CHAPTER 1 GENERAL ISSUES RAISED IN COMMENTS

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INTRODUCTION

This chapter addresses the general issues that were raised regarding the Caldecott Improvement Project during the public comment period. Many commenters raised the same issues and/or concerns. These commenters, both proponents and opponents, submitted identical or nearly identical letters/emails or letters/emails containing many identical paragraphs and or lists of concerns. To avoid redundancy in our responses in Chapters 2 through 9, we have referred the reader back to the general issues section in response to specific questions and issues. The following general issues essays are presented in alphabetical order.

ALTERNATIVES CONSIDERED IN THE DRAFT ENVIRONMENTAL ASSESSMENT/ ENVIRONMENTAL IMPACT REPORT (DEA/EIR)

Several comments raised issues as to the adequacy of alternatives evaluated in the DEA/EIR. Some have focused on the need for a peak direction capacity improvement, while others have argued for an enhanced transit alternative that would provide congestion relief while reducing the potential for significant effects. Several comment contributors suggest that the DEA/EIR fails to meet California Environmental Quality Act (CEQA) requirements for a reasonable range of alternatives.

The CEQA Guidelines (§15126.6(a)) require that an EIR describe and evaluate the comparative merits of a range of reasonable alternatives to the proposed project, or to the location of the project that 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. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasons for selecting those alternatives. Paragraph (c) states that the EIR should briefly describe the rationale for selecting alternatives; identify any alternatives that were considered by the lead agency but were rejected as infeasible; and briefly explain the reasons underlying the lead agency's determination. Not every possible alternative needs to be assessed, including those whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. (CEQA Guidelines 15126.6(f)(3)).

Section 1.2, Alternatives, of the Caldecott Improvement Project DEA/EIR explains the alternatives development process, and describes and compares the three alternatives that were evaluated in detail in the DEA/EIR:

- Two-lane tunnel north of the existing bores (Alternative 2N);
- Three-lane tunnel north of the existing bores (Alternative 3N); and
- No-Build.

The document also describes and reports preliminary impact analysis for six other alternatives that were considered for more detailed evaluation but were ultimately withdrawn from further consideration:

- Southern Alignment Tunnels;
- Two-lane south of the existing bores (Alternative 2S);
- Three-lane south of the existing bores (Alternative 3S);
- Four Lane Tunnel Alternatives;
- Street and Highway Operations Alternative;
- Mass Transit; and
- Bikeway Tunnel Alternative.

The Street and Highway Operations and Mass Transit alternatives were developed and evaluated as part of the regional strategic planning effort that identified the need for the Caldecott Improvement Project.

As indicated above, the tunnel alternatives withdrawn from further consideration included two-, three-, and four-lane tunnels on an alignment south of the existing bore, and a four-lane tunnel north of the existing bores. As was explained in detail in Section 1.2.6, Alternatives Considered but Eliminated from Further Discussion in

the DEA/EIR, although these alternatives would have attained the project purpose and need, none would have reduced the potential impacts of a fourth bore. The southern alignment alternatives would have required more right-of-way than the northern alignment alternatives evaluated in the environmental document, risked damage to the southernmost historic bore, and would have required the use of Section 4(f) property at the North Oakland Regional Sports Center and East Bay Regional Park.

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." It specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

1. there is no prudent and feasible alternative to using that land; and
2. the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

The four-lane tunnel alternatives, either north or south of the existing bores, provided capacity beyond that warranted by forecast needs, had extremely high right-of-way and construction costs, and provided no commensurate traffic operational benefits.

The Street and Highway Operations Alternative was originally formulated to see if congestion improvements could be achieved without constructing a new tunnel. This alternative was evaluated as part of the *Route 24/Caldecott Tunnel Corridor Study (Metropolitan Transportation Commission, January 2001)*, a strategic planning study that considered a broad range of improvements for the corridor. Strategic planning develops projects that address the long-range regional vision and priorities. Projects and alternatives are initially evaluated at a regional or corridor level so that more detailed project-specific evaluation efforts during environmental review will focus on the most viable and feasible options.

The Street and Highway Operations Alternative evaluated in the State Route 24/Caldecott Tunnel Corridor Study encompassed operational modifications including carpool lanes, relocation of the Tunnel Road on-ramp, and ramp metering. These improvements would have avoided some of the impacts of a fourth bore, but they would have achieved only a marginal congestion relief benefit, and therefore could not meet the project purpose and need. Section 1.2.6.3 of the DEA/EIR reports operational findings for each major operational component for this alternative.

The State Route 24/Caldecott Tunnel Corridor Study also assessed a transit improvements package that included increased peak period bus feeder service to BART, new inter-county bus service through the Caldecott Tunnel, and direct Bay Point/Fremont BART service. As reported in Section 1.2.6.4, Mass Transit, the corridor study found that the transit improvements would achieve only a modest increase in transit patronage and thus could not meet the congestion relief and other purposes of the present project. Reporting the results of predecessor strategic planning studies for these alternatives is consistent with the CEQA requirement to foster informed decision-making and public participation but continuing to consider the transit alternative given its marginal results would be contrary to CEQA's basic rule of reason. It should be noted that studies to expand bus service in the Caldecott Corridor following the corridor study, including the Metropolitan Transportation Commission's (MTC) Regional Express Bus Program and the Contra Costa Express Bus Study, have not proposed additional express bus service for the corridor. (Please see the essay on Transit in this Chapter).

Finally, bikeway tunnel options were considered. These options would not meet the purpose and need of the Caldecott Improvement Project, but could be combined with the bore alternatives to address mobility for bicyclists. (Please see the following essay on Bicycle and Pedestrian Access/Improvements).

In summary, the Caldecott Improvement Project's consideration and discussion of alternatives to the proposed project is consistent with the requirements of CEQA. The Draft EA/EIR evaluated and reported on a broad

range of alternatives that would feasibly attain most of the basic objectives of the project, including several that might avoid or substantially lessen its potential effects. These alternatives were evaluated comparatively. Those alternatives that either had greater effects than those carried forward into the environmental document, or that could not meet essential components of the basic project purpose and need were appropriately withdrawn from further consideration.

BICYCLE AND PEDESTRIAN ACCESS/IMPROVEMENTS

There were many comments regarding bicycle and pedestrian facilities, including requests for a bicycle lane through the new tunnel, opening the old Kennedy Tunnel, and providing other alternative east-west bicycle routes around or over the tunnel as well as north-south routes across State Route 24. While Caltrans and the Federal Highway Administration (FHWA) do not set transportation priorities for regional projects, they consider bicycle and pedestrian issues on all of their projects. FHWA and Caltrans fulfilled the following directives that require consideration of local, state, and federal bicycle and pedestrian policies:

- MTC's Regional Policies for Accommodation of Bicycle and Pedestrian Facilities in Transportation Project Planning, Design, Funding, and Construction (MTC Resolution No. 3765);
- MTC's 2001 Regional Bicycle Plan;
- Caltrans Deputy Directive 64, Accommodating Non-Motorized Travel; and
- FHWA's Design Guidance: Accommodating Bicycle and Pedestrian Travel: A Recommended Approach.

The agencies also reviewed the Alameda Countywide Bicycle Plan and the Contra Costa Countywide Pedestrian and Bicycle Plan and concluded that the proposed Caldecott project conforms to both adopted plans.

FHWA and Caltrans are aware that it is more physically difficult for cyclists to go up and over the hill rather than through to the Caldecott Tunnel, but creating a bicycle and pedestrian lane in the new tunnel would be too costly and neither safe nor healthful. Providing an alternative bicycle route such as through the Kennedy Tunnel or improving the route over the hill to provide better grades for bicycles is outside the scope of this project.

The Caldecott Improvement Project will not have adverse impacts on existing bicycle and pedestrian routes and accessibility. Mitigation for such impacts is therefore not proposed. Caltrans is aware of the community's desire to incorporate bicycle and pedestrian access improvements into the Caldecott project. Nonetheless , Caltrans in conjunction with the Alameda County Congestion Management Agency (ACCMA) and the Contra Costa County Transportation Agency (CCTA) is looking at bicycle/pedestrian safety and measures and enhancements to improve bicycle and pedestrian travel in the corridor that could be addressed separately. ACCMA and CCTA provide opportunities through committee meetings as well as board meetings for public participation. (Readers interested in future bicycle studies can contact ACCMA at http://www.accma.ca.gov/pages/HomeBicyclePlan.aspx and CCTA at http://www.ccta.net/GM/bike_ped.htm.)

A feasibility study performed by the ACCMA, with input from various local user groups (including the East Bay Bicycle Coalition, North Hills Phoenix Association, Hiller Highlands Four Association, and the City of Oakland's Bicycle and Pedestrian Advisory Committee), recommended various optional bicycle/pedestrian improvements to be pursued for funding and implementation. Eleven optional improvements were conceptually developed by bicycle and pedestrian specialists, as shown in Table 1-1 and Figure 1-1. Five options were recommended to be carried forward or further investigated for viability. Those five options were as follows:

- Option A1–At grade Bike/Ped crossings at the State Route 13/Caldecott/Hiller Intersection. A traffic study is required to determine that stopping southbound Tunnel Road (State Route 13) traffic for bicycle or pedestrian movements will not degrade operations to unacceptable levels. Motor vehicle traffic currently flows through the intersection uninterrupted;
- Option A2–Bike/Ped Overcrossing at State Route 13/Caldecott/Hiller Intersection. Further follow-up, including obtaining mapping or reliable record drawings to determine grades is required. ACCMA to discuss pursuing this option with the City of Oakland;

- Option E–Upgrade Existing Kay Street Overcrossing (OC) Bike/Ped Route. The group decided that this option, if limited to bicycle upgrades, would be viable. About half of the estimated cost is attributed to meeting American Disability Act (ADA) requirements on the steep grades at Broadway and Caldecott Lane between Hiller Drive and Tunnel Road. The estimated cost also assumed signals at both ends of the Kay Overcrossing, and traffic studies are required to analyze the traffic operations for a signalized scenario. The right turn lane at the Kay Overcrossing is being implemented as part of the Caldecott project. It was agreed that this Option would be refined to include:
  1. 1.2 m Class II Bike Lane on Broadway between Kay OC and Lake Temescal,
  2. 1.2 m Class II Bike Lane on Caldecott Lane between Kay OC and Hiller Drive/Tunnel Road/State Route 13 intersection, and
  3. 1.2 m Class II Bike Lane on Caldecott Lane between Parkwood Condominiums and Kay OC and 1.5 m sidewalk;
- Option G–Establish Bike Route from State Route 13/Caldecott/Hiller Intersection to Chabot Road via Tunnel Road/Uplands/Roble Road. Signing for this option could be provided as an alternative route to Chabot-Golden Gate-Broadway-Kay OC-Tunnel Road bike route that exists today; and
- Option H–Extend existing sidewalk along northbound Tunnel Road. Further follow-up required. The costs shown in the improvements matrix do not include any right of way costs that could be associated with construction of a wall to contain the slope that has slumped onto the existing end of sidewalk. Additional investigation will be required to ascertain if right of way costs would be prohibitive.

Table 1-1, Figure 1-1 and Figure 1-2 depict the options as well as the remaining other six optional improvements that were considered and dropped from further study because of issues and costs.

For bicycle and pedestrian access in or parallel to the Caldecott Tunnel, Caltrans considered the Kennedy Tunnel and two other options. The Kennedy Tunnel was rejected for safety reasons. The Kennedy Tunnel is a 1,050 ft, timber tunnel and constructed in the late 1800's/early 1900's. Underground springs seeping through caused rot in the timber and several collapses were recorded in the 1940's. The tunnel has been partially plugged from both ends and has not been in use for over fifty years. In addition to the poor condition of the tunnel, a separate tunnel of this length for the exclusive use of pedestrians and bicyclists would be unsafe due to the inability to provide adequate security and restricted use. These types of tunnels passing under state highway facilities less than 200 feet in length have been closed due to safety concerns. Without constant police patrol in a separated tunnel over 1000 ft long, the likelihood of illegal activities is high, such as muggings and robberies. In addition, it would be a magnet for the homeless. Unless the tunnel could be cleared out every day at dusk and locked by doors, there would be people using it for purposes other than it's original intent (such as camping in it).Table 1-2 lists the other two options considered for improving bicycle and pedestrian access in or parallel the Caldecott Tunnel, as follows:

- Option J - Provide Class I Bikeway through Tunnel. This alternative would construct a 3.6m (12 ft) Class I Bikeway through the fourth bore adjacent to the vehicular shoulder and physically separated by a concrete barrier for the use of bicyclists and pedestrians. This would increase the tunnel diameter from 12.4m (Alternative 2N, the Preferred Alternative) to 16.6m at an additional cost of $35-$40 million. The two-way pedestrian/bike path would connect to Fish Ranch Road east of the tunnel and to Caldecott Lane west of the tunnel. Significant potential fatal flaws inherent in this option include 1) unacceptable noise levels for cyclists/pedestrians; 2) unacceptable ventilation of carbon monoxide (CO) for cyclists/pedestrians; and 3) security issues and problems of enforcement of restricted hours of use. This option has been dropped from further consideration because of these flaws and the very high additional costs relative to the potential benefit; and
- Option K - Upgrade existing Grizzly Peak-Skyline-Tunnel Road bike route to Class III Bikeway. This option is consistent with ACCMA's Countywide Bicycle Plan (Project 22-SPR2), which calls for upgrading 3.1 miles of roadway along Tunnel Road and Skyline Boulevard to a Class III Bikeway at an estimated cost of $700,000 to $800,000. Signing for the regional route would be provided as well as spot improvements to widen where grades, slopes, and right of way permit. This option needs further study as well as development of funding options.

The feasibility of providing bicycle and pedestrian access in Contra Costa County through the project limits was also explored. Options J and K would both connect to the existing bicycle access on the shoulders of SR 24

between the tunnel and Orinda, which will remain in operation. Steep, rocky terrain on both sides of SR 24 make a Class I Bikeway very expensive due to the need for high retaining walls and gentle grades for ADA compliance. A study conducted in 2001 to widen the eastbound Orinda off-ramp included a Class I Bikeway on the south side of SR 24, but there was not sufficient local support to continue the project. In addition, CCTA's Countywide Bikeway Network does not include this improvement.

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Table 1-1: Bicycle/Pedestrian Options Considered in Caldecott/State Route 24 Corridor*

Option	Description	Bike	Ped	Estimated Cost (Millions)	Issues	Status
A1	At-grade Bike-Ped crossing at State Route 13/Caldecott/ Hiller Intersection	X	X	$0.40 - $0.50	1) Possible backups along SB Tunnel Road. 2) Requires traffic signal studies to determine operational adequacy	**Carry forward** with Traffic Signal Study
E	Upgrade Existing Kay Overcrossing Bike Route and Pedestrian Access	X	X	$3.8 - $4.6	1) Possible backups along EB Caldecott Lane. 2) Portion of Caldecott Lane between State Route 13 intersection and Hiller Highlands intersection exceeds 9.5% grade. In order to meet ADA requirements, switchback sidewalk required (accounts for $1.9-$2.3 million of cost). 3) Requires non-standard Bike Lane width on Broadway. 4) Requires traffic studies to determine adequacy of changes to intersection controls. 5) Slope on Broadway between State Route 13 and Kay OC exceeds 8.5%. Not ADA compliant for sidewalk.	**Carry forward.** Refine Option for Bicycle upgrades only with sidewalk where existing grades meet ADA.
G	Establish Bike Route from State Route 13/Caldecott Intersection to Chabot Road via Tunnel Road/Uplands/Roble Road	X		$0.10 - $0.15	1) Roble Rd is narrow, steep and winding and allows parking on both sides. 2) Requires cyclists to "double back" to Roble Road when heading to the BART station. 3) Need to confirm that conditions are acceptable for bicyclists from safety standpoint. 4) Confirm sight distance for bicyclists/motorists on NB Tunnel Road at Uplands (left turn).	**Carry forward**.
A2	Bike-Ped Overcrossing at State Route 13/Caldecott/ Hiller Intersection	X	X	$3.2 - $3.8	1) Visual Impacts. 2) Seismic safety concerns; facility along Hayward Fault. 3) Signal sight distance obstruction for State Route 13 traffic. 4) Verify grades allow attainment of ADA and vertical clearance standards. Need surveys.	**Requires further follow-up**. Meet with City of Oakland to discuss pursuing this option.

Table 1-1: Bicycle/Pedestrian Options Considered in Caldecott/State Route 24 Corridor*

Option	Description	Bike	Ped	Estimated Cost (Millions)	Issues	Status
H	Extend exist sidewalk along NB Tunnel Road		X	$0.20 - $0.30	1) Need right of way information to confirm construction of retaining wall is not cost prohibitive. 2) Disturbance of access for property owner/available right of way.	**Requires further follow-up**. Need right of way maps to determine potential cost impacts.
B	Mid-block at-grade crossing north of Intersection	X	X	N/A (see issues)	Safety concerns related to inadequate sight distance for SB Tunnel Road (State Route 13) traffic. (Vehicles traveling southbound on Tunnel Road would not have enough distance to stop when they saw a bicyclist/pedestrian at that location because of sharp horizontal and vertical roadway conditions.)	DROPPED FROM FURTHER STUDY**
C1	Bike/Ped Overcrossing from Lake Temescal to State Route 13/Caldecott/Hiller Intersection	X	X	$6.0 - $7.2	1) Visual Impacts. 2) Seismic safety concerns; facility along Hayward Fault. 3) Temporary construction impacts to parklands (dust, noise). 4) Special seismic design for structure required. 5.) High cost.	DROPPED FROM FURTHER STUDY**
C2	Bike/Ped Overcrossing from Lake Temescal to Caldecott Lane	X	X	$15.0 - $18.0	1) Steep slopes and 35 m (120 ft) grade differential requires up to 40-50 ft high retaining walls. 2) Construction access very difficult. 3) See Issues for Option C1 above. 4) Very high retaining walls along Hayward Fault: special seismic design required. 5) High cost.	DROPPED FROM FURTHER STUDY**
D	Bike/Ped Undercrossing	X	X	N/A (see issues)	1) Unable to meet ADA requirements and vertically clear WB 24 to NB 13 Connector. 2) Inadequate horizontal clearance (5'-3") between existing State Route 13 wall and State Route 24 Bridge Abutment.	DROPPED FROM FURTHER STUDY**

Table 1-1: Bicycle/Pedestrian Options Considered in Caldecott/State Route 24 Corridor*

Option	Description	Bike	Ped	Estimated Cost (Millions)	Issues	Status
F	Direct Bike/Ped Path from State Route 13/Caldecott Lane Intersection to Chabot Road	X	X	$4.0 - $5.0	1) Potential Visual Impacts related to removal of mature trees/vegetation. 2) High cost.	DROPPED FROM FURTHER STUDY**
I	Provide Bike-Ped Path from Broadway to Broadway Terrace on east side of State Route 13	X	X	$2.5 - $3.0	1) Need right of way information near homes south of Mountain Boulevard to confirm construction of path is not cost prohibitive. 2) Temescal Creek passes under then parallels Broadway Terrace NB 13 on-ramp. Need to verify path can be constructed in this area with minimal impact or acceptable mitigation. 3) Availability of right of way 4) High cost.	DROPPED FROM FURTHER STUDY**

*The options listed in this table are not mitigations but ancillary improvements; consequently, cost is an important feasibility consideration.
**These options were dropped from further study because of the stated issues and/or high cost.

Table 1-2: Bicycle/Pedestrian Options Considered for Access in or Parallel to the Caldecott Tunnel*

Option	Description	Bike	Ped	Estimated Cost (Millions)	Issues	Status
J	Provide Class I Bikeway through new fourth bore from Fish Ranch Road to Caldecott Lane.	X	X	$35 - $40	1) Adequate ventilation and noise protection without compromising bike/ped safety and security of tunnel operations. 2) Acceptable Noise Levels for Bikes/Peds 3) Acceptable ventilation of CO for bikes/peds 4) Security and enforcement of restricted hours 5) High cost for expected benefit.	DROPPED FROM FURTHER STUDY**
K	Upgrade existing Grizzly Peak-Skyline-Tunnel Road Bike Route to Class III Bikeway (ACCMA Project No. 22-SPR2)	X		$0.70 - $0.80	1) Steep grades and narrow lanes. 2) Potential environmental and right of way impacts need to be investigated in areas where roadway widening is required for safety.	**Needs further study**

*The options listed in this table are not mitigations but ancillary improvements; consequently, cost is an important feasibility consideration.
**This option was dropped from further study because of the stated issues and high cost relative to expected benefit.

Figure 1-1: Bicycle/Pedestrian Options Considered on the West Side of the Caldecott Tunnel

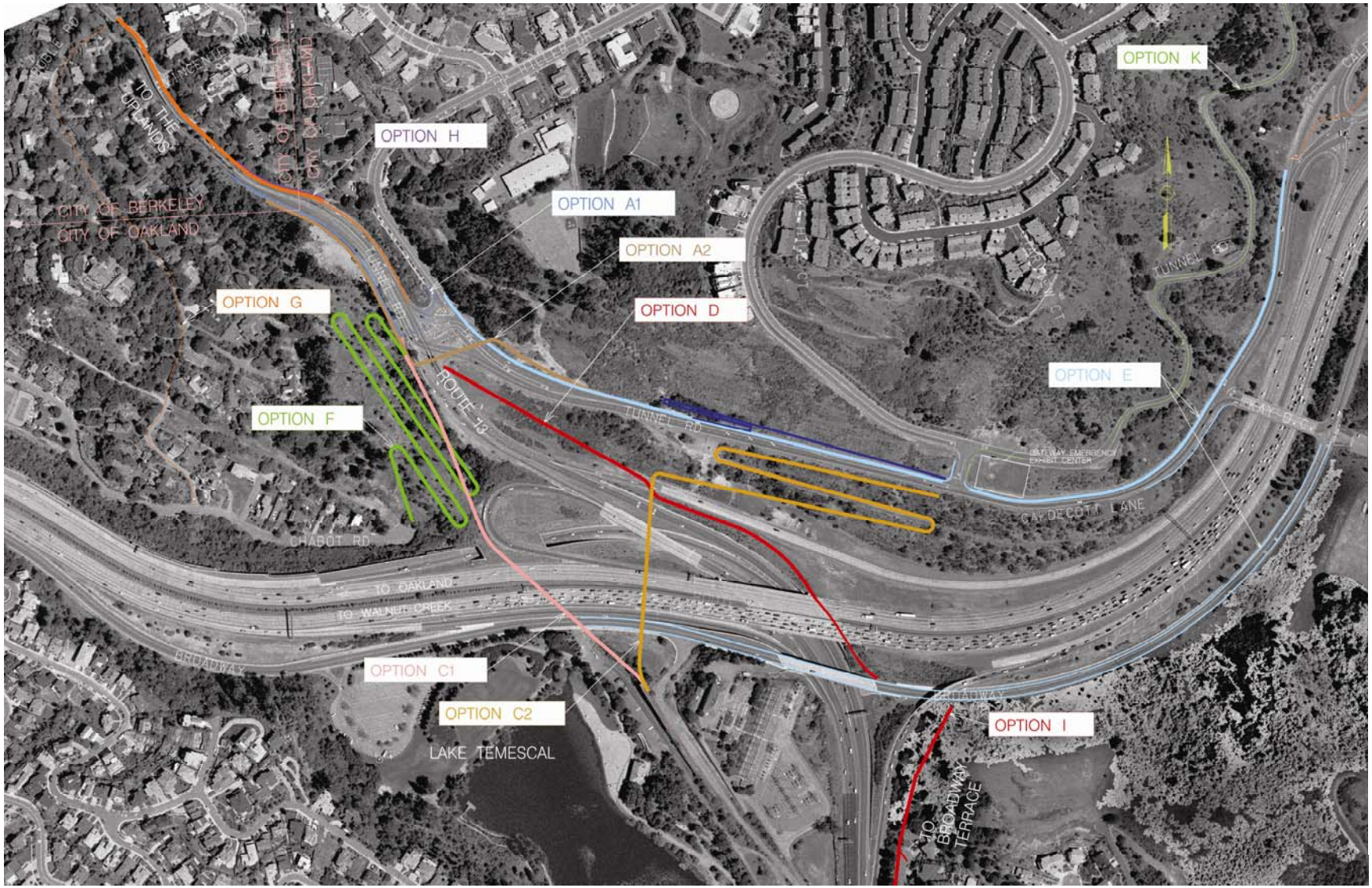
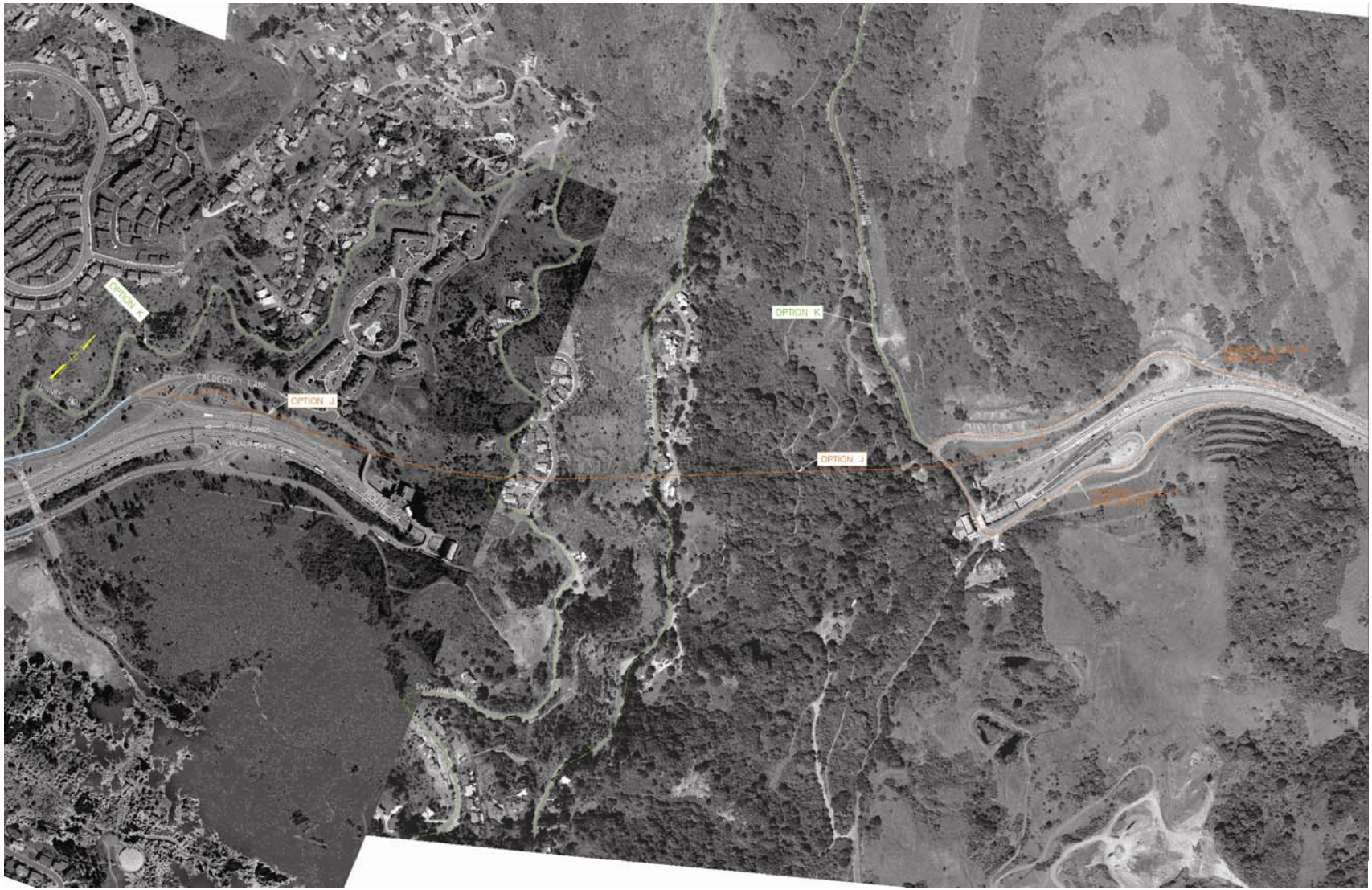


Figure 1-2: Bicycle/Pedestrian Options Considered on the East Side of the Caldecott Tunnel



CONSTRUCTING THE TUNNEL FROM THE EAST SIDE ONLY

Several comment contributors suggested that constructing the tunnel from the east side only would avoid and minimize construction impacts on the west side of the tunnel. Constructing the tunnel only from the East Portal would result in both increased costs and a longer construction period. It is estimated that it would cost an additional $45 million if the tunnel were constructed only from the East Portal and that construction would take up to 14 months longer. The primary reason for this significant increase in cost and schedule is that in tunnel construction the work that actively advances the tunnel can occur only at one location for each portal. Therefore, unlike surface projects, assigning more equipment or personpower to the job cannot control the duration of a tunnel project. Because of this limitation, the cost and schedule of a tunnel project would increase dramatically if the excavation of the tunnel were performed only from the East Portal. The majority of this added schedule would be 24 hour per day tunnel excavation. Another disadvantage of constructing the tunnel solely from the East Portal is that the staging area adjacent to the East Portal is relatively small and very narrow. These constraints would also hamper the construction activities especially if the Contractor did not have the area adjacent to the West Portal for added staging area. An additional problem with constructing only from the East Portal is that any construction problem, that temporarily halts construction, would stop all progress on the tunnel, whereas with construction proceeding from both the east and west sides, the tunnel could continue being advanced, albeit at a slower rate, if excavation from one portal is temporarily shut down. Construction is planned to proceed concurrently from both the east and west sides.

CONSTRUCTION IMPACTS

General

There will be extensive public outreach during construction. In order to coordinate with those in close proximity to the project site, Caltrans will implement a construction information/community outreach program. There will be a public information phone number for community members to call to ask questions, voice concerns or to make a comment. A project website with construction information will also be updated on a regular basis. The Caltrans construction Resident Engineer (RE) will coordinate closely with the Contractor to ensure there are responses to comments/concerns, and that the Contractor is following contract requirements to mitigate and/or abate and minimize construction impacts. The Contractor will be required to implement abatement procedures and to work closely with the RE to minimize disturbance to the community.

Construction activities such as phased clearing, grubbing, grading, and the construction of the tunnel in general will typically result in increased levels of truck traffic, noise, dust, and visual impacts. Tunnel excavation will occur concurrently from the Orinda and Oakland sides. Construction activities will continue for approximately four and one half years and will be minimized to the greatest extent feasible by implementing various mitigation measures.

The nature of tunnel construction necessitates around-the-clock construction activity to control cost and schedule. When constructing a tunnel, construction work can proceed only in limited areas. Tunnel excavation can only occur at one location for each portal. Because of this limitation, the cost and schedule of a tunnel project will increase dramatically if the hours of construction are limited. In addition when the advance of a tunnel is delayed, additional support measures are required to assure that the face of the tunnel remains stable. Under the current plan that involves tunnel construction five days per week, 24 hours per day, these additional support measures will be required only over the weekend. However, if tunnel construction were limited to one shift per day, additional support measures would have to be installed every day, which would have very substantial cost implications. Initial tunnel construction work that will be performed outside the tunnel will be limited to daytime hours only.

Construction of the Caldecott Improvement Project is expected to last approximately four and one half years.

Mitigation and Minimization Measures

Since the circulation of the Draft Environmental Document (DED) and in consideration of concerns raised by the public, the following mitigations/abatement and minimization measures for construction impacts have been refined and further developed. Construction plans and specifications will include measures to assure the following:

Noise

Abatement measures will include:

- A temporary noise barrier will be constructed at the construction staging area along Caldecott Lane. This barrier will placed to break the line of sight from the staging area to as many as possible of the adjacent residences. The barrier will incorporate sound absorbing materials to control sound build up and reflections at the construction side;
- The concrete batch plant at the staging areas will be enclosed as required to attenuate the noise of the operating batch plant, such that the existing ambient noise levels are not increased as a result of the operation of the batch plant;
- In general, idling vehicles will be within the construction staging area and behind the temporary noise barrier;
- Temporary tunnel ventilation fans will be enclosed within a sound isolating structure;
- Noise emission limits will be established for construction equipment and will be incorporated into the contract specifications; and
- Noise monitoring of construction activities will be conducted by the Department or its Contractor as needed to verify compliance with the noise limits.

In addition the following activities will not be allowed at night (dusk to dawn):

- Off-hauling of excavated material by trucks,
- Blasting, and
- Vehicle back-up alarms (Strobe lights or flagpersons will be utilized to the extent possible under California Occupational Health & Safety Administration (CAL OSHA) regulations).

In regards to construction noise impact, hourly (Leq[1](h)), as well as maximum (Lmax), noise level descriptors were used to analyze impact. Measurements of existing ambient noise levels have been made at several locations adjacent to the Caldecott Tunnel. The locations were chosen based on their exposure to the construction noise. These measurements included both daytime and nighttime noise. Ambient noise levels vary throughout the day. Peak noise levels were recorded from single events (as measured by the descriptor Lmax) such as vehicular back firing (e.g., trucks, motorcycles). The ambient noise levels were then compared to expected noise levels from construction activities.

For the construction staging area at the west portal, the analysis indicates that if noise from construction activities (including single events) does not exceed 86 dBA at a distance of 50 feet and a temporary noise barrier is constructed, construction noise at the measurement locations is expected to be no louder than existing ambient noise. Put another way, no single construction noise event will create noise higher than the single noise events that are occurring now, nor will continuous noise levels be higher than the existing continuous ambient noise levels, hence, there will be no significant impact due to construction noise. For this project the contract

[1] Leq is a descriptor, called an equivalent sound level, that is used to represent a constant level of sound that contains the same amount of acoustical energy that a fluctuating sound would generate over a given time period.

will require that noise from equipment be kept under the noise level of 86 dBA at 50 feet. This is a standard currently being used on other state projects and has been shown to be consistently attainable.

For the analysis of construction noise at the east portal, ambient noise readings were taken on Grizzly Terrace Drive, the neighborhood with the most exposure to the construction noise. The construction noise limit of 86 dBA at 50 feet will also apply to this staging area. The analysis indicates that with normal dissipation in noise over distance (with no temporary soundwall), construction noise, whether continuous or single event, will not reach levels higher than those that are now occurring.

Dust

- Ventilation fans will be equipped with filtration systems to limit dust emanating from the tunnel;
- Dust control measures will be implemented to prevent dust from the jobsite from being blown into the surrounding residential area;
- Wheel washes will be required as necessary to limit the amount of dust and dirt tracked onto nearby streets;
- All excavation materials being hauled by trucks off site will be required to be covered; and
- Streets immediately adjacent to construction sites will be swept as needed.

Construction entrance/exit access locations will be designated and will include measures to minimize the amount of mud, dirt or debris from being carried into the local streets by construction trucks and/or equipment.

Light

- The temporary soundwall along Caldecott Lane will also shield residences along Caldecott Lane from the construction staging area;
- Portable floodlighting will be mitigated by judicious placement, aiming and shielding, the fixtures away from residences, motorists, pedestrians and cyclists;
- Contract special provisions will stipulate performance requirements for site lighting systems. By adopting relevant portions of the California State Energy Code, the Contractor would need to utilize equipment and equipment placement which would generally result in a non-obtrusive lighting installation;
- To reduce the effects of sky glow, floodlights shall be installed with shrouds or glare visors to limit the upward distribution of light, shall be limited to aiming angles to 45 degrees above vertical, shall have full cutoff distribution properties and asymmetric beam spreads; and
- Reduction of lighting level / or reducing the reflectance value of the surfaces being illuminated.

Vibration

- Blasting during nighttime hours (dusk to dawn) will be prohibited;
- Vibrations monitoring will be implemented during blasting operations;
- Construction specifications will include limits on blast vibration to prevent damage to residences; and
- Preconstruction surveys will be conducted of select residences located in close proximity to the tunnel alignment. subject to the permission of the owner

Traffic

The construction phase of the Caldecott Improvement Project will temporarily generate additional traffic on roads used to access the East and West Portals, as well as State Route 24. Access to the East Portal from State Route 24 in the westbound and eastbound directions will be via Fish Ranch Road and Old Tunnel Road, respectively. Access to the West Portal from westbound State Route 24 will be via the Caldecott Lane exit, located adjacent to the staging area. Access to the West Portal from eastbound State Route 24 will be via the Broadway exit. Disposal of excavated material and deliveries of cement and aggregate for the concrete batch plant will constitute much of the construction traffic. It is estimated that the average daily construction traffic to each portal will range from 20 to 75 total truck trips (not including labor or supervisory vehicular traffic) per day, depending on the phases of the tunnel construction. These round-trip truck estimates include the truck trips to bring materials to the site as well as trips to haul material off-site. Truck traffic associated with off-hauling

excavated material will be limited to daylight hours only and traffic related to labor vehicles would be minimized by identifying offsite locations for laborers to park. It is estimated that the maximum traffic generated by tunnel construction activities over a four-hour period will be between 40 and 50 trucks.

The following measures will be implemented to reduce impacts:

- Construction traffic (off-haul trucks and equipments) will be prohibited from using Tunnel Road, Claremont Avenue and College Avenue;
- Truck routes, to minimize local community impacts, will need to be arrpoved by Caltrans;
- Construction equipment will be prohibited from parking or being staged on Caldecott Lane. However, truck access to the staging area behind the sound wall will be allowed on Caldecott Lane; and
- Construction workers will be required to park at remote locations and be shuttled to staging areas or park inside the staging areas.

CUMULATIVE IMPACTS/ENHANCEMENTS

Several comment contributors have requested that the Caldecott Improvement Project be considered cumulatively with the impacts of constructing State Route 24 and State Route 13 through North Oakland during the early to mid-1960s and the original construction of the existing tunnels (the southern twin bores were completed in 1937 and the third bore was completed in 1964) and incorporate means of redressing the impacts of those original projects. Such analysis is necessary, these comments suggest, because environmental impact assessment and other planning regulations and requirements were absent when the original roadway was built.

The CEQA Guidelines (§15355) define cumulative impacts as "two or more individual effects which, when considered together are considerable," and suggest that cumulative impacts may "result from individually minor but collectively significant projects taking place over a period of time." CEQA Guidelines (§15130(a)) require discussion of cumulative impacts when a project's incremental effect is cumulatively considerable. According to the Guidelines §15065(a)(3), "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.

The Guidelines suggest either of two possible methods for assessing cumulative effects (§15130(b)(1)):

> The first method is a list-based approach, which considers a list of past, present, and reasonably foreseeable future projects producing related or cumulative impacts. The second method is projections based and uses a summary of projections contained in an adopted general plan or related planning document that is designed to evaluate regional or area wide conditions.

The projections-based method is generally used by Caltrans to evaluate projects statewide. While the use of regional projections is one possible method of analyzing cumulative effects of present and future projects under CEQA, it is the required method under National Environmental Policy Act (NEPA). FHWA guidelines require that approved regional growth projections be used as input for the assumed future year conditions. Regional growth projections are based on approved current land use and employment figures and include all planned and programmed land use and employment trends to the horizon year. Thus, they implicitly include the cumulative trip generation and related impacts of such growth, and no additional cumulative impacts analysis is necessary.

Related past projects are normally considered as included in the current base of land use and employment from which future land use and employment is projected. Therefore, the traffic impacts of existing projects are included in the baseline of the cumulative impact analysis and every analysis of traffic impacts takes into account the traffic generated by current land uses and by existing transportation improvements. The purpose of the cumulative impact analysis is to ensure that any individual minor, but cumulatively significant, impacts of the Project are considered. Assessment of cumulative impacts involves analysis of a project's incremental effects in light of "closely related" past, present and future projects (See 14 Cal. Code Reg. 15255(b)). It is not

the point or intent of the cumulative impact analysis to allocate impacts from projects that are remote in time and location to the proposed project.

CEQA and NEPAprovide that mitigation measures be imposed for significant cumulative impacts arising from proposed projects. They do not require that proposed projects mitigate the impacts of previous projects. Such mitigation would violate the standards of practicality, reasonableness, and proportionality of federal and state law.

THE ENVIRONMENTAL PROCESS; ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT (EIS/EIR) VERSUS AN ENVIRONMENTAL ASSESSMENT/ENVIRONMENTAL IMPACT REPORT (EA/EIR); AND CRITERIA FOR SIGNIFICANCE

Many comments inquired about the environmental process, questioned the appropriateness of the level of NEPA environmental document, i.e., Environmental Assessment v. Environmental Impact Statement, and expressed opinions different than those in the DEA/EIR regarding the significance of certain impacts. These issues are discussed below.

1–Environmental Process

The primary laws under which the Department prepares environmental documents for transportation projects are the state California Environmental Quality Act (CEQA) and the federal National Environmental Policy Act (NEPA). Many documents, including this one, are designed to meet the requirements of both.

The basic goal of CEQA (Pub. Res. Code §21000 et seq.) is to develop and maintain a high-quality environment now and in the future. The specific goals of CEQA are for California's public agencies to:

- 1) identify the significant environmental effects of their actions; and, either
- 2) avoid those significant environmental effects, where feasible; or
- 3) mitigate those significant environmental effects, where feasible.

NEPA requires that federal agencies disclose the results of their analysis and the effects of project implementation on the environment and solicit comments on the proposals from interested and affected parties. The purpose of documenting the NEPA process provides for complete disclosure to the public; allows others an opportunity to provide input and comment on proposals, alternatives, and environmental impacts; and provides the appropriate information for decision makers to make a reasoned choice among alternatives.

An environmental assessment (EA) determines whether or not a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a finding of no significant impact (FONSI). The FONSI may address measures, which an agency will take to reduce (mitigate) potentially significant impacts.

The environmental processes followed by NEPA and CEQA are similar and are outlined below:

- 1. Determine the level of document.
    - NEPA-When the significance of impacts of a transportation project proposal is uncertain, an EA is prepared to assist in making this determination.
    - CEQA-The EIR process starts with the decision to prepare an EIR. This decision will be made either during preliminary review under CEQA Guidelines section 15060 or at the conclusion of an Initial Study after applying the standards described in section 15064.
- 2. File a Notice of Intent (NOI)/Notice of Preparation (NOP).
    - NEPA-NOI is published in the Federal Register by the lead federal agency and signals the initiation of the environmental process. (40 CFR Sec. 1508.22)
    - CEQA-The purpose of the NOP is to obtain early comments on the proposed project, alternatives, and potential environmental impacts. Under CEQA, once the decision is made to

prepare an EIR, a Notice of Preparation must be sent out to responsible agencies, to every federal agency involved in approving or funding the project and to each trustee agency responsible for natural resources affected by the project. (Section 15082.)

- 3. Hold scoping meetings.
    - NEPA-Scoping, an open process involving the public and other federal, state and local, agencies, commences immediately to identify the major and important issues for consideration during the study. (40 CFR Sec. 1501.7)
    - CEQA-Early consultation, also known as the scoping process, has been found to be an effective way to bring together and resolve the concerns of affected federal, state, and local agencies, the proponent of the action, and other interested persons including those who might not be in accord with the action on environmental grounds. This is discussed further in CEQA Section 15083.
- 4. Conduct environmental studies.
- 5. Prepare draft environmental document.
    - NEPA-See 40 CFR Section 1508.9. - Prepare a document that provides: sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact; aid an agency's compliance with the Act when no environmental impact statement is necessary; and facilitate preparation of a statement when one is necessary.
    - CEQA-See Guidelines Section 15084. – The draft EIR shall be prepared directly by or under contract to the Lead Agency. The Lead Agency may choose one of the following arrangements or a combination of them for preparing a draft EIR: (1) Preparing the draft EIR directly with its own staff; (2) Contracting with another entity, public or private, to prepare the draft EIR; (3) Accepting a draft prepared by the applicant, a consultant retained by the applicant, or any other person; (4) Executing a third party contract or Memorandum of Understanding with the applicant to govern the preparation of a draft EIR by an independent Contractor; and (5) Using a previously prepared EIR. Before using a draft prepared by another person, the Lead Agency shall subject the draft to the agency's own review and analysis. The draft EIR that is sent out for public review must reflect the independent judgment of the Lead Agency. The Lead Agency is responsible for the adequacy and objectivity of the draft EIR.
- 6. Circulate draft environmental document for public review.
    - NEPA-EAs do not need to be circulated but they must be made available to the public through notices of availability in local, state, or regional clearinghouses, newspapers and other means. (40 CFR Section 1506.6)
    - CEQA-A Notice of Completion is filed to inform the public that a draft environmental document is ready for public review. (Section 15085.) Public notices of the availability of a draft EIR shall be given as provided under Section 15105 (see Section 15087)
- 7. Hold public hearings.
    - NEPA-A public hearing is required but may be held (See 40 CFR Section 1501.8)
    - CEQA-Does not require public hearings (Section 15202)
- 8. Provide time for the public to comment on the draft environmental document.
    - NEPA-A minimum 30 day review period is required but may be reduced or extended in rare circumstances. (40 CFR Section 1501.4(e)(2))
    - CEQA-(a) The public review period for a draft EIR shall not be less than 30 days nor should it be longer than 60 days except under 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, unless a shorter period, not less than 30 days, is approved by the State Clearinghouse. (Section 15105 (a))
- 9. Respond to comments.
    - NEPA-The Department shall evaluate and respond to each comment received. (See 40 CFR Sec. 1503.4)

- CEQA-The Department shall evaluate and respond to each comment received. (See Section 15088.)

- 10. Circulate and approve final environmental document.
  - NEPA-If it is determined that there will be no significant impacts a FONSI will be prepared to conclude the process and document the decision. A FONSI is issued when environmental analysis and interagency review during the EA process result in a finding that a project will have no significant impacts on the quality of the environment. The FONSI document is the EA modified to reflect all applicable comments and responses. If it was not done in the EA, the FONSI must include the project sponsor's recommendation or selected alternative. No formal public circulation of the FONSI is required, but the State Clearinghouse must be notified of the availability of the FONSI. In addition, FHWA recommends that the public be notified through notices in local newspapers. (40 CFR Sec. 1508.13)
  - CEQA-The lead agency shall prepare a final EIR before approving the project. It may provide an opportunity for review of the final EIR, which should focus on the responses to comments on the draft EIR. This is discussed further in Section 15089.
- 11. File Notice of Determination.
  - CEQA-The lead agency shall file a Notice of Determination (NOD) within five working days after deciding to carry out or approve a project. The information needed in a NOD is discussed in detail in Section 15094.

2–Environmental Assessment (EA) as the Appropriate Level of Federal Document

As discussed in Chapter 3 of the DEA/EIR, determination of significance under NEPA regulations involves consideration of context (setting) and intensity of the impact. The context to be considered may include society as a whole (human, national), the affected region, the affected interests, or the locality. Short and long term effects are relevant, though NEPA does not require individual significant effects to be specifically identified in an EA. For a site-specific action, such as the proposed tunnel project, significance depends upon the effects upon the affected region or locale. Under NEPA, the degree to which a resource is impacted is used to determine whether a NEPA Environmental Impact Statement (EIS) or some lower level of NEPA documentation is required.

As indicated in the "Alternative Development Process" section of the DEA/EIR, the Department signed a Notice of Preparation (NOP) on November 14, 2002 for the Caldecott Improvement Project stating that "The Federal Highway Administration (FHWA) and California Department of Transportation (Caltrans) are preparing an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) to analyze the environmental effects of constructing a fourth bore of the Caldecott Tunnel." On November 21, 2002 the FHWA issued a Notice of Intent (NOI) stating that "The FHWA, in cooperation with the California Department of Transportation (Caltrans) will prepare an Environmental Impact Statement (EIS) for a proposed project to construct a fourth bore of the Caldecott Tunnel…." Subsequently, after the completion of additional technical studies and the elimination of the two southern alternatives from further study, the FHWA concluded that it was not clear that an EIS was required. On this basis, it determined that an EA should be prepared to assess whether an EIS or a Finding of No Significant Impact (FONSI) was required under NEPA. This was published in the Federal Register on December 19, 2005 (volume 70, Number 242), which states:

Subsequently, during the course of conducting studies and coordinating with regulatory and resource agencies for this proposed project, it was determined that the potential environmental issues that led to issuing the Notice of Intent were not significant. In addition, it was determined that changes to avoid or minimize potential impacts identified in early scoping can be incorporated into the proposed project. Changes to minimizing impacts were achieved by eliminating alternative alignments that had higher impacts, by reducing the number of lanes to either two or three lanes in lieu of four lanes thereby reducing the tunnel footprint, and by evaluating alignments that will not require the acquisition of additional right-of-way or acquisition of recreational or historic properties protected by Section 4(f) of the Department of Transportation Act of 1966.

The FHWA has determined that the proposed project is not anticipated to result in significant impacts to the environment; that an EA would be an appropriate environmental document for the project and the Notice of Intent for this project has been withdrawn.

The FHWA environmental regulations allow the use of an Environmental Assessment (EA) for Federal actions that do not qualify for a categorical exclusion from the National Environmental Policy Act (NEPA) and do not clearly require the preparation of an EIS. (23 CFR 771.119(a)). Because of the limited impacts involved in the alternatives for the project and the fact that the project will not result in any "significant" impacts for purposes of NEPA, that would require the preparation of an Environmental Impact Statement (EIS), FHWA has affirmed that the EA is the appropriate level of document for this project and will execute a Finding of No Significant Impact (FONSI) for the project. Had there been comments on the EA or the comments received in the public involvement process that provided information to cause a change in project scope, which would have lead to new "significant" impacts not previously identified, then an EIS may have been prepared.

It is important to note that even with the EA/EIR, the technical studies and the extent of coordination was not less than would have occurred had an EIS been prepared. The levels of mitigations proposed are not any less because of the classification, and also because of the state requirements. The level of public involvement in the preparation of the DEA/EIR has been the same as if this were an EIS process. In fact, the Department and FHWA agreed to extend the comment period on the DEA/EIR to sixty days at the request of the public.

3–Determinations of Significance

The purpose of an EIR is to provide State and local agencies and the general public with detailed information on the potentially significant environmental effects, which a proposed project is likely to have, to list ways, which the significant environmental effects may be minimized, and to indicate alternatives to the project.

CEQA requires that an EIR identify the significant environmental effects of the project (CEQA Guidelines Section 15126), but does not promulgate specific thresholds for significance. Instead, CEQA Guidelines Section 15064(b) states that "the determination . . . calls for careful judgment on the part of the public agency involved . . ." and that "an ironclad definition of significant effect is not possible because the significance of an activity may vary with the setting." CEQA encourages lead agencies to develop and publish their own thresholds of significance for the purpose of determining the significant effects of their projects. The fundamental definition of significant effect under CEQA is "a substantial adverse change in physical conditions." This criterion underlies the evaluation of environmental impacts for the impact issues identified in the CEQA Environmental Checklist Form (Guidelines Appendix G).

Some impact categories lend themselves to scientific or mathematical analysis, and therefore to quantification. Some categories have significance thresholds established by regulatory agencies, such as the California Department of Conservation or the regional air quality management district. For other impact categories that are more qualitative or are entirely dependent on the immediate setting, a hard-and-fast threshold is not generally feasible, and the "substantial adverse change in physical conditions" is applied as the significance criterion (see Chapter 3 and Appendix A in the DEA/EIR). Chapter 2 "Affected Environment, Environmental Consequences, and Avoidance, Minimization And/Or Mitigation Measures" discussed the impacts of the proposed alternatives including permanent, temporary, direct and indirect impacts and whether or not there were significant impacts. It also discussed avoidance, minimization and/or mitigation measures. These discussions were summarized from the technical studies performed for the document cited in Appendix F of the DEA/EIR.

It is Caltrans long-standing policy that the Project Development Team (PDT) makes the determination of whether the project's effects on the environment are significant. In making these determinations, the PDT must take into account the "mandatory findings of significance" found in Title 14 CCR 15065. Both NEPA and CEQA require government agency decisions be informed and balanced. To meet these requirements the Department developed its first Project Development Procedures Manual (PDPM) in 1973 to integrate the goals of NEPA and CEQA into the highway design process. The PDPM Chapter 1 Section 5 describes the Department's project development philosophy "to provide the people of California with a degree of mobility that is in balance with other values. It must ensure that economic, social, and environmental effects are fully considered along with technical issues, so that the best interests of the public good are served."

FUNDING

Table 1-3 below shows committed funding for the Caldecott Improvement Project. This includes $20 million - allocated from the State Transportation Congestion Relief Program (TCRP), $18 million from the State Transportation Improvement Plan-Inter-regional Improvement Program (STIP-IIP), $31 million from the State Transportation Improvement Plan-Regional Improvement Program (STIP-RIP)* and $175 million from the Corridor Mobility Improvement Account**. Regional Measure 2 allocates $50 million to "plan and construct a fourth bore at the Caldecott Tunnel between Contra Costa and Alameda Counties." Contra Costa County's Measure J identifies the Caldecott Tunnel as a regional transportation priority for Contra Costa County. The Caldecott Tunnel is programmed to receive $125 million (2005 dollars) to construct a fourth bore. The *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU), enacted in August 2005 as the reauthorization of the *Transportation Equity Act for the 21st Century* (TEA-21), provided the proposed project with $1 million.

Based on a risk-based cost estimate prepared in August 2006, the mid-point construction year (2009-2013) total cost for the Preferred Alternative is $420 million. This amount is based on an 80th percentile (80% chance of under-running and 20% chance of over-running) risk. Since there are $420 million committed to the project, the project is considered fully funded.

Table 1-3 Committed Funding Sources and Amounts

Funding Source	Amount
Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)	$1 million
Transportation Congestion Relief Program (TCRP)	$20 million
State Transportation Improvement Program – Interregional Improvement Program (STIP –IIP)	$18 million
State Transportation Improvement Program- Regional Improvement Program (STIP-RIP)	$2 million
State Transportation Improvement Program- Regional Improvement Program (STIP-RIP)*	$29 million
Regional Measure 2 (RM 2)	$50 million
Contra Costa County Sales Tax Measure J	$125 million
Corridor Mobility Improvement Account (CMIA)**	$175 million
Total Committed Funds	$420 million

*The Contra Costa Transportation Authority (CCTA) will be requesting the programming of $29 million of Regional Improvement Program (RIP) funds in the 2006 Transportation Improvement Plan (TIP) augmentation.

**The California Transportation Commission on February 28, 2007, adopted the $4.5 billion Corridor Mobility Improvement Account (CMIA) program, the first commitment of funds from the $19.9 billion transportation infrastructure bond approved by California voters as Proposition 1B in November 2006. The statewide CMIA program includes nearly $1.3 billion in Bay Area projects, including $175 million for the Caldecott Improvement Project.

METHODOLOGIES USED FOR THE IMPACT ASSESSMENTS/LOCAL ORDINANCES

Several comment contributors questioned the methodologies used in determining the impacts of the project alternatives. They asked why local significance criteria, such as the noise criteria of the City of Berkeley or the City of Oakland, or the Bay Area Air Quality Management District's (BAAQMD)'s CEQA criteria, were not

applied. These commenters opined that the EA/EIR was inadequate because it failed to apply local criteria of CEQA significance and to cite and observe local ordinances, e.g. for tree preservation. In addition, some commenters asked why the traffic operations analysis results reported conflicted with the results reported for the same locations in other project EIRs.

Caltrans and FHWA conform to local guidelines to the extent practicable and feasible. However, well established principles of, State and Federal sovereignty and preemption preclude the application of local regulation to State and Federal activities. Caltrans and FHWA are not required to adhere to local ordinances for highway projects, but follow the environmental analysis requirements set forth in both the National Environmental Policy Act and California Environmental Quality Act.

As to measuring impacts, Caltrans environmental specialists use impact assessment methodologies that are the products of a rigorous process of technical development and review. The methodologies have been approved for environmental impact analysis by the Federal Highway Administration. They include their own standard metrics and thresholds for consideration of abatement measures that are more stringent than many local standards. These methods are promulgated by Caltrans in its Standard Environmental Reference (SER) to ensure consistent and rigorous evaluation and reporting of impacts and assure consideration of appropriate abatement measures on transportation or highway projects throughout the State, and were utilized in this project as appropriate and applicable.

In regards to assessing noise impacts, the code of federal regulations 23 CFR 772 purposefully provides the state transportation agencies with the flexibility to establish their own definition of "substantial increase." A 10 dBA increase in noise levels is a doubling of the perceived loudness. A 15 dBA increase in noise levels represents more than a doubling of the loudness. The common practice for all state transportation agencies is a definition of substantial increase between 10 and 15 dBA. Factors such as available resources, the public's attitudes toward highway traffic noise, and the absolute noise levels may influence a state's definition. The FHWA will accept a well-reasoned definition that is uniformly and consistently applied.

For the purpose of defining a substantial increase in noise the FHWA has accepted the level of 12 dBA over the existing level for Caltrans. The 12 dBA was taken from an Environmental Protection Agency (EPA) noise curve for impacts that compared existing noise with predicted after-project noise. The definition of substantial increase of 12 dBA and design year ambient of 65 dBA or greater was incorporated into the State standards in 1980. In 1998 the State eliminated the 65 dBA part of the requirement and left intact the 12 dBA portion for substantial.

As to application of local ordinances (e.g. tree preservation), as mentioned above, such ordinaces are not applicable to state and federal entities. However, Caltrans attempts to preserve and minimize impacts on existing resources. For example, as to trees and vegetation, the intent of the City of Oakland’s tree ordinance will be considered during project development and impacts will be mitigated.

PREFERRED ALTERNATIVE

Two build alternatives were evaluated in the Draft Environmental Assessment/Environmental Impact Report (DEA/EIR): Alternative 2N and Alternative 3N. Both would construct a new tunnel and roadways north of the existing bores. The principle difference between them is that Alternative 2N would construct a 2-lane tunnel; whereas Alternative 3N would construct a 3-lane tunnel. A No Build Alternative was also evaluated. However it was not selected as the preferred alternative because it does not meet the purpose and need of the project. Both build alternatives have the following features in common:

- retaining walls on both sides of the proposed tunnel;
- a new soundwall on the west side of the tunnel, along the existing area between Caldecott Lane and westbound State Route 24;
- a new Operations Maintenance and Control (OMC) building, and electrical substations;

- improvements at the Caldecott Lane on and off-ramps and the connector linking westbound State Route 24 to northbound State Route 13, plus the possible addition of a right turn lane at the Kay/Caldecott Lane intersection; and
- emergency cross passages as required by the National Fire Protection Association.

See Sections 1.2.4 and 5 of Volume I of the FEA/EIR for a complete project description, including refinements in design of the preferred alternative as a result of comments from the public on the DEA/EIR.

Alternative 2N was selected as the preferred alternative by the project's Executive Steering Committee (ESC) October 4, 2006 after considering comments received from outside agencies and the public. The decision followed earlier deliberation and recommendations by the Project Development Team (PDT) and the Project Leadership Team (PLT). The project management structure is more fully described in Section 4.2 of the DEA/EIR (Project Organization and Committees).

The following is a summary of the reasoning behind selecting Alternative 2N, the 2-lane tunnel, over Alternative 3N with 3-lanes;

- The magnitude of direct construction related impacts would be less. Alternative 2N will be safer to construct with less potential for accidents and impacts on existing facilities. There is less potential for traffic noise impacts, both during and after construction, because the new facility would be further away from nearby residents. Water quality and other impacts to the natural environment will be reduced because there would be less excavated material and less impervious surface area. Fewer right of way easements would be required;
- While both alternatives would create adverse visual impacts that would be similar for motorists, Alternative 2N would have fewer visual impacts for residents;
- There is less geotechnical risk. The geotechnical risk analysis evaluated and ranked alternatives from one to four using 15 criteria. These included the complexity of the geology, the geotechnical design, the excavation/support and construction, and the risks of impacts on existing facilities. The risk increases as the ranking gets higher with one being the most preferred and four being the least preferred. Alternative 2N was ranked 1.1. Alternative 3N was ranked 2.3;
- Alternative 2N conforms to federal and state air quality requirements. Selection of Alternative 3N would require a new regional analysis. The 2-lane tunnel configuration is included in the 2001 Regional Transportation Plan (RTP) and the 2005 Transportation Improvement Plan (TIP) for the San Francisco Bay Area. The TIP has been determined to conform to all transportation-related federal and state air quality requirements, which are set forth in the State Implementation Plan (SIP) for air quality. Therefore selection of Alternative 2N did not require a new air quality conformity determination. On the other hand, because the design concept and scope of Alternative 3N are different, a new regional analysis would need to be performed to determine air quality conformity;
- Alternative 2N would be more cost effective. While both alternatives meet the project purpose and need, a 3-lane tunnel (Alternative 3N) would provide a continuous westbound auxiliary lane from Camino Pablo Road to SR 13, and thus slightly more congestion relief westbound. However, it would cost approximately 20% more and take an estimated 10 months longer to construct (62 versus 52 months). There would be no increased tunnel capacity in the opposite (eastbound) direction and 4-lane traffic constraints upstream and downstream of the bore would remain; and
- Alternative 2N conforms explicitly to Regional measure J, which states "The fourth bore will be a two-lane bore with a shoulder or shoulders north of the current three bores."

PROJECT STUDY AREA BOUNDARIES

Many comments raised the concern that the study area boundaries delineated for the Caldecott Improvement Project impact studies are too narrowly drawn. These comment contributors assert that traffic and traffic-related noise, air quality, and community cohesion effects extend far beyond the immediate vicinity of the Caldecott tunnels and that impact studies should have been conducted over a much broader area to identify and evaluate these effects.

Boundaries for the impact studies were not delineated arbitrarily, but in a reasonable manner appropriate to the technical studies being conducted and consistent with generally accepted practices/methodologies. In the cases of traffic, noise, and community impacts specifically, Caltrans and consultant specialists scrutinized the area immediately adjacent to the construction of the project and examined traffic patterns with and without the project to quantify volumes and identify the influence of traffic from the tunnels.

The study area for traffic operations analysis of State Route 24 considered the entire length of the freeway from I-680 in Contra Costa County to the I-580/I-980 Interchange in Oakland, as described in Section 2.1.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. As noted in the essay, Methodologies used for the Impact Assessments/Local Ordinances, the Caldecott Improvement Project is 2.2 miles long and the traffic study area is 13 miles long[2]. Beyond this 13-mile area, traffic volumes with the project in place are not sufficiently greater than without the project to give rise to greater traffic-related noise, air quality, or community impacts. (See essay on Traffic Operations). The area for studying traffic impacts to local streets was defined by selecting 31 local intersections that are representative of the cities along the State Route 24 corridor. These intersections are located near freeway ramps or near such ramps and along major arterial streets that could experience additional traffic. Collectively, the analysis results showed some degradation of average intersection LOS and increased delay, but these changes would not be significant (see response #2 in the essay on "Traffic Operations" in Chapter 1). Thus, determining project-related impacts assessments outside those limits were not warranted. (See also the essays on Methodologies for Study Areas)

Traffic forecasts were also the basis for delineating the community impact study area along State Route 24 from Orinda Way in Orinda to College Avenue in Oakland, and for describing an additional area up to Dwight Way in Berkeley, as described in Section 2.1.1, Land Use, of the DEA/EIR.

Several comment contributors questioned the study area for community impacts. The determination of the appropriate area for studying these impacts is based on traffic patterns. The study area for community impact analysis is typically created as an aggregate of Census data, by identifying those Census tracts or block groups immediately bordering the project. Census tracts can be very large relative to project effects, so block group data are sometimes used where confidentiality can be preserved to avoid confounding affected and unaffected areas. By the same token, the community impact study area may be extended beyond the first Census tract if the influence of the project can be shown to extend beyond that boundary.

The use of Census tract data also explains the boundaries of the community study area. These boundaries are consistent with the boundaries of Census tracts or block groups. For example, FROG Park, which happens to fall between the block groups of Census tracts contiguous to the Caldecott project as shown in Figure 2.1.3-1 in Section 2.1.3.1, Community Character and Cohesion, is the focus of many comments. This park was not deliberately excluded from the community impacts study area. Rather, the analysis described in the foregoing discussion demonstrated that including another Census tract or block group beyond those encompassing the immediate project vicinity was not warranted based on the potential for traffic impacts of the project.

To assure that the community impact studies would address Berkeley as well as Oakland, a Berkeley study area was delineated. While very little area within the Berkeley city limits is contiguous to State Route 24, the team wanted to identify for study those areas within Berkeley that could experience traffic, and traffic-related noise

[2] The project study area boundaries indicated in the DED were from State Route 24/Broadway Interchange to the State Route 24/Camino Pablo Interchange. This is actually the more general project area and it was extended to include project elements (i.e., a soundwall at Temescal Regional Park and a potential site for disposal of spoils at the Gateway Boulevard interchange) that have since been omitted. The actual project study area boundaries and the area of construction extend from the State Route 24/13 Interchange in Alameda County to the State Route 24/Gateway Boulevard Interchange in Contra Costa County.

or community impacts of the project. Travel demand model analysis based on the traffic forecasts was therefore employed to estimate traffic volumes with and without the project to determine where the traffic began to diminish below volumes that would result in environmental effects. Increased traffic volumes from the fourth bore westward along Ashby Avenue at Shattuck and northward along Shattuck at Ashby were on the order of 40 to 120 peak hour vehicles, or too few to produce substantially adverse traffic operations or noise effects. Similarly, one to two additional vehicles per minute would not represent a substantial pedestrian or bicycle travel barrier or safety effect. (This is also addressed in the essay on Traffic Operations) This traffic-based analysis resulted in a Berkeley study area that focused on Ashby Avenue and the roadways that cross Ashby Avenue as far north as Dwight Way, thus capturing the primary arteries that serve both the interregional network and Berkeley destinations. Extending the project farther north was not warranted based on the traffic volumes, particularly if no substantially adverse effects were identified farther south.

It is important, moreover, to distinguish traffic that would increase as a result of the project and traffic that would exist—that is, increased traffic over time—whether or not the project was constructed. The reader is referred to the essay on Traffic Modeling/Forecasting, which addresses this issue.

Caltrans addresses the impacts of highway projects on air quality in accordance with the Clean Air Act and its amendments, the EPA Final Regulations (August 1997), NEPA, and CEQA. Since the study is modeled regionally by the Metropolitan Transportation Commission (MTC), and was shown to conform to the Transportation Improvement Program (TIP), the study area could be described as all areas under the jurisdiction of the MTC network.

The Traffic Noise Impact Report examined the freeway traffic noise impacts in the project area on State Route 24 from State Route 13/24 Interchange in Oakland to the State Route 24/Gateway Boulevard Interchange in Orinda (actual project study area and project limits). The Historic Property Survey Report also used the actual project study area as the Area of Potential Effect boundaries. The archaeological APE encompasses areas where project-related ground disturbance would occur. The architectural APE includes, in addition to the archaeological APE, two parcels adjacent to the roadway right-of-way and on which structures are located.

The Location Hydraulics Study/Floodplain Assessment also used the actual project area boundaries to determine potential project impacts.

The Natural Environmental Study limits extend from the State Route 24/Broadway Interchange in Oakland to the State Route 24/Camino Pablo Interchange in Orinda (general project area). The Paleontological Resources Identification and Evaluation Report also used the general project area as its study limits to determine if paleontological resources are present in the project area. The general project area was also used to determine project related visual impacts in the Visual Impact Assessment.

PURPOSE AND NEED

Some commenters had questions about the purpose and need for the project. Some indicated that they believed the project did not meet the stated purpose of and need for the project.

The Council on Environmental Quality's (CEQ) regulation for implementing the National Environmental Policy Act (NEPA) requires that an Environmental Assessment (EA) discuss "the purpose of and need for action" (40 CFR Section 1502.13). It also requires that reasonable alternatives be included and an alternative with no action be considered. (40 CFR Section 1502.4)

The California Environmental Quality Act (CEQA) requires an Environmental Impact Report to include "A statement of objectives sought by the proposed project. A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project." (CEQA Guidelines, Section 15124.). The statement should briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.

The project's purpose and need is clearly stated in the DEA/EIR and summarized (as below) in the summary. The purpose of the project is to:

- Reduce delays within the vicinity of the tunnels, through the year 2032;
- Improve mobility for the traveling public and emergency crews;
- Reduce the potential for congestion-related accidents at the queues that form at the tunnels' approaches, thus increasing safety for the public;
- Eliminate the need for daily tunnel reversals and thus reduce the amount of time Caltrans maintenance personnel are exposed to live traffic;
- Provide faster emergency response;
- Respond to Regional Measure 2 (RM2) passed by the San Francisco Bay Area voters, which raised tolls on the Bay Area's seven state-owned bridges from $2 to $3. The $125 million in annual revenue from that toll increase funds a wide variety of transportation projects across the region including $50 million for a forth bore at the Caldecott Tunnel; and
- Respond to Contra Costa County Measure J, a half-cent transportation sales tax passed in November 2004 that funds a $2 billion spending plan. The Caldecott Tunnel project is expected to receive $110 million of these funds.

The Caldecott Tunnel is the primary bottleneck on State Route 24. Freeway capacity at the tunnels is reduced from eight to six lanes. Congestion related delays caused by the lane reduction have increased travel times and transportation costs. The configuration of the three existing tunnel bores, in which the middle two-lane bore reverses depending on demand (providing only two lanes in one direction), results in delay throughout the peak periods, early evenings, and on weekends. Maintenance workers need to reverse traffic flow twice a day during the week and several times (up to ten times) during a busy weekend.. Congestion occurs daily at variable levels.

Voter support, demonstrated by the passage of RM2 and Contra Costa Measure J, is indicative of a perceived need. On March 2, 2004, voters passed RM2, raising the toll for all vehicles on the seven State-owned bridges in the San Francisco Bay Area by $1.00. This extra dollar funds various transportation projects within the region that have been determined to reduce congestion or to make improvements to travel in the toll bridge corridors. On November 2, 2004, voters of Contra Costa County passed Measure J by over 71% to fund a $2 billion spending plan including $125 million for the Caldecott Tunnel to "…significantly reduce delays and improve the predictability of travel in the non-peak direction."

Chapter 1 of the DEA/EIR discussed in detail the project's purpose, need, the various alternatives that were considered, costs and funding, and permits and approvals needed to complete the project. The alternatives considered included tunnel alternatives, street and highway operations, mass transit, bicycle access, and the No-Build alternative. (40 CFR Section 1502.4) Alternatives were formulated for their ability to meet the project objectives of improving mobility, relieving congestion, maintaining trip reliability, and enhancing the overall safety for motorists and maintenance personnel in the project area. In addition, other factors such as cost, environmental impacts, operational efficiency, and maintainability of the built system were considered. The two-lane alternative and the three-lane alternative both north of the existing tunnels and the No-Build Alternative were carried forward in the DED. The tunnel alternatives best met the need and purpose of the proposed Caldecott Improvement Project. The two-lane alternative was subsequently chosen as the Preferred Alternative (see essay on Preferred Alternative).

The construction of the Preferred Alternative will reduce delay, eliminate the need for daily tunnel reversals and reduce congestion in the non-peak direction. Eliminating the daily tunnel reversals will increase safety for Caltrans personnel and the public. To the extent that traffic congestion relief is achieved, the construction of the Preferred Alternative will also have a beneficial effect on the potential for congestion-related accidents and the response time of emergency vehicles.

REGIONAL MEASURE 2 AND CONTRA COSTA MEASURE J

Some respondents inquired about the voter support for the project as expressed in Regional Measure 2 (RM2) and Contra Costa Measure J and the public processes by which they were promulgated.

Regional Measure 2 (RM2) - As noted in the DEA/EIR, public support for the proposed project was demonstrated by the passage of RM2 and Contra Costa Measure J. On March 2, 2004, voters of the San Francisco Bay Area passed RM2 by over 58%, raising the toll for all vehicles on the seven State-owned bridges in the San Francisco Bay Area, by $1.00. This extra dollar funds various transportation projects within the region that have been determined to reduce congestion or to make improvements to travel in the toll bridge corridors. Thirty-six capital projects are listed in RM2 (California Streets and Highway Code Section 30914(c)). These projects range from studies to transit vehicle procurement to freeway improvements. There are also fourteen operating projects listed in RM2 (California Streets and Highway Code Section 30914(d)).

Of the estimated $125 million in annual toll revenue $50 million is earmarked for the Caldecott Tunnel. Specifically, RM2 establishes the Regional Traffic Relief Plan, identifies specific capital projects and programs, and transit operating assistance eligible to receive RM2 funding as identified in Sections 30914 (c) & (d) of the California Streets and Highways Code. The California Streets and Highway Code 30914(c), Capital Program Project List, includes a provision to "Provide funds to plan and construct a fourth bore at the Caldecott tunnel between Contra Costa and Alameda Counties. The fourth bore will be a two-lane bore with a shoulder or shoulders north of the current three bores."

The Senate Select Committee on Bay Area Transportation, chaired by Senator Perata, initiated hearings in 2002 on the subject of bridge tolls. An advisory committee of over 25 agencies and organizations was formed, including the nine counties' congestion management agencies, the seven largest regional transit operators, the Water Transit Authority, Caltrans, Transportation and Land Use Coalition (TALC) and other stakeholders representing business, environment, and social equity, and MTC and legislative staff. During the Fall 2002, the Advisory Committee held 15 meetings to review proposed projects.

The expenditure plan proposed in RM2 evolved from the pool of projects presented during these meetings and also included input from members of the legislature. Projects were evaluated based on performance measures such as impact on congestion, cost effectiveness, transit connectivity, number of new transit riders, project readiness, sustainability, environmental impacts, land use opportunities, safety, social equity, and other considerations. The plan was an attempt to identify the best projects and programs to break down the barriers to using transit, including poor connections, dozens of different tickets and fares, and prices that are often higher than driving.

The majority of the RM2 funds provided are for transit, including ferry service. However other congestion relieving projects include HOV lanes on I-80 and I-680, the Benicia Bridge and the Caldecott Improvement Project. Various agencies and organizations championed different projects on the expenditure plan and points in opposition as well as in support of the various projects were heard and considered. In the end, the Measure received wide support from transportation officials, environmentalists, transit advocates, labor unions and others.

The MTC administers the RM2 program (see essay on "Transit"). Additional information can be found on their web site.

Contra Costa Measure J - On November 2, 2004, voters of Contra Costa County passed Measure J by over 71%. The "Sales Tax Measure J Contra Costa Transportation Authority" funds a $ 2 billion spending plan that specifically includes $125 million for the Caldecott Tunnel. The measure asked the voters, "Shall voters approve a Transportation Expenditure Plan to: - Extend and improve the BART system, - Add a Fourth Bore to the Caldecott Tunnel and improve State Route 24, - …and Authorize a 25-year continuation of the local half-cent sales tax to implement the Transportation Expenditure Plan, which shall not increase the current sales tax?" Revenues derived from the measure are being expended for the transportation projects in the Contra Costa

County Transportation Authority's transportation expenditure plan, which includes adding a fourth bore to the Caldecott Tunnel.

Similar to MTC's Regional Transportation Plan and RM2, the Transportation Expenditure Plan funded by Measure J provides funding not only for capital projects including the BART system and highway projects but also provides funding to: maintain the transportation infrastructure by upgrading both highways and local streets and roads; expand the BART bus express system and feeder bus services; provide special transportation services for seniors and people with disabilities; and, improves bike and pedestrian safety by funding improvements in bike and pedestrian infrastructure. Measure J was created through a two-year public planning process that solicited input from citizens throughout Contra Costa County. It reflects a consensus, drawing support from environmental, social justice, taxpayer, and transit advocates; union members and business interests; all nineteen cities; and unanimous support from the Board of Supervisors.

Voter support of this measure is indicative of the need for the Caldecott Improvement Project. While the project itself is primarily a straightforward freeway congestion relief project (eliminating a bottleneck on State Route 24), it is a small but important part of other plans to improve the region wide multimodal transportation network as demonstrated by its inclusion in the Regional Transportation Plan, RM2 and Regional Measure J.

SCOPE OF THE PROJECT

Many comment contributors suggested that funds for the project would be better spent elsewhere or on other projects.

Recognizing the importance of the State Route 24 Caldecott Tunnel, the Department and the Federal Highway Administration proposed a project that would reduce delays within the vicinity of the tunnel, increase mobility, reduce the potential for congestion-related accidents at the tunnel and eliminate the need for daily tunnel reversals, and that would respond both to Regional Measure 2 and Contra Costa County Measure J. Other potential means of reducing congestion suggested in public comments, such as increasing transit service frequencies of BART and buses, lowering off-peak period transit pricing (congestion pricing), funding employer shuttle service to/from BART, enhancing the capacity of BART parking lots and improving BART stations, and amending city planning policies and local street calming, are beyond the scope of the project as they do not meet the project's purpose and need. Other essays in this chapter discuss several of these various options. While the Department generally supports such concepts, they are outside its jurisdiction and the scope of this project. The Department has no authority to enact or undertake such measures or require that other agencies do so.

The reader is referred also to the essays on "Transit" and "Regional Measure 2 and Contra Costa County Measure J" in this chapter.

SCOPING PERIOD COMMENTS

Numerous comment contributors asked how the comments they provided during the scoping process of the studies were used. Some expected to see particular alternatives, impact studies or issues evaluated precisely as they were suggested in the comments offered during Scoping in late 2002, early 2003. At least one comment asserts that it is standard CEQA practice to include a list of all Notice of Preparation (NOP) commenters in an appendix to the EIR and that this section must note where each comment is responded to.

Scoping is the process during which the lead agencies solicit and obtain input from the public and jurisdictional agencies to scope the environmental studies. Particular topics suggested for public input during Scoping include the project purpose and need statement, the alternatives under consideration, and the impact issues of particular concern. The comments received are considered seriously as the studies proceed. The comments help to assure that the project purpose is generally supported and that feasible alternatives and salient impact issues are not overlooked. Consideration of the comments does not require an agency to commit to including project alternatives that have been shown to be not feasible or to focus impact studies on areas that are beyond the influence of the project. Many of these same issues were reiterated and discussed in meetings with residents

and advocates in the project vicinity during the course of the studies. The reader is referred to the essays on Alternatives Considered and Project Study Area Boundaries for further discussion of these particular issues.

In the case of the Caldecott Improvement Project, the Scoping comments received were summarized and tabulated and the summaries circulated to all of the specialists to ensure that all salient issues would be addressed. Comments relating to traffic operations and traffic safety issues in particular areas were reviewed in context of the traffic impact study area. Travel demand model analyses were performed to assure that the traffic impact study area was sufficiently large to reflect the influence of project-related traffic. Concerns regarding the visual impacts of the project were addressed by assuring that the visual impact analysis fully reflected the impacts on all viewer groups, through increased context sensitivity in design, and by producing a landscaping / noise abatement proposal that would enhance views from proximate residences. Concerns expressed about the potential growth inducing effects of the project were addressed with project-specific studies that included Berkeley as well as Oakland. Concerns regarding construction impacts have been addressed through a comprehensive program of construction Best Management Practices and mitigation measures, including outreach to the proximate community as described in the Construction Impacts essay.

Although NEPA and CEQA require written responses to each of the written comments received on the circulated Draft EA/EIR (which may be addressed in a summary fashion), there is no requirement nor is it standard EIR practice to include a list of all comments received during the scoping process in an appendix to the EIR or to note in this section where each comment is responded to.

TRAFFIC MODELING/FORECASTING – GENERAL RESPONSES

Various comments were received concerning the scope of the traffic forecasts as well as the methods used in them. The following sections discuss the most common issues raised. These issues are Weekend Forecasts, Induced Travel, BART Ridership, Truck Traffic, Mobility Improvements and Pricing Assumptions.

The traffic forecasts showed that, with or without the project, the travel demand throughout the State Route 24 corridor would increase substantially through the 2032 design year. These increases at the Caldecott Tunnel are summarized below.

	2000 Four Hour Total	**2032 No-Build Four Hour Total**	**2032 No-Build Increase over 2000**	**2032 Preferred Alternative Four Hour Total**	**2032 Preferred Alt. Increase over 2032 No-Build**
AM Peak Period Eastbound	13,700	19,620	43%	20,400	4%
PM Peak Period Eastbound	27,000	36,850	36%	38,240	4%
AM Peak Period Westbound	30,930	42,650	38%	44,430	4%
PM Peak Period Westbound	17,760	23,380	32%	24,970	7%

Even without the fourth bore, peak period travel demand will increase from 32% to 43% through the tunnel. The construction of the Preferred Alternative will expand the demand only another 4% to 7%. The growth in travel demand through the tunnel is due to changed land uses projected throughout the area. There will be additional residences, jobs, shopping opportunities and other trip generators on both sides of the tunnel and consequently more travelers who desire to travel through it.

On a region-wide basis the construction of a fourth bore is projected to decrease total vehicle miles traveled (VMT) by 0.2%. (VMT is the total miles traveled by all motor vehicles in the nine county Bay Area over a typical 24 hour weekday.) This projected reduction is presumably due to travelers taking advantage of the decreased congestion to take a more direct route to their destinations. This change is very small and there a

definite limits to the precision of travel demand models so it should not be taken as a guarantee that vehicle miles traveled will decrease by exactly this amount. It's most important significance is that regardless of its actual effect on region wide VMT, the effect should be very small.

The travel demand model was also used to project the effect of the fourth bore on local street traffic. It projected a 0.4% increase in traffic on these streets. This increase is likely due to traffic attracted to this area by the improved operations on State Route 24. Again, this is a small increase and the most important conclusion based upon the model result is that the added traffic on local roads near State Route 24 should be small.

1–Weekend Forecasts

The travel demand model used to forecast the traffic for this project cannot forecast weekend travel demands. None of the travel demand models used in the Bay Area can forecast weekend travel demand. Indeed, there are extremely few models worldwide that have this capability.

There are at least two reasons for this. First, weekend peak hours and period traffic volumes are usually lower than weekday volumes so the "worst case" design volume is a weekday peak volume. This characteristic makes forecast of weekend volumes less critical, so planners have not focused resources to create weekend models. Second, weekend travel patterns and volumes are heavily influenced by special events such as sporting events. Because of changing event schedules from weekend to weekend, each weekend's travel patterns and volumes are unpredictable in the context of forecasting traffic for weekends in future years. That is, there is no such thing as a "typical" weekend, while traffic for a "typical" weekday is much easier to predict.

For the State Route 24 corridor, present day traffic counts show that peak weekend traffic is equal to or less than peak weekday traffic. There is no reason to expect this to change in the future. Therefore, the benefits and impacts caused by the project on weekdays should also apply on weekends, though to a lesser degree.

2–Induced Travel

The concept of induced travel derives from the fact that after a highway has been improved, travel speeds are also improved, thus more travelers will use the highway increasing the total amount of traffic on it. This increased traffic is said to be the result of "induced travel."

This is due primarily to six separate factors:

- **1. Route changes –** Some travelers who previously did not use the highway will modify their routes to use the improved highway because it will be their fastest route to their destination. For these travelers, the quickest route to their destination did not include traveling on the highway before the improvement, but does after the highway is improved and its travel speeds are increased;
- **2. Departure time changes –** Some travelers will have been shifting the time that they begin their trips to avoid congested highway conditions during peak travel periods. Once the facility is improved and congestion decreased, some travelers will shift their travel back to their preferred time during the peak periods and peak period travel will increase;
- **3. Mode Shifts** – Improved travel speeds along the improved highway will make it more attractive and some travelers will change from alternative travel modes and begin driving on the improved facility;
- **4. Destination Changes** – Some travelers will take advantage of improved travel speeds along the improved highway to travel to more distant destinations than they otherwise would have;
- **5. Additional Trips –** Because of the improved travel speeds along the improved highway, some trips that would not otherwise have been taken will be taken; and
- **6. New development/Additional Land Use** – In time, improved travel speeds along the highway may encourage additional development along the highway. Trips to and from the development will increase the traffic on the highway.

The first factor, route changes, does not represent additional or induced travel. Rather, it represents travelers shifting the route for their trips. These routes may be longer or shorter than those taken before the highway

improvement. Vehicles taking a freeway rather than local streets will likely have a more uniform travel speed with fewer stops and starts. This should decrease the amount of air pollution created by the vehicle. Also, it is usually better for local circulation if through traffic that was diverted to local streets returns to the freeway. Route changes and their effect on corridor vehicle miles of travel (VMT) have already been taken into account in the travel models used for this project.

The second factor, departure time changes, also does not represent additional or induced travel. It simply represents travelers who choose to travel at different times. This factor is not explicitly accounted for in the traffic model used for this project but should have no effect on the total VMT. This is because the time within the day that travelers choose to travel will have no effect on the total amount of travel during a 24 hour period.

The third factor, Mode Shift, also does not represent additional travel. It could represent additional motor vehicle travel as travelers shift from other travel modes to motor vehicle travel. The traffic model used to analyze this project's traffic volumes includes a "mode split" step that models these effects. The only transit service paralleling the Caldecott is BART. The travel demand model used to forecast traffic for this project predicts that this project will have virtually no impact on BART ridership.

The first three factors represent increases in the number of vehicles using the highway during peak periods but do not represent "induced travel." Rather they represent decisions by travelers concerning where and how they will make trips they are already making on the transportation system. They could result in more travelers than expected on the highway during the peak period, but could not affect the total vehicle miles traveled on a highway. The fourth and fifth factors, destination changes and additional trips, do represent "induced travel". If a traveler begins making longer trips or making more trips, the total VMT will increase, all other factors being equal. Neither of these factors is accounted for in most traffic models, including the one used to analyze the traffic effects for this project. Nearly all travel demand models assume that the number of trips and the length of trips taken by a given household are constant and not changed by the highway conditions. Although there has been some controversy concerning the relative contribution of induced travel to the total traffic volume, recent research indicates that the contribution is small.[3] One recent study in California, which examined the question of induced travel through comparison of improved and unimproved highway segments, found no statistical difference between the improved and unimproved segments and thus "no evidence of induced demand"[4] .

The sixth factor, travel associated with new development/additional land use, typically applies where a new highway is constructed in an undeveloped area. This is not the case with this project. State Route 24 is a well-established highway through Contra Costa and Alameda County and the project area encompasses land already developed. A growth inducement study was performed for this project and concluded that this project would not induce unplanned growth in the project corridor.

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[3] (Barr, Lawrence C. "Testing for the Significance of Induced Highway Travel Demand in Metropolitan Areas." Record. 1706 (2000): 1-8.) (Cervevo, Robert. "Road Expansion, Urban Growth, and Induced Travel." APA Journal 69 (Spring 2003): 145-163.) (Hartgen, David T. "Highways and Sprawl in North Carolina." A Report Prepared for the John Locke Foundation. September 24, 2003 <http://www.johnlocke.org/acrobat/policyReports/highways-report.pdf>.) (Federal Highway Administration. "Induced Traffic: Frequently Asked Questions." 30 March 2007 *http://www.fhwa.dot.gov/planning/itfaq.htm*.)

[4] (Mokhtarian, Patricia L., Francisco J. Samaniego, Robert H. Shumway and Neil H. Willits. 2002. "Revisiting The Notion of Induced Traffic through a Matched-Pairs Study."Transportation. 29: 193-220.)

3–BART

The travel demand model used for this project was used to model any changes in BART ridership in the off-peak direction. It found that the project would have virtually no impact on BART ridership. This is not surprising. Most jobs east of the Caldecott Tunnel are not within convenient walking distance from a BART station. At a minimum a bus connection will be needed and the travel times are much longer than driving, even if State Route 24 is congested. Workers holding these jobs are therefore very unlikely to take BART. However, some jobs are conveniently accessed by walking from BART Stations. For these jobs, BART is a competitive mode of transport, with or without the fourth bore. The project will not increase peak period capacity and no adverse impact on BART ridership is anticipated.

4–Truck Traffic

Trucks and other types of vehicles will reap equal travel benefits from the fourth bore project so there is no reason to expect that the proportion of trucks will change due to this project. The travel demand model used for this project forecasts truck traffic. Unfortunately, the actual truck volumes predicted are not precise. This is because the truck volumes have not been validated. In order to assure that a travel demand model produces dependable results the model should be validated. This means that the results that the model produces for a present or recent past "base year" are compared to traffic counts for that year. If the model produces base year forecasts similar to traffic counts, the model is validated and one can proceed with a reasonable assurance that it will produce realistic forecasts. However, not enough truck counts have been performed in the San Francisco Bay area to allow a reasonable validation of the truck portion of the model. However, even though the numerical forecasts produced by the truck portion of the model may not be realistic it is based upon actual land uses and traveler behavior and it should still lend insight into the trends caused by different conditions or projects.

The travel demand model used for this project confirms that the truck volume do not change greatly, showing that 2032 daily truck volumes would be 1839 without the fourth bore project and 1989 with the project. Although the model has not been validated against actual truck counts, the model does provide insight into the trends caused by different conditions and its forecast that the construction of the fourth bore will not cause a large increase in truck traffic using the tunnel can be considered valid.

5–Mobility Improvements

Some commenters opined that "Mobility Improvements" or any enhancement to any form of transportation, was limited to the highway system. As would be expected for a highway project, this project's mobility improvements would be limited to those who use it. This would include automobile drivers and passengers as well as users of motorcycles, vanpools, private buses, and possibly in the future, public buses.

6–Pricing Assumptions

The CCTA travel demand model used to forecast traffic for this project used the same pricing assumptions as the MTC's Baycast Model. It assumes that gas prices will stay at $1.83 per gallon in year 2000 dollars. This translates into $2.09 per gallon in 2006. BART fares are assumed to stay at present rates, once adjusted for inflation. These assumptions are based upon future gas price estimates provided by the California Energy Commission and the US Department of Energy's Energy Information Administration (EIA).

Of course, the assumed present gas prices are less than the actual present gas prices, and it will be possible that gas prices will continue to rise. However, based on past experience, this should have only a small effect on the amount of driving, which has proven to be remarkably inelastic with regard to gas prices. Gas prices simply

have not affected VMT very much. Gas prices have increased greatly in the last few years, but per capita driving has changed very little.[5] In the long run, increased gas prices will probably reduce gasoline consumption. However, most of this is due to the purchase of more fuel-efficient vehicles.

At a high enough gas price level, driving would presumably reduce significantly. However, it is important to remember there are a number of technologically sound substitutes to petroleum based motor fuels. None of these technologies have been widely adopted because they were not cost effective given the low price of petroleum-based fuels. If petroleum based gasoline prices skyrocket before 2032, other technologies could come into more general use and keep motor fuel prices more moderate. Environmental analysis is not intended to evaluate every conceivable circumstance, no matter how catastrophic or speculative, but is intended to evaluate likely circumstances to predict the impacts of reasonable alternatives.

TRAFFIC OPERATIONS – GENERAL RESPONSES

Many comments were received concerning changes to traffic operations as a result of the project and traffic operations in general. The following sections discuss the most common issues raised. These issues are: scope of the traffic studies; impacts to local streets and roads; weekend traffic; existing traffic compared to opening year traffic; operating the fourth bore as a bus, high occupancy vehicle or toll lane; metering the tunnel; transferring the bottleneck; lane modifications, fixed-time bore direction change; ramp metering; and congestion pricing.

1 - Scope of Traffic Studies

The travel demand model used for this project is capable of estimating the total VMT throughout the San Francisco Bay Area in 2032 with and without the fourth bore project. The model estimates that with a two-lane fourth bore 80,251,260 VMT will occur in the Bay Area on a typical weekday. Without the fourth bore the model estimates 80,410,808 VMT would occur. This small 0.2% predicted decrease in VMT with the project in place is likely caused by people taking advantage of the reduced congestion through the Caldecott Tunnel to take more direct routes to their destinations.

The travel demand model was also used to estimate the 2032 weekday VMT on local streets in the area near enough to State Route 24 that additional traffic would likely be diverted to them. Without the fourth bore the model estimated that there would be 874,282 vehicle miles of travel. With the two- lane bore this VMT figure increases 0.4% to 877,732 vehicle miles traveled. This demonstrates very small increase that the additional traffic rapidly disperses once it leaves State Route 24.

At both ends of the study area (State Route 24/580 and State Route 24/680 Interchanges), the model indicated that freeway connector demand changes are at most 3% to 4%. These demand changes would represent even smaller percentages for those connecting freeway corridors (I-580 in Oakland and I-680 in Walnut Creek. The State Route 13 freeway connector demand changes would be higher in percentage (due to lower demand volumes) but would average only in the one hundred vehicles per hour range (compared to the Preferred Alternative). The traffic forecasting for this project took into account traffic origins and destinations for locations throughout the San Francisco Bay Area. Screen lines were identified where the influence of traffic from the project area declines perceptibly beyond the study limits. Some demand increase is expected based on the forecast prepared for the project. However, the main increase is expected to occur in the off-peak directions, since the proposal would mainly be adding capacity in the off-peak direction. The peak direction demand increase would be minor.

[5] (Hughes, Jonathan E., Christopher R. Knittel, and Daniel Sperling. "Evidence of a Shift in the Short-Run Price Elasticity of Gasoline Demand" (September 5, 2006). Available at SSRN: <*http://ssrn.com/abstract=930730*>)

The operational analysis performed on State Route 24 covered the relevant traffic impacts in the project vicinity. Traffic impacts of the project do not extend very far beyond the immediate project vicinity. In all, the proposed fourth bore is about 0.6 mile in length while the operational analysis covered a corridor about 13 miles in length. Expanding the study areas would not likely affect the results including the comparative evaluations of the No-Build Alternative to either build tunnel alternative.

2 - Impacts to Local Streets and Roads and Model Validation

Model Validation

The DEA/EIR states that, "The overall traffic patterns forecast by the model are realistic and the general effects of Alternative 2N and 3N on the overall intersection operations should be realistic." If intersection improvements were to be designed for these intersections for a future design year, a more precise traffic forecast at the intersection would be required. In order to prepare this design-type forecast, the models base year forecasts for the intersection area would need to be compared to base year traffic counts to ensure that it is properly validated in the area. It might then be necessary to refine the model in the project area to improve the model validation. A turning movement count at the intersection would be needed. The final forecasts would then be based upon a combination of the travel demand model output and existing traffic patterns as revealed by the turning movement counts using an analysis technique such as the Furness Method. It is apparent that producing a design-type forecast such as this is a major effort and to produce such a forecast for the over thirty intersections examined is beyond the normal traffic forecasts for a project of this type. While fine tuning the forecasts to provide a precise forecast for each intersection movement may be appropriate for a design study, this level of detail is not needed to evaluate environmental impacts, since it is the magnitude of the change in volumes that is of primary interest.

The travel demand model used for this project is capable of estimating the total VMT throughout the San Francisco Bay Area in 2032 with and without the fourth bore project. The model estimates that with a two-lane fourth bore 80,251,260 VMT will occur in the Bay Area on a typical weekday. Without the fourth bore the model estimates 80,410,808 VMT would occur. This small 0.2% predicted decrease in total VMT is likely caused by people taking advantage of the reduced congestion associated with the Caldecott Tunnel to take more direct routes to their destinations.

The travel demand model was also used to estimate the week day 2032 vehicle miles traveled on local street in the area near enough to State Route 24 that additional traffic would likely be attracted to them. With no fourth bore of the Caldecott Tunnel constructed the model estimated that there would be 874,282 vehicle miles of travel. With the two-lane bore constructed, this figure increases 0.4% to 877,732 vehicle miles traveled. In general the impacts would be greater near State Route 24 and decrease the further away from State Route 24.

While there are specific intersections with increased traffic volumes as projected by the forecast, the locations selected for intersection analysis were representative of those with the most potential for traffic demand increase and impact. In terms of general impact, Caltrans examined the forecast and determined that constructing the fourth bore will only minimally increase the traffic trips in a citywide scale. Therefore, increased traffic trips in certain arterial streets also could mean reduced traffic trips in other streets. As such, the overall bicycle and pedestrian exposure to vehicular traffic is not expected to increase.

Impacts to Local Streets and Roads

There are four off ramps from westbound State Route 24 to local streets between the Caldecott Tunnel and the State Route 580 interchange. These are the Caldecott Lane, northbound State Route 13, Broadway, College Way and Telegraph Avenue off ramps. Over the four hour PM Peak period in 2032, the travel demand model shows 6660 vehicles using one of these off ramps in the no build condition. In the Preferred Alternative build condition 7060 vehicles will use these ramps. This is an increase of 400 vehicles using off ramps from westbound State Route 24 to local streets in the PM peak period. This is a 6% increase or an average of an additional 100 vehicles per hour using these ramps.

At the regional level, the increased capacity of a fourth bore in the off-peak direction would lead to an increase of demand and/or changes of route choices of up to a few percentage points. To evaluate the magnitude of

relative local impact of these trip changes, a group of 31 local intersections that are representative of cities along the State Route-24 corridor was selected as study intersections. These intersections, either located near freeway ramps and/or along major arterial streets, typically serve as links between the freeway and local communities that could experience additional traffic. It should be noted that the selected intersections were those expected to have substantial traffic demand or those with potentially great demand increases, while many other intersections would have potentially decreased traffic demand due to traffic diversion with the project. Those intersections expected to experience reduced demand, based on the traffic forecasts and expected trip routings with the project, were not included in the study. Focusing on those intersections with demand increase is a conservative approach to evaluate local impacts because it highlighted potential impact while minimize potential benefit. Finally, the intersections were analyzed as "stand-alone" intersections without considering constraints in nearby local bottlenecks that could reduce the amount of traffic reaching the studied intersections. This represents the worst-case scenario in terms of examining the impact.

The intent of these planning level studies is to evaluate conditions more than 25 years into the future (20 years design life plus the time it takes to plan, design, and construct the tunnel). This is different than specific intersection analyses that are geared toward examining existing and short-term operational issues thus the approach is different. As a part of the operational analysis, the intersection LOS is optimized using software tools but manual adjustments to individual variables are not made or fine-tuned during the process of the study. The emphasis is not to duplicate intersection conditions reflective of current signal timing strategies (minimum green time, signal phasing sequence, etc.), which are based on existing traffic issues and constraints. Many existing operational constraints and variables would change over time and new ones could be developed in the twenty-five-plus-year period.

Collectively, the analysis results showed some degradation of average intersection LOS and increased delay that is consistent with the demand increases in general. In comparison to the Preferred Alternative, of the 62 analyses scenarios (morning and afternoon analyses for 31 intersections), there were twelve scenarios with one LOS drop and one scenario with two LOS drops while there was one intersection with one LOS improvement. In all, the average intersection delay increase would be less than 10 seconds per vehicle. Of course, the LOS impact would vary among intersections and in some cases would even improve. However, the study recognizes that the increased capacity of a fourth bore would result in a slight increase of freeway demand up to a few percents. This would lead to similar overall demand increases that could have local impacts. While recognizing there would be additional delays at these intersections most likely to serve as links between the freeway and local communities, the minor increase in intersection delay is not significant compared to the total travel time saving.

3 - Weekend Traffic

The main cause for weekend congestion is insufficient capacity in whichever direction where only one tunnel bore is opened. The resultant lane reduction from four to two causes a back-up upstream of the merge. In the direction with two tunnel bores is opened, there is no weekend congestion. Currently there are no adequate forecasting models to accurately produce a weekend travel demand forecast. Nevertheless, based on work done during the scoping process, the magnitudes of existing weekend demand were estimated to be similar to those of weekday off-peak directions in terms of delay and congestion limits. Therefore, it is reasonable to project that the benefit of a fourth bore during the weekday off-peak direction would extend to the weekend operations.

Please also refer to response #1 in the essay on “Traffic Modeling/Forecasting”.

4 - Existing Traffic Comparison and Opening Year Traffic Comparison

Questions arose regarding the applicability of predicting conditions in the forecast design year (2032) with and without the project as opposed to comparing existing traffic to future traffic conditions with the project. The issue of using opening year traffic for comparison was also raised. While it may generally be appropriate to measure a project’s impacts using a baseline of physical conditions that exist at the time the environmental analysis is commenced, in cases where assessing the environmental effects of a project based on current conditions would be inappropriate, the agency is not required to rigidly adhere to this baseline. Therefore, CEQA recognizes that in certain instances another baseline may be more valid and accurate in measuring a

project's impacts. This is the case with this project where utilizing the projected future condition without the project provides a more accurate and valid measure of the project's impacts. Because additional traffic will be generated whether or not the project is constructed, the traffic impacts of the project are most accurately measured by comparing the conditions with and without the project during the forecast design year. A comparison of future traffic (with the project) to current traffic conditions, without the growth that will occur with or without the project, would be a formulaic exercise that would not offer public or decision-makers useful information with which to evaluate the true environmental effects of the project.

Based on the forecast report, the peak period traffic volumes traveling through the Caldecott Tunnel are expected to increase between 30 percent and 40 percent between 2002 and 2032. The forecast design year for the project is year 2032 with a twenty-year design life. This growth is expected to occur as a result of changes such as land use and population growth regardless of traffic infrastructure improvements. The traffic studies focused on comparing the traffic conditions with the fourth bore compared to no infrastructure improvement.

Improving highway infrastructure generally provides benefit to the transportation system. In the case of a fourth Caldecott Tunnel bore, it is anticipated that the project will provide overall traffic relief, resulting in positive effect or benefit to the environment instead of degradation of environmental quality. The traffic forecasting and analysis effort are done to examine potential impact at the planning level. As described above (see traffic Modeling/Forecasting, 2—Induced Travel), improving highway infrastructure would only minimally induce additional traffic. Major traffic demand growth factors are land use change, employment increases, population growth, etc. These growth factors would occur without any highway infrastructure improvement. The fourth bore is proposed to address or mitigate the effect of traffic demand growth over time. To fairly and validly examine the impact of these long-term effects and the effects of a fourth bore in equal terms, a twenty-year forecast (year 2032) was developed. This is done following Caltrans guideline (Highway Design Manual 103.2) and Federal requirement (Title 23 US Code 109 a & b). The procedures of the forecast development and analysis are also consistent with other efforts previously done by Caltrans or performed by the traffic forecasting and engineering communities.

It is standard Caltrans practice to design and analyze capacity increasing projects for the traffic foreseen twenty years after the construction of the project is completed. Section 103.2 of the Caltrans *Highway Design Manual* states, "Geometric design of new facilities and reconstruction projects should normally be based on estimated traffic 20 years after completion of construction." Analyzing a major capacity increasing project's effect 20 years after the completion of construction is a long-standing practice nationwide. In 23 USC 109 (b) the Federal Government required that the Interstate Highway system be designed for a design life 20 years after the approval of the construction plans.

The 20-year analysis period arose because of a desire to examine and analyze a project's long-term effects. Major highway projects are generally large, long-term investments that may remain important for a very long time. Therefore limiting the analysis to opening day conditions is not realistic or appropriate. Prudence dictates that a large and difficult to change project such as a major highway project be designed and analyzed for a relatively long time into the future.

For minor non-capacity increasing improvement proposals of highway infrastructure, sometimes the existing year, opening year, or interim year analyses are adequate. However, those analyses are typically used for providing immediate or short-term comparisons of minor improvements that are not expected to provide long-term benefits or address long-term growth. Examination of near-term or interim year conditions typically is not fruitful for comparison for large projects.

An interim year forecast model would be based on interpolated data between existing conditions and the design year. Performing operational analysis on the interim year would yield relative results that are consistent with the growth trend interpolation. Noting that the design year operational analysis results pointed to free-flow conditions in the off-peak direction with the construction of a fourth bore; an interim year study would also show similar and consistent results.

Finally, the report did not compare future conditions to existing conditions. The report examined the relative difference between constructing a fourth bore and not. As discussed elsewhere in the report, traffic growth will continue to occur even without a fourth bore. As such, the year 2032 No-Build condition is used as the basis of comparison. There is a slight increase of traffic demands at those intersections and facilities being studied. See discussion #2 regarding general local impact discussion. It would be an "apples-to-oranges" type of evaluation to compare the year 2032 Build condition to the existing No-Build condition.

5 - Operating a Fourth Bore as Bus, High Occupancy Vehicle (HOV) or Toll Lane

The primary traffic constraint is upstream of the tunnel where the traffic approaches the tunnel bores. Within the bore limits, the traffic is moving without congestion. Designating a bus lane or HOV lane inside the new tunnel will not provide any congestion relief benefit. Designating a toll lane would also require legislative action.

In order for an HOV or toll lane system to offer timesavings, it would require additional upstream HOV or toll lanes along the corridor to bypass the upstream congestion. If existing upstream lanes were to be converted from mixed-flow usage to HOV usage, that would introduce additional delays to mixed-flow traffic as it would take away mixed-flow lane capacity.

Constructing a toll lane would also require additional widening beyond that of bus lane or HOV lane to provide a buffer to separate and regulate the traffic ingress and egress.

If new lanes were to be added by additional corridor widening, that would increase the project cost significantly. The State Route 24 Transit Capacity Study mandated by Regional Measure 2 was conducted by the Contra Costa Transportation Authority (CCTA) to examine the benefit and cost of operating a bus lane/HOV lane along the corridor. Although transit capacity increase is feasible, the report recognizes that projected demand would still require an increase in corridor capacity. Although the construction and operation of a bus lane/HOV lane would be a separate proposal not within the scope of this project, constructing a new bore would allow the corridor to be better managed and operated as other improvements are added in the future.

6 - Metering the Caldecott Tunnel

Metering the mainline traffic would regulate the flow rate but not resolve the main cause of congestion. Existing off-peak direction congestion is largely due to insufficient capacity of a single two-lane tunnel serving a corridor that is four lanes both upstream and downstream of the tunnel bore, creating an "hour-glass" bottleneck. Corridor traffic demand growth will continue to occur regardless of construction of a fourth bore. If the corridor capacity in the off-peak direction is not increased, metering is not sufficient to address existing traffic demand or future demand growth.

Moreover, mainline metering would require vehicles to come to complete stops before proceeding, thus reducing the number of vehicles each metered lane can carry. Additional widening for storage would be required to create a storage area similar to a toll plaza to maintain the same throughput of the metered lanes. We do not expect that this would provide any improvement of corridor congestion reduction. If a fourth bore were built, there would be little or no off-peak direction congestion. In that case, mainline metering would not offer any additional benefit.

7 - Transferring the Bottleneck to Another Location

Some comments claim that by relieving the current congestion at the Caldecott tunnel the project could potentially move the bottleneck elsewhere. Even if this were to occur to some extent by removing the bottleneck there will be less overall delay in the corridor. An improvement at a bottleneck provides the greatest benefit to those who may exit the freeway before reaching the next downstream bottleneck, while others who encounter congestion downstream would still experience less delay overall.

Caltrans attempts to plan and coordinate improvement projects with regional agencies, counties, and cites to maximize the benefit of improvement projects; even so, many factors affect the funding and scheduling of

projects. The completion schedule for each project is based on many internal factors as well as external factors that are often beyond the control of the project sponsors and planners. The arduous task of maintaining the regional transportation infrastructure is a continuous and ever changing process as the Bay Area continues to evolve and grow. Making capital improvements is a dynamic process that doesn't always allow synchronization of all improvements' schedules without deviation to avoid any "transfer" of bottlenecks until all downstream improvements are made.

Although any improvements to relieve recurring congestion at any location could potentially "shift" the bottleneck elsewhere, that effect would be more applicable to improvements made in the peak direction. For example, had the fourth bore been proposed for peak-direction congestion relief, then the issue of bottleneck transfer would be significant since there are major downstream bottlenecks on westbound I-580 during the a.m. peak period and on northbound I-680 during the p.m. peak period. However, this project is intended primarily for non-peak direction congestion relief so the potential transfer of the bottleneck is not significant. The Preferred Alternative (two-lane bore) would not increase peak direction capacity in the corridor; the minor increase in demand would not increase the throughput and shift or contribute to the downstream peak-direction bottleneck.

8 - Lane Configuration Modification, Fixed Time Bore Direction Change, Ramp Metering, Potential to Address Long-term Demand

Existing off-peak direction congestion is largely due to insufficient corridor capacity. Corridor traffic demand will continue to grow regardless of construction of a fourth bore. If the corridor capacity in the off-peak direction is not increased, short-term modification such as lane configuration changes will not address long-term growth.

It is true that fixed time bore direction change would allow travelers to plan for the hours of capacity reduction. However, because traffic volumes fluctuate on a daily basis and because not all motorists are able to change their trip and departure time, fixed time bore change would not eliminate travel time uncertainties. With six lanes (the existing three bores' configuration) serving a total of eight lanes upstream and downstream of the tunnel, there exists a "capacity gap" issue at the tunnel bore location requiring constant bore changes. The long-term solution is to eliminate this capacity gap.

As for ramp metering, it is a method of regulating the flow of vehicles along the corridor. However, deployment needs to be corridor-wide to be effective and the process needs to include the considerations of local jurisdictions. Also, although ramp metering can be an effective real-time tool to maximize the flow of vehicles, it will not likely address the long-term traffic growth anticipated for the region.

9 - Congestion Pricing

Some commenters suggested that various forms of congestion pricing be used in conjunction with the construction of the new tunnel.

First and foremost, it should be noted that legislation would be required before congestion pricing could be implemented and that congestion pricing is outside the scope of this project. Moreover, constructing a fourth bore does not preclude congestion pricing as a possible strategy in the future.

In theory, congestion pricing could be an effective tool to modify travel behavior and demand in that pricing works in managing traffic flow. However, the impact and effectiveness of this method depends on the specifics of management strategy and it may have potential significant social and economic issues that are beyond the engineering and technical studies that can be addressed within the scope of this project.

Finally, it should also be noted that local residents near the Caldecott Tunnel have expressed concern about existing traffic diversion into their neighborhoods and have already expressed opposition to charging a toll at the tunnel that could pose greater impact to their neighborhoods. This community sentiment is relevant to the extent that congestion pricing could result in diversion of traffic onto neighborhood streets.

TRANSIT

Some commenters indicated that they would rather the money allocated to construct the tunnel be spent on transit and that transit alternatives were not adequately addressed in the DEA/EIR (also see the essay on "Alternatives Considered in the Draft EA/EIR" in this chapter).

As noted in the DED, in January 2001, the MTC in conjunction with its partners–the Department, the Alameda County Congestion Management Agency, and the Contra Costa Transportation Authority–published the *Route 24/Caldecott Tunnel Corridor Study*. Among the goals of the study were to evaluate a full range of transportation improvements including improvements to transit, carpooling, freight movement, non-motorized options, and a new bore - specifically analyzing project performance, impacts and costs. The study examined short and long-term improvement strategies including such improvements as streets and highway operations, transit (bus and Bay Area Rapid Transit [BART] expansion) and a new fourth bore. The corridor study found that operational and transit improvements would be only modestly effective when implemented in combination with a fourth bore. The study examined the following transit options:

- Increase feeder bus to and from BART (a.m. & p.m. in both directions);
- New inter-county bus service through Tunnel (a.m. & p.m. in both directions);
- Direct Bay Point/Fremont BART service (benefits a.m. & p.m. in both directions); and
- Expand corridor BART station parking.

The study concluded that:

- Traffic forecasts indicate that only a minor increase in overall a.m. peak period trips per person would occur through the Caldecott Tunnel;
- Of the anticipated 13,700 new transit riders generated, only about 25 percent (3,700) pass through the Caldecott Tunnel;
- Nearly all of the projected new transit riders through the Caldecott Tunnel would take BART. The new express bus service did not attract a substantial number of new transit riders;
- A new direct BART Bay Point/Fremont line would not appreciably reduce vehicle delay. A new BART line attracted about 1,000 new daily transit riders through the Caldecott Tunnel but only about 100 additional eastbound a.m. peak two-hour person trips;
- BART and connecting buses are already an established transit mode share;
- Reverse commute transit travel times are not competitive with auto travel times. Even those commuters' trips whose origins and destinations have fairly direct BART service take longer with public transit;
- With the exception of a few areas, corridor household incomes and auto ownership levels exceed average regional household incomes and auto ownership levels. Consequently, corridor commuters tend to be more discretionary transit riders; and
- Housing populations are not dense in the Oakland Hills and in most areas of Contra Costa County and thus these areas become more difficult to serve by transit due to the dispersed nature of the trips made.

The study found that the transit improvements would result in only a modest increase in transit patronage and minor congestion relief, and thus would not meet the purpose and need of this project. In addition, the travel demand model used to forecast traffic for this project predicts that this project will not have a significant impact on BART ridership (see essay on "Traffic Modeling and Forecasting").

Even so, many transit improvements have been or will be made along the corridor. Satellite BART parking and shuttle service to the Lafayette and Orinda BART stations have been proposed as part of the Contra Costa County's Countywide Comprehensive transportation Plan. In addition, a park-and-ride lot near the Santa Maria Church in the city of Orinda and a park-and-ride lot at Deer Hill Road in the city of Lafayette have also been proposed. BART also is proposing to improve access to BART stations including parking expansions/shuttles throughout Contra Costa County. eBART is also being proposed as a transit improvement, which would provide a rail extension from the Pittsburg/Bay Point BART station with stations in Antioch, Oakley, Brentwood, and Byron.

In January 2006, the Contra Costa Transportation Authority and the Central Contra Costa Transit Authority completed the State Route 24 Transit Capacity Study mandated by Regional Measure 2. The study's goal was to determine whether strategies to increase transit capacity could be implemented without increasing the single occupancy vehicle traffic on State Route 24. The State Route 24 Transit Capacity Study found that there would be a slight increase in BART ridership when the eBART extension is in operation, which is estimated to be in 2010.

BART also is proposing the Central Contra Costa Crossover Project. Regional Measure 2 provided $25 million to this project, which proposes to add trackway between the Walnut Creek and Pleasant Hill stations to allow a train to cross from one track to the other track. The project benefits include increased train frequency and reduced wait times, additional seating capacity during peak hours, reduced system delays, and improved maintenance and allocation of resources. This project is estimated to be completed in September 2008.

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area. MTC functions as both the regional transportation planning agency — a state designation – and, for federal purposes, as the region's metropolitan planning organization (MPO). As such, it is responsible for regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The Commission also screens requests from local agencies for state and federal grants for transportation projects to determine their compatibility with the plan. Adopted in February 2005, the most recent edition of this long-range plan is known as Transportation 2030. At the federal level, the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and its successor, the Transportation Equity Act for the 21st Century (TEA-21), empowered MPOs like MTC to determine the mix of transportation projects best suited to meet their region's needs. Congress reaffirmed MPOs' role in transportation financing in 2005 with the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA).

MTC also administers state funds, including those provided by the Transportation Development Act. Legislation passed in 1997 gives MTC and other regional transportation planning agencies increased decision-making authority over the selection of state highway projects and allocation of transit expansion funds for the State Transportation Improvement Program (STIP). Also in 1997, the State Legislature transferred to MTC responsibility for administering the base $1 toll from the Bay Area's seven state-owned toll bridges. A new entity, the Bay Area Toll Authority (BATA) was created for this purpose. BATA also oversees the Regional Measure 2 Traffic Relief Plan, which is funded by a voter-approved $1 toll hike that went into effect on the region's state-owned toll bridges on July 1, 2004 (see essay on "Regional Measure 2 and Contra Costa Measure J").

On August 10, 2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU continues the TEA-21 concept of guaranteed funding, keyed to Highway Trust Fund (Highway Account) receipts. MTC's Transportation 2030 Budget amounts to approximately $118 billion. Of these funds the majority, $76 billion (64%) is allocated to the maintenance, operation, and expansion of the transit systems in the Bay Area. The remaining funds will be used for the maintenance, operation, and expansion of the highway system and local roads. Regional Measure 2 also allocates the majority of its funding to transit. Thus transit is comparatively well funded when compared to the highway system and local roads in the San Francisco Bay Area. The Caldecott Improvement Project is one of the few major highway projects. Improvements to transit and other transportation projects are beyond the scope of the Caldecott Improvement Project. Potential congestion improvements such as increased transit and lower transit pricing are outside the jurisdiction of the Department and the Department cannot require transit agencies to enact changes or add projects to their systems. To influence how transportation funds are distributed and become more involved in transportation related issues, interested individuals should contact their local officials and MTC.