits.

P-20-29

There is no reference to the City's Circulation Element on page 66 of the DEIR.

P-20-30

See General Response No. 5, Project Description, regarding consideration of alternatives to the project. Please refer to General Response No. 6, Inadequate Traffic Analysis, regarding traffic impact and growth inducement.

P-20-31

The total VMT for the No Build scenario during the peak hours would be 15,300 and would be reduced to 11,700 with implementation of the widening project. Thus, due to the widening project, the VMT during the most congested hours is lowered. See Response to Comment P-13-11.

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emission impacts, and the global warming impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

P-20-32

See General Response No. 6, Inadequate Traffic Analysis, regarding traffic impact and growth inducement outside of the City. The commenter's statement that the widening of Ortega Highway is needed as mitigation for development outside the City and County is acknowledged.

P-20-33

The City of San Juan Capistrano's 2002 Strategic Transportation Plan (STP) was cited within the DEIR as it is a relevant planning document. Independent review of the STP is not required for the EIR analysis since the traffic analysis is not relying on the conclusions of the STP.

P-20-34

Regarding funds for the project, project funds are used for different purposes during different phases of the project. There is no requirement for public notification when applying for funds for the preliminary stages of a project, including preliminary engineering to determine potentially feasible alternatives and to conduct environmental analysis of the project. Final environmental clearance is required prior to expenditure of construction funds. See General Response No. 8, Segmentation of Project, regarding segmentation of the project and the reasoning for establishing the eastern project limit at Calle Entradero.

P-20-35

It is true that the DEIR does not make any claims that a pedestrian survey was conducted for the purpose of "determining sidewalk removal." The existing sidewalk is removed under Alternative 1 because there is no room under Alternative 1 to reconstruct the sidewalk within the proposed ROW. See General Response No. 2, Traffic Signal/Pedestrian Crossing.

P-20-36

The reason for removing the existing sidewalk on the north side of SR-74 under Build Alternative 1 is primarily due to ROW constraints. Build Alternative 1 would widen SR-74 to the north to minimize overall tree removal within the project corridor and to avoid removal of the existing sidewalk on the south side of SR-74. The existing meandering sidewalk on the north side of SR-74 from Palm Hill Drive would be

removed to accommodate the widening of SR-74 to four lanes (two lanes in each direction). In the Response to Comments received on the Draft IS, the Department designed Alternative 2, which would maintain the sidewalk on the north side by replacing the existing meandering sidewalk with a straight sidewalk between Calle Entradero and Hunt Club Drive, and would still accommodate the widening of SR-74 from two to four lanes. See General Response No. 8, Segmentation of Project, regarding why the western project limit is at Calle Entradero. See General Response No. 1, Visual Impacts, regarding the visual impact of the project. Also, there will be no reduction in stacking to unsafe levels at the Calle Entradero entrance to Hunt Club as a result of the proposed widening project. See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding why the project does not include installation of a traffic signal at any of the existing unsignalized intersections within the project limits. According to the City of San Juan Capistrano approved CIP for 2008 through 2015, no signals are proposed for construction along Ortega Highway.

P-20-37

See General Response No. 2, Traffic Signal/Pedestrian Crossing. The City was not in favor of the center median because the addition of the center median would require additional ROW.

P-20-38

The commenter's statements regarding agency bias are acknowledged and will be considered as part of the decision-making process.

P-20-39

The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final design phase of the project. Jurisdiction of ROW will be clearly established in the final design phase.

P-20-40

See General Response No. 5, Project Description, regarding driveway slopes. The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final design phase of the project.

P-20-41

See Attachment B, which describes how comments raised on the IS/with proposed MND were addressed as part of the EIR preparation process. It is unclear what petition the commenter is referring to. Therefore, this portion of the comment regarding the petition could not be responded to.

P-20-42

The DEIR includes a cumulative analysis, which evaluates the project's impacts within the context of reasonably foreseeable future development, pursuant to Section 15130 of the CEQA Guidelines. A growth-inducing analysis is also included in Section 2.1.2 of the DEIR. As stated in the DEIR, the proposed project addresses existing and future congestion and is not a condition of approval for any development. See General Response No. 4, Traffic Projections, regarding traffic impacts and growth inducement.

P-20-43

Section 2.1.2 of the DEIR addresses the growth-inducing impacts of the proposed project. Please also refer to General Response No. 4, Traffic Projections, regarding traffic impacts and growth inducement. It should also be noted that the Circulation Element of the City's General Plan (December 1999) shows Ortega Highway as a Primary Arterial within the study area. This designation precedes approval of the Ranch Plan on June 10, 2004.

P-20-44

The commenter does not identify what information related to public scoping, hearings and community input is inaccurate; therefore, the statements provided are considered the opinion of the commenter.

P-20-45

The commenter's statements regarding the project development process are acknowledged. Your comment will be considered as part of the decision-making process for this project.

P-20-46

The commenter's statements regarding the project development process are acknowledged. Your comment will be considered as part of the decision-making process for this project.

P-20-47

The commenter's statements regarding the project development process are acknowledged. Your comment will be considered as part of the decision-making process for this project.

P-20-48

The Department is the CEQA Lead Agency for the SR-74 Lower Ortega Highway Widening project. See General Response No. 8, Segmentation of Project, regarding project segmentation.

P-20-49

The DEIR evaluates impacts that will occur as a result of the project, as defined in the Project Description. Impacts that will occur as a result of other road-widening activities along Ortega Highway have been evaluated separately prior to approval of those actions. Impacts that occurred to wetlands, coastal California gnatcatcher habitat, and other ESAs as a result of other projects are not evaluated in this DEIR, as those projects were subject to separate environmental review, and as those resources are outside of the Biological Survey Area for this project.

P-20-50

LSA Associates, Inc. (LSA) prepared an addendum that updated the *Final Technical Noise Impact Analysis Report for State Route 74 (Ortega Highway) from Calle Entradero to 0.43 KM East of La Pata Avenue in the County of Orange* (LSA, June 27, 2008). This noise addendum reevaluated the feasibility and reasonableness of all sound walls located within the project area based on the updated existing and 2035 peak-hour traffic volumes, vehicle mix, reasonable allowance, and estimated sound wall construction cost.

The noise level measurements conducted by the Department within the project area at representative locations remained the same in the noise study. The noise study dated

June 27, 2007, was revised by LSA with updated traffic information. See General Response No. 7 regarding noise impacts.

P-20-51

Modeling for the purpose of determining the potential noise impact of a project is a common and accepted methodology for conducting noise analyses.

See General Response No. 7 regarding noise impacts.

P-20-52

See General Response No. 7 regarding noise impacts.

P-20-53

See General Response No. 7 regarding noise impacts.

P-20-54

Comment noted. The proposed project is not a new project beginning after January 15, 2005, which would require the use of Traffic Noise Model (TNM) Version 2.5. The preparation of the noise study and noise modeling for the proposed project began in 2004 using the Sound32/2000 noise model. Therefore, the Sound32/2000 noise model is the appropriate noise model. See General Response No. 7 regarding noise impacts.

P-20-55

The noise study follows the Department's Protocol dated October 1998 because the study began prior to October 1, 2006, the effective date for implementation of the new August 2006 Protocol for new noise studies. See Response to Comment P20-54 regarding the use of the appropriate noise model. Sound32 and Sound2000 are the same noise model. See General Response No. 7 regarding noise impacts.

P-20-56

See General Response No. 7 regarding noise impacts.

P-20-57

See General Response No. 7 regarding noise impacts.

P-20-58

Please refer to General Response No. 7, regarding noise impacts.

P-20-59

See General Response No. 7 regarding noise impacts.

P-20-60

See General Response No. 7 regarding noise impacts.

P-20-61

The improvement projects in the region surrounding the project site and the project growth were taken into consideration while analyzing the traffic-related impacts in the vicinity of the project.

P-20-62

The commenter's statements regarding the project development process and preparation of technical reports are acknowledged. Your comment will be considered as part of the decision-making process for this project.

P-20-63

See Responses to Comments P-20-13 and P-20-62, above.

P-20-64

A comparison of the results shown in the traffic analysis for future 2035 No Build conditions with the Build (widening) conditions shows that the widening project reduces congestion and delay and helps improve the traffic flow. The purpose of widening Ortega Highway is not intended to mitigate the impacts of one particular project (Ranch Plan) but to reduce congestion along this section of Ortega Highway.

P-20-65

Section 2.1.2.3 of the DEIR addresses the growth-inducing impacts of the proposed project. Please also refer to General Response No. 4, Traffic Projections, regarding traffic impacts and growth inducement. It should also be noted that the Circulation Element of the City's General Plan (December 1999) shows Ortega Highway as a

Primary Arterial within the study area. This designation precedes approval of the Ranch Plan in June 2004.

P-20-66

It should be noted that the traffic projections used in the traffic analysis for this project included projected traffic from Ladera Ranch. Please see General Response No. 4, Traffic Projections, and General Response No. 6, Inadequate Traffic Analysis, regarding traffic and growth in the project area and regarding the methodology for the traffic analysis.

P-20-67

The commenter's statement regarding the adequacy of the document is acknowledged. This statement does not identify specific inadequacies of the DEIR, and is therefore considered the opinion of the commenter.

P-20-68

See Response to Comment O-1-12 regarding traffic impacts and consideration of alternatives. Also, please refer to General Response No. 4, Traffic Projections, regarding induced growth.

P-20-69

Thank you for your comment and your interest in this project. Your comment will be considered as part of the decision-making process for this project. See General Response No. 10, Climate Change/Greenhouse Gases, regarding global warming and GHG emissions and General Response No. 4, Traffic Projections, regarding growth inducement in Riverside County.

P-20-70

See Response to Comment P-20-69. Also, please refer to General Response No. 5, Project Description, regarding project alternatives (in particular, alternative east/west roadways).

P-20-71

See General Response No. 7, Increase in Noise/Noise Analysis, regarding the modeling tools used to conduct the noise analysis and General Response No. 8,

Segmentation of Project, regarding project segmentation. There is no federal funding for the proposed project and the requirements of NEPA and the FHWA do not apply.

P-20-72

See General Response No. 7 regarding noise impacts.

P-20-73

See General Response No. 7 regarding noise impacts.

P-20-74

See General Response No. 7 regarding noise impacts.

P-20-75

See General Response No. 7 regarding noise impacts.

P-20-76

There is no federal action or federal funding associated with the proposed project. Therefore, the Executive Order identified by the commenter (Executive Order No. 12898, regarding Environmental Justice) is not relevant to the DEIR. The closest mobile home community to the project area is located approximately 400 ft west of Calle Entradero, the western project limit for the SR-74 Lower Ortega Highway Widening project. No impacts to the mobile home community are anticipated as a result of the SR-74 Lower Ortega Highway Widening project for the following reasons: the mobile home community is located outside the project limits, the project will not widen SR-74 adjacent to the mobile home community, and the project does not increase traffic volumes on SR-74.

P-20-77

Comment noted. Different sound wall materials were considered for this project. See General Response No. 7 regarding noise impacts.

P-20-78

The commenter's request to stop work on the project is acknowledged and will be considered as part of the decision-making process.

1.5.21 Marsi and Chuck DeCasas

P-21-1

Please refer to Responses to Comments O-1-14 and O-1-17 regarding delays at the Hunt Club entrance.

P-21-2

The commenters' statement that the project is not needed immediately due to the economic slowdown is acknowledged. As described in Section S.2.2 of the DEIR, congestion currently exists within the study area and is forecast to continue and worsen.

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1.5.22 Stephanie Doucette

P-22-1

See Responses to Comments O-1-33 and P-13-1.

P-22-2

The commenter's support for the extension of La Pata Avenue to San Clemente is acknowledged. See General Response No. 5, Project Description, which includes a discussion of alternatives considered.

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1.5.23 Sandra Ewing

P-23-1

See Response to Comment O-1-5.

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1.5.24 Linda Falk

P-24-1

See Response to Comment O-1-7.

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1.5.25 Carol Freezor

P-25-1

The commenter's opposition to the proposed project is acknowledged. See General Response No. 5, Project Description, and General Response No. 4, Traffic Projections, regarding the purpose and need for the SR-74 Lower Ortega Highway Widening project.

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1.5.26 Ron Freezor

P-26-1

The intersection of Calle Entradero and Ortega Highway will act as a transition from the proposed limits to the four-lane highway.

P-26-2

Thank you for your comment. The consultant's comment was that the postproject condition would be similar in appearance and feel to the existing section of SR-74 west of the project limits that is already widened to four lanes. The statement was not meant to be an exact characterization of the postproject condition.

P-26-3

The increase in projected traffic along Ortega Highway will occur irrespective of the proposed widening project. The resulting congestion (due to increase in traffic) will increase if this section of Ortega Highway is not widened.

P-26-4

Please refer to Response to Comment P-6-2. The I-5/SR-74 Interchange Improvement project is scheduled to begin construction in fall 2012 and be completed by fall 2014.

P-26-5

The commenter's request for closure and cul-de-sacing of Via Cuartel is acknowledged. Via Cuartel is outside the project limits. The possibility of closing Via Cuartel is a matter for consideration by the City and the neighborhood, and is not associated with the SR-74 Lower Ortega Highway Widening project.

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1.5.27 Bill and Carol Fessenden

P-27-1

The commenters' support of the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

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1.5.28 Pat Filippi

P-28-1

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

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1.5.29 Ron and Vicki Geisler

P-29-1

See Responses to Comments P-26-3 and O-1-7.

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1.5.30 Gerry Hahn

P-30-1

Regarding the comment on noise reflections, See General Response No. 7, for noise impacts. As a project feature, two sound walls on the south side of Ortega Highway within the project limits are proposed.

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1.5.31 Sherry Hahn

P-31-1

Please refer to General Response No. 7, regarding noise impacts.

P-31-2

Regarding the comment on noise reflections, See General Response No. 7 regarding noise impacts.

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1.5.32 Gila Jones

P-32-1

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

P-32-2

See General Response No. 7 regarding noise impacts.

P-32-3

The commenter's statement's regarding the adequacy of the EIR analysis is acknowledged and will be considered as part of the decision-making process for this project.

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1.5.33 Carla Kallen

P-33-1

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

P-33-2

The commenter's statements regarding the project's visual impacts are acknowledged and will be considered as part of the decision-making process for this project.

See General Response No. 1, Visual Impacts, regarding tree removal and retaining walls and sound walls.

P-33-3

In Alternative 1 of the proposed widening project, the sidewalk along the northern edge of the highway would be removed west of Calle Entradero. Pedestrians of the community north of Ortega Highway can access Ortega Highway by a sidewalk located on the north side, in order to cross Ortega Highway at the nearest signal at La Novia Avenue. Alternative 2 of the proposed widening project includes sidewalks on each side of Ortega Highway.

P-33-4

Please see General Response No. 5, Project Description, regarding the purpose of and need for the SR-74 Lower Ortega Highway Widening project. Please see General Response No. 4, Traffic Projections, regarding growth.

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1.5.34 Bill Kindel

P-34-1

The proposed widening project will include a Class II bike lane within the project limits.

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1.5.35 Christopher and Jean King

P-35-1

The commenters' opposition to the proposed project and desire to maintain the existing roadway geometrics and reduce the speed to 30 mph are acknowledged and will be considered as part of the decision-making process for this project.

See General Response No. 1, Visual Impacts, regarding the visual impact of the project. See General Response No. 4, Traffic Projections, regarding the postproject speed limit on SR-74.

The commenters' opposition to the proposed project is acknowledged and will be considered as part of the decision-making process.

P-35-2

The commenters' request to close Via Cuartel is acknowledged. See Response to Comment P-26-5 for further discussion of the closure of Via Cuartel.

P-35-3

See Response to Comment P-20-19.

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1.5.36 Cynthia Lagos

P-36-1

See Response to Comment P-20-19.

P-36-2

The commenter's opposition to the proposed project and concern for the community character are acknowledged and will be considered as part of the decision-making process for this project. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the EIR, and the comment is considered the opinion of the commenter.

P-36-3

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-36-4

The commenter's opposition to the proposed project and concern for the community character is acknowledged and will be considered as part of the decision-making process for this project. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the EIR, and the comment is considered the opinion of the commenter.

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1.5.37 Robert Lavacot

P-37-1

Based on the traffic analysis at the intersection of SR-74/Toyon Drive for 2035 conditions, a maximum of two vehicles would make a right turn in the westbound direction during the peak hours. This number is too low to warrant a separate right-turn lane in the westbound direction at this location. The existing ROW and easement will be used to widen SR-74 to four lanes, and there will not be enough room to accommodate the additional right-turn (deceleration) lane in the westbound direction.

P-37-2

See Response to Comment O-1-7.

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1.5.38 Jerry Lawrence

P-38-1

Thank you for your comment in support of the "Nonstandard Roadway Widening (Widening to the North) Alternative" discussed in Section 1.5.4.4 of the DEIR. Please note that this alternative is listed in the DEIR as a Build Alternative that was considered by the Project Development Team (PDT) but eliminated from further consideration for the following reason: "Under this Alternative, the roadway would not provide standard shoulders and bike lanes. The Department Project Development Coordinator did not approve the proposed 2 ft nonstandard shoulders."

P-38-2

The August 2008 MPAH shows Ortega Highway from the I-5 to beyond the eastern SR-74 Lower Ortega Highway Widening project limits as a Primary Arterial highway. A Primary Arterial Highway is defined on the MPAH as a four-lane divided roadway.

P-38-3

Please refer to Response to Comment No. P-20-21 regarding roadway geometrics.

P-38-4

See Responses to Comments L-2-25 and O-3-14.

P-38-5

The commenter's support for the Non-standard Roadway Widening alternative is acknowledged. The Department has procedures for determining when deviation from standard design parameters can be utilized, and these deviations must be approved both within the local Department District and at the Department's headquarters in Sacramento. If approval for this deviation is not accepted, then the project design must include existing standards.

P-38-6

See General Response No. 7, Increase in Noise/Noise Analysis regarding noise impacts and General Response No. 1, Visual Impacts, regarding the impacts of wall and graffiti removal.

P-38-7

Thank you for your comment and your interest in this project.

See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts and General Response No. 1, Visual Impacts, regarding the impacts of wall and graffiti removal. The commenter's support for a nonstandard widening is acknowledged.

P-38-8

See Responses to Comments O-1-7, L2-24, L-2-25, and O-3-14.

Thank you for your comment and your interest in this project. Your preference for Alternative 1 is acknowledged. The proposed sound walls were identified to be both feasible and reasonable under the Department's Protocol. The proposed sound wall would not be constructed if the affected property owners are not in favor of it.

P-38-9

The commenter's support for a project design that eliminates the bike lanes, provides a signal for pedestrian/equestrian crossing, and eliminates the noise barriers is acknowledged and will be taken into consideration as part of the decision-making process.

1.5.39 Helen Lee

P-39-1

Placing a stop sign along this section (within project limits) of Ortega Highway will produce excessive delays and significant congestion based on the existing volumes on this stretch of the highway. Based on the federal and State Manual on Uniform Traffic Control Devices (MUTCD), a stop sign cannot be used as a speed deterrent; therefore, a stop sign cannot be placed along this stretch of Ortega Highway.

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1.5.40 Kim Lefner

P-40-1

The commenter's opposition to the proposed project is acknowledged and will be taken into consideration as part of the decision-making process.

P-40-2

The commenter disagrees with the conclusions of the DEIR regarding visual, community, noise, air quality, and traffic impacts and the need for a traffic signal. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the DEIR, and the comment is considered the opinion of the commenter.

P-40-3

See Responses to Comments O-1-7 and P-26-3. Ortega Highway is a State facility, and all the elements are designed consistent with the Department requirements.

P-40-4

The commenter's concerns regarding the effect of the proposed project on the City's character is acknowledged. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the DEIR, and the comment is considered the opinion of the commenter.

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1.5.41 Melissa Luker

P-41-1

The commenter's gratitude for the professional conduct of the Department at the public hearing is acknowledged.

P-41-2

The commenter's opposition to the proposed project is acknowledged.

P-41-3

This comment is duplicative of comments provided by other commenters. Please refer to Responses to Comments P-6-1 through P-6-26, which address the same comments.

P-41-4

The commenter's opposition to the proposed project and support for the I-5/Ortega Highway interchange is acknowledged. The commenter's opposition to the proposed project and support for the I-5/SR-74 Interchange Improvement project is acknowledged.

P-41-5

The commenter's support for construction of an underground tunnel within the project area is acknowledged and will be considered as part of the decision-making process for this project. Construction of a tunnel underneath existing SR-74 would involve a whole new range of impacts that would need to be addressed, including additional ROW (substantial impact to adjacent properties) required to construct SR-74/tunnel junctions at the tunnel entrance and exit, the high cost to construct a tunnel, and geotechnical impacts resulting from construction of a tunnel in close proximity to existing residential development, just to name a few. Therefore, adding capacity to SR-74 by constructing a tunnel was not considered a viable alternative to widening SR-74 within the project limits. See General Response No. 5, Project Description, regarding alternatives considered.

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1.5.42 Joe Mankawich

P-42-1

The commenter's opposition to the proposed project is acknowledged and will be taken into consideration as part of the decision-making process.

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1.5.43 Suzanne McCardle

P-43-1

Please refer to Response to Comment O-1-5. For additional information regarding why a traffic signal is not provided as part of the project, and regarding schoolchildren crossing SR-74, please refer to General Response No. 2, Traffic Signal/Pedestrian Crossing. Regarding the project's impact to community character, please refer to General Response No. 1, Visual Impacts. Regarding traffic and growth, please refer to General Response No. 4, Traffic Projections.

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1.5.44 Rick Mercier

P-44-1

Comment Noted. See Response to Comment O-1-7.

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1.5.45 Anita Micalizzi

P-45-1

Thank you for your comment regarding the professionalism of the Department.

P-45-2

The commenter's opinion is acknowledged.

P-45-3

The commenter's support for providing the additional travel lanes within a tunnel under existing SR-74 is acknowledged. The comment will be considered as part of the decision-making process for the project. However, construction of a tunnel would be prohibitively expensive, and new ROW would be required to construct the SR-74/tunnel junction. Therefore, due to the high cost of construction and the ROW impact to existing land uses, a tunnel was never considered as a viable project alternative. Response to Comment P-41-5 provides more information regarding why constructing a tunnel was not considered as a viable alternative to widening SR-74.

P-45-4

The commenter's opposition to the proposed project and support for the I-5/Ortega Highway interchange is acknowledged.

P-45-5

Please see Response to Comment No. P-41-5.

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1.5.46 Peggy Miller

P-46-1

The commenter's opposition to the proposed project and support for a traffic signal in the project area is acknowledged and will be taken into consideration as part of the decision-making process.

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1.5.47 Roger and Bernadine Monaco

P-47-1

Construction of the SR-74 Lower Ortega Highway Widening project would require construction of a retaining wall to support the resulting hillside slope at the location of the subject driveway. Alternatives 1 and 2 would construct a retaining wall that would prevent access to SR-74 from an existing unpaved driveway located east of Shade Tree Lane and approximately 300 ft west of the City/County limits. When this parcel was subdivided, the vehicular access rights to SR-74 were relinquished to the Department with City approval. The construction of this project will not diminish emergency access to the subject property as legally required. Additionally, this driveway is nonoperational for residential use due to its steep slope and unpaved condition.

P-47-2

The commenter's support for acquiring additional ROW in lieu of constructing the retaining wall on the north side of the roadway, at the easterly end of the project area, is acknowledged and will be considered as part of the decision-making process for this project.

P-47-3

The project will not result in a change to legal access to the property.

P-47-4

The commenter's support for a break in the retaining wall along the north side of the project at their property is acknowledged and will be considered as part of the decision-making process.

P-47-5

See Response to Comment P-47-1 regarding the request to provide a break in the retaining wall on the commenter's property.

P-47-6

The project will not result in a change to legal access to the property. The final ROW requirements for the proposed project will be determined during final design, and

property acquisitions required for construction of the project will be negotiated at that time. See Response to Comment No. P-47-7.

P-47-7

No legal access is being denied, and therefore the Department is not responsible for reimbursement.

1.5.48 John Nuccio

P-48-1

See Response to Comment O-1-5. Currently, there are no traffic signals within the project limits. This project does not warrant any signals at the existing intersections. However, in the future, should there be a need for a signal/pedestrian crossing, the current design does not preclude the opportunity to install a signal.

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1.5.49 Ed G. Paniagua

P-49-1

See General Response No. 7 regarding noise impacts.

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1.5.50 Joy Parr

P-50-1

The commenter's comments regarding the proposed project's effect on community character and lack of a traffic signal are acknowledged and will be considered as part of the decision-making process for this project. See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding why a traffic signal is not included as part of the SR-74 Lower Ortega Highway Widening project, and regarding schoolchildren crossing SR-74 to get to school.

P-50-2

The Traffic Study has analyzed all the intersections along Ortega Highway within the project limits. The existing turn lanes (left or right) at each intersection would remain. The analysis shows that Ortega Highway will have gaps so that side-street traffic can make a left or right turns to merge onto the highway.

P-50-3

The commenter's statement regarding time savings is acknowledged.

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1.5.51 Joan Priestley

P-51-1

Ortega Highway is a State facility, and all of its elements are designed consistent with Department requirements. The closest school to the east of Hunt Club Drive is greater than 2.5 mi; thus, students would either be bused or dropped off by their parents and would not walk to school. Also, there is negligible pedestrian activity along Ortega Highway east of Calle Entradero. Hence, there will be minimal impact from removing/not providing a sidewalk on the northern edge of the highway.

P-51-2

Please refer to Response to Comment P-9-1 regarding existing and proposed equestrian trails and General Response No. 2, Traffic Signal/Pedestrian Crossing.

P-51-3

The project is not located within the Coastal Zone, and therefore the CCC does not have jurisdiction over the project area. Runoff to San Juan Creek is addressed in Section 2.2.2 of the DEIR.

P-51-4

All the intersections analyzed in the study fail in the existing and future conditions. The reason these intersections are reported as LOS "F" (fail) is because the methodology used in the analysis uses the delay experienced by vehicles on the minor street, which is controlled by a stop sign, to estimate the LOS. The LOS at all the intersections analyzed in the study is LOS F irrespective of the widening project. In other words, the intersections are currently failing and will continue to fail with and without the widening project. Based on the traffic analysis, the widening project reduces the delay experienced by traffic turning in and out of these side streets in the future conditions.

P-51-5

Please see Response to Comment O-1-7.

P-51-6

Please see Response to Comment P-51-5, above.

P-51-7

See Response to Comment L-2-25.

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-51-8

Please refer to General Response No. 3, Need for Bicycle Facilities. Ortega Highway is a State facility, and all the elements are designed consistent with the Department requirements. The DEIR does not indicate that the design of the widened roadway is consistent with FHWA standards.

P-51-9

See Response to Comment P-13-1.

P-51-10

See Response to Comment O-2-15.

P-51-11

Please refer to Responses to Comments P-20-23 and P-20-61.

P-51-12

See General Response No. 7 regarding noise impacts.

P-51-13

See General Response No. 8, Segmentation of Project, regarding segmentation of the project. See General Response No. 4, Traffic Projections, regarding traffic. See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise impacts.

P-51-14

See General Response No. 7 regarding noise impacts.

P-51-15

See Responses to Comments O-1-33 and P-5-2.

Regarding the comment on added traffic and noise, see General Response No. 4, Traffic Projections, regarding traffic.

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-51-16

Del Obispo Street is outside the study area boundary, and any potential increase/ decrease in future traffic projections along this roadway is not known.

P-51-17

Rancho Viejo Road is outside the study area boundary and any potential increase/ decrease in future traffic projections along this roadway is not known.

P-51-18

See General Response No. 8, Segmentation of Project, regarding segmentation of the project.

P-51-19

See Response to Comment P-48-1.

P-51-20

The commenter's statement regarding an unidentified leaking underground storage tank (LUST) is acknowledged. The commenter does not provide a reference for her statement regarding the LUST, and this statement is an opinion of the commenter.

P-51-21

During final design, a Final Geotechnical Report will be prepared to confirm the findings of the preliminary geotechnical and soils analysis.

P-51-22

See Response to Comment P-51-1.

P-51-23

The commenter's comments regarding the cross section for the proposed project are acknowledged. The shoulder is being provided to meet Department roadway standards. It is not being constructed to be used as an additional lane in the future, since there would be inadequate width (i.e., standard travel lane width is 12 ft). As outlined in Appendix G of the DEIR, the proposed State ROW ranges from 72 ft to 86.4 ft, depending on the amount of slope retention required. Between Calle Entradero and Hunt Club Drive, the widening would be within the existing public ROW and the additional width needed would be 6 ft for Alternative 1 and 11 ft for Alternative 2. The project is currently in the environmental phase, which is based on preliminary design. Detailed information, such as ROW requirements, is not available until the final design phase of the project.

P-51-24

See Response to Comment P-9-1.

P-51-25

See General Response No. 5, Project Description, regarding driveway gradients.

P-51-26

The geometrics of the intersections with local roadways are identified in the roadway plans provided in Appendix G of the DEIR.

P-51-27

The widening project is designed to alleviate traffic congestion and accommodate future (2035) traffic projected along Ortega Highway. The projected traffic in 2035 future conditions along Ortega Highway is 39,000 ADT. The Orange County MPAH has classified Ortega Highway as a Primary Arterial. The MPAH also designates a theoretical capacity that ranges between 20,000 and 30,000 ADT for a Primary Arterial. It should be noted that this is a theoretical range of ADT that this particular classification would be able to carry comfortably. In case of Ortega Highway, the projected future (2035) volume is higher than the range specified in the MPAH for a Primary Arterial. This does not mean that the primary purpose of this widening project would not be satisfied. Also, note that the proposed project would widen the highway to its width (four lanes) designated in the MPAH.

P-51-28

The road widening is consistent with Department design standards, which is what Orange County follows (listed in Orange County Highway Design Manual [OCHDM]). Note that the "10 feet increase in left-turn pocket…." stated on page 37 of the OCHDM is only applicable to Secondary Arterial and Rural Secondary highways.

P-51-29

See Response to Comment P-20-22.

P-51-30

See General Response No. 1, Visual Impacts, regarding impacts to Scenic Highways.

P-51-31

According to County standards, the minimum width of sidewalk that can be provided is 4 ft (unobstructed), and the maximum (full parkway) width is 8 ft. The actual width of the sidewalk varies between 4 and 8 ft and will depend on the particular project.

P-51-32

The commenter's comments regarding bias in the analysis conducted for the DEIR are acknowledged. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the DEIR, and the comment is considered the opinion of the commenter.

P-51-33

The commenter's statement regarding the efficacy of noise barriers, in general, is acknowledged. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the DEIR, and the comment is considered the opinion of the commenter.

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1.5.52 Dale Rosenfeldt

P-52-1

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process.

P-52-2

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

P-52-3

The commenter's statements regarding existing driver behavior on SR-74 are acknowledged.

P-52-4

The commenter's submittal of the Balls_and_Boxes.docx file has been acknowledged. However, the format of the document made the document inaccessible. The Department has contacted the commenter regarding resubmittal, but has not received a compatible file as of this date.

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1.5.53 Christina and Warren Sandy

P-53-1

See General Response to Comment No. 2, Traffic Signal/Pedestrian Crossing.

See response to visual comments.

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1.5.54 Bob Sanford

P-54-1

Please see General Response No. 4, Traffic Projections, regarding the purpose and need for widening the project section of SR-74.

The commenter's concerns regarding the safety of SR-74 within the project area and along its entirety are acknowledged. As described in Table 2.1.5-2 of the DEIR, the accident data collected by the Department demonstrates that the historical accident rates for SR-74 within the project limits are lower than for similar highways. A need for safety improvements was not identified along this section of SR-74. However, the SR-74 Lower Ortega Highway Widening project will be designed and constructed per Department standards, which include safety standards.

P-54-2

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emission impacts, and the global warming impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

P-54-3

Please refer to Response to Comment P-54-2.

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1.5.55 Richard Sato

P-55-1

The commenter's observation regarding the increase in traffic and traffic-related noise is acknowledged. The statement does not raise any questions regarding the adequacy of the DEIR and is considered the opinion of the commenter.

P-55-2

See Response to Comment P-4-2.

See General Response No. 7 regarding noise impacts.

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emission impacts, and the global warming impacts. The 44 percent increase in vehicle trips along SR-74 is due to area growth and not due to the proposed project. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

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1.5.56 C. Schneider

P-56-1

The commenter's opposition to the proposed project and support for the improvement of the I-5/SR-74 interchange, extension of La Pata Avenue to the west and connection of SR-241 to I-5, is acknowledged. Please refer to General Response No. 5, Project Alternatives, regarding the alternatives considered.

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1.5.57 Emily Schulz

P-57-1

This comment is an introductory statement; no environmental issues related to the analysis in the DEIR are raised.

P-57-2

See Response to Comment O-2-13.

P-57-3

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-57-4

Comment noted.

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1.5.58 Bill and Katie Shreve

P-58-1

The commenters' opposition to the proposed project is acknowledged and will be considered as part of the decision-making process.

P-58-2

See Response to Comment P-16-2.

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1.5.59 Jan Siegel

P-59-1

The commenter's statement regarding the effect on the character of the City is acknowledged and will be considered as part of the decision-making process for this project. The statement does not raise any questions regarding the adequacy of the DEIR and is considered the opinion of the commenter.

P-59-2

The commenter's statements regarding designation as a Scenic Highway are acknowledged. See General Response No. 1, Visual Impacts.

P-59-3

Since this letter does not identify the adobes by name, it is assumed that the commenter is referring to the Manriquez Adobe archaeological site and the Parra Adobe. See Response to Comment P-10-1, which discusses vibration impacts to these cultural resources.

P-59-4

This commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making for the project.

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1.5.60 Joan Irvine Smith Submitted by Mark S. Ashworth for Ashworth & Ashworth, LLP

P-60-1

See General Response No. 7 regarding noise impacts.

P-60-2

It is unknown at this time whether all or a portion of the vegetation will require removal, as this will be determined once the project design has been completed. As stated in Section 2.3.3.3 of the DEIR, it is estimated that up to two oak trees may require removal and up to six oaks may have work conducted within or around the drip line. However, in areas on private property where vegetation removal occurs, compensation will be provided in the form of replacement plantings or other acceptable measures.

P-60-3

Because the project design has not been finalized, it is not known at this time which trees along Ortega Highway will be adversely affected. The DEIR estimates 111 trees will be adversely affected; however, this number may be refined based on the final project design. Please refer to Response to Comment P-5-4 regarding the removal and replacement of trees as part of the proposed project.

P-60-4

The design of the new slope has not been completed at this time. While it is likely that some impact to vegetation will occur, it is possible that if the grade does not change substantially, some mature trees within the easement could be preserved through implementation of avoidance and minimization measures such as prohibiting construction within the dripline (refer to Section 2.3.3.4 of the DEIR).

P-60-5

It is anticipated that fill will occur at "The Oaks" property to match the proposed widened cross slope and access roads would be reconstructed to match the new grade of the roadway. The future roadway elevation would not substantially change from existing conditions, and the effect of any elevational change on noise levels would be

negligible. The roadway elevation would not be changed significantly. However, traffic noise impacts identified in the noise study would not be changed.

P-60-6

Please refer to Section 2.2.1.3 in the EIR, which states that neither Alternatives 1 nor 2 would substantially alter the existing drainage pattern of the area. The storm water will be diverted through the proposed curb and gutter in front of the property into proposed drainage structures.

P-60-7

The TCE is needed to reconstruct the existing slope on the property. It would not be used for staging of materials or equipment. Temporary access to the property will be provided. The term of the TCE will be determined at final design stage.

P-60-8

Please refer to Responses to Comments P-60-1 through P-60-7, which provide specific responses to the issues raised in the comment letter. These responses are incorporated into the FEIR and will be made available as part of the FEIR.

1.5.61 Christine Speed

P-61-1

Comment noted. The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project. Please refer to General Response No. 4, Traffic Projections, regarding growth and the purpose and need for widening within the project area, and General Response No. 5, Project Description, regarding the alternatives considered.

P-61-2

The commenter's support for an alternative westerly route is acknowledged and will be considered as part of the decision-making process for this project.

P-61-3

The commenter's support for extension of La Pata Avenue to Stonehill Drive and upgrading the existing I-5/Stonehill Drive interchange is acknowledged. Please refer to General Response No. 5, Project Description, regarding alternatives considered.

P-61-4

Please see Response to Comment P-61-3. The commenter's support for funding the suggested improvement through the "Stimulus Bill" is acknowledged.

P-61-5

The commenter's support for extension of La Pata Avenue to Stonehill Drive and an upgraded Stonehill Drive/I-5 interchange is acknowledged. Please refer to General Response No. 5, Project Description, regarding alternatives considered.

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1.5.62 Mark Speros

P-62-1

The comments are duplicative of other comments received. Please refer to Responses to Comments P-6-1 through P-6-26.

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1.5.63 Gordon Stefenhagen

P-63-1

Thank for your comment and interest on the project. See General Response No. 2, Traffic Signal/Pedestrian Crossing. The commenter's opposition to the proposed project and support for the I-5/SR-74 Interchange Improvement project are acknowledged. The comments do not raise any questions regarding the adequacy of the DEIR and are considered the opinion of the commenter.

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1.5.64 Tressa Strom

P-64-1

Impacts to sensitive natural communities and special-status species, including threatened and endangered species, that would occur as a result of project implementation are addressed in Sections 2.3.1 through 2.3.5 of the DEIR and are more thoroughly evaluated in the Natural Environment Study (NES) and Supplemental NES. Biological surveys conducted in 2008 determined that no federally or State-listed as threatened or endangered species occur within the project's Biological Study Area (BSA), nor is suitable habitat present for such species. The proposed project includes installation of seven new drainage features along the sides of the road that will connect directly to the storm drain system, and that are expected to reduce and eliminate some areas that are presently subject to erosion by ensuring that runoff from the road is conveyed through appropriate channels rather than causing erosion to roadside areas.

The commenter's statements regarding impact to biological habitat, endangered species, and watershed erosion is acknowledged. The commenter does not raise substantive comments regarding the adequacy of the analysis provided in the DEIR and the comment is considered the opinion of the commenter. Please refer to Response O-3-31 regarding control of erosion during construction. Drainage improvements would be constructed as part of the project, which would include energy dissipation devices to prevent erosion of drainages. The DEIR was available at the Department District 12 offices, the City of San Juan Capistrano Planning Services Department and the San Juan Capistrano Regional Library during the public review period.

P-64-2

Thank for your comment and interest on the project. See General Response No. 2, Traffic Signal/Pedestrian Crossing.

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1.5.65 Benjamin and Cheryl Trosky

P-65-1

These comments are duplicative of other comments received. Please refer to Responses to Comments P-51-1 through P-51-15 and P-51-18 through P51-31.

P-65-2

The existing conditions include the traffic to and from the dump. The analysis of the existing conditions is included in the Traffic Study.

P-65-3

These comments are duplicative of other comments received. Please refer to Responses to Comments O-3-8, O-3-20, O-3-25, L-2-24, L-2-27, L-2-42, L-2-43, P-6-10, P-20-14, P-20-27, P-20-39, P-51-1, P-51-18, P-51-20, P-51-31, P-51-33, P-65-2.

P-65-4

The comment period for the DEIR was extended by 15 days. Please refer to Responses to Comments O-2-1 through O-2-20, which address the comments raised by Schmitz & Associates.

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1.5.66 Yvonne Tschaikowsky

P-66-1

The commenters' opposition to the proposed project is acknowledged. The commenter does not raise any questions regarding the accuracy of the DEIR, and this is considered the opinion of the commenter.

P-66-2

As described in Section 2.1.5.3 of the DEIR, the proposed project would benefit the residents of San Juan Capistrano by increasing the capacity of SR-74, relieving existing and future traffic congestion and improving the flow of traffic on SR-74. Please refer to General Response No. 4, Traffic Projections. The two-lane section does not serve as a calming feature that slows traffic speeds and creates gaps. The existing condition as analyzed in the Traffic Study show congestion and heavy delays for residents entering or exiting Ortega Highway. The out-of-area (Riverside) users compose only 6 percent of the projected future traffic that will use Ortega Highway.

P-66-3

Please refer to Response to Comment P-9-1 regarding planned equestrian facilities on SR-74.

P-66-4

Please refer to Response to Comment P-9-1 regarding the gradient of driveways.

P-66-5

Please refer to Response to Comment P-51-26 regarding the gradient of driveways.

P-66-6

Please refer to Response to Comment P-51-27 regarding the capacity of a Primary Arterial.

P-66-7

Please refer to Response to Comment P-51-28 regarding consistency with the definition of Primary Arterial.

P-66-8

Please refer to Response to Comment P-51-29 regarding changes in land uses from approved uses in the Ranch Plan.

P-66-9

Please refer to Response to Comment P-51-30 regarding maintaining eligibility as a State Scenic Highway.

P-66-10

Please refer to Response to Comment P-51-31 regarding conformance of design with the Department standards for sidewalks.

P-66-11

Please refer to Response to Comment P-20-54 regarding the noise analysis conducted for the DEIR.

P-66-12

Please refer to Response to Comment P-65-2 regarding the increased capacity at Prima Deshecha Landfill.

P-66-13

Please refer to Responses to Comments P-20-15 and P-36-1 regarding beneficiaries of the widening of SR-74.

P-66-14

Please refer to Response to Comment P-6-4 regarding the purpose and need for the proposed project.

P-66-15

Comment noted.

P-66-16

Please refer to Response to Comment P-38-6 regarding the visual effect of noise barriers and efficacy of sound barriers.

P-66-17

Please refer to Response to Comment P-38-4 regarding traffic signals and speeds within the project area.

P-66-18

Please refer to Response to Comment P-22-1 regarding the visual effects of the proposed project.

P-66-19

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

P-66-20

The commenters' opposition to the proposed project is acknowledged. The comment does not raise any questions regarding the adequacy of the DEIR and is considered the opinion of the commenter.

P-66-21

The commenters' opposition to the proposed project and request for an alternative roadway improvement is acknowledged. Please refer to General Response No. 5, Project Description, regarding the alternatives considered.

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1.5.67 Benjamin and Maryann Tucker

P-67-1

See General Response No. 7 regarding noise impacts.

P-67-2

See Response to Comment P-13-1.

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1.5.68 Dan Valentine

P-68-1

See General Response No. 7 regarding noise impacts.

P-68-2

The design speed of the widened roadway is 45 mph. The postproject speed limit will be determined by the standard method once the project becomes operational. However, the speed limit will not be greater than the 45 mph design speed of the proposed project. See General Response No. 2, Traffic Signal/Pedestrian Crossing, for information regarding how the speed limit will be determined.

P-68-3

Thank you for your comment and interest in the project. Please see General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding why installation of a traffic signal is not included as part of the project.

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1.5.69 Reg and Phyllis Villamil

P-69-1

The commenters' opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

P-69-2

The commenters' statements regarding the value of the existing visual character of SR-74 is acknowledged.

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1.5.70 Phyllis Watson

P-70-1

Thank you for your comment and interest in the project. See General Response No. 2, Traffic Signal/Pedestrian Crossing. The traffic safety section in the DEIR reviews safety at all existing intersections by examining the frequency and severity of accidents along this stretch of Ortega Highway. Based on the accident rate summary, the actual accident rate within the project limits is lower than the average accident rate occurring on highways of similar traffic volumes and road conditions.

P-70-2

The commenter's request that improvement of SR-74 be conducted after construction of the I-5/Ortega Highway interchange improvements is acknowledged. Please refer to Response to Comment No. 8 regarding the relationship of the proposed project to the I-5/Ortega Highway interchange.

P-70-3

The commenter's support for an intersection is acknowledged. Please refer to General Response No. 2, Traffic Signal/Pedestrian Crossing. The commenter provides no source for the comment regarding the frequency of accidents at crosswalks without traffic signals, and this information is therefore considered the opinion of the commenter.

P-70-4

Thank you for your comment and your interest in the proposed project. Your comment will be considered as part of the decision-making process for this project. Please see General Response No. 6, Inadequate Traffic Analysis, and General Response No. 4, Traffic Projections, regarding the traffic analysis for the project. Please refer to General Response No. 7, Increase in Noise/Noise Analysis, and Response to Comment No. P-20-23.

See General Response No. 7 regarding noise impacts.

P-70-5

Please refer to Response to Comment P-51-1.

P-70-6

Please refer to Response to Comment P-9-1.

P-70-7

Please refer to Response to Comment P-3-4.

P-70-8

Please refer to Response to Comment P-51-13. See General Response 10, Climate Change/Greenhouse Gases.

P-70-9

Thank you for your comment. Your comment will be taken into consideration during the decision-making process for this project. Some of the sound walls evaluated on the north side of SR-74 were determined to be not feasible (the wall would not provide the minimum 5 dBA noise reduction required by the Protocol), and some of the sound walls were determined to be feasible, but not reasonable (the cost to construct the wall exceeded the reasonable cost allowance per benefited residence protected by the wall). A retaining wall functions differently from a sound wall. A retaining wall is a stabilizing structure used to hold sloping ground in place and to prevent the erosion and movement of soil.

P-70-10

Please refer to Response to Comment P-51-9.

P-70-11

Please refer to Response to Comment P-51-10.

P-70-12

The commenter's opposition to the proposed project and statements regarding the adequacy of the DEIR are acknowledged. Please refer to Responses to Comments P-70-1 through P-70-11, which address the commenter's specific comments raised.

1.5.71 Kathleen M. Zaleski

P-71-1

The commenter's observations regarding traffic conditions on Oso Parkway and opposition to the proposed project are acknowledged. Your comment will be considered as part of the decision-making process for this project.

P-71-2

The commenter's statements regarding acceptability of existing traffic congestion to retain the existing quality of the roadway are acknowledged. Please refer to General Response No. 4, Traffic Projections, regarding the current and future need for the proposed project.

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1.6 Comments from the Public Meeting

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Public Transcript

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1.6.1 Trevor Dale

T-1-1

The commenter's statement regarding growth in the City is acknowledged.

T-1-2

The commenter's opposition to the proposed project is acknowledged and will be taken into consideration in the decision-making process for this project. Please refer to General Response No. 5, Project Description, regarding the purpose and need for the project and the alternatives considered. Please see General Response No. 8, Segmentation of Project regarding why this project stands on its own merits.

1.6.2 Lennie DeCaro

T-2-1

Please refer to General Response No. 4, Traffic Projections, regarding projected traffic growth and its relationship to Riverside County.

T-2-2

The commenter's opposition to the proposed project is acknowledged and will be taken into consideration in the decision-making process for this project. Please see General Response No. 5, Project Description, regarding the project purpose and consideration of alternatives to the project. Please refer to General Response No. 4, Traffic Projections, and General Response No. 6, Inadequate Traffic Analysis, regarding existing and projected traffic growth.

T-2-3

Please refer to General Response No. 4, Traffic Projections, regarding the existing and forecast demand on SR-74.

T-2-4

See General Response No. 7 regarding noise impacts.

T-2-5

See General Response No. 1, Visual Impacts, regarding the sound walls' effect on the scenic quality of the roadway and General Response No. 7, Increase in Noise/Noise Analysis, regarding reflective noise.

See General Response No. 7, regarding noise impacts.

T-2-6

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

T-2-7

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation.

T-2-8

Please see General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the design speed of the project and how the postproject speed limit will be established. Please see General Response No. 7, Increase in Noise/Noise Analysis, regarding the requirements and methodology for conducting the noise analysis for the project.

T-2-9

The commenter's opinion regarding the need for the project is acknowledged and will be considered as part of the decision-making process for this project.

T-2-10

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

1.6.3 Susan McCardle

T-3-1

The commenter's opposition to the proposed project and its effect on community character are acknowledged and will be considered as part of the decision-making process for this project.

T-3-2

The commenter's statement regarding delays ingressing/egressing the Hunt Club is acknowledged and will be considered during the decision-making process.

T-3-3

The commenter's statement regarding delays ingressing/egressing the Hunt Club is acknowledged and will be considered during the decision-making process.

T-3-4

The commenter's statement's regarding sidewalk removal is acknowledged. Both Build Alternatives maintain the southerly sidewalks. Alternative 1 removes the northerly sidewalk and Alternative 2 retains the northerly sidewalks.

T-3-5

See General Response No. 5, Project Description, regarding bicycle lanes. The Class II bike lane at the eastern project limit (City/County line) will transition to the bike lane facilities that are included as part of the County widening project.

T-3-6

See Responses to Comments O-1-39 and O-2-8, regarding the speed limit on SR-74.

T-3-7

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

T-3-8

Please refer to General Response No. 1, Visual Impacts, regarding tree removal and the visual/aesthetic impact of the retaining and sound walls proposed as part of the project.

T-3-9

See Response to Comment L-2-23 regarding the proposed project's relationship to the improvement of the I-5/SR-74 interchange.

T-3-10

Thank you for your comment and your interest in this project. Your comment will be considered as part of the decision-making process for this project.

1.6.4 Ed Connor

T-4-1

Article 13, Section 15202, Public Hearings, (a), of the CEQA Guidelines states the following: "CEQA does not require formal hearings at any stage of the environmental review process. Public comments may be restricted to written communications." The Department refers to this type of gathering as a public hearing because the public is afforded the opportunity to provide oral comments to a court reporter. The comments recorded by the court reporter then become part of the public record for the project. A meeting at which information regarding a project is provided to the public, but the public is not provided an opportunity for oral comments, is referred to by the Department as a public meeting. Please refer to Response to Comment O-1-2 regarding the legality of a "public hearing."

T-4-2

Please refer to Response to Comment O-1-4 regarding the adequacy of the environmental baseline.

T-4-3

Please refer to General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding consideration of a traffic signal within the study area.

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for a traffic signal within the project area.

T-4-4

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the need for a traffic signal within the project area. The commenter's support for a traffic signal at Hunt Club Drive is acknowledged. The commenter's statement regarding one access point to the Hunt Club community is inaccurate. There are two access points to the community, Hunt Club Drive and Calle Entradero.

T-4-5

The comment stating, "The EIR is also inadequate as to the description of adverse environmental impacts" is not specific. Therefore, no response is provided to this portion of the comment. The commenter's concern regarding the lack of taking of public testimony is acknowledged. Please refer to the Responses to Comments T-4-1 and O-1-2 regarding the legality of a "public hearing."

1.6.5 Jeff Schoff

T-5-1

The commenter's request for alternatives previously identified for evaluation is acknowledged. It is unclear which specific alternatives the commenter is suggesting. Please refer to General Response No. 5, Project Description, regarding the alternatives considered.

1.6.6 Shareen Lawrence

T-6-1

The commenter's request for consideration of alternative routes is acknowledged. Please refer to General Response No. 5, Project Description, regarding the alternatives considered.

T-6-2

See Response to Comment L-2-25 regarding ingress and egress from local arterials onto SR-74 and Response to Comment O-1-8 regarding delays at local arterials.

1.6.7 Renee Vansmaalen

T-7-1

Noise abatement measures were only considered for residences that would be exposed to future worst-case traffic noise levels approaching or exceeding the 67 dBA L_{eq} Noise Abatement Criteria (NAC). The noise study dated June 27, 2007, and the Final Technical Noise Impact Analysis Report Addendum dated July 9, 2008, indicated that residences located along Via Sonora (between Calle Entradero and Via Cordova) would not be exposed to future worst-case traffic noise levels approaching or exceeding the 67 dBA L_{eq} NAC. Therefore, no noise abatements measures are required and none were evaluated.

T-7-2

See General Response No. 7 regarding noise impacts.

T-7-3

The trips made by parents to drop children off at school have been taken into account in the existing traffic analysis. These trips are already included in the peak-hour traffic counts conducted during the morning peak hours, when parents generally drop off their children. The future projections also take factors like these into account while modeling traffic volumes. The traffic forecast model generally includes mechanisms that identify the characteristics of trips made from a residential use to other uses. These mechanisms help forecast traffic volumes that take into account trips made by parents to drop off their children at school.

T-7-4

See General Response No. 7 regarding noise impacts.

1.6.8 Jim Dussinger

T-8-1

This section (within the project limits) of Ortega Highway is close to capacity today (2008 existing conditions) and is projected to exceed capacity in the future. Growth in the region will occur along Ortega Highway, and based on future projections, this section (within the project limits) of Ortega Highway is expected to experience traffic growth of more than 30 percent between 2008 and 2035. Even if other roads and

connections in the region are planned/proposed, the demand along this section of Ortega Highway will warrant a four-lane street section in the future.

T-8-2

The projected future worst-case traffic volumes include future growth in the region. See General Response No.6, Inadequate Traffic Analysis, and General Response No. 10, Climate Change/Greenhouse Gases. Alternative plans to provide access to the high school are not part of the proposed Lower 74 Widening project and are not addressed in the DEIR.

T-8-3

Construction of the I-5/Ortega Highway Interchange project is expected to begin in 2013 and be complete by 2015.

1.6.9 Cynthia Lagos

T-9-1

This is an introductory comment and no further response is required. Please refer to Responses to Comments T-9-2 through T-9-8 regarding specific responses to comments raised.

T-9-2

Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

T-9-3

Regarding the comment on increased noise, see General Response No. 7 regarding noise impacts.

T-9-4

Please refer to General Response No. 5, Project Description, regarding the alternatives considered and General Response No. 4, Traffic Projections, regarding the existing and future traffic demand on SR-74.

T-9-5

Section 2.2.6 of the DEIR includes an analysis of the carbon monoxide impacts, the regional vehicle emission impacts, and the global warming impacts. As shown in Table 6.3-1 of the Air Quality Assessment, the project would not increase the vehicle trips along SR-74. In addition, the project would improve traffic flow, resulting in a net reduction in localized vehicle emission concentrations. Also, please refer to General Response No. 9, Air Quality Degradation, and General Response No. 10, Climate Change/Greenhouse Gases.

T-9-6

See General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding pedestrian and equestrian crossings. The commenter's opposition to the widening is acknowledged.

T-9-7

The commenter's concern for maintaining the existing community character is acknowledged and will be considered as part of the decision-making process for this project.

T-9-8

The commenter's opposition to the project is acknowledged and will be considered as part of the decision-making process. The comment references "bring four more lanes." The project will add two additional traffic lanes (one traffic lane in each direction), not four more lanes. Please refer to General Response No. 4, Traffic Projections, and General Response No. 6, Inadequate Traffic Analysis, regarding the dumping of traffic from Ladera Ranch and the bottleneck and the methodology used to conduct the traffic analysis, including the data sources used for traffic modeling. See General Response No. 7, Increase in Noise/Noise Analysis, regarding noise and General Response No. 9, Air Quality Degradation, regarding air quality.

T-9-9

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process for this project.

1.6.10 Rosemary McCabe

T-10-1

The commenter's concerns regarding safety are acknowledged. See General Response No. 2, Traffic Signal/Pedestrian Crossing.

T-10-2

The traffic numbers referenced in the comment do not match the traffic numbers in the Traffic Study. The comment references a 2006 existing condition, and the traffic analysis is based on 2008 existing conditions. Therefore, we are unable to provide a specific response to the question regarding the traffic numbers.

See General Response to Comment No. 4, Traffic Projections/Traffic Analysis, and General Response No. 6, Inadequate Traffic Analysis, regarding the data and methodology used to conduct the traffic analysis.

Section 2.2.6 of the DEIR includes an analysis of the proposed project's global warming impacts. Please refer to General Response No. 10, Climate Change/Greenhouse Gases.

T-10-3

The commenter's opposition to the proposed project is acknowledged and will be considered as part of the decision-making process.

T-10-4

Please refer to General Response No. 4, Traffic Projections, regarding existing and future traffic projections.

T-10-5

Please refer to General Response No. 2, Traffic Signal/Pedestrian Crossing, regarding the design speed of the project and how the postproject speed limit will be established.

T-10-6

The commenter's support for the construction of alternative routes, such as La Pata Avenue, is acknowledged and will be considered as part of the decision-making

process. Please refer to General Response No. 5, Project Description, which addresses alternatives considered as part of the DEIR.

1.6.11 Carla Kallen

T-11-1

The commenter's opposition to the project is acknowledged and will be taken into consideration during the decision-making process for the project. Please refer to General Response No. 4, Traffic Projections, regarding existing and future forecast congestion on SR-74.

Attachment A Draft DEIR Distribution List

Federal Agencies

The Honorable Dianne Feinstein
United States Senator
11111 Santa Monica Blvd., Suite 915
Los Angeles, CA 90025

The Honorable Barbara Boxer
United States Senator
312 N. Spring Street, Suite 1748
Los Angeles, CA 90012

44th Congressional District
United States House of Representatives
Hon. Ken Calvert, Member
3400 Central Avenue, Suite 200
Riverside, CA 92506

48th Congressional District
United States House of Representatives
Hon. John Campbell, Member
610 Newport Center Drive, Suite 330
Newport Beach, CA 92660

United States Army Corps of Engineers
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911 Wilshire Blvd.
Los Angeles, CA 90017

State Agencies

Dave Singleton
California Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

38th Senate District
State of California
Hon. Mark Wyland, Member
27126-A Paseo Espada, #1621
San Juan Capistrano, CA 92675

Department of Fish and Game
South Coast Region 5
4949 Viewridge Avenue
San Diego, CA 92123

Office of Historic Preservation
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73rd Assembly District
State of California
Hon. Mimi Walters, Member
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32400 Paseo Adelanto
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City of Mission Viejo
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City Manager
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Mission Viejo, CA 92691

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San Diego Regional Water Quality Control Board, Region 9
9174 Sky Park Court, Suite 100
San Diego, CA 92123

OCTA
Development Division
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Orange, CA 92863

Orange County Clerk & Recorder
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Santa Ana, CA 92701

City Council Members

Mayor Joe Soto
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San Juan Capistrano, CA 92675

Councilman Sam Allevato
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Councilman Dr. Londres Uso
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Mayor Pro Tem Mark Nielsen
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Councilman Thomas Hribar
City of San Juan Capistrano
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

Supervisors

5th Supervisorial District
Hon. Patricia C. Bates, Member
County of Orange
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Interested Groups, Organizations, and Individuals

San Juan Capistrano Regional Library
31495 El Camino Real
San Juan Capistrano, CA 92675

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The Law Office of Corey Taylor
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Amy Minteer
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2601 Ocean Park Blvd., Suite 205
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Ladera Ranch Transportation Club
Charles Gibson
35 Kilbannan Court
Ladera Ranch, CA 92694

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Palmieri, Tyler, Wiener, Wilhelm &
Waldron LLP
2603 Main Street; East Tower, Ste 1300
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Save Our San Juan
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Attachment B Initial Study (IS) with proposed Mitigated Negative Declaration (MND) Matrix

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Attachment B
Initial Study/Mitigated Negative Declaration
Matrix

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Regional Local Agency Comments					
3-1-1	County of Orange, Resources and Development Management Department	8/8/2007	PD	Chapter 1 Proposed Project pg 7	Project Study Report was approved by whom?
3-1-2			PD	Chapter 1 Proposed Project pg 8	PDT- spell out project development
3-1-3			PD	Chapter 1 Proposed Project pg 11 use of mainline for consistency	Change mainline to facility
3-1-4			PD	Chapter 1 Proposed Project pg 8	Identify multidisciplinary participants
3-1-5			PD	Chapter 1 Proposed Project pg 8	Construction both parts SR-74 add "to extent possible"
3-1-6			PD	Chapter 1 Proposed Project pg 22-23	Walls-slump block finish and Type I same type?
3-1-7			PD	Chapter 1 Proposed Project pg 30	Applicant for permit has not been determined
3-1-8			LU	Section 2.1.1 Land Use pg 38	Retail and Business uses should be on 5,842 acres
3-1-9			LU	Section 2.1.1 Land Use pg 38	Ranch plan should be 22,815 acres
3-1-10			LU	Section 2.1.2 Growth, pg 58, Section 2.4 Cumulative Impacts pg 292	Identify whether Orange Co projections used (growth)
3-1-11			LU	Section 2.1.2. Growth pg 57	Impact of project on intensification of uses in area.
3-1-12			CI	Section 2.1.1 Land Use pg 49, Section 2.1.3 Community Impacts pg 70-71	10 sliver takes -where are they, size, etc.?
3-1-13			B	Section 2.3.2 Wetlands pg 229-236	Role of City of SJC and SAMP
3-1-14			CUM	Section 2.4 Cumulative Impacts pg 273-274	Initial Study checklist impacts of the project on Community Resources augmented to address regional impacts & benefits of the project.
3-2-1	City of Mission Viejo	9/4/2007	V	Section 2.1.6 Visual/Aesthetics pg 131-133	Appropriate mitigations to specifically provide adequate landscape and streetscape treatments to replace loss of existing trees.
3-2-2			V	Section 2.1.1 Land Use pg 32, Section 2.1.6 Visual/Aesthetics pg 95	Complies with goals of their (City's) Scenic highway element.
3-2-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Provide adequate sound walls to mitigate noise impacts to adjacent properties
3-2-4			T/S	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	Adequately addresses pedestrian access with sidewalks/protected crosswalks.
3-2-5			PD	Chapter 1 Proposed Project pg 8	Parallel alternatives that might provide interim capacity, City of SJC completion of San Juan Creek Road to La Pata.
3-2-6			T	Chapter 1 Proposed Project pg 9-11, 26-27, Section 2.1.5 Traffic pg 85-88	Report needs to discuss the impacts of traffic that will be diverted to other streets to avoid delays (on Ortega Highway).
3-3-1	City of San Juan Capistrano	9/6/2007	EIR	EIR	An EIR must be prepared and certified.
3-3-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Visual impacts and degrade the existing visual character and bucolic quality of the area by removal of trees, installation of retaining walls.
3-3-3			N	Section 2.2.7 Noise pg 206-211	MND fails to analyze and mitigate the significant construction noise impacts the Project would have.
3-3-4			N	Chapter 1 Proposed Project pg 22, Section 2.2.7 Noise pg 226-227	The MND's Noise Report only recommends that two sound walls be included and rejects installation of additional sound walls on the basis of cost.
3-3-5			T/S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	The project site includes eight intersections but the project includes no crosswalk. Lack of traffic signals would be a hazard for motorists, pedestrians and equestrians.
3-3-6			LU	Section 2.1.1 Land Use pg 38-46, 48-49	Project conflicts with the City's General Plan land use policies.
3-3-7			G	Section 2.1.2 Growth pg 64-67	Project to allow more people to commute between Riverside and Orange Counties
3-3-8			CUM/Cum WQ	Section 2.4.5 Cumulative Impacts pg 278-279, 2.2.2 Water Quality pg 150-156	Cumulative impacts and Cumulative Water Quality impacts due to runoff
3-3-9			PD	Chapter 1 Proposed Project pg 15-28	MND project description fails to give a clear picture of the Project. Location of staging areas, amount of grading, street lights, sound walls, retaining walls.
3-3-10			V	Section 2.1.6 Visual/Aesthetics pg 109-133	MND fails to acknowledge that the project will have significant aesthetic impacts, even with mitigation. Analysis of aesthetics and designation of scenic highway.
3-3-11			CONST	Section 2.2.7 Noise pg 206-215	MND fails to analyze compliance with local noise ordinances, and use of mufflers on construction equipment.
3-3-12			T	Section 2.1.5 Traffic pg 82-92	The MND underestimates the traffic volume, fails to evaluate the Project's compliance with local, regional and statewide traffic policies.
3-3-13			LU/S	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	Incompatibility with equestrian uses, no means for equestrian users to safely cross the highway.
3-3-14			U	Section 2.1.4 Utilities, Emergency Services pg 86	MND fails to ensure access roads and driveways meet Orange County Fire Authority standards.
3-3-15			AQ	Section 2.2.6 Air Quality pg 189-193, Section 2.5.2 Climate Change pg 289-306	MND fails to adequately evaluate air quality impacts, climate change impacts and construction air quality impacts.
3-3-16			B	Section 2.3.3 Plant Species pg 244	MND fails to analyze the project may violate the City of San Juan Capistrano's tree ordinance.
3-3-17			Mit Measures	Chapter 2 Affected Environment, each topic Appendix B Minimization and Mitigation Summary	Section and Issues with Mitigation Measures for CEQA review
3-3-18			V	Section 2.1.6 Visual/Aesthetics pg 109-133	MND fails to include any definitive mitigation measures for significant adverse impact (visual impacts), must be able to review mitigation measures.
3-3-19			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The MND must analyze how many trees would be able to be replaced within the project area. Mitigation for loss of mature trees.
3-3-20			T	Chapter 1 Proposed Project pg 26, Section 2.1.5 Traffic pg 91-92	TMP should be included in the environmental review
3-3-21			WQ	Section 2.2.2 Water Quality pg 154-156, 160-163	Long term water quality impacts, potential for increase in runoff; if dewatering is necessary
3-3-22			GEO	Section 2.2.3 Geology, Soils pg 162-165	Mitigation for the project's potentially significant geotechnical impacts.
3-3-23			V	Section 2.1.6 Visual/Aesthetics pg 132, Section 2.3.2 Wetlands pg 239-241	Mitigation impacts to trees, wetlands and area wildlife species.
3-3-24			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Visual impact mitigation for sound walls and retaining walls with vegetation to cover, terraced retaining walls, glare from "glass" sound walls.
3-3-25			N	Chapter 1 Proposed Project pg 22, Section 2.2.7 Noise pg 206-211	Rubberized Asphalt Concrete used in project, augers and setting retaining walls in concrete instead of pile driving used for mitigation.
3-3-26			T	Chapter 1 Proposed Project pg 9-11	MND should restrict SR-74 further expansion through SJC.
3-3-27			EIR	EIR	Request to prepare an EIR on the project.
3-3-28			PD	Chapter 1 Proposed Project pg 15-28	Project description is missing key elements such as how much grading will occur, location of staging areas, relocation of the street lights that will be "affected".
3-3-29			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	Address impacts to the horse trail easement and whether widening will take land from facility, reduce or eliminate distance between pavement and horse trail.
3-3-30			N	Section 2.2.7 Noise pg 194-215	Address CNELs in Noise section, noise analysis and sound wall determinations.
3-3-31			G	Section 2.1.2 Growth pg 70	Proposed project has potential to induce growth and alter growth patterns.
3-3-32			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Address potential of aesthetic impacts for the design of retaining walls, type of glass to be placed on sound walls, shade and shadow created by sound walls.
3-3-33			N	Section 2.2.7 Noise pg 207-211	Discussion of construction noise impacts and vibration for the pile driving that will be done for retaining walls.
3-3-34			T	Section 2.1.5 Traffic pg 91-92, Chapter 1 pg 15-16, 25	Further analysis of the proposed mitigation measures' effect on existing traffic, mitigation measures for driveways and five unsignalized intersections.
3-3-35			N	Section 2.2.7 Noise pg 194-197	Noise analysis within the IS for the project failed to evaluate noise standards, City's General Plan Noise Element and noise ordinances.
3-3-36			T	Section 2.1.3 Community Impact pg 72-74, Section 2.1.5 Traffic pg 85-88	The IS traffic analysis did not evaluate pedestrian traffic impacts, potential hazards associated with design features or incompatible uses.
3-3-37			LU	Section 2.1.1 Land Use pg 38-46 Section 2.1.5.Traffic pg 90-91, pg 85	Conflict with adopted policies, plans or programs supporting alternative transportation uses for bicyclists and pedestrians, reduce the ability to have bus stops.

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-1-1	Lennie DeCaro	Prior to 2/07	PD	Chapter 1 Proposed Project pg 8	The intended widening of SR-74 was Via Cordova to La Pata.
6-1-2			PD	Chapter 1 Proposed Project pg 83	San Juan Capistrano municipal code requires sidewalks adjacent to residential development.
6-1-3			LU	Section 2.1.3 Community Impacts pgs 74-75	Long stretches of 14 ft high sound walls and 25 ft retaining walls will be constructed.
6-1-4			S	Section 2.1.5 Traffic pg 89-90	Traffic stacking onto Ortega Highway from the Hunt Club entry gates.
6-1-5			PD	Chapter 1 Proposed Project pg 25	Removal of street lighting would create hazardous conditions for entry/exit of community
6-1-6			T	Chapter 1 Proposed Project pg 29	Project widening due to need of a shoulder.
6-1-7			PD	Chapter 1 Proposed Project pg 83	Sidewalk right-of-way is the jurisdiction of the City of San Juan Capistrano.
6-1-8			V	Chapter 1 Proposed Project pg 15	General plan directs development of sidewalks to be as it currently stands in front of the Hunt Club (meandering sidewalk and manicured grass).
6-1-9			V	Section 2.1.6 Visual/Aesthetics pg 131-133	Sixteen to eighteen foot sound walls on south side will ruin scenic beauty, cast shadows, and require removal of existing landscaping.
6-1-10			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values will suffer, mostly by homes in the vicinity of the sound walls.
6-1-11			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Survey results state that sound walls are to be made of concrete block, photos of examples are extremely ugly.
6-1-12			CI	Section 2.1.6 Visual & Aesthetics pg 131	City has agreed to maintain sound walls and all associated landscaping.
6-1-13			CI	Chapter 1 Proposed Project pg 25	Rubberized asphalt would not be paid for by Caltrans. City taxpayers will be stuck with repavement as well.
6-1-14			OP	N/A	N/A
6-1-15			N	Section 2.2.7 Noise pg 215	Reflective noise analysis and attenuation of the height and width and distance from road.
6-1-16			N	Chapter 1 Proposed Project pg 22	The right-of-way of sound walls is under the city jurisdiction.
6-1-17			CI	Section 2.1.6 Visual & Aesthetics pg 131	City agreed to burden taxpayers with paying for the maintenance of all landscaping for project.
6-1-18			V	Section 2.1.6 Visual/Aesthetics pg 131-133	Sound walls will block all ridgeline and San Juan Creek views to the south of the Ortega corridor.
6-1-19			U	Chapter 1 Proposed Project pg 16	Proposed street and driveway grades cannot exceed the max for the standards for emergency vehicle and fire apparatus.
6-1-20			PD	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	No sidewalks on the North side of Ortega for students.
6-1-21			T	Chapter 1 Proposed Project pg 1-13	Two lane section provides needed restriction of traffic from outside of city boundaries.
6-2-1	City San Juan Capistrano	2/16/2007	PD	Chapter 1 Proposed Project pg 16-30	Some of the features have changed over the years. Anytime a project moves from concept to preliminary engineering, design features will change.
6-2-2			NEI	N/A	N/A
6-2-3			NEI	N/A	N/A
6-2-4			CI	General Information pg iii	You as well as others (including City staff) will have the opportunity to provide comments on the project.
6-2-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We will see how everyone feels about constructing the sound walls.
6-2-6			PD	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	It is our understanding that the existing sidewalk on the north side is slated to be removed so that a right turn pocket can be created to help move the eastbound traffic in smoother and safer condition.
6-2-7			S	Section 2.1.5 Traffic pg 89-90	Project designers need to address any safety issues that the entry gates may experience as a result of the widening project.
6-2-8			S	Section 2.1.5 Traffic pg 82-84	Highway safety is of paramount importance to all of us and State Standards and guidelines are developed to protect the public health and safety.
6-2-9			PD	Chapter 1 Proposed Project pg 25	We will review the Highway lighting requirements and standards.
6-2-10			PD	Chapter 1 Proposed Project pg 29	Highway shoulders is a project design feature and again we will expect Caltrans provide justification.
6-2-11			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Currently about 80 trees are proposed to be removed in this project. There will be a mitigation plan to address lost trees.
6-2-12			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values- we will ask Caltrans to analyze the potential impacts on property values.
6-2-13			N	Chapter 1 Proposed Project pg 22-23	The environmental document will discuss different options for the sound walls.
6-2-14			CI	Section 2.1.6 Visual & Aesthetics pg 131	City maintenance responsibility for graffiti and landscaping- the City currently has these responsibilities and will continue them with or without the widening.
6-2-15			N	Section 2.2.7 Noise pg 215	Reflective noise mitigation on the north side, we expect a response to this concern.
6-2-16			PD	Chapter 1 Proposed Project pg 16	The driveway grades is a technical matter that the project engineers will take into consideration in design.
6-2-17			NEI	N/A	N/A
6-2-18			CI	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Equestrian easement is not multipurpose- We are in agreement with your statement.
6-2-19			EIR	EIR	Want an EIR.
6-3	Lennie DeCaro email	9/7/2007			I am enclosing some of these other emails that were available at 7-17-07 council meeting.
6-3 A-1	Joan Irvine Smith	7/16/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	It is ludicrous to say that the impact on our community will be insignificant, when the report clearly states that 110 large trees will be removed.
6-3 A-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our community will have significant impacts with long stretches of 14 ft high sound walls.
6-3 A-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Long stretches of 14 ft high sound walls and 25 ft retaining walls will be constructed.
6-3 A-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	More cars and trucks will be accommodated.
6-3 A-5			EIR	EIR	Want an EIR.
6-3 B-1	Laura Salveson	7/16/2007	OP	N/A	N/A
6-3 C-1	Ron, Vickie Geisler	7/14/2007	EIR	EIR	Want an EIR.
6-3 D-1	Harold Haight	7/14/2007	EIR/CI	EIR	I support the position that you require a full EIR from Caltrans on the proposed widening of Ortega Highway.
6-3 E-1	Ilse Byrnes	7/15/2007	CR	Section 2.1.1 Land Use pg 32, Section 2.1.6 Visual/Aesthetics pg 95	I nominated the Ortega Highway to the National Register of Historic Places because it had all the qualifications of a historic scenic route.
6-3 E-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Widening the Ortega with installation of soundwalls.
6-3 E-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Widening the Ortega with installation of soundwalls, retaining walls.
6-3 E-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Widening the Ortega with the removal of trees.
6-3 E-5			CR	Section 2.1.6 Visual/Aesthetics pg 132-133, Section 2.1.1 Land Use pg 49	Installation of the soundwalls, retaining walls and removal of trees will be a great loss to San Juan's Historic character.
6-3 F-1	Anthony Dugan	7/15/2007	EIR	EIR	Want an EIR.
6-3 F-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	This widening will destroy may trees and we don't like to see high walls just for traffic to pass through town more quickly.
6-3 F-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We don't want to see all high walls.
6-3 G-1	Yvonne Tschaikowsky	7/15/2007	EIR	EIR	Want an EIR.
6-3 H-1	Ron, Vickie Geisler	7/15/2007	OP	N/A	N/A

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-3 I-1	Lennie DeCaro	7/14/2007	EIR	EIR	Want an EIR.
6-3 I-2			NEI	N/A	N/A
6-3 J-1	Gila Jones	7/15/2007	EIR	EIR	Want an EIR.
6-3 K-1	Trevor Dale	7/16/2007	EIR	EIR	Want an EIR.
6-3 L-1	Shelagh Hegarty	7/16/2007	EIR	EIR	Want an EIR.
6-3 M-1	Marion Costello	7/16/2007	EIR	EIR	Want an EIR.
6-3 N-1	Robert Miller	7/16/2007	EIR	EIR	Want an EIR.
6-3 O-1	Marion and Tom Costello	7/16/2007	EIR	EIR	Want an EIR.
6-3 P-1	G Rehler	7/16/2007	EIR	EIR	Want an EIR.
6-3 Q-1	Terry Holdt	7/16/2007	EIR	EIR	Want an EIR.
6-3 R-1	Sally Bumbulis	7/16/2007	EIR	EIR	Want an EIR.
6-4-1	Joan Irvine Smith, The Oaks Farm	7/24/2007	PD	Chapter 1 Proposed Project pg 16, Section 2.1.1 Land Use pg 49	It is ludicrous to say that the impact on our community will be insignificant, when the report clearly states that sidewalks will be removed.
6-4-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	It is ludicrous to say that the impact on our community will be insignificant, when the report clearly states that 110 large trees will be removed.
6-4-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our community will have significant impacts with long stretches of 14 ft high sound walls.
6-4-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	25 ft retaining walls will be constructed, the width of Ortega Highway will be tripled where it is two lanes along my property.
6-4-5			T	Summary pg viii, Chapter 1 Proposed Project pg 10	MND makes no reference to the City's 2002 Strategic Transportation Plan.
6-4-6			CR	Section 2.1.6 Visual/Aesthetics pg 132-133, Section 2.1.1 Land Use pg 49	The City's General Plan states to "preserve and enhance scenic transportation corridors". The widening of the last rural entryway into our historic city will clearly have a significant impact on our community.
6-4-7			NEI	N/A	N/A
6-5-1	Joan Irvine Smith, The Oaks Farm	8/7/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	The entire project will devastate the beauty and rural ambience of this scenic highway.
6-5-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	The widening would worsen traffic congestion at unsignalized intersections along the segment of the highway.
6-5-3			T	Section 2.1.5 Traffic pg 89-90	Motorists could turn right and then make a U-turn at the next intersection.
6-5-4			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Potentially significant impacts to pedestrian, and equestrian safety.
6-5-5			T/LU	Section 2.1.5 Traffic pg 82, 84-85, 90	Potentially significant impact to bicyclist safety.
6-5-6	Joan Irvine Smith, The Oaks Farm		AQ	Section 2.2.6 Air Quality pg 183-193	Potentially significant impacts to air quality.
6-5-7			WQ	Section 2.2.2 Water Quality pg 154-156, 160-163	Potentially significant impacts to water quality.
6-5-8			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Potentially significant impacts to noise.
6-5-9			G	Section 2.1.2 Growth pg 56-58	The project's potential to encourage new growth in the undeveloped lands to the east.
6-5-10			PD	Chapter 1 Proposed Project pg 15-30	The MND failed to analyze any environmentally superior alternatives for the widening.
6-5-11			PD	Chapter 1 Proposed Project pg 15-30	Only the build and no build alternatives were analyzed.
6-5-12			EIR	EIR	Want an EIR.
6-6-1	Shute, Mihaly & Weinberger LLP FOR Joan Irvine Smith	9/6/2007	EIR	EIR	Want an EIR.
6-6-2			PD	Chapter 1 Proposed Project pg 16-30	An inaccurate or incomplete project description renders the analysis of significant environmental impact inherently unreliable.
6-6-3			CI	Figure 1-4 Project Location Map, Chapter 1 Proposed Project pg 25-26	Omitted information-Location of the project staging areas.
6-6-4			CI	Section 2.1.1 Land Use pg 49, Section 2.1.3 Community Impacts pg 70-71	The MND omitted the specific location and description of property to be acquired in fee and/or for temporary construction easements.
6-6-5			CONST	Chapter 1 Proposed Project pg 21	The MND omitted the amount of cut and fill (in cubic yards) associated with the Project.
6-6-6			CONST	Chapter 1 Proposed Project pg 21	The MND omitted the location of spoils and soil importation sites and haul routes.
6-6-7			CONST	Chapter 1 Proposed Project pg 21	The MND omitted number of truck trips associated with all grading and other construction-related activities.
6-6-8			CONST	Chapter 1 Proposed Project pg 25, Section 2.1.3 Community Impacts pg 70	The MND omitted description of construction-related activities (including timeline, location, number of construction employees, types of equipment etc.
6-6-9			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The MND fails to have a description of additional lighting and landscaping proposed along the highway if any.
6-6-10			V	Section 2.1.6 Visual/Aesthetics pg 115-133	The simulations and visual impacts section are inaccurate and misleading.
6-6-11			PD	Chapter 1 Proposed Project pg 1-30	The MND's description of the Project setting omits essential information and presents the reader with an inaccurate description of the existing setting.
6-6-12			LU	Section 2.1.1 Land Use pg 32-38	A detail description of land uses in the project area.
6-6-13			T	Section 2.1.5 Traffic pg 89-90	Description of speed limits along Ortega Highway and average speeds of motorists traveling along the relevant portion of that road.
6-6-14			T	Section 2.1.5 Traffic pg 84-88	Data on current average daily vehicle miles traveled on the Ortega Highway.
6-6-15			CUM	Section 2.4 Cumulative pg 269-272	More Project information is needed which includes a list of cumulative projects, including major construction projects, that will be carried out in the area during the period when the Project will be under construction.
6-6-16			CI	Section 2.1.3 Community Impacts pg 69-71, Section 2.1.2 Growth pg 54	Information on jobs-housing balance in Orange and Riverside Counties.
6-6-17			T	Section 2.1.5 Traffic pg 84-88	Data showing the percentage of traffic on the Ortega Highway attributed to commuters, recreational travelers, trucks, and other types of travelers.
6-6-18			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	A detailed description of any and all sensitive receptors in the project area.
6-6-19			B	Section 2.3.3 Plant Species pg 244-246	Specific location and type of trees to be removed and if currently or historically they provide nesting sites for birds.
6-6-20			CUM	Chapter 1 Proposed Project pg 1-30, Section 2.1.1 Land Use pg 32-50	More Project information is needed which includes any other relevant regional and local setting information necessary to evaluate project and cumulative impacts.
6-6-21			PD	Chapter 1 Proposed Project pg 16-30	The information that is provided in the MND to describe the Project setting is inconsistent and inaccurate.
6-6-22			V	Section 2.1.6 Visual/Aesthetics pg 115-133	The photographs presented in the visual impacts analysis are inaccurate.
6-6-23			EIR	EIR	Want an EIR.
6-6-24			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The potentially significant impacts concerning noise issues demand review and analysis in an EIR.
6-6-25			N	Section 2.2.7 Noise pg 215	The construction of a retaining wall on the opposite side of the Highway will produce additional reflected noise.
6-6-26	Shute, Mihaly & Weinberger LLP		V	Section 2.1.6 Visual/Aesthetics pg 109-133	The Removal of trees and foliage currently separating the Oaks Farm from the Highway will remove a naturally existing noise barrier.
6-6-27			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The Oaks Farm is a particularly sensitive receptor for noise.
6-6-28			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The MND defers selection of the type of sound walls and omits analysis of construction-related noise.

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-6-29			V	Section 2.1.6 Visual/Aesthetics pg 131-133	It is clear from the simulations that the project will have significant, unavoidable aesthetic impacts.
6-6-30			V	Section 2.1.6 Visual/Aesthetics pg 131-133	The simulations understate the remaining visual impacts after mitigation. The type of wall treatments that could be used.
6-6-31			V	Section 2.1.6 Visual/Aesthetics pg 93-105	The MND omit any discussion of why only five visual assessment points were selected, and whether these five points show the most significant visual impacts caused by the Project.
6-6-32			T	Section 2.1.5 Traffic pg 84-88	Traffic counts at intersections, adverse impacts to pedestrians, equestrians and bicyclists for removing the existing sidewalk; bicycle lane with traffic at speeds at or above 60 mph.
6-6-33			AQ	Section 2.2.6 Air Quality pg 183-193	Project will have potentially significant impacts to air quality.
6-6-34			WQ	Section 2.2.2 Water Quality pg 154-156, 160-163	Potentially significant impacts to water quality
6-6-35			G	Section 2.1.2 Growth pg 56-58	Growth inducing impacts, development of unincorporated Orange and Riverside Counties
6-6-36			CI	Section 2.1.3 Community Impacts pg 69-71, Section 2.1.2 Growth pg 54	Environmental impacts resulting from the serious imbalance between the location of jobs (in Orange County) and the location of affordable housing (in Riverside County).
6-6-37			T	Chapter 1 Proposed Project pg 9-11, 26-27	Additional traffic the project will induce.
6-6-38			AQ/CUM	Section 2.5 Climate Change pg 289-302	The MND's analysis of the project's contribution to climate change and the Project may contribute in a cumulatively considerable way to the significant impacts of global warming.
6-6-39			CUM	Section 2.4 Cumulative pg 263-288	The MND's analysis of the project to contribute in a cumulatively way with projects in eastern Orange and Riverside Counties.
6-6-40			EIR	EIR	Want an EIR.
6-6-41			T	Section 2.1.5 Traffic pg 82-92	The need for project specific traffic study and need for updated traffic volumes.
6-6-42			T	Section 2.1.5 Traffic pg 89-90	Making a right turn and U-turn should not be considered as a measure.
6-6-43			T	Section 2.1.5 Traffic pg 89-90	Higher travel speeds were not analyzed in the MND.
6-6-44			T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	Impacts to pedestrians, equestrians and bicyclists were not analyzed and removal of the existing sidewalk on the north side.
6-6-45			S	Section 2.1.5 Traffic pg 82-84	A study showed that uncontrolled intersections experience 7.5 times more pedestrian accidents. The finding confirmed the City's policy to not install marked crosswalks at uncontrolled locations.
6-6-46			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	The City needs an equestrian crossing of Ortega Highway to connect trail systems north and south of the highway
6-6-47			T	Section 2.1.5 Traffic pg 82, 84-85, 90	The new Class II bicycle facilities and the 5 foot width proposed paved shoulder does not meet the minimum 8 foot shoulder required by the Highway Design Manual.
6-6-48			T/V	Section 2.1.6 Visual/Aesthetics pg 93-134	The IS Study contains photographs of roadways that do not resemble existing conditions in the project area.
6-6-49			PD	Chapter 1 Proposed Project pg 16-30	The IS fails to consider, develop or analyze any meaningful alternatives to the proposed widening of SR-74/Ortega Highway.
6-6-50			AQ	Section 2.5 Climate Change pg 289-302	The revised MND air quality analysis should include a discussion with global warming, climate change, State, regional and local targets and status. An inventory of GHG emissions generated by the project, discussion and incorporation of all feasible mitigation as identified by CCAT.
6-6-51			AQ	Section 2.2.6 Air Quality pg 183-193	Air Quality construction impacts.
6-6-52			AQ	Section 2.2.6 Air Quality pg 183-193	Potentially significant health impacts associated with diesel particulate matter during grading and paving.
6-6-53			AQ	Section 2.2.6 Air Quality pg 183-193	Proposed mitigation measures to reduce construction-related air quality impacts to insignificance.
6-6-54			AQ	Section 2.2.6 Air Quality pg 183-193	Specific operational emissions quantities need to be quantified and in environmental document.
6-6-55			AQ/CUM	Section 2.5 Climate Change pg 289-302	Need to adequately review and mitigate project-related global warming emissions.
6-7-1	Roger, Bernadine Monaco	Prior 1/3/07	PD	Chapter 1 Proposed Project pg 16	Request elimination of the wall at the access road.
6-7-2			U	Chapter 1 Proposed Project pg 16	Eliminate the wall next to or near their property, no wall to block road.
6-7-3			S	Section 2.1.5 Traffic pg 89-90	This Ortega entry provides limited access for safety.
6-7-4			U	Chapter 1 Proposed Project pg 16	My primary concern is the unnecessary walling up of an existing emergency access road.
6-7-5			NEI	N/A	N/A
6-7-6			V	Section 2.1.6 Visual/Aesthetics pg 131-133	The approximately 1,000 foot, 14 foot high retaining wall that will greet travelers at the eastern entry point to the City of San Juan Capistrano.
6-7-7			CR	Chapter 1 Proposed Project pg 16	This entry to a historic dirt, farm access road constructed by the original ranch on their property by the CCC during the Depression in the 193Os. It adds to the pastoral setting of "scenic Ortega".
6-7-8			NEI	N/A	N/A
6-8-1	City San Juan Capistrano	1/3/2007	NEI	N/A	N/A
6-9-1	Roger, Bernadine Monaco	7/24/2007	U	Chapter 1 Proposed Project pg 16	It is unnecessary walling up of an existing emergency access to three high fire risk hillsides.
6-9-2			PD	Chapter 1 Proposed Project pg 27	I would like to request that Caltrans revert to its original plans and keep this emergency access open for safety and emergency reasons.
6-9-3			PD	Chapter 1 Proposed Project pg 16	Eliminate the wall at the Ortega emergency access opening to allow fire and other emergency access.
6-9-4			U	Chapter 1 Proposed Project pg 16	My husband was helped by emergency service providers that were able to come in off Ortega.
6-9-5			U	Chapter 1 Proposed Project pg 16	The road provides access to clear brush and weeds to prevent any fire danger.
6-9-6			CR	Chapter 1 Proposed Project pg 16	The road adds to the pastoral setting of "scenic Ortega".
6-9-7			WQ	Section 2.2.2 Water Quality, pg 152-154	The dirt access road provides erosion control and a natural water run off
6-9-8			U	Chapter 1 Proposed Project pg 16	This area has served as a secondary emergency and maintenance access for the base of the "pie shaped lot" only.
6-9-9			V	Section 2.1.6 Visual/Aesthetics pg 131-133	Reducing uninterrupted expanse of Ortega Highway retaining wall at Eastern unincorporated County line.
6-9-10			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Possibility of elimination or minimization of entire Ortega Highway retaining wall at eastern unincorporated County line.
6-9-11			CR	Chapter 1 Proposed Project pg 16	The elimination of the wall will maintain the "Scenic Ortega Highway corridor legacy" and protect our city's entry from urbanized blight.
6-9-12			PD	Chapter 1 Proposed Project pg 21-22	Similar to the work planned on the unincorporated section of the widening, it would allow minimum disruption to the utility and scenic nature of this historical country corridor if the North side is walled up.
6-9-13			PD	Chapter 1 Proposed Project pg 16	My primary concern is the unnecessary walling up of an existing emergency access road.
6-10-1	City San Juan Capistrano	7/30/2007	NEI	N/A	N/A
6-11-1	Roger, Bernadine Monaco	7/30/2007	U	Chapter 1 Proposed Project pg 16	My primary concern is the unnecessary walling up of an existing emergency access road.
6-11-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	This 850 foot 14 foot high graffiti billboard wall could be totally eliminated.
6-11-3			CR	Chapter 1 Proposed Project pg 16	The elimination of the wall will maintain the "Scenic Ortega Highway corridor legacy" and protect our city's entry from urbanized blight.
6-11-4			PD	Chapter 1 Proposed Project pg 21-22	Similar to the work planned on the unincorporated section of the widening, it would allow minimum disruption to the utility and scenic nature of this historical country corridor if the North side is walled up.
6-11-5			NEI	N/A	N/A

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-11-6			WQ	Section 2.2.2 Water Quality, pg 152-154	Concern about wall will change water runoff from original course.
6-11-7			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	Report mentioned no need for a signal at Siega, there will be a light signal just east of the access.
6-12-1	Roger, Bernadine Monaco	7/30/2007	PD	Chapter 1 Proposed Project pg 16	Caltrans changed the original plans and entry (to the access road) was walled up with a continuous retaining wall..
6-12-2			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	The road has many potential uses, the most important one is equestrian use.
6-12-3			NEI	N/A	N/A
6-12-4			LU	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	With signals lights at Antonio and La Novia, there is a great distance of unsafe crossing for horses.
6-12-5			NEI	N/A	N/A
6-12-6			NEI	N/A	N/A
6-13-1	Roger, Bernadine Monaco	8/24/2007	NEI	N/A	N/A
6-14-1	Pat Smith	7/9/2007	OP	N/A	N/A
6-14-2			PD	Chapter 1 Proposed Project pg 82	Extending the toll road, putting Avery through and extending La Pata to San Clemente will help the area.
6-14-3			CI	Section 2.1.3 Community Impacts pg 74-75	The loss of character our town will suffer by becoming a driveway to the new community.
6-15-1	Patty Smith	8/9/2007	OP	N/A	N/A
6-15-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	San Juan does not want more traffic.
6-15-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	San Juan does not want faster traffic.
6-15-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	San Juan does not need high and huge sound walls.
6-15-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	San Juan does not need sound pollution.
6-15-6			V	Section 2.1.6 Visual/Aesthetics pg 119-133	San Juan does not want light pollution.
6-15-7			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Lower property values.
6-15-8			V	Section 2.1.6 Visual/Aesthetics pg 109-133	San Juan does not want fewer trees.
6-15-9			CI	Section 2.1.3 Community Impacts pg 70-72	Higher taxes to pay for services that benefit out of town traffic.
6-15-10			T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	San Juan does not want reduced pedestrian, bicycle and equestrian traffic.
6-15-11			CI	Section 2.1.3 Community Impacts pg 59-64	To lose our small town feel.
6-16-1	Gay Smith	7/11/2007	T	Section 2.1.3 Community Impacts pg 72	It can be near impossible to make a left turn onto the road. A traffic light at the east end of the corridor is imperative.
6-16-2			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	A natural corner for a stop light will be Shade Tree Lane/Siega in order to for residents to enter the highway.
6-17-1	Barbara Matty	7/11/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	The traffic backs up after Hunt Club Drive towards San Antonio due to the fact there is only one lane of traffic in both directions.
6-17-2			OP	N/A	N/A
6-17-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	You are punishing all the residents on Ortega Highway by putting up ugly sound walls.
6-17-4			OP	N/A	N/A
6-18-1	Sue Swanson	7/12/2007	OP	N/A	N/A
6-18-2			V	Section 2.1.6 Visual/Aesthetics pg 131-133	I am especially against the proposed walls. This will take away the beauty of the neighborhoods.
6-18-3			PD	Chapter 1 Proposed Project pg 82	I feel that San Juan Creek should be opened up to La Plata, Antonio Pkwy/La Plata should be opened to Pico in San Clemente, this would take a lot of traffic off of Ortega.
6-19-1	Jan Siegel	7/17/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	Please explain how taking out over 100 mature trees does not affect the environment.
6-19-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	How does adding the sound walls not effect the environment.
6-19-3			V	Section 2.1.6 Visual/Aesthetics pg 131-133	Please explain how adding 25 foot walls to a historical, scenic roadway does not affect the environment.
6-20-1	Larry Kramer	7/19/2007	T	Section 2.1.5 Traffic pg 82, 84-85, 90	Unsafe to have Class II Bike lanes on a highway, combine the sidewalk with a Class I bike lane.
6-20-2			T	Section 2.1.5 Traffic pg 89-90	Make the new speed limit no more than 45 mph.
6-20-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Make sure the road remains no more than 45 mph, this should reduce the noise level impacting the residents living near the road.
6-20-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Use the material on the road which results in the lowest road noise.
6-21-1	Mark Jimeno	7/19/2007	OP	N/A	N/A
6-22-1	James, Nancy Erickson	7/22/2007	EIR	EIR	Want an EIR.
6-22-2			PD	Chapter 1 Proposed Project pg 82	This project should wait until alternative diversion routes and projects which have promise to alleviate the routes between Riverside County and SR 76 are in place or abandoned.
6-22-3			T	Summary pg viii, Chapter 1 Proposed Project pg 10	No reference to the City's 2002 Strategic Transportation Plan.
6-22-4			V	Section 2.1.6 Visual/Aesthetics pg 131-133	The proposed project would result in a drastically significant change in the environmental character of the scenic route created by the City to a very pedestrian and unattractive virtually tunneled urban highway.
6-22-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	On the north side of Ortega, the existing meandering sidewalk and over 100 existing mature trees will be removed, with no replacement or other alternative landscaping, except if funded by the City.
6-22-6			V	Section 2.1.6 Visual/Aesthetics pg 131-133	A 5 to 25 foot high standard masonry retaining wall also will be constructed for several hundred feet along the north side of Ortega without any architectural or graphic enhancement.
6-22-7			V	Section 2.1.6 Visual/Aesthetics pg 131-133	We think the meandering sidewalk should be replaced and either a landscaped sloped or some architecturally enhanced masonry wall by graphic art panels or stepped-back integrated landscaping should be provided.
6-22-8			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	On the south side 8 foot walls are proposed to be constructed immediately adjacent to the street in an effort to mitigate noise generated for the first row of homes.
6-22-9			CI	Chapter 1 Proposed Project pg 22-23	These sound walls would be standard masonry walls unless the City pays to have glass enhancements added to preserve some of the existing view at a cost of around $1 million dollars.
6-22-10			T	Chapter 1 Proposed Project pg 9-11, 26-27	To accommodate the traffic generated by the large developments planned east of the City.
6-22-11			T	Chapter 1 Proposed Project pg 26-27, Section 2.2.6 Air Quality pg 183-193	The proposed increase of daily traffic on Ortega will result in energy consumption and pollution.
6-22-12			AQ	Chapter 1 Proposed Project pg 26-27	Increase in daily traffic will increase pollution.
6-22-13			AQ	Chapter 1 Proposed Project pg 26-27	Increase in daily traffic will increase energy consumption.
6-22-14			T	Section 2.1.5 Traffic pg 89-90	Are unable to turn left into Mission Springs and must travel 3 more miles to La Novia to use Arroyo which has pedestrians from the park.
6-22-15			T	Section 2.1.5 Traffic pg 82-92	With the proposed increase in traffic on Ortega and no proposed signals, this hazardous local traffic will be increased significantly.
6-23-1	Nancy Jimeno	7/23/2007	T	Section 2.1.5 Traffic pg 82, 84-85, 90	The highway is so narrow to ride a bike with so much traffic and no room for a bike lane. That stretch of Ortega is terribly congested.

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-23-2			OP	N/A	N/A
6-24-1	Barbara Lunnen	7/24/2007	OP	N/A	N/A
6-24-2			EIR	EIR	Want an EIR.
6-25-1	Ron, Vicki Geisler	7/24/2007	T	Section 2.1.5 Traffic pg 82-92	My concerns are about the traffic.
6-25-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our concerns are about the noise.
6-25-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our concerns are about the smell and sound issues.
6-25-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The removal of 110 trees.
6-25-5			PD	Chapter 1 Proposed Project pg 83	The removal of sidewalks.
6-25-6			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our concerns that 14 and 25 foot sound walls erected that will be graffitied within days.
6-25-7			PD	Chapter 1 Proposed Project pg 83	Ortega will become a freeway access to get to the 5 freeway and there will be no sidewalk.
6-25-8			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values greatly decreased.
6-25-9			CI	Section 2.1.3 Community Impacts pg 59-75	Quality of life for the families and community and business will be so hugely impacted.
6-25-10			OP	N/A	N/A
6-26-1	Julia Sutton	7/24/2007	EIR	EIR	Want an EIR.
6-26-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Potential damage to our beautiful area is of great concern to me.
6-27-1	Heather Davis	7/24/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	Mission Viejo should have extended Avery a long time ago and planned their 14,000 homes after they planned their roads.
6-27-2			PD	Chapter 1 Proposed Project pg 82	Other projects need to be finished before touching lower Ortega such as the Del Obisbo I-5 interchange, extending La Pata and the toll road.
6-27-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	San Juan does not deserve to have walls.
6-27-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	No tearing down old trees.
6-27-5			PD	Chapter 1 Proposed Project pg 83	No rushing to destroy sidewalks.
6-27-6			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	No rushing to destroy horse trails.
6-28-1	Scott Wilson	7/24/2007	OP	N/A	N/A
6-28-2			G	Section 2.1.2 Growth pg 56-58	Inducing growth of 14,000 homes
6-28-3			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values will plummet.
6-28-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	Increased traffic.
6-28-5			AQ	Chapter 1 Proposed Project pg 26-27	Increased air pollution.
6-28-6			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Increased noise.
6-28-7			T	Section 2.1.5 Traffic pg 89-90	Ortega speeds increase to an unsafe 55 mph.
6-28-8			NEI	N/A	N/A
6-28-9			T	Section 2.1.3 Community Impacts pg 72	Inability to safely make left turns requiring U-turns.
6-28-10			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	No traffic signals allowed.
6-28-11			CI	Section 2.1.2 Growth pg 56-58	Induced growth will bring more crime & need for police services.
6-28-12			G	Section 2.1.2 Growth pg 56-58	Induced outside growth brings fire response sirens through our town
6-28-13			T	Chapter 1 Proposed Project pg 9-11, 26-27	Traffic will increase from Riverside County.
6-28-14			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	15-25' retaining and sound walls, the canvas for graffiti!
6-28-15			CI	Section 2.1.3 Community Impacts pg 70-72	City taxes and budget impacted (over $1million hit) for maintenance and upgrade of sound and retaining walls.
6-28-16			B	Section 2.3.5 Threatened/Endangered Species pg 254-256	Habitat endangered species at risk.
6-28-17			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of scenic highway feel.
6-28-18			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of 111 mature trees and landscape.
6-28-19			PD	Chapter 1 Proposed Project pg 15-25	Loss of street lighting and sidewalks.
6-28-20			PD	Chapter 1 Proposed Project pg 84	It will be unsafe for our students and disabled.
6-28-21			CI	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	No equestrian crossings
6-28-22			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Loss of proposed trails
6-28-23			CI	Section 2.1.3 Community Impacts pg 70-72	Loss of downtown business revenue.
6-28-24			CR	Section 2.1.7 Cultural Resources pg 142-144	Archaeological and historically significant area forever impacted.
6-28-25			S	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Unsafe access for homeowners and equestrians bordering Ortega.
6-28-26			OP	N/A	N/A
6-29-1	Daniel, Barbara Campion	7/24/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Our main living space and backyard face Ortega Highway. We are jolted awake by trucks and commuter traffic. We feel the vibrations of the trash trucks.
6-29-2			OP	N/A	N/A
6-29-3			PD	Summary pg viii-x	All other planned arteries to the 5 Freeway need to be opened as well, to help alleviate the flow of traffic.
6-29-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	We truly believe that Ortega Highway need to be widened for the safety of all us with retaining walls and sound barrier walls as planned.
6-29-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We believe that Ortega Highway needs to be widen for the safety of all of us with retaining walls and sound barrier walls as planned.
6-29-6			V	Section 2.1.6 Visual/Aesthetics pg 109-133	We hate to see the small town of SJC change anymore than it already has, we need to accept the fact that the population is growing in our area as well as surrounding areas.
6-29-7			S	Section 2.1.6 Visual/Aesthetics pg 131-133	We hate to see so many trees removed for this project, being able to get on to Ortega safely is well worth the change.
6-29-8			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Widen Ortega Highway as planned, construct sound absorption walls and retaining walls as necessary and please replant with vegetation in keeping with the surroundings.
6-30-1	Daniel, Barbara Campion	Comment Card	V	Section 2.1.6 Visual/Aesthetics pg 109-133	Another reason for the widening of Ortega w/sound absorption walls and retaining walls is to clean up the north side just past Via Cristal. It is a mess, a true eye sore.
6-30-2			S	Section 2.1.5 Traffic pg 88-92	The north side (of Ortega) just past Via Cristal presents a blind curve with vehicles that are parked there.
6-30-3			WQ	Section 2.2.2 Water Quality pg 152-156	The drainage also ends up on the south side blocking up the drain. We are afraid of flooding and or vehicles ending up in our yard.
6-30-4			N	Chapter 1 Proposed Project pg 22-23	Please use sound absorption walls.
6-30-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Please use sound absorption walls and install the retaining walls.

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Public Comments					
6-31-1	Ilse Byrnes	7/25/2007	OP	N/A	N/A
6-31-2			CR	Section 2.1.7 Cultural Resources pg 142-144	The historical and cultural houses and historic trees along the route would either be severely impacted or destroyed by the widening. The increased traffic will bring vibration that will be detrimental to historic buildings.
6-32-1	Cynthia Lagos	Comment Card	CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	All of the homes that back to the Ortega would loose their property values.
6-32-2			AQ	Section 2.2.6 Air Quality pg 183-193	Air pollution concern.
6-32-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise pollution would make San Juan Cap a far less wonderful place.
6-32-4			CI	Section 2.1.3 Community Impacts pg 59-64	Destruction of our beautiful rural environment would make San Juan Cap a far less wonderful place.
6-32-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	This would cause major congestion of our streets.
6-32-6			PD	Chapter 1 Proposed Project pg 28-29	Please don't destroy this gem of an area, come up with better ideas, such as, diverting traffic to the right on La Plata through to San Clemente and or left to San Antonio and then to
6-32-7			PD	Chapter 1 Proposed Project pg 9-11, 26-27	This isn't San Juan's problem, another solution would be to close the Ortega all together to through traffic.
6-33-1	Monique Rea	Comment Card	OP/V	Section 2.1.6 Visual & Aesthetics pg 109-133	Do not destroy our unique Historic town of San Juan Capistrano for a temporary fix.
6-34-1	Yvonne Tschaikowsky	7/26/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	The very character of our town is in jeopardy with the impacts of the loss of more than 100 trees, views blocked by unsightly retaining and sound walls.
6-34-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The impacts of views blocked by unsightly retaining and sound walls.
6-34-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Having the appearance of a "thoroughfare".
6-34-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Increased noise.
6-34-5			AQ	Section 2.2.6 Air Quality pg 183-193	Increased air pollution.
6-34-6			T	Chapter 1 Proposed Project pg 9-11, 26-27	Increased traffic and speeds.
6-34-7			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Increased traffic and speeds with no crosswalks or stop lights provided are more than significant and place the safety of residents in jeopardy.
6-34-8			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	With no crosswalks or stop lights provided are more than significant and place the safety of residents in jeopardy.
6-34-9			EIR	EIR	Want an EIR.
6-35-1	Nancy, J.P. Scanlon	7/28/2007	OP	N/A	N/A
6-35-2			PD/V	Section 2.1.3 Community Impacts pgs 74-75	A beltway will need to tie Antonio in with the 73. The beauty of Ortega will be ruined and SJC will feel the impact of 4 lanes of traffic.
6-36-1	John Bates	7/28/2007	EIR	EIR	Want an EIR.
6-36-2			S	Section 2.1.5 Traffic pg 90-92	I am concerned that a 5' bike lane without a barrier from auto and truck traffic is extremely dangerous.
6-37-1	Kenneth Young	7/29/2007	OP	N/A	N/A
6-37-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	The widening only affects a short strip of the highway and will not effectively help traffic flow overall.
6-37-3			CI	Chapter 1 Proposed Project pg 9-11, 26-27	The cost does not produce a good value in return by any rational measurement.
6-37-4			CI	Chapter 1 Proposed Project pg 9-11, 26-27	Communities should not be run roughshod over, destroying the ambience and tranquility of an area simply to satisfy short period needs of those from outside the community.
6-37-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	The congestion that occurs is just twice a day and is created by autos that are passing through, not by many residents of San Juan Capistrano.
6-37-6			G/V	Section 2.1.2 Growth pg 56-58	Development in the surrounding communities counties, encouraging rapid growth; disrupting peace, beauty & quiet neighborhood
6-37-7			T	Section 2.1.5 Traffic pg 89-90	There is no provision for the residents on the south side to enter your proposed speedway and turn left towards town. Their only option is to make a U-turn.
6-38-1	Maryann Tucker	7/30/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Please repeat the sound test along Ortega/Via Sonora homes.
6-39-1	Joe Mankawich	7/31/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	The replacement of tall walls for tall trees is not a fair one. But in the end this will change this little jewel of a town and the magical feeling you get when you find a hidden treasure.
6-40-1	Joy Patterson	7/28/2007	OP/V	Section 2.1.6 Visual/Aesthetics pg 131-133	"Our town can not take such a drastic widening without ruining our great lovely environment"
6-41-1	Shelagh Hegarty	7/31/2007	OP	N/A	N/A
6-41-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	I am against the widening of Ortega and the removal of 100 trees.
6-41-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I am against the building of sound walls.
6-41-4			CI	Section 2.1.3 Community Impacts pg 59-64	The damage to the small town atmosphere.
6-42-1	Julia Moore	7/24/2007	OP	N/A	N/A
6-42-2			PD	Section 2.4 Cumulative Impacts pg 273	The Mission Viejo Company should find alternate roads to get to the 14,000 homes being built of 74 (Ortega).
6-42-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Other concerns would be tearing our beautiful trees down.
6-42-4			PD	Chapter 1 Proposed Project pg 83	Other concerns would be tearing down our sidewalks.
6-42-5			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Home prices would drop.
6-42-6			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I don't feel the proposed sound walls would be an asset.
6-42-7			T	Chapter 1 Proposed Project pg 9-11, 26-27	The traffic problem is really at Antonio Parkway and the 5 freeway, we need to deal with those areas first.
6-43-1	Regwald, Phyllis Villamil	8/1/2007	EIR	EIR	Want an EIR.
6-43-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Building walls is not acceptable to our community of San Juan Capistrano.
6-43-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Destroying over 100 mature trees is not acceptable to our community.
6-44-1	Laurie, Joseph Seymour	8/3/2007	V	Section 2.1.6 Visual/Aesthetics pg 109-133	We are very concerned about the drastic changes proposed to the road in order to accommodate more traffic. San Juan has a "rural" feel and prides itself on maintaining its historic
6-44-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The proposed widening with its sound walls will have very significant impacts on the environment.
6-44-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The Ortega Highway is a scenic road and we should strive to preserve it as such.
6-44-4			V	Section 2.1.6 Visual/Aesthetics pg 131-133	The proposed widening with its sound walls, retaining walls and removal of mature trees, will have very significant impacts on the environment, alter the character of the road and the quality of life for San Juan residents.
6-44-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	We really don't want the Ortega ending up like the 55/Newport Blvd. thoroughfare, turning it into a speedy driveway to the I-5.
6-44-6			PD	Chapter 1 Proposed Project pg 9-11	Alternative routes should be developed first in order to alleviate traffic.
6-44-7			EIR	EIR	Want an EIR.
6-45-1	Bob Schrank	8/4/2007	EIR	EIR	Want an EIR.
6-46-1	Gail Zukow	7/30/2007	S	Section 2.1.5 Traffic pg 82-84	I am warning you that this 4 lane ill-conceived plan will result in a pedestrian or horse and rider injury or fatality.
6-46-2			T	Section 2.1.3 Community Impacts pg 72	It is ridiculous to expect people trying to exit the subdivision south of Ortega to make a right turn, go to city limits and make a U-turn.

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Public Comments					
6-46-3			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	I asked why we didn't get a crossing at Belford, I was told it didn't meet the "criteria".
6-47-1	J. Donald Tryon	Comment Card	OP	N/A	N/A
6-47-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I am for the widening but I'm against the huge sound walls.
6-47-3			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We should have at least one more signal
6-47-4			T	Section 2.1.3 Community Impacts pg 72	To enable people make a left turn
6-47-5			PD	Chapter 1 Proposed Project pg 9-11	It would be more efficient if the I-5/Ortega interchange be completed first.
6-48-1	Rosemarie McCabe	8/5/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	Widening will result in a 60 mph Ortega in the City
6-48-2			T	Section 2.1.5 Traffic pg 89-90	Having to cross two lanes of highway speeds with no traffic lights between La Novia and La Pata will cause accidents
6-48-3			NEI	N/A	N/A
6-48-4			AQ	Section 2.2.6 Air Quality pg 183-193	Document does not adequately analyze the impact of autos on the particles in the air.
6-48-5			T/CI	Section 2.1.5 Traffic pg 89-90	We want drivers to slow down. The (one lane) slow down does a great job of reminding everyone they are entering a small, historic, beautiful city.
6-48-6			CUM	Section 2.4 Cumulative pg 267	The cumulative effect the speeded up, high density, stop and go traffic will have on all established neighborhoods along the Ortega.
6-48-7			PD	Chapter 1 Proposed Project pg 7-11	Commenter- "Not prudent regional planning"
6-48-8			PD	Chapter 1 Proposed Project pg 28-29	Viable alternatives to the widening project.
6-48-9			T	Chapter 1 Proposed Project pg 9-11, 26-27	Document does not adequately analyze the negative effect the added autos will have on I-5.
6-48-10			PD	Chapter 1 Proposed Project pg 16-30	An alternative that would truly provide a regional solution to traffic would be the completion of La Pata.
6-48-11			CUM	Section 2.4 Cumulative pg 278-279	Document fails to adequately analyze the cumulative effect the multitude of automobiles will have on San Juan Creek
6-48-12			EIR	EIR	Caltrans needs to do a full E.I.R.
6-48-13			T	Section 2.1.5 Traffic pg 89-90	Realistic proposals for all Ortega neighborhood residents needing to make a left hand turn need to be addressed.
6-48-14			PD	Chapter 1 Proposed Project pgs 9-29	The E.I.R. needs to offer alternatives other than project/no project
6-49-1	Jeffery, Susan Singer	8/5/2007	EIR	EIR	Want an EIR.
6-49-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are very concerned about the added noise.
6-49-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	We are very concerned about the removal of trees.
6-49-4			PD	Chapter 1 Proposed Project pg 83	We are very concerned about the removal of the sidewalks.
6-50-1	Bonnie, Dick Holt	Comment Card	T	Chapter 1 Proposed Project pg 9-11, 26-27	You burden us with the traffic congestion from RMV company's developments and cross-Ortega commuters attempting to hasten their arrival at the 5 freeway.
6-50-2			EIR	EIR	Want an EIR.
6-50-3			PD	Chapter 1 Proposed Project pg 9-11	Other than Ortega routes (should) be developed: Avery to Antonio, San Juan Creek to La Pata, Las Ramalas, etc..
6-51-1	Russell Welsh	Comment Card	V	Section 2.1.6 Visual/Aesthetics pg 109-133	The proposed widening of Ortega Highway in San Juan Capistrano will destroy the flavor of our City. The trees to be removed will nullify the beauty.
6-51-2			PD	Chapter 1 Proposed Project pg 9-11	The toll roads will take much of the traffic away from coming to the City. The interchange at I-5 and Ortega does not have to be built.
6-51-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The proposed widening with sound walls would be a nightmare.
6-51-4			PD	Chapter 1 Proposed Project pg 83	The proposed widening with the elimination of the sidewalk would be a nightmare.
6-51-5			T	Section 2.1.3 Community Impacts pg 72	Difficult in getting on Ortega from side streets will be a nightmare.
6-51-6			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The proposed change will cut San Juan in half.
6-51-7			OP	N/A	N/A
6-51-8			EIR	EIR	Want an EIR.
6-52-1	Sandra Weaver	Comment Card	T	Chapter 1 Proposed Project pg 9-11, 26-27	Most of the traffic generated through this area comes from outside our town. I don't believe we should widen our road.
6-52-2			V/CI	Section 2.1.6 Visual/Aesthetics pg 131-133	Take down 110 trees.
6-52-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Put up huge soundwalls to accommodate traffic from the Lake Elsinore area.
6-52-4			PD	Chapter 1 Proposed Project pg 9-11	In favor of a tunnel under the Santa Ana Mountains
6-53-1	Rhett, Nicole Brose	Comment Card	OP	N/A	N/A
6-53-2			S	Chapter 1 Proposed Project pg 9-30	Property abuts Highway 74, no buffer for safety between highway and property line.
6-53-3			PD/CI	Chapter 1 Proposed Project pg 9-11	Removing the sidewalk will diminish the SJC people friendly lifestyle.
6-53-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise (from construction?) would not be tolerated.
6-53-5			CONST	Chapter 1 Proposed Project pg 25-26	Length of construction would not be tolerated.
6-54-1	Cheryl Butler	8/6/2007	EIR	EIR	Want an EIR.
6-55-1	Robert Arrigoni	8/6/2007	EIR	EIR	Want an EIR.
6-56-1	Kim Lefner	8/6/2007	CI	Section 2.1.3 Community Impacts pgs 74-75	The study states there would be 'no significant' impact on our community with the removal of sidewalks.
6-56-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The study states there would be 'no significant' impact on our community with the removal of 110 mature trees.
6-56-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The MND states that there would be 'no significant' impact on our community from views blocked by sound walls and retaining walls.
6-56-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The study states there would be 'no significant' impact on our community with the views blocked by sound and retaining walls.
6-56-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	Increased traffic and speeds.
6-56-6			S	Section 2.1.5 Traffic pg 89-92	A U-turn at the only light near Antonio is a potentially unsafe condition.
6-56-7			V	Section 2.1.6 Visual/Aesthetics pg 109-133	To encourage even more traffic by widening Ortega Highway, especially with the existing proposal adding huge soundwalls, will effectively transform Ortega into one lone freeway on-ramp, directly next to this historic treasure.
6-57-1	Cheryl, Ben Trosky	8/7/2007	OP	N/A	N/A
6-57-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We object to the widening of Lower Ortega and associated sound walls.
6-57-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The widening will destroy a scenic corridor.
6-57-4			PD	Chapter 1 Proposed Project pg 16-30	A valuable sidewalk on your plan will be removed which borders our property and is required to remain by law.
6-58-1	Cheryl, Ben Trosky	9/8/2007	OP	N/A	N/A
6-58-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We object to the widening of Lower Ortega and associated sound walls.

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Public Comments					
6-58-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The widening will destroy a scenic corridor.
6-58-4			PD	Chapter 1 Proposed Project pg 16-30	Your plan will remove a valuable sidewalk contiguous with our property. This sidewalk is required to remain by law.
6-58-5			PD	Chapter 1 Proposed Project pg 83	We demand you explore alternatives to solving Orange County traffic problems outside of San Juan Capistrano.
6-59-1	Kim Chetney	8/7/2007	OP	N/A	N/A
6-59-2			PD	Chapter 1 Proposed Project pg 83	We love to walk the sidewalks with our kids and our dogs.
6-59-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The trees that line the road are mature and beautiful.
6-59-4			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We are fearful that once the floodgates are opened, without signals, traffic will stream rapidly through our quaint town by way of a sound wall shute to the 5.
6-60-1	Sally Hermanson	8/7/2007	OP	N/A	N/A
6-60-2			PD	Chapter 1 Proposed Project pg 83	Many people live along this road and use the sidewalks to walk dogs, jog, or just walk.
6-60-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The trees that already exist serve as all the sound barrier that is needed.
6-60-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	No sound wall can replace the trees that already serve as a sound buffer.
6-61-1	Phyllis Watson	8/7/2007	T	Summary pg viii, Chapter 1 Proposed Project pg 10	Caltrans fails to considered our City's Strategic Transportation Plan.
6-61-2			PD	Chapter 1 Proposed Project pg 9-11	If the widening is done before other routes have been developed, the study stated existing traffic problems would just worsen.
6-61-3			T	Section 2.1.5 Traffic pg 89-90	What also concerns me is the inability to turn left without signals anywhere between the city limits and La Novia.
6-61-4			T	Section 2.1.5 Traffic pg 89-90	My kids will be driving soon, that would be a nightmare for me and my family. (No left turns)
6-61-5			EIR	EIR	Want an EIR.
6-62-1	Pat Wesselink	8/8/2007	T	Section 2.1.5 Traffic pg 89-90	Turning left onto Ortega Highway out of Hunt Club is a master feat. The traffic coming from the East is moving very fast, above the speed limit of 45, it makes it difficult.
6-62-2			PD	Chapter 1 Proposed Project pg 9-11	I am not opposed to widening the Ortega Highway from Hunt Club Drive east to Antonio. I think we need the extra lanes.
6-62-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	What I am opposed to is the idea of taking away the sidewalk on the north side of the highway and removing all the trees along there.
6-62-4			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	With out a traffic light anywhere near, it would be impossible to use the sidewalk on the other side and cross into our community.
6-62-5			T	Section 2.1.5 Traffic pg 89-90	Another concern is about the design of this project is the fact that it will shorten the entrance into the Hunt Club not allowing any staking capability.
6-63-1	Barbara Lunnen	8/8/2007	EIR	EIR	Want an EIR.
6-64-1	Andrea Bink	8/8/2007	OP	N/A	N/A
6-64-2			PD	Appendix G pg 457-480	We would like the following (information) to help us decide how this is going to impact our community- plans which clearly show what will be done and time to review the plans.
6-64-3			NEI	N/A	N/A
6-65-1	Paul Walker	8/8/2007	T	Section 2.1.5 Traffic pg 84-88	Any efficiencies realized by the widening of Ortega will only result in further delays at the Ortega/5 Freeway intersection.
6-65-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The sound tests found 14 potential locations for sound reducing walls, only one wall deemed to be "feasible".
6-65-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I find it hard to predict sound levels.
6-65-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Sound tests were not conducted in the horse ranch properties.
6-66-1	Carol Tuch	8/8/2007	EIR	EIR	Want an EIR.
6-67-1	Susan Palazzo	8/8/2007	EIR	EIR	Want an EIR.
6-68-1	Mark Speros	8/8/2007	PD	Chapter 1 Proposed Project pg 9-11	My counter proposal is the "New Ortega Corridor" a high-speed corridor to be built directly underneath the existing Ortega Highway.
6-68-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	Present conditions for Ortega Highway: Current traffic is heavy in both directions on Ortega and moves slowly at times through the city.
6-68-3			T	Section 2.1.5 Traffic pg 89-90	Merging from sides streets onto either direction of Ortega is hazardous if not impossible much of the day.
6-68-4			T	Section 2.1.5 Traffic pg 89-90	Turning from Ortega onto a side street is equally difficult.
6-68-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Removal of 110 mature trees canopying the current street is not within the SJC General Plan Land Use Element.
6-68-6			PD	Chapter 1 Proposed Project pg 15-23	The erection of several 14 foot sound walls and the loss of sidewalks
6-68-7			S	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Eliminating the ability to safely cross Ortega on foot or bike will effectively bisect the entire city.
6-68-8			G	Section 2.1.2 Growth pg 56-58	Future development of Ranch Viejo, with continued vigorous growth in Riverside County
6-68-9			PD	Chapter 1 Proposed Project pg 9-11	The Ortega Highway bisects a heavily residential area, if Ortega Highway were to be closed to through traffic, the City of San Juan Capistrano would be quite happy.
6-69-1	June Loper	8/8/2007	EIR	EIR	Want an EIR.
6-70-1	Zach Wordes	8/8/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I am not against revamping Ortega and building sound walls.
6-70-2			EIR	EIR	Want an EIR.
6-71-1	Sonia Benson	8/8/2007	EIR/CI	EIR	Concerned about the widening of the highway without an environmental impact report. For the community give this measure examination and consideration it deserves.
6-72-1	Paul and Susan Mikos	8/8/2007	EIR	EIR	Want an EIR.
6-73-1	Lowell Way	8/8/2007	OP	N/A	N/A
6-74-1	Mary Walker	8/9/2007	EIR	EIR	Want an EIR.
6-75-1	Dawn Cole	8/9/2007	OP	N/A	N/A
6-75-2			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	It is extremely hard to cross the Ortega Highway to get over to the beautiful horse trails in the Hunt Club
6-75-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Leave the Ortega Highway from Calle Entradero to Antonio Parkway a two lane road in order to preserve the scenic beauty and rural feel of San Juan Capistrano.
6-76-1	Kim Loftus	8/9/2007	EIR	EIR	Want an EIR.
6-77-1	Linda Gossard	8/9/2007	EIR	EIR	Want an EIR.
6-78-1	Larry Parker	8/9/2007	EIR	EIR	Want an EIR.
6-78-2			CR	Chapter 1 Proposed Project pg 9-11, 26-27	Your proposed widening of Ortega would have a huge impact in that the functionality of the area would be affected i.e. sound and retaining wall.
6-78-3			V	Chapter 1 Proposed Project pg 9-11, 26-27	Your proposed widening of Ortega would have a huge impact in that the functionality of the area would be affected i.e. sound and retaining wall.
6-78-4			V	Chapter 1 Proposed Project pg 15	Your proposed widening of Ortega would have a huge impact with side walks removed.
6-78-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Your proposed widening of Ortega would have a huge impact with wholesale removal of numerous mature and beautiful trees, views blocked, etc..
6-79-1	Lowis Loyal/Qelles Seiecro	8/8/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	As the highway narrows to one lane the traffic obviously slows and sometimes even stops. This adds between 3 to 10 minutes to this stretch.
6-79-2			OP	N/A	N/A
6-79-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	This is not significant enough, so we residents have trees removed.

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6-79-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	This is not significant enough, so we residents have soundwalls which are ugly and invite graffiti.
6-79-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	Changing our environment for traffic from the inland is not in our interest.
6-79-6			T	Section 2.1.5 Traffic pg 89-90	How many accidents will occur with people from the west of the Ortega trying to turn left onto Ortega?
6-79-7			OP	N/A	N/A
6-79-8			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Many of my neighborhood voted to accept a "sound wall" simply to support our neighbors homes.
6-80-1	Eric Altman	8/7/2007	OP	N/A	N/A
6-80-2			G/CI	Section 2.1.2 Growth pg 56-58	Accommodate planned growth, current and future long term development
6-80-3			T	Chapter 1 Proposed Project pg 9-11, Section 2.1.1 Land Use pg 38-46, 48-49	To provide improvements which are consistent with local planning documents and provide safe travel for current and future travelers along this stretch of State Highway.
6-80-4			OP	N/A	N/A
6-81-1	Ray and Amy Woods	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We would greatly prefer the glass wall.
6-81-2			T	Section 2.1.5 Traffic pg 89-90	The entrance onto Ortega should not be right turn only. If there is a painted median, there should be double broken lines making it possible to turn left into the median before proceeding west on Ortega.
6-82-1	Mark Pugnale	NA	T	Section 2.1.5 Traffic pg 89-90	Very concerned about the safety of exiting and entry in the area of Ortega and Shadetree Lane I am very concerned with the safety of this area. Please look carefully at this intersection.
6-83-1	Debera Puqwnale		T	Section 2.1.5 Traffic pg 89-90	To cross street to access park or trails we have to go out and stop traffic.
6-83-2	Mark Puqnale		T	Section 2.1.5 Traffic pg 89-90	With speed at 55 posted speed, they will drive 60 to 65 that is freeway speed with ramps.
6-83-3	Heather Richardson		T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We need a crosswalk from all streets on north side with flashing (ped./esq.) crossing button and flashing yield signs.
6-83-4	Jody Richardson	NA	CI	Section 2.1.3 Community Impacts pg 74-75, Section 2.1.6 Visual pg 132-133	Protect our children, horses, elderly, dogs saves lives. This is a community on both sides of road.
	Willis and June Sclimidt				
	Jack, Quin and Noelle Richardson				
6-84-1	Jody and Heather Richardson	NA	T	Section 2.1.5 Traffic pg 89-90	We can't cross street to access park or horse trails now.
6-84-2	Mark and Debera Puqnale		T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	We are losing our road access to our "equestrian" property/farm to a 14 to 25 ft wall.
6-84-3			EIR	EIR	Want an EIR.
6-84-4			T	Section 2.1.5 Traffic pg 89-90	How are cars supposed to turn left onto road?
6-84-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Let everyone horses, strollers, kids on bikes go along side of 14 to 25 ft sound wall.
6-85-1	E. Paul Johnson and Carol Johnson	NA	OP	N/A	N/A
6-85-2			PD	Chapter 1 Proposed Project pg 9-11	All other arteries of transportation- 241 Toll road, La Pata and San Juan Creek Road must be fully extended. This will relieve traffic congestion significantly more than widening of Ortega.
6-86-1	William Fessenden	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Ian am requesting that 14 ft sound walls (preferably with glass panels) be installed ASAP to mitigate the traffic noise.
6-86-2			OP	N/A	N/A
6-86-3			T	Section 2.1.5 Traffic pg 89-90	I believe the speed limit should be 40 mph from the I-5 to La Pata so that it is possible to enter the traffic flow on Ortega Highway safely.
6-86-4			NEI	N/A	N/A
6-87-1	Bruce Treuhaft	NA	OP	N/A	N/A
6-87-2			AQ	Chapter 1 Proposed Project pg 26-27	Increase in daily traffic flow will increase air pollution.
6-87-3			T	Section 2.1.5 Traffic pg 89-90	With the inability of the residents on the south side of Ortega to pull out on Ortega. The widening will cause us to take the back streets.
6-87-4			T	Section 2.1.5 Traffic pg 89-90	A newspaper article attached showing other road projects to be done in the area.
6-88-1	William Koot	NA	CI	Section 2.1.3 Community Impacts pg 74-75, Section 2.1.6 Visual pg 132-133	Residents on the north side of the two mile Ortega corridor will be denied safe ingress/egress to their homes and their slice of the SJC community.
6-89-1	Warren and Christina Sandy	NA	PD	Chapter 1 Proposed Project pg 9-11	Caltrans and DOT had stated from the original plan to connect the 241 build out, La Pata and San Juan Creek Road before starting the Ortega.
6-89-2			T	Section 2.1.5 Traffic pg 89-90	It will be nearly impossible and extremely risky to venture onto the Ortega from our neighborhood without traffic mitigation.
6-90-1	Lynn and Brian Chichi	NA	EIR	EIR	Want an EIR.
6-91-1	Tressa Coco	8/10/2007	OP	N/A	N/A
6-91-2			V/CI	Chapter 1 Proposed Project pg 9-11, 26-27	Eventually widen the entire road so that it is no longer a canyon of beauty.
6-92-1	Dave Solt	8/10/2007	PD	Chapter 1 Proposed Project pg 9-11	With the traffic from the Ranch Mission Viejo development of 14,000 homes, Caltrans would benefit by the development of county arteries that are able to take some of the burden off of SR-74.
6-93-1	Dale Rosenfeldt	8/11/2007	LU	Section 2.1.6 Visual/Aesthetics pg 131-133	San Juan Capistrano and the Ortega have always represented country and rural living.
6-94-1	Steve Mandala	8/12/2007	V/CI	Chapter 1 Proposed Project pg 9-11, 26-27	This roadway is a scenic route, bordered by stately trees. This roadway is being touted as "necessary" to handle the traffic requirements of the city.
6-95-1	Brad Gates	7/25/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Letter to express my extreme concern over the Ortega Highway Widening project and failure to mitigate significant noise impacts at my property.
6-95-2			OP	N/A	N/A
6-95-3			EIR	EIR	Want an EIR.
6-95-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	A more appropriate threshold should be utilized to assess impacts to sensitive receptors along the rural highway.
6-95-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	It is unclear in the MND and Noise Study how it was determined that future noise warranted mitigation west of Via Errecarte and not east of Via Errecarte.
6-95-6			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The minimum of 5 dBA reduction in future noise level must be achieved for an abatement measure to be considered feasible and analysis of sound wall near property.
6-95-7			N	Section 2.2.7 Noise pg 215	The retaining wall on the north side of Ortega will cause reflected noise and magnify future noise, creating an even greater impact.
6-95-8			V	Section 2.1.6 Visual/Aesthetics pg 131-133	It was difficult to assess the aesthetic impacts related to the proposed retaining wall opposite our house. The view simulation of the rock retaining wall was omitted.
6-95-9			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	My July 2006 letter expressed significant concern that the proposed sound wall did not extend east of Via Errecarte on the south side of Ortega Highway.
6-95-10			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The potentially significant impacts will be mitigated prior to approval of the Ortega Highway Widening Project.
6-95-11		9/6/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	This project must provide appropriate mitigation measures concerning traffic noise.
6-95-12			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We did not receive the sound wall survey.
6-95-13			EIR	EIR	Want an EIR.

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6-96-1	City of San Juan Capistrano		N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Caltrans conceptual design of the proposed sound walls was based on the noise surveys that were conducted along Ortega Highway.
6-96-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The potential noise impacts and the mitigation of those impacts will need to be thoroughly evaluated in the draft EIR.
6-97-1	Laurie Meinke	NA	OP	N/A	N/A
6-97-2			LU	Section 2.1.6 Visual/Aesthetics pg 131-133	The widening will completely alter the rural entrance to our City
6-97-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	I am opposed to the current plan for widening the Ortega as it will have a devastating affect on the aesthetics with the removal of 110 large trees.
6-97-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	It will have a devastating effect by putting up extensive sound walls.
6-97-5			PD	Chapter 1 Proposed Project pg 83	It will reduce a wide landscaped walking area on the south side to a narrow straight sidewalk along a the new wide thoroughfare where I'm sure people wouldn't like to walk.
6-97-6			T	Summary pg viii, Chapter 1 Proposed Project pg 10	The citizens of San Juan would like to have the 2002 Strategic Transportation Plan followed with other projects finished first.
6-97-7			T	Section 2.1.5 Traffic pg 89-90	We do not want the City cut in 2 with a thoroughfare for outside traffic and no way to make left turns onto the street or cross it.
6-97-8			T	Chapter 1 Proposed Project pg 9-11, 26-27	The town relies on the Ortega for trips into town (as well as to the freeway).
6-98-1	Tommie Pearson	NA	OP	N/A	N/A
6-99-1	Patrick Pearson	8/9/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	The widening of Ortega will not be beneficial until the 5/Ortega exchange is dealt with and La Pata is extended to San Clemente.
6-99-2			PD	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Having no stop lights or stop signs between La Novia and Antonio Parkway will encourage speeding.
6-99-3			T	Section 2.1.5 Traffic pg 89-90	It will be impossible and dangerous for any residents to exit their housing track and turn across Ortega Highway due to heavy traffic and speeding.
6-99-4			PD	Chapter 1 Proposed Project pg 9-11	What is the benefit of widening Ortega which will increase traffic flow only for it to be backed up further at the 5 north/south freeway onramps?
6-99-5			T	Section 2.1.5 Traffic pg 89-90	I would suggest that someone from your department sit at the freeway interchange and see what traffic is like right now.
6-99-6			OP	N/A	N/A
6-100-1	David Solt	9/8/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	Ortega Hwy will be over-filled with traffic as Ranch Mission Viejo develops 14,000 new homes.
6-100-2			PD	Chapter 1 Proposed Project pg 9-11	Please put you weight behind the non-State owned routes that can redeveloped into alternative routes for Ortega traffic: Avery Pkwy and La Pata.
6-101-1	Marni Lombardo	8/14/2007	LU/CI	Section 2.1.6 Visual/Aesthetics pg 131-133	The rural flavor that San Juan maintains in a sea of overdevelopment in Orange County makes the city truly a gem.
6-101-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Adding unsightly sound barriers would be a travesty for the area and the residents.
6-101-3			OP	N/A	N/A
6-102-1	Joy O	8/14/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	Why fix this section and widen it to four lanes when the road still narrows to two lanes through an extremely narrow and dangerous canyon.
6-102-2			PD	Chapter 1 Proposed Project pg 9-11	Why not widen the road all the way from Antonio into Temecula?
6-103-1	Dorothy Krup	8/17/2007	OP	N/A	N/A
6-103-2			OP	N/A	N/A
6-104-1	Irene Penvaes	8/25/2007	OP	N/A	N/A
6-104-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	Increased traffic.
6-104-3			AQ	Chapter 1 Proposed Project pg 26-27	Increased air pollution.
6-104-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Increased noise.
6-104-5			T	Section 2.1.5 Traffic pg 89-90	Ortega speeds increase to an unsafe 55 mph.
6-104-6			NEI	N/A	N/A
6-104-7			T	Chapter 1 Proposed Project pg 9-11, 26-27	Traffic capacity will increase, inducing growth of 14,000 homes.
6-104-8			NEI	N/A	N/A
6-104-9			T	Section 2.1.3 Community Impacts pg 72	Inability to safely make left turns requiring U-turns.
6-104-10			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	No traffic signals or pedestrian crossing allowed.
6-104-11			G	Section 2.1.2 Growth pg 56-58	Induced growth will bring more crime & need for police services
6-104-12			G	Section 2.1.2 Growth pg 56-58	Induced outside growth brings fire response sirens through our town
6-104-13			T	Chapter 1 Proposed Project pg 9-11, 26-27	Traffic will increase from Riverside County.
6-104-14			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	15-25' retaining and sound walls, the canvas for graffiti.
6-104-15			NEI	N/A	N/A
6-104-16			B	Section 2.3.5 Threatened/Endangered Species pg 254-256	Habitat endangered species at risk.
6-104-17			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of scenic highway feel.
6-104-18			T	Section 2.1.5 Traffic pg 82, 84-85, 90	Bike lane to nowhere. Bicyclists sharing 55-60 mph roadway w/cars
6-104-19			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of 111 mature trees and landscape.
6-104-20			S	Chapter 1 Proposed Project pg 25	Loss of street lighting and sidewalks…unsafe for students and disabled
6-104-21			S	Chapter 1 Proposed Project pg 25	Loss of street lighting and sidewalks…unsafe for students and disabled
6-104-22			S	Section 2.1.1 Land Use pg 2.1.1-16	No equestrian or pedestrian crossings.
6-104-23			CI	Section 2.1.3 Community Impacts pg 70-72	Loss of downtown business revenue.
6-104-24			CR	Section 2.1.7 Cultural Resources pg 142-144	Archaeological and historically significant area forever impacted.
6-104-25			S	Section 2.1.5 Traffic pg 82-84	Unsafe access for homeowners and equestrians bordering Ortega.
6-104-26			OP	N/A	N/A
6-105-1	Mike and Adriane Puntoriero	8/25/2007	OP	N/A	N/A
6-105-2			CI	Section 2.1.3 Community Impacts pg 59-64	We fell in love with San Juan because of its rural country setting, low crime rate and Mexican heritage.
6-105-3			T	Section 2.1.5 Traffic pg 89-90	We find it currently very dangerous to even make a right turn out of the Hunt Club onto Ortega heading towards town because of the current high speed of traffic.
6-105-4			OP	N/A	N/A
6-105-5			CI	Section 2.1.3 Community Impacts pg 74-75	San Juan will suffer at the pleasure of those passing through.
6-105-6			T	Section 2.1.5 Traffic pg 89-90	Speed will increase, ability to turn left will be eliminated, inability to take walks on or across Ortega will be gone.
6-105-7			T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	Horses along Ortega or across Ortega to use the City and private horse trail system that San Juan is known for would be eliminated.
6-105-8			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The wall will likely attract graffiti and require the City to expend and forever to keep it presentable.

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6-105-9			T	Chapter 1 Proposed Project pg 9-11, 26-27	Adding more cars to the ramp at Ortega and the 5 freeway is going to create what is already an impossible situation during heavy commute times.
6-105-10			CI	Chapter 1 Proposed Project pg 9-11, 26-27	I would suggest that a compromise plan significantly curtailed from what is proposed might be received move favorable by the community of San Juan.
6-105-11			T	Chapter 1 Proposed Project pg 9-11, 26-27	Making the portion of Ortega four lanes where it is currently two lanes with no change to where it is already four lanes would be a significant improvement.
6-105-12			OP	N/A	N/A
6-106-1	Lana Hamdan	8/27/2007	OP	N/A	N/A
6-107-1	Suzanne and Terry McCardle	8/27/2007	OP	N/A	N/A
6-107-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	We do not want to be a driveway for other communities, it will only increase traffic and have no benefit for SJC.
6-107-3			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	No traffic signals or pedestrian crossing allowed.
6-107-4			T	Section 2.1.5 Traffic pg 89-90	Increase of unsafe speed to 55 mph.
6-107-5			S	Chapter 1 Proposed Project pg 25	Loss of street lighting and sidewalks…unsafe for everyone, especially our children going to and from school.
6-107-6			CI	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Access in unsafe for homeowners and also equestrians bordering the Ortega.
6-107-7			AQ	Chapter 1 Proposed Project pg 26-27	Reason to stop the widening- traffic air pollution and noise.
6-107-8			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of our mature tree and landscape.
6-107-9			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values will fall for all the homes around Ortega… who want to live next to a freeway.
6-107-10			PD	Chapter 1 Proposed Project pg 9-11	We feel there has been inaccurate depictions of this project. It does not benefit SJC one bit.
6-107-11			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The Ortega Highway has been a beautiful scenic road for all these years.
6-107-12			CI	Section 2.1.3 Community Impacts pg 59-64	We will not let it become an ugly thoroughfare for others.
6-108-1	Steve and Penny Slinger	NA	OP	N/A	N/A
6-108-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Please do not ruin a beautiful, historic thoroughfare.
6-108-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The destruction of some 111 mature trees is unthinkable.
6-108-4			PD	Chapter 1 Proposed Project pg 9-11	Let motorist be patient in the traffic, better yet carpool. It is not incumbent upon San Juan Capistrano to diminish it's assets in order to provide greater comfort to those who choose to transit thru our town.
6-109-1	Sally Bumbulis	8/31/2007	OP	N/A	N/A
6-109-2			B	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of 110 mature trees and landscaping.
6-109-3			CI	Section 2.1.1 Land Use pg 49, Section 2.1.3 Community Impacts pg 70-71	Taking property from at least 10 property owners.
6-109-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of scenic highway feel.
6-109-5			S	Chapter 1 Proposed Project pg 26, Section 2.1.1 Land Use pg 47, 2.1.3 Community Impact pg 72-74	No pedestrian or equestrian crossings.
6-109-6			T	Section 2.1.5 Traffic pg 89-90	Inability to safely make left turns requiring U-turns.
6-109-7			CI	Section 2.1.3 Community Impacts pg 70-72	City taxes and budget impacted to the tune of over $1million for maintenance and upgrade of sound and retaining walls.
6-109-8			S	Chapter 1 Proposed Project pg 25	Loss of street lighting and sidewalks.
6-109-9			EIR	EIR	Want an EIR.
6-109-10			CR	Section 2.1.7 Cultural Resources pg 142-144	This widening would forever impact a beautiful, rural, archaeologically significant and historical town.
6-110-1	James and Edith Fee	8/31/2007	PD	Chapter 1 Proposed Project pg 9-11, 26-27	Since 1990 we have seen the Ortega traffic increase significantly and the current level is beginning to threaten the character of San Juan Capistrano.
6-110-2			OP	N/A	N/A
6-111-1	Dana Pilkerton	9/1/2007	OP/T	Chapter 1 Proposed Project pg 9-11, 26-27	I urge you not to widen Ortega Highway. This is a bad plan which will create more traffic , congestion and alter country living which people came to the Hunt Club for.
6-112-1	James McEwen	9/1/2007	OP	N/A	N/A
6-112-2			T/CI	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	The current plan to have no traffic signals between the San Antonio/La Plata intersection and La Novia will surely result in accidental deaths due to unsafe egress.
6-112-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	The Mitigated Negative Declaration certainly does not cover adequately the safety issues we face.
6-113-1	Kip Knight	9/3/2007	OP	N/A	N/A
6-113-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	The widening of the Ortega will create a huge amount of commuter traffic.
6-113-3			AQ	Chapter 1 Proposed Project pg 26-27	We will get more pollution and more traffic noise.
6-113-4			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Reduced property values.
6-113-5			AQ	Section 2.5 Climate Change pg 289-302	The growing threat of global warming.
6-113-6			T	Chapter 1 Proposed Project pg 9-11, 26-27	Once the highway is widened and the speed is increased to 50 mph, there will be no going back to the SJC that we choose to live in.
6-113-7			T	Chapter 1 Proposed Project pg 9-11, 26-27	Widening highways always encourages more traffic, not less.
6-113-8			OP	N/A	N/A
6-114-1	Peggy Day	9/3/2007	AQ	Section 2.1.6 Visual/Aesthetics pg 132	Removing the trees, the trees help clean CO2 and provide a cooling effect on the are by the shade they provide.
6-114-2			CI	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	Pedestrians are not adding to the area air pollution and would be put in harms way without the sidewalks.
6-114-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	Plans are in place to increase the speed limit on Ortega Highway.
6-114-4			OP	N/A	N/A
6-114-5			OP	N/A	N/A
6-115-1	Jack Zepp	9/3/2007	OP	N/A	N/A
6-115-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	It will destroy the ambiance of the town, deface one of its most attractive major entryway, destroy a tree-lined green belt.
6-115-3			CI	Chapter 1 Proposed Project pg 9-11, 26-27	The desire to construct for the sake of spending budgeted construction dollars, to accommodate trash trucks at the risk of school children.
6-115-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	To accommodate developers' dreams by creating soon to be clogged freeway access for unbuilt homes should take a back seat to safety.
6-115-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	I believe every citizen of San Juan will be indirectly and adversely affected by the construction and then by the resulting traffic mess the widening will create.
6-116-1	Danelle and Ron Reimer	9/4/2007	T	Section 2.1.5 Traffic pg 89-90	We are against the widening of Ortega Highway for the reason of unsafe left turns out of the Hunt Club residence where we reside.
6-116-2			T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-73	For the reason that there are no traffic signals or pedestrian/biking crossings allowed, increased traffic flow.
6-116-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	We are against the widening of Ortega Highway for the reason of removal of the beautiful scenic drive which is one of the things that drew us to the area.

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-116-4			PD	Chapter 1 Proposed Project pg 9-11	I believe there must be other solutions to help with congestion, including connecting La Pata through to San Clemente, extending Avery Parkway into Ladera Ranch, and the much talked about extension of the 241 toll road through to the 5 freeway.
6-117-1	Sue Connor	9/5/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	Please address the safety issues of a widened Ortega Highway. The traffic is horrendous now.
6-117-2			NEI	N/A	N/A
6-117-3			T	Section 2.1.5 Traffic pg 84-88	We have children trying to ride their bicycles into town.
6-117-4			S	Section 2.1.5 Traffic pg 82-84	We have children trying to ride their bicycles and trying to cross Ortega to play soccer.
6-118-1	Christine Speed	9/5/2007	EIR	EIR	Want an EIR.
6-118-2			CI	Section 2.1.3 Community Impacts pg 74-75	Obviously the houses on either side of the Ortega will be negatively affected and the extent of this has to be addressed.
6-118-3			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	Will you put in new traffic lights so these people can exit their communities?
6-118-4			CI	Section 2.1.3 Community Impacts pg 70-72	Will businesses fail because no one dares to enter, fearing they will never be able to get out?
6-118-5			EIR	EIR	Want an EIR.
6-118-6			PD	Chapter 1 Proposed Project pg 9-11	Why don't you spend your money connecting Avery Parkway to San Antonio Parkway? Or the Stonehill I-5 entrance to an extension of La Pata in a bid to provide more outlet options rather than funneling all the traffic into the center of town?
6-119-1	Susan Clarke	9/6/2007	EIR	EIR	Want an EIR.
6-119-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Widening Ortega will take away the walking access, the trees that line the highway, ruin the beauty of the corridor and not really solve the traffic issues.
6-120-1	Tina Sechrist Randy	9/6/2007	OP	N/A	N/A
6-120-2			CI	Chapter 1 Proposed Project pg 9-11, 26-27	Serves outside interests at the expense of San Juan.
6-120-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	Traffic capacity will increase, inducing growth of 14,000 homes.
6-120-4			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Property values will plummet.
6-120-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	Increased traffic.
6-120-6			AQ	Section 2.2.6 Air Quality pg 183-193	Increased air pollution.
6-120-7			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Increased noise.
6-120-8			T	Section 2.1.5 Traffic pg 89-90	Ortega speeds increase to an unsafe 55 mph.
6-120-9			CI	Section 2.1.3 Community Impacts pg 74-75, Section 2.1.6 Visual pg 132-133	Student drivers at greater accident risk abutting trash trucks.
6-120-10			T	Section 2.1.5 Traffic pg 89-90	Inability to safely make left turns requiring U-turns.
6-120-11			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	No traffic signals allowed.
6-120-12			G	Section 2.1.2 Growth pg 56-58	Induced growth will bring more crime & need for police services
6-120-13			G	Section 2.1.2 Growth pg 56-58	Induced outside growth brings fire response sirens through our town
6-120-14			CI	Section 2.1.5 Traffic pg 82-92	Traffic will increase from Riverside County.
6-120-15			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	15-25' retaining and sound walls, the canvas for graffiti.
6-120-16			V	Section 2.1.6 Visual/Aesthetics pg 109-133	City taxes and budget impacted to the tune of over $1million for maintenance and upgrade of sound and retaining walls.
6-120-17			B	Section 2.3.5 Threatened/Endangered Species pg 254-256	Habitat endangered species at risk.
6-120-18			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of scenic highway feel.
6-120-19			B	Section 2.1.6 Visual/Aesthetics pg 109-133	Loss of 111 mature trees and landscape.
6-120-20			S	Chapter 1 Proposed Project pg 25	Loss of street lighting and sidewalks…unsafe for students and disabled
6-120-21			S	Section 2.1.1 Land Use pg 2.1.1-16	No equestrian or pedestrian crossings.
6-120-22			CI	Section 2.1.3 Community Impacts pg 70-72	Loss of downtown business revenue.
6-120-23			CR	Section 2.1.7 Cultural Resources pg 142-144	Archaeological and historical significant area forever impacted.
6-120-24			CI	Section 2.1.5 Traffic pg 89-90, Section 2.1.1 Land Use pg 47, 2.1.3 Community Impact pg 72-74	Unsafe access for homeowners and equestrians bordering Ortega.
6-120-25			OP	N/A	N/A
6-121-1	NA	9/6/2007	EIR	EIR	Want an EIR.
6-122-1	Jerry and Shareen Lawrence	9/6/2007	PD	Chapter 1 Proposed Project pg 9-11	At some point Ortega Highway needs to be widened to 2 lanes in each direction East from San Juan Capistrano to the San Antonio Parkway/La Pata intersection.
6-122-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	The extension of La Pata into San Clemente and the extension of San Juan Creek Road to La Pata should have the highest priority, for the safety of our children.
6-122-3			PD	Summary pgs xiii-xlix	Other mitigating measures need to be taken to reduce the traffic load on Ortega Highway, specifically extension of the 241 toll road to the I-5 in San Clemente, extension of the 73 toll road to Antonio Parkway, and extension of Avery Parkway to Antonio Parkway.
6-122-4			T	Section 2.1.5 Traffic pg 82, 84-85, 90	If the bicycle lanes are eliminated from the proposal, the total right-of-way could be narrower, potentially eliminating or reducing the need for repulsive sound walls.
6-122-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Eliminating the bicycle lanes, potentially eliminating or reducing the need for the high retaining walls and repulsive sound walls.
6-122-6			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	If the bicycle lanes are eliminated from the proposal, the total right-of-way could be narrower, potentially eliminating or reducing the need for repulsive sound walls.
6-122-7			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Eliminating the bicycle lanes, would help save many of the trees scheduled for removal.
6-122-8			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Eliminating the bicycle lanes to retain as much as of the beauty of the Eastern approach to San Juan as possible.
6-123-1	Deborah Baileys	9/6/2007	OP	N/A	N/A
6-123-2			CI	Section 2.1.5 Traffic pg 82-92	I fear for my teenage children pulling out of our community into 45 mph traffic into lanes crammed with commercial trucks and aggressive commuters.
6-123-3			T	Section 2.1.5 Traffic pg 89-90	I can only imagine what raising the speed limit will do. How are we supposed to get to and from our homes? It can take over ten minutes to make a left turn into Hunt Club.
6-123-4			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Disallowing for crosswalks and traffic lights, would only spell disaster to these neighborhoods and our children.
6-123-5			PD	Chapter 1 Proposed Project pg 9-11	I think that alternative solutions (the completion of ancillary roadways) to divert traffic to alternate freeway on-ramps, needs to be looked at more thoroughly before San Juan Capistrano is forced to bear traffic from the proposed Mission Viejo Company development.
6-124-1	Laura Freese	9/6/2007	OP	N/A	N/A
6-124-2			PD	Chapter 1 Proposed Project pg 9-11	There needs to be a plan to have an east-west corridor north of San Juan Capistrano and an east-west corridor south of San Juan Capistrano. When these corridors are in place, then the pressure on the Ortega Highway will be reduced.
6-124-3			CI	Section 2.1.3 Community Impacts pg 74-75	It is important because San Juan Capistrano is a city that wants to stay small, keep as rural as possible and keep what is left of its charm.

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Public Comments					
6-125-1	Sally Garibaldi	9/6/2007	EIR/CI	EIR	I oppose the grand scale widening of the Ortega Highway and demand that a full EIR prior to the commencement of any work or final approval of plans.
6-126-1	Chris and Ken Thayer	9/7/2007	OP	N/A	N/A
6-126-2			PD	Chapter 1 Proposed Project pg 9-11	There are so many other and better options available and it is unbelievable that you have continually ignored these other options.
6-126-3			NEI	N/A	N/A
6-126-4			PD	Chapter 1 Proposed Project pg 9-11	Using Ortega as the primary thoroughfare for the south county residents to get to Ladera Ranch, Rancho Santa Margarita, San Juan Hills High School, etc. is devastating to all of the quaint neighborhoods and to the charm of the city of San Juan Capistrano.
6-127-1	Tom Costello	9/7/2007	EIR	EIR	Want an EIR.
6-127-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	No action should be taken as to any widening until the 241 and La Pata extensions are complete and after that an evaluation of the Ortega/5 interchange.
6-128-1	Roger Evans	9/7/2007	OP	N/A	N/A
6-128-2			PD/CI	Chapter 1 Proposed Project pg 9-11	It makes no sense to improve/widen Ortega Highway until other surrounding infrastructure is completed. Please come up with a revised plan that addresses and resolves valid concerns of the community.
6-129-1	Eva Crabbs	9/7/2007	OP	N/A	N/A
6-129-2			EIR	EIR	Want an EIR.
6-129-3			T	Summary pg viii, Chapter 1 Proposed Project pg 10	Caltrans makes no reference to the 2002 Strategic Transportation Plan.
6-130-1	Richard Pierce	9/7/2007	OP	N/A	N/A
6-130-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	In order to widen Ortega Highway the trees and the sidewalks will have to be taken out, and the street will no longer be the scenic drive it has been designated.
6-130-3			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We were told that there would be no stop lights at the intersections leading into these neighborhoods. This is a huge safety issue.
6-130-4			S	Section 2.1.5 Traffic pg 88-92, Chapter 1 26-27	With 60 mph traffic and no stop lights, someone from our neighborhoods is going to get killed.
6-130-5			N	Section 2.2.7 Noise pg 215	The tall sound barrier built along one side of the highway would cause sound to bounce off, causing greater sound on the other side.
6-131-1	Virginia Thompson	9/7/2007	CI	Section 2.1.3 Community Impacts pg 74-75	Please keep the rural feel of our town, San Juan Capistrano and stop the widening of Ortega Highway.
6-132-1	Ander Pierce	9/8/2007	OP	N/A	N/A
6-132-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	In order to widen Ortega Highway the trees and the sidewalks will have to be taken out, and the street will no longer be the scenic drive it has been designated.
6-132-3			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We were told that there would be no stop lights at the intersections leading into these neighborhoods. This is a huge safety issue.
6-132-4			S	Section 2.1.5 Traffic pg 88-92, Chapter 1 26-27	With 60 mph traffic and no stop lights, someone from our neighborhoods is going to get killed.
6-132-5			N	Section 2.2.7 Noise pg 215	The tall sound barrier built along one side of the highway would cause sound to bounce off, causing greater sound on the other side.
6-133-1	Heather Davis	9/8/2007	EIR	EIR	Want an EIR.
6-133-2			PD	Chapter 1 Proposed Project pg 9-11	You should have made Avery Parkway go through instead of letting Mission Viejo put the golf course there.
6-133-3			CR	Section 2.1.7 Cultural Resources pg 142-144	Ortega is the entrance to our historical, equestrian town lined with old trees.
6-134-1	San Randy	9/8/2007	OP	N/A	N/A
6-134-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The speed limit will be raised to 60 mph. People need to turn into and out of this main thoroughfare and there will be no stop lights at the intersections leading into these neighborhoods. This is a huge safety issue.
6-134-3			T	Section 2.1.5 Traffic pg 89-90	With 40 mph speed limit it is extremely difficult to turn onto Ortega across traffic.
6-134-4			N	Section 2.2.7 Noise pg 215	The tall sound barrier built along one side of the highway would cause sound to bounce off, causing greater sound on the other side.
6-135-1	Jeffrey Allen	9/8/2007	PD	Chapter 1 Proposed Project pg 9-11	I strongly oppose the Caltrans proposal to widen Ortega Highway at this time.
6-135-2			T	Summary pg viii, Chapter 1 Proposed Project pg 10	Caltrans should promote implementation of San Juan Capistrano's 2002 Strategic Transportation Plan.
6-136-1	Carla Kallen	9/9/2007	OP	N/A	N/A
6-136-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Our City's General Plan states that it is our policy to "preserve and enhance scenic transportation corridors".
6-136-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The City's General Plan states to "preserve and enhance scenic transportation corridors". The plan to install 15-25" retaining walls and sound walls is not in keeping with this policy.
6-136-4			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Our children will not be able to safely get to school when there is no proposed traffic signal at our intersection.
6-136-5			PD	Chapter 1 Proposed Project pg 83	There is no proposed sidewalk on the north side of Ortega Highway to walk along until the nearest signals at the intersection of Antonio or La Novio.
6-136-6			T	Section 2.1.5 Traffic pg 89-90	Increased speed along Ortega would only make getting to school on the other side more difficult and dangerous.
6-136-7			PD	Chapter 1 Proposed Project pg 9-11	The growth in Riverside County and the 14,000 homes east of the city are the problem. Other options to accommodate this outside growth need to be explored and implemented.
6-137-1	Chuck and Marsi DeCasas	9/6/2007	OP	N/A	N/A
6-137-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	The 5 freeway should be widened before the widening of Ortega, San Antonio would have to be widen before Ortega or traffic will stop.
6-137-3			AQ/V	Section 2.1.6 Visual/Aesthetics pg 131-133	The trees make a difference in shade, create oxygen for the City, sound barriers, and the swallow birds come because of the trees and the lush environment.
6-137-4			LU	Section 2.1.6 Visual & Aesthetics pg 132-133	Changing the main street in San Juan Capistrano from lush and beautiful trees and green path ways for the residents as well as our horses
6-137-5			T	Chapter 1 Proposed Project pg 9-11, 26-27	The traffic will just be moving so fast, never slow down enough to enjoy what nature is.
6-137-6			AQ	Section 2.2.6 Air Quality pg 183-193	Breathing the exhaust from cars while in the backyard.
6-138-1	Roger Monaco	NA	S	Chapter 1 Proposed Project pg 16	We believe our property rights are being taken by walling up this property access.
6-138-2			U	Chapter 1 Proposed Project pg 1-15	We want this access to remain open for emergency and maintenance purposes and fire safety purposes.
6-139-1	R. Gardner	NA	WQ	Section 2.2.2 Water Quality, Groundwater pg 149-150	Tech Study pg 8.2.2.2 City uses potable, irrigation by treating
6-139-2			PD	Project Figures 1-1, 1-2, 1-4, 2.1.1-1, 2.3.2-1, I-1and I-2	Provide GIS for widening project so that data sets can be viewed with it such as flood levels, topo, parcel, etc.
6-139-3			T	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Consider bike trail head area near new bridge so people can access trail and creek.
6-140-1	Bob King	NA	EIR	EIR	Want an EIR.
6-141-1	Patrick Gooknent	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The retaining walls and the sound walls must be constructed if the highway is going to be widened.
6-142-1	Ron Feezor	NA	V	Chapter 1 Proposed Project pg 22-23	I would like to see existing walls of the types proposed, e.g. glass (light penetrating) simulated rock, slump block veneer. Are they currently in use somewhere in the area?
6-143-1	Jeff Schoff	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I need noise measurement located at my home.
6-144-1	Debbie Brewington	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Please do sound testing at my house.
6-145-1	James Rogers	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I would like my property to be monitored for noise.
6-146-1	William Otta	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Please do a sound test within the homes along Via Sonora.

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6-147-1	Dan Valenins	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Would like another noise study from our backyard.
6-148-1	Sandra Weaver	NA	OP	N/A	N/A
6-148-2			OP	N/A	N/A
6-149-1	Roger Evans	NA	CI	Section 2.1.3 Community Impacts pg 74-75	I don't think enough has been done to preserve the character of the community in this design.
6-149-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I am not in favor of the sound walls as designed.
6-149-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	I think the median should be landscaped.
6-149-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	I believe with effort SR-74 can be improved. Address the traffic issues and improve the appearance. Make the total project a success.
6-150-1	Jerry and Jos Dunton	NA	EIR	EIR	Want an EIR.
6-150-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Delete the sound walls, the majority do not want them.. If they are to be there then they should be much better looking with more plantings.
6-150-3			B	Section 2.3.4 Animal Species pg 251	We need and should have a "planted" center median not painted.
6-150-4			PD	Chapter 1 Proposed Project pg 9-11	Improve the freeway intersection first.
6-151-1	Yvonne Tschaikowsky	NA	CI	Section 2.1.3 Community Impacts pg 74-75	The Ortega Widening project as proposed will ruin that section of our special town.
6-151-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	Before the Ortega is widened, traffic needs to be diverted via La Pata connection an east/west connection from Antonio to Avery.
6-151-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	San Juan Capistrano will suffer with the resulting traffic, noise, congestion, 25 ft retaining walls.
6-151-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	San Juan Capistrano will suffer with the resulting traffic noise.
6-151-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	San Juan Capistrano will suffer with the resulting 25 ft retaining walls.
6-151-6			T	Chapter 1 Proposed Project pg 9-11, 26-27	San Juan Capistrano will suffer with the increased speeds.
6-151-7			PD	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	San Juan Capistrano will suffer with no traffic lights.
6-151-8			AQ/WQ	Section 2.2.6 Air Quality pg 190	San Juan Capistrano will suffer with the resulting pollution.
6-152-1	Dan and Barb Campion	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are very much for the widening and the sound wall.
6-152-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We can not sleep at night or enjoy our beautiful backyard during the day. The sound, vibration and pollution is horrible.
6-152-3			N	Chapter 1 Proposed Project pg 22-23	Please us the sound absorption wall.
6-152-4			N	Chapter 1 Proposed Project pg 22-23	Please us the sound absorption wall to alleviate the bounce back noise to the people on the north side.
6-152-5			S	Chapter 1 Proposed Project pg 9-11, Section 2.1.5 Traffic pg 82-84	We need to make Ortega a safe road for all who use it.
6-152-6			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Please plant vegetation to cover the sound wall, there is no view now as it is, our mature trees block any view.
6-153-1	Maryann Tucker	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Please come test my neighbors homes who back the Ortega, along the sound wall I area.
6-154-1	Vicki Geisler	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I am very much concerned about the impact this project will cause S.J.C the noise.
6-154-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	I am very much concerned about the impact this project will cause S.J.C., the traffic.
6-154-3			V	Section 2.1.6 Visual/Aesthetics pg 109-133	I am very concerned about the impact this project will cause S.J.C. the destroying of our 110 trees.
6-154-4			PD	Chapter 1 Proposed Project pg 15-28	I am very concerned about the impact this project will cause S.J.C. the removal of the sidewalks.
6-154-5			PD	Chapter 1 Proposed Project pg 15-28	We won't be able to walk from our home to the downtown area.
6-154-6			CR	Section 2.1.7 Cultural Resources pg 142-144	The 25 foot wall that will change the whole S.J.C. Historical community.
6-154-7			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	The housing market will plummet and our home and desire to use our property as an investment for our retirement will be gone.
6-154-8			CI	Section 2.1.3 Community Impacts pg 70-72	Destroy the Ortega and you destroy the business and the integrity of SJC.
6-155-1	Susan Merchant	NA	LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Concerned that crossing Ortega Highway with 4 lanes of traffic on my horse will be impossible to do safely . Trail head on Avienda Siega
6-155-2			CI	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	We need an equestrian light at Shadetree Lane to enable us to safely cross to reach the trailhead that connects to the creek.
6-155-3			LU	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	Light that flashes, yellow pavement markers indicating a horse or pedestrian crossing
6-155-4			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Without a horse or pedestrian crossing we would never get across the highway safely.
6-156-1	Curtis Manning	NA	OP	N/A	N/A
6-157-1	John Gray	NA	OP	N/A	N/A
6-157-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	I question the necessity to improve traffic conditions because improved roadways always lead to increased development.
6-158-1	David Matty	NA	V	Section 2.1.6 Visual/Aesthetics pg 109-133	Please do not remove the trees in front of Hunt Club.
6-158-2			PD	Chapter 1 Proposed Project pg 15-28	Please do not remove the sidewalk in front of Hunt Club.
6-158-3			T	Chapter 1 Proposed Project pg 1-11, 26-27	Just restripe the current road.
6-158-4			T/CI	Section 2.1.5 Traffic pg 82, 84-85, 90	Putting a bike trail on the shoulder is not a safe option.
6-158-5			LU	Section 2.1.1 Land Use pg 2.1.1-16	Can you put the bike trail on the current horse trail in front of Hunt Club.
6-159-1	Judy Dutton	NA	CI	Section 2.1.3 Community Impacts pg 74-75	The project as proposed will destroy the character of SJC.
6-159-2			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Taking out trees and vegetation for sound walls and retaining wall is counter productive.
6-159-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	The traffic problems are the worst at Antonio Parkway and at the freeway.
6-159-4			PD	Chapter 1 Proposed Project pg 9-11	Other access to the freeway needs to be found beside the Ortega exit. Access should also be through San Clemente and Mission Viejo.
6-159-5			CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	Real estate values for residents in the area will fall for the benefit of future residents of the new area.
6-160-1	Thomas Jones	NA	PD	Chapter 1 Proposed Project pg 9-11	What about alternate routes. What about San Juan Creek? What about extending SR 73 to the east side of town? What about extending the 241 toll road to Ortega?
6-161-1	Louis Vansmaalen	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	As a homeowner on Via Sorona, the levels of sound are very high, making it virtually impossible to keep windows open due to the heavy traffic on Ortega.
6-162-1	James and Laurie Allen	NA	OP	N/A	N/A
6-162-2			CI	Section 2.1.3 Community Impacts pgs 74-75	We object strongly to the recommendation to remove the mature overhanging trees on the north side of the highway.
6-162-3			PD	Chapter 1 Proposed Project pg 16-30	It is unnecessary to start the project a Calle Entradero. You just need to restripe the road.
6-162-4			V/CI	Section 2.1.6 Visual/Aesthetics pg 131-133	Please do everything you can to retain the beauty along the north corridor between those two streets (Calle Entradero and Hunt Club Drive).
6-163-1	Debbie Brewington	NA	OP	N/A	N/A
6-163-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Concerned about our safety as thousand of cars pass within a few feet of my backyard.
6-163-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We can not sit in our backyard and visit or have windows or doors open in the back of the house due to noise levels.

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Public Comments					
6-163-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Please do a noise analysis during the early morning and early evening hours.
6-164-1	Maryann Tucker	11/22/2004	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Thank you for your plans to build a sound wall along Ortega Highway where the street is to be widened in San Juan Capistrano.
6-164-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Here is a much needed sound wall that would benefit many residents of our town on a 24 hour a day basis.
6-165-1	Richard Schwartz	NA	PD	Chapter 1 Proposed Project pg 9-11	The future holds in store for us 14,000 homes to be built in the next ten years.
6-165-2			AQ	Section 2.2.6 Air Quality pg 183-193	Our city does not need any further air or garbage pollution.
6-165-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	Our city does not need any more cars or congestion.
6-165-4			V	Section 2.1.6 Visual/Aesthetics pg 109-133	111 trees are being considered to be removed.
6-165-5			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Shrubs are being considered to be removed.
6-165-6			T	Chapter 1 Proposed Project pg 9-11, 26-27	We want less noise, pollution, traffic, congestion, and leave it as it is.
6-166-1	H. James Brewinston	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We need a sound wall on the Ortega Highway from Entradero to Via Cordova to shield the highway noise from our houses on Via Sonora.
6-167-1	Milton Long	NA	OP	N/A	N/A
6-167-2			PD	Chapter 1 Proposed Project pg 9-11	I feel La Pata should be put thru to San Clemente to relieve traffic congestion on Ortega Highway.
6-168-1	Gay Smith	NA	CI	Section 2.1.3 Community Impacts pg 76-77	What will the process be for landowners whose property will be taken by the widening? When will property owners be contacted? How will value/compensation be calculated?
6-168-2			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We feel we need a stop light at the east end of San Juan Capistrano. It is nearly impossible even now for homeowners trying to turn left onto Ortega Highway.
6-169-1	Keith Ward	NA	S	Section 2.1.5 Traffic pg 89-90	In 5 years from now it will be impossible to exit on to 74 safely.
6-169-2			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	We just want a stop light along 74 to break up the traffic so we can safely enter.
6-170-1	Andrew Miner	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-170-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-170-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-171-1	Alicia Iraclides	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-171-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-171-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-172-1	Edith Cataldo	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-172-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-172-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-173-1	Maryann Tucker	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-173-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-173-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-174-1	James T. Bertolina/	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-174-2	Juduth L. Bertolino		N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-174-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-175-1	Judith Bertolino	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-175-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-175-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-176-1	Debbie Brewington	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-176-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-176-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-177-1	Suzanne Devaney	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-177-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-177-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-178-1	Larry Cognito	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-178-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-178-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-179-1	Tomoko Hannegan	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-179-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-179-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-180-1	John Elliott	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-180-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-180-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-181-1	William Otta	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-181-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-181-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-182-1	Antonio Lopez	NA	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We are concerned and upset that Soundwall #1 has been eliminated from the project.
6-182-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	The noise monitors need to be placed in various areas along Via Sonora to get a realistic view of our terrible noise problem.
6-182-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We residents need Soundwall #1 to be put back into the Ortega widening plans for the sake of our health, sleep, and enjoyment of our homes, both indoors and outdoors.
6-183-1	Chip Poson	NA	CI	Section 2.1.3 Community Impacts pg 71, Section 2.4.5 Cumulative Community pg 273	The lifestyle and property devaluing to SJC residents is huge, while Caltrans addresses traffic issues that is not even ours!
6-183-2			PD	Chapter 1 Proposed Project pg 9-11	Focus should be expanded to find a comprehensive solution that addresses the entire area LOS, La Pata extension and the extension of SR-241.

Comment Coding No.	Commenter (Agency Name,Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Transcript Public Meeting July 24, 2007					
7-1-1	Carleen Locke	7/27/2007	OP	N/A	N/A
7-1-2			V	Section 2.1.6 Visual/Aesthetics pg 132	The way you're doing it just is making a mess of everything and taking out the trees.
7-1-3			PD	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	Taking out the sidewalk.
7-1-4			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Putting up sound walls.
7-1-5			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	For those of us that live on the north side of Ortega Highway, without signals, we'll not be able to get in or out.
7-1-6			T	Section 2.1.5 Traffic pg 89-90	We can't make left turns, we can barely make right turns.
7-1-7			U	Section 2.1.4 Utility and Emergency Services pg 81	Emergency vehicles won't be getting in and out easily, if they get bogged down in traffic they won't be able to make it in time.
7-1-8			V	Section 2.1.6 Visual/Aesthetics pg 132	We definitely are against taking out the trees and things along there, making it an ugly highway.
7-1-9			T	Chapter 1 Proposed Project pg 9-11, 26-27	It is not right for San Juan to bear the burden of traffic from the inland area.
7-1-10			OP	N/A	N/A
7-1-11			T	Section 2.1.3 Community Impact pg 72-73	I think it is dangerous, don't think anyone will want to ride their horse that close to the highway.
7-1-12			S	Chapter 1 Proposed Project pg 25, Section 2.1.1 Land Use pg 47	Can't cross the street on foot there anymore.
7-1-13			EIR	EIR	We want the environmental impact report made that we requested from the State.
7-1-14			T	Chapter 1 Proposed Project pg 9-11, 26-27	We want a solution to the traffic, not to dump it on Ortega Highway.
7-1-15			CI	Chapter 1 Proposed Project pg 26-27	They're just passing through, so they're making a tunnel out of our street for the benefit of these other people.
7-2-1	Charles Locke	7/27/2007	PD	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	On the north side of Ortega Highway there would be no sidewalk for people to walk down the street, south side would have the sidewalk.
7-2-2			T	Section 2.1.5 Traffic pg 2.1.5-3- 2.1.5-12	Building 14,000 homes just east of Antonio Parkway, it's going to create a tremendous amount of traffic on top of what we already have.
7-2-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	Traffic to go through area and not to main street, not benefit the city
7-3-1	Gay Smith	7/27/2007	T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	I think we need a stop sign on the east end of town where this widening is going to be, it is impossible for homeowners or for residents to access the highway.
7-3-2			T	Section 2.1.5 Traffic pg 89-90	You can't turn left.
7-3-3			T	Section 2.1.5 Traffic pg 89-90	You can barely turn right.
7-3-4			OP	N/A	N/A
7-4-1	Mike Vanni	7/27/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	The traffic is moving too quickly.
7-4-2			OP	N/A	N/A
7-5-1	Carla Hickey	7/27/2007	PD	Chapter 1 Proposed Project pg 9-11, 26-27	When Rancho Mission Viejo community goes in and once the freeway is widened, then they may need to widen Ortega, but not now.
7-6-1	Laurie Allen	7/27/2007	OP	N/A	N/A
7-6-2			PD/V	Section 2.1.6 Visual/Aesthetics pg 132	They are going to eliminate all of the trees in that area (north side) and they're going to end a curve, suddenly end a curving sidewalk.
7-7-1	Jim Allen	7/27/2007	T	Chapter 1 Proposed Project pg 9-11, 26-27	The project brings in more cars into an already super congested place.
7-7-2			PD	Chapter 1 Proposed Project pg 9-11	Why didn't they look at going from Antonio around San Juan Creek Road and coming in at the third exit in San Juan Capistrano and avoid downtown all together.
7-8-1	Monique Rea	7/27/2007	OP	N/A	N/A
7-8-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	We will continue to have traffic, we need to think of ways to divert it.
7-8-3			CI	Chapter 1 Proposed Project pg 26-27	We have a very special City..., and the entrance into that city is part of the aesthetic value of the city, and the project totally deters from that.
7-9-1	William Otta	7/27/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	All of the neighbors along Via Cordova want the sound wall not to be shortened.
7-9-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	We would like another sound test done along our homes on Ortega and Via Sonora.
7-10-1	Daniel Valentine	7/27/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	My major concern is when the initial sound study was done, traffic volumes has increased steadily since then. I think another study should be done.
7-10-2			T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	I would like to have these guys take a look at the traffic signals on Ortega for health and safety issues.
7-11-1	Duane Cain	7/27/2007	T	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	I think there should be some incorporation of some type of signal to allow the people south to be able to get on the Ortega easily.
7-11-2			T	Chapter 1 Proposed Project pg 9-11, 26-27	There will be an increase volume of traffic put on Arroyo for those people who are trying to make a left turn onto Ortega.
7-12-1	Trevor Dale	7/27/2007	OP	N/A	N/A
7-12-2			PD	Chapter 1 Proposed Project pg 9-11, 26-27	The regional solution is to divert traffic to the north and to the south.
7-12-3			CI	Section 2.1.1 Land Use pg 49, Section 2.1.3 Community Impacts pg 70-71	We're talking about taking people's homes.
7-13-1	James Cummings	7/27/2007	OP	N/A	N/A
7-13-2			PD	Chapter 1 Proposed Project pg 9-11	My concern is that there's not enough highway access, egress in the area of San Juan Capistrano. Avery must be opened to Antonio through the Mission Viejo golf course.
7-13-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	Secondly, San Juan Creek Road must be four lanes from the freeway to La Pata so that traffic will flow smoothly in that area.
7-13-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	Need to ensure that La Pata from Ortega Highway to Pico is a four-way highway to allow movement of traffic through and past the La Pata dump area.
7-14-1	Charles Rea	7/27/2007	OP	N/A	N/A
7-14-2			CR	Section 2.1.7 Cultural Resources pg 142-144	They're trying to create a thoroughfare through the center of our city. We have a historical city here. It needs to be preserved.
7-14-3			PD	Chapter 1 Proposed Project pg 9-11, 26-27	They need to find way to mitigate traffic by diverting it to over La Pata to the south, San Antonio to the north and disperse it.
7-14-4			T	Chapter 1 Proposed Project pg 9-11, 26-27	I-5 freeway on-ramp construction to be done first
7-14-5			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I don't think soundwalls are going to be necessary.
7-14-6			T	Section 2.1.5 Traffic pg 82, 84-85, 90	Bicycle lane is not necessary.
7-15-1	Ron Miller	7/27/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I would like to see tapes put up to show the height, so people can see what it does to the view.
7-16-1	Maryann Tucker	7/27/2007	N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Me and my neighbors would like them to come back and test for noise again.

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Transcript Public Meeting July 24, 2007					
7-17-1	Vicki Geisler	7/27/2007	EIR	EIR	I would like Caltrans to do an EIR.
7-17-2			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	To widen the highway is going to be destruction to the City for the noise.
7-17-3			LU	Section 2.1.3 Community Impact pg 72-73	Can't walk down to Ranch Niguel Road and to try to use the horse trail, fearful on the big freeway/highway.
7-17-4			CI	Section 2.2.6 Air Quality pg 190	The emissions out, it's going to plummet our prices on our homes, which our home is being used as a retirement investment for us when we retire.
7-17-5			CR	Section 2.1.7 Cultural Resources pg 142-144	It's going to do immeasurable damage to the historical values of the community and that the integrity of this small community cannot be impacted like that.
7-18-1	Sandra Weaver	7/27/2007	V	Section 2.1.6 Visual/Aesthetics pg 132	I don't believe our trees should be cut out.
7-18-2			PD	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	I don't believe our sidewalks should be cut out.
7-18-3			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	I don't believe that sound walls should be built for the traffic that's being generated outside of our city.
7-18-4			OP	N/A	N/A

NOTE:	AQ- air quality	MND - Mitigated Neg Dec
	B- biological resources	NEI- not an environmental issue
	CI- community impacts	N - noise
	CONST- construction	OP-opinion
	CR- cultural resources	PD- project description
	CUM- cumulative effects	S - safety
	EIR- want EIR document	T- traffic
	G - growth	U- utilities
	GEO- geology, soils	V- visual/aesthetics
	LU - land use	WQ- water quality
	Mit Measures- mitigation measures	

Comment Coding No.	Commenter (Agency Name, Public Name)	Date of Comment	Comment Subject Code	Addressed in EIR Sections	Comments
Organizations/Businesses					
5-1-1	Ladera Ranch Transportation	7/21/2007	OP	N/A, Section 2.1.6 Visual, pg 109-133	Supports Project, Preserve the scenic quality of the current roadway corridor
5-1-2	Charles T. Gibson, President		EIR /V	EIR	Caltrans must only prepare an environmental document for the City portions from Calle Entradero to the City/County line.
5-2-1	Tierra del Caballo Home Owners	8/5/2007	N	Section 2.2.7 Noise pg 197-215	The long-term noise from traffic can only be mitigated with the construction of a sound wall of adequate height to minimize the impacts.
5-2-2	Association, John Large, President		EIR	EIR	An EIR should be prepared.
5-2-3			N	Section 2.2.7 Noise pg 197-215	A more appropriate threshold should be utilized to assess impacts to sensitive receptors along the rural highway.
5-2-4			N	Section 2.2.7 Noise pg 197-215	Based on the final analysis, it appears that only 2 of the 11 potential locations will contain sound walls.
5-2-5			N	Section 2.2.7 Noise pg 197-215	A minimum of 5 dBA reduction in future noise level must be achieved for an abatement measure to be considered feasible.
5-2-6			N	Section 2.2.7 Noise pg 215	A concern that there would be reflected noise from the retaining wall across from Tierra del Caballo properties.
5-2-7			V	Section 2.1.6 Visual/Aesthetics pg 132	The Tierra del Caballo Home Owners Association request that the Rock wall design be constructed.
5-2-8			PD	Chapter 1 Proposed Project pg 25, Section 2.1.1 pg 47	Opposed to a signal at Avenida Siega and SR-74.
5-2-9			NOT	Chapter 3 pg 311-314, Chapter 5 pg 324	No notice of 5/30/07 workshop, no SW survey
5-2-10			EIR/N	EIR, Section 2.2.7 Noise pg 197-215	Noise impacts mitigated before approval of project.
5-3-1	Tierra del Caballo Home Owners	9/19/2007	T	N/A	Twelve residences comprise the Tierra del Caballo Homeowners Association.
5-3-2	Association, John Large, President		N	Section 2.2.7 Noise pg 197-215	We are currently impacted by the traffic congestion and traffic generated noise on Ortega Highway.
5-3-3			NOT	Chapter 5 Distribution List	No notice of 5/30/07 workshop, no SW survey
5-3-4			NOT	Notice sent to Association Chapter 5 Distribution List	Add the 12 residences to notification list.
5-3-5			NOT	Notice sent to Association Chapter 5 Distribution List	Did the residences residing on Silver Leaf Drive received a notice? We request info for Silver Leaf Drive Association.
5-3-6			N	Section 2.2.7 Noise pg 197-215	Concerned about the need to construct three sound walls on the south side of Ortega from Calle Entradero and Via Errecarte.
5-3-7			N	Section 2.2.7 Noise pg 194-215, Appendix I Noise Attenuation pg 520-521	Request the City and Caltrans justify why our residences will not be protected from the substantial increase in traffic generated noise.
5-3-8			EIR	EIR	Our homeowners demand the opportunity to comment on this EIR.
5-4-1	Orange County Taxpayers Assoc.	8/7/2007	OP	N/A	N/A
5-4-2	David B. Ross		PD	Chapter 1 Proposed Project pg 21	The widening would disturb far less public and private property than any other imaginable traffic solution.
5-4-3	Philip Anthony		PD	Chapter 1 Proposed Project pg 26-27	Unless widened, the SR-74 bottleneck will be exacerbated by new school, the build-outs east of the project.
5-4-4			V	Section 2.1.6 Visual/Aesthetics pg 131-133	No foreseeable impacts to aesthetics.
5-4-5			U	Section 2.1.4, Utility and Emergency Services pg 80-81	No foreseeable impacts to public services.
5-4-6			B	Summary pg xxxvi-xlvi	We foresee no significant impact on biological resources
5-4-7			T/AQ	Section 2.2.6 Air Quality pg 190	Free-flowing traffic pollutes less than stalled traffic.
5-4-8			N	Section 2.2.7 Noise pg 197-215	The highway is noisy. We favor the soundwalls that are part of the plan.
5-4-9			T/V	Section 2.2.6 Air Quality pg 190	We think severe traffic congestion on SR-74 is a greater threat to San Juan Capistrano's bucolic ambiance than the widening's relatively small impacts.
5-4-10			PD	Chapter 1 Proposed Project pg 28-29	A new road to re-route traffic around San Juan Capistrano would cost more and would destroy more open space than the proposed plan.
5-5-1	Verde San Juan Estates Robert C	8/8/2007	T	Chapter 1 Proposed Project pg 16	By eliminating the current deceleration lane approaching our entrance at Toyon, in addition to the proposed accelerated speed of 55 mph, there may be serious injuries from rear-end accidents.
5-5-2	Lavacot, President		AQ/N/V	Appendix I Noise Attenuation pg 520	If a soundwall is built it would increase reflective noise, (change or create) airflow on south side, or what about using paving material that reduces tire noise
5-5-3			V	Appendix I Noise Attenuation pg 520-521	If the retaining wall is set back 10, to preferably 15 feet from the north curb, if it is higher than 10 feet it could be stepped up the hill to minimize the "tunnel" effect.
5-6-1	Rutan & Tucker, LLP	9/4/2007	T	Chapter 1 Proposed Project pg 26-27	The people who reside in the Hunt Club will be acutely impacted from the widening of Ortega Highway.
5-6-2	Hunt Club Community Assoc.		EIR	EIR	The public request for an EIR.
5-6-3			T	Chapter 1 Proposed Project pg 9-11, 26-27	The project widening will entail significant new traffic impacts.
5-6-4			AQ	Section 2.2.6 Air Quality pg 190	Entail significant emissions impacts.
5-6-5			N	Section 2.2.7 Noise pg 206-215	Entail significant noise impacts.
5-6-6			T	Section 2.1.5 Traffic pg 88-90	Entail significant traffic speeds.
5-6-7			S	Section 2.1.5 Traffic pg 88-90	Entail significant safety hazards.
5-6-8			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The construction of massive retaining walls in place of mature landscaping.
5-6-9			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The destruction or removal of some 111 trees.
5-6-10			N	Chapter 1 Proposed Project pgs 26, Section 2.1.5 Traffic pg 83	The destruction or removal of sidewalks.
5-6-11			S	Section 2.1.1 Land Use pg 47, Section 2.1.3 Community Impact pg 72-74	The destruction or removal of equestrian crossings.
5-6-12			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Adverse visual and aesthetics impacts associated with transforming the eastern "gateway" to the City of San Juan Capistrano.
5-6-13			EIR	EIR	Caltrans must prepare and circulate for public review a full and complete EIR.
5-6-14			PD	Chapter 1 Proposed Project pg 15-28	A complete, adequate project description is at the core of any environmental analysis.
5-6-15			V	Section 2.1.6 Visual/Aesthetics pg 109-133	The overwhelming negative visual impacts cannot be mitigated to a level of insignificance.
5-6-16			AQ	Section 2.2.6 Air Quality pg 183-193	The MND's assessment of air quality impacts is deficient in numerous respects with lack of any quantified assessment of construction and operational emissions.
5-6-17			AQ/CUM	Section 2.5 Climate Change pg 289-302	The MND contains no analysis of global warming.
5-6-18			N	Section 2.2.7 Noise pg 194-215	The MND lacks a meaningful assessment of potential noise impacts and uses inappropriate threshold of significance.
5-6-19			T	Chapter 1 Proposed Project pg 26-27, Section 2.1.5 Traffic pg 88-89	The MND is incomplete in it fails to account for increased traffic on Ortega Highway once it is widened.
5-6-20			G	Section 2.1.2 Growth pg 56-58	The MND fails to meaningfully assess the growth inducing impacts of widening Ortega Highway.
5-6-21			B	Summary pg xxxvi-xlvi, Biological Environment pg 221-261	The MND fails to provide adequate mitigation for many of the biological impacts as a result of this project.
5-6-22			EIR	EIR	A comprehensive EIR needs to be done.
5-6-23			MND	N/A	N/A
5-6-24			V	Section 2.1.6 Visual/Aesthetics pg 109-133	For the five visual assessments it is apparent that the conclusions should be for significant impacts.
5-6-25			LU/V	Chapter 1 Proposed Project pg 1-4, Section 2.1.1 Land Use, pg 38-47	No analysis of the City of San Juan Capistrano General Plan Elements, goals and policies
5-6-26			V	Section 2.1.6 Visual/Aesthetics pg 109-133	There is no assessment of light and glare in the technical study or in the main document.
5-6-27			V	Section 2.1.6 Visual/Aesthetics pg 109-133	Particular comments on text of MND- Scenic Highway