State Route 60/Lemon Avenue Interchange

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 07 – LA – 60, PM R21.5/R23.0 (KP R34.6/37.0)
EA# 07224100

INITIAL STUDY / ENVIRONMENTAL ASSESSMENT (AND SECTION 4(F) EVALUATION)

Prepared by the
United States Department of Transportation
Federal Highway Administration
and the
State of California Department of Transportation

The Environmental Review, Consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility Pursuant to 23 U.S.C. 327.

Caltrans

January 2008

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07-LA-60- PM 21.5/23.0
(KP 34.6/37.0)
EA# IA 07224100

Construct a New Interchange on State Route 60 at Lemon Avenue PM 21.5/23.0 (KP 34.6/37.0) in the City of Diamond Bar

INITIAL STUDY/ENVIRONMENTAL ASSESSMENT (AND SECTION 4(f) EVALUATION)

Submitted Pursuant to: (State) Division 13, Public Resources Code and (Federal) 42 USC 4332(2)(C) and 49 USC 303

UNITED STATES DEPARTMENT OF TRANSPORTATION
Federal Highway Administration, and
THE STATE OF CALIFORNIA
Department of Transportation, and
THE CITIES OF DIAMOND BAR AND INDUSTRY

Jan. 8, 2008
Date of Approval

Ronald Kosinski
Deputy District Director
Division of Environmental Planning
California Department of Transportation

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Summary

S.1 Overview

The Cities of Diamond Bar and Industry, in cooperation with the California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration (FHWA) under its assumption of responsibility pursuant to 23 U.S.C. 327, propose to construct a new interchange on State Route 60 (SR-60) at Lemon Avenue interchange, post mile (PM) R21.5/R23.0 (kilometer post [KP] 34.6 to KP 37.0). The proposed project would improve traffic operations by providing direct access to SR-60 from the surrounding urbanized and largely built-out areas in the Cities of Diamond Bar and Industry at the new Lemon Avenue interchange. These improvements are referred to in this Initial Study/Environmental Assessment (IS/EA) as the proposed project. As proposed, two of the project Build Alternatives will require the permanent acquisition of additional right-of-way (ROW).

This project is included in the adopted 2006 *Regional Transportation Improvement Program* (RTIP) as "construction of new partial diamond interchange for State Route 60 (SR-60) at Lemon Ave (SAFETEA-LU#587)." This project is included in the adopted 2004 *Regional Transportation Plan* (RTP Amendment) (April 2004) as "construct on/off ramps." The pages from the RTIP and the RTP that include citations to the SR-60/Lemon Avenue interchange project are provided in Appendix H.

The project location and project limits are shown later on Figures 1.1 and 1.2.

S.2 Background of the Project

This project was included in the planning program for SR-60 before 1968. A freeway agreement with Los Angeles County, dated March 26, 1968, gave the State right-of-way (ROW) for an eastbound (EB) off-ramp and (WB) westbound on-ramp at the Lemon Avenue undercrossing.

In March 1984, a *Project Study Report* (PSR) for the proposed project was submitted to Caltrans headquarters for review but a project was not programmed because of a lack of funding commitment for the project. In June 1986, the Los Angeles County Board of Supervisors adopted a resolution to support the project and to seek financial resources to fully fund the project. According to the Resolution, the City of Industry, which is west of the project area, would enter into an agreement with the County of

Los Angeles (County) to fully fund the project should this project go forward. A draft PSR was prepared, and again the project was not programmed because of a lack of funding commitment.

In early 2002, Caltrans initiated a Project Study Report/Project Development Support (PSR/PDS) effort as requested by the local agencies (Cities of Industry and Diamond Bar). The PSR/PDS was completed and approved in February 2003. In 2004, the Cities of Industry and Diamond Bar decided to move the project forward to the next phases. In a letter agreement between the Cities dated June 9, 2004, the Industry Urban Development Agency agreed to financially support the Project Approval/Environmental Documentation (PA/ED) and Plans, Specifications, and Estimates (PS&E) phases of the project. In 2005, Congress approved the Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) program and earmarked $9.6 million in that program for the construction of the proposed SR-60/Lemon Avenue interchange project.

The PSR/PDS identified and evaluated alternatives for the SR-60/Lemon Avenue interchange. Two Build Alternatives evaluated in the PSR/PDS were advanced for evaluation in the *Draft Project Report* (PR). After approval of the PSR/PDS, the Cities of Industry and Diamond Bar, with their engineering consultant, developed two additional Build Alternatives (Alternatives 4 and 5) to potentially be considered in the PA/ED phase.

S.3 Alternatives

The project alternatives evaluated in this IS/EA consist of a No Build Alternative (Alternative 1) and three Build Alternatives, as described in the following sections.

S.3.1 No Build Alternative

The No Build Alternative considers only those improvements that have been approved and funded at the time the Draft PR was prepared. These are:

- State Route 57 (SR-57)/SR-60 Direct High Occupancy Vehicle (HOV) Connector Project: This project is currently under construction in the SR-57/SR-60 interchange, east of the location of the proposed SR-60/Lemon Avenue interchange project.
- SR-60 HOV Lanes Project: Construction of this project, to provide HOV lanes on the mainline SR-60 facility, is expected to begin 2007.

In addition, the SR-57/SR-60 Interchange Improvements Feasibility Study, to evaluate possible improvements to the SR-57/SR-60 interchange, was initiated on March 15, 2006, and is expected to be completed in mid-2007. However, because that study is not complete, no improvements identified in that study are assumed to be in place under the No Build and Build Alternatives for the proposed SR-60/Lemon Avenue interchange project.

These improvements would do little in the way of providing adequate levels of service (LOS) and operational conditions at the existing interchanges on this segment of SR-60, would mostly serve to handle the existing traffic demand on the facilities they are improving, and would not provide for a new interchange at Lemon Avenue. These improvements are assumed to occur under the No Build Alternative and the proposed Build Alternatives for the SR-60/Lemon Avenue interchange.

S.3.2 Alternative 2: Partial Interchange

Alternative 2 would construct a half interchange with a WB on-ramp from Lemon Avenue and an EB off-ramp over Lemon Avenue to Golden Springs Drive. The existing sound wall along EB SR-60 west of Lemon Avenue would be removed, and a new sound wall would be installed along the edge of pavement of the EB off-ramp. The conceptual engineering plan for Alternative 2 is provided in Attachment A.

Alternative 2 is consistent with the Freeway Agreement dated March 26, 1968, and can be constructed within the existing State ROW for SR-60.

The partial interchange and the EB off-ramp, an isolated off-ramp under Alternative 2, are nonstandard and have the potential for wrong-way movements and driver confusion. The EB off-ramp has a nonstandard superelevation transition and runoff due to the short distance between SR-60 and Golden Springs Drive. It would also require permanent closure of Banning Way for access control, which would impact planned development at the northeast corner of Golden Springs Drive and Lemon Avenue.

S.3.3 Alternative 3: Partial Interchange

Alternative 3 would construct a partial (three-legged) interchange, with a WB on-ramp, an EB off-ramp, and an EB on-ramp at Lemon Avenue. It would also permanently remove the existing EB off- and on-ramps at Brea Canyon Road. An auxiliary lane from the proposed EB on-ramp to the connector to southbound (SB)

SR-57 would be constructed under Alternative 3. The existing sound wall along EB SR-60 west of Lemon Avenue would be removed, and new sound walls would be installed along the edge of pavement of the EB off-ramp and on-ramp. The conceptual engineering plan for Alternative 3 is provided in Attachment A.

Removing the existing WB on- and off-ramps at Brea Canyon Road would increase the existing auxiliary lane to more than the standard requirement of over 2,000 feet (ft) (610 meters [m]) and would provide an adequate weaving section for EB SR-60. It would also eliminate the traffic bottleneck at Golden Springs Drive between the EB ramps and Brea Canyon Road.

Alternative 3 would require the partial acquisition of six parcels. No structures would be affected by the partial property acquisitions under Alternative 3.

S.3.4 Alternative 4: Full Interchange

Alternative 4 would provide a full interchange at Lemon Avenue without removing the existing WB access from Brea Canyon Road. Alternative 4 is similar to Alternative 3, except that it would add a two-lane service road between Lemon Avenue and Brea Canyon Road. The service road would replace the existing WB on-ramp from Brea Canyon Road and run parallel to SR-60 on the north. It would terminate at Lemon Avenue. The conceptual engineering plan for Alternative 4 is provided later in Attachment A.

Alternative 4 would require the partial acquisition of 29 parcels. No structures would be affected by the partial property acquisitions under Alternative 4.

S.4 Areas of Controversy and Unresolved Issues

No areas of controversy or unresolved issues have been identified for the proposed SR-60/Lemon Avenue interchange project.

S.5 Summary of Impacts

Table S-1 summarizes the potential adverse impacts of the No Build Alternative and the proposed Build Alternatives for the SR-60/Lemon Avenue interchange, based on the findings of this IS/EA. Avoidance, minimization and mitigation measures, as required for adverse impacts of the proposed project, are also listed in Table S-1.

Table S-1 Summary of Impacts and Avoidance, Minimization, and Mitigation Measures

Potential Impact	No Build Alternative	Alternative 2	Alternative 3	Alternative 4	Avoidance, Minimization, and Mitigation Measures
Land Use	Not consistent with General Plan goals and transportation plans	No impacts	No impacts	No impacts	None required
Growth	No impacts	No impacts	No impacts	No impacts	None required
Farmlands and Timberlands	No impacts	No impacts	No impacts	No impacts	None required
Community Impacts	No impacts	Short-term impacts on businesses during construction	Short-term impacts on businesses during construction	Short-term impacts on businesses during construction	**Mitigation Measure TRA-1.** Refer to Section 2.8
Relocation	No impacts	No impacts	One non-residential property will be acquired.	One non-residential property will be acquired.	Refer to Appendix D.
Environmental Justice	No impacts	No impacts	No impacts	No impacts	None required
Utilities and Emergency Services	No impacts	Short-term impacts on emergency services during construction	Short-term impacts on emergency services during construction	Short-term impacts on emergency services during construction	**Mitigation Measure TRA-1.** Refer to Section 2.8
Traffic and Transportation/ Pedestrian and Bicycle Facilities	No impacts	Short-term traffic delays and impacts during construction	Short-term traffic delays and impacts during construction	Short-term traffic delays and impacts during construction	**Mitigation Measure TRA-1.** Refer to Section 2.8
	No long-term adverse impacts.	No long-term adverse impacts.	No long-term adverse impacts.	No long-term adverse impacts.	None required.
Visual and Aesthetics	No impacts	Potential changes in visual quality and character. Potential light effects.	Potential changes in visual quality, character, and light effects.	Potential changes in visual quality and character, light and shade effects.	**Mitigation Measure V-1.** **Mitigation Measure V-2.** **Mitigation Measure V-3.** Refer to Section 2.9

Potential Impact	No Build Alternative	Alternative 2	Alternative 3	Alternative 4	Avoidance, Minimization, and Mitigation Measures
Cultural Resources	No impacts	Potential impacts during construction	Potential impacts during construction	Potential impacts during construction	Refer to Section 2.10
Hydrology and Floodplains	No impacts	No impacts	No impacts	No impacts	None required
Water Quality and Storm Water Runoff	No impacts	Potential for adverse water quality impacts.	Potential for adverse water quality impacts.	Potential for adverse water quality impacts.	**Mitigation Measure WQ-1.** **Mitigation Measure WQ-2.** Refer to Section 2.12
Geology, Soils, Seismic, and Topography	No impacts	Potential impacts related to seismic ground shaking, slope stability, erosion, and rippability	Potential impacts related to seismic ground shaking, slope stability, erosion, and rippability	Potential impacts related to seismic ground shaking, slope stability, erosion, and rippability	Refer to Section 2.13
Paleontology	No impacts	Potential adverse impacts on paleontological resources during construction	Potential adverse impacts on paleontological resources during construction	Potential adverse impacts on paleontological resources during construction	**Mitigation Measure PAL-1.** Refer to Section 2.14
Hazardous Wastes and Materials	No impacts	No impacts related to 880 South Lemon Avenue: Potential to uncover previously unknown hazardous materials; disturbed soils; potential to release hazardous materials during removal of road striping	No impacts related to 880 South Lemon Avenue: Potential to uncover previously unknown hazardous materials; disturbed soils; potential to release hazardous materials during removal of road striping	Potential for adverse impacts to soils and groundwater in the project limits related to 880 South Lemon Avenue: Potential to uncover previously unknown hazardous materials; disturbed soils; potential to release hazardous materials during removal of road striping	**Mitigation Measure HW-1.** **Mitigation Measure HW-2.** **Mitigation Measure HW-3.** **Mitigation Measure HW-4.** **Mitigation Measure HW-5.** **Mitigation Measure HW-6.** Refer to Section 2.15

Potential Impact	No Build Alternative	Alternative 2	Alternative 3	Alternative 4	Avoidance, Minimization, and Mitigation Measures
Air Quality	No impacts	Potential short-term dust and emissions impacts during construction	Potential short-term dust and emissions impacts during construction	Potential short-term dust and emissions impacts during construction	Refer to Section 2.16
Noise	No impact	Potential short-term noise impact during construction and long-term noise impacts	Potential short-term noise impact during construction and long-term noise impacts	Potential short-term noise impact during construction and long-term noise impacts	Refer to Section 2.17 Reasonable and feasible sound walls as described in Table 2.17-5.
	No impact		Potential long-term noise impacts	Potential long-term noise impacts	
Natural Communities	No impact	Impact on willow riparian woodland	Impact on willow riparian woodland	Impact on willow riparian woodland	**Mitigation Measures BIO-2 and BIO-5.** Refer to Section 2.19
Wetlands and Waters of the United States	No impact	Impact on United States Army Corps of Engineers (ACOE) and California Department of Fish and Game (CDFG) jurisdictional waters	Impact on ACOE and CDFG jurisdictional waters	Impact on ACOE and CDFG jurisdictional waters	**Mitigation Measure BIO-1.** **Mitigation Measure BIO-2.** **Mitigation Measure BIO-3.** **Mitigation Measure BIO-4.** **Mitigation Measure BIO-5.** **Mitigation Measure BIO-6.** Refer to Section 2.19
Plant Species	No impacts	No impacts	No impacts	No impacts	None required
Animal Species	No impacts	Potential for adverse impacts on nesting birds during construction	Potential for adverse impacts on nesting birds during construction	Potential for adverse impacts on nesting birds during construction	**Mitigation Measure BIO-7.** Refer to Section 2.21
Threatened and Endangered Species	No impacts	No impacts	No impacts	No Impacts	None required
Invasive Species	No impacts	Potential to spread invasive species	Potential to spread invasive species	Potential to spread invasive species	**Mitigation Measure BIO-8.** **Mitigation Measure BIO-9.** **Mitigation Measure BIO-10.** **Mitigation Measure BIO-11.** Refer to Section 2.23

Potential Impact	No Build Alternative	Alternative 2	Alternative 3	Alternative 4	Avoidance, Minimization, and Mitigation Measures
Cumulative Impacts	No impacts	No impacts	No impacts	No impacts	None required

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Chapter 1 Proposed Project

1.1 Project Description

The Cities of Diamond Bar and Industry, in cooperation with the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA), propose to construct a new interchange on State Route 60 (SR-60) at Lemon Avenue in the City of Diamond Bar, Los Angeles County. The purpose of this project is to improve traffic operations by providing direct access to this area, which is urbanized and largely built out. This interchange location is based on a Freeway Agreement dated March 26, 1968, between Los Angeles County (County) and Caltrans. The project limits extend east and west of the existing Lemon Avenue undercrossing (UC), extending west approximately 3,100 feet (ft) (950 meters [m]) to the Brea Canyon Road interchange and east to approximately 1,950 ft (594 m) east of Lemon Avenue. The project proposes a partial interchange with SR-60 at existing Lemon Avenue. Two of the Build Alternatives would require the acquisition of right-of-way (ROW).

This project was included in the planning program for SR-60 sometime before 1968. At that time, a Freeway Agreement with the County, dated March 26, 1968, gave the State ROW for the eastbound (EB) off-ramp and the westbound (WB) on-ramp at the Lemon Avenue UC.

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Development Agency agreed to financially support the Project Approval/Environmental Documentation (PA/ED) and Plans, Specifications and Estimates (PS&E) phases of the project. In 2005, Congress approved the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) program and earmarked $9.6 million in that program for the construction of the proposed SR-60/Lemon Avenue interchange project.

The PSR/PDS identified and evaluated alternatives for the SR-60/Lemon Avenue interchange. Two Build Alternatives evaluated in the PSR/PDS were advanced for evaluation in the *Draft Project Report* (PR). After approval of the PSR/PDS, the Cities of Industry and Diamond Bar, with their engineering consultant, developed two additional Build Alternatives (Alternatives 4 and 5) to be potentially considered in the PA/ED phase.

This project is included in the final adopted 2006 *Regional Transportation Improvement Plan* (RTIP) as "construction of new partial diamond interchange for State Route 60 (SR-60) at Lemon Ave (SAFETEA-LU #587)." This project is included in the adopted 2004 *Regional Transportation Plan* Amendment (RTP, April 2004) as "construct on/off ramps." The pages from the RTIP and the RTP that include citations to the SR-60/Lemon Avenue interchange project are provided in Appendix H.

The regional location of the proposed project and the project vicinity are shown in Figures 1.1 and 1.2, respectively. The detailed conceptual engineering plans for the Build Alternatives for the SR-60/Lemon Avenue interchange are provided in Attachment A.

The information in this section, specifically related to the description of the project alternatives, is based on the following:

- *Project Study Report* (Caltrans, December 2002)
- *Draft Project Report* (Jacobs Engineering 2007)

The objectives of the proposed SR-60/Lemon Avenue interchange project are to:

(1) implement road improvements consistent with the Circulation Elements of the Cities of Diamond Bar and Industry General Plans; and

FIGURE 1.1
Project Location

N

0 1,000 2,000 Feet

SR-60/Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)

EA# 224100

SOURCE: USGS 7.5' QUAD - SAN DIMAS ('81) & YORBA LINDA ('81); CALIF.

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FIGURE 1.2
Project Vicinity

LEGEND
PROJECT LIMITS

0 500 1,000
FEET

SOURCE: Eagle Aerial (2001).

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SR-60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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(2) implement improvements that will enhance traffic operations and reduce existing traffic congestion on Lemon Avenue by improving the level of service (LOS), especially at the existing SR-60 ramp intersections.

As noted earlier, funding for the PA/ED, PS&E, and ROW project phases will come from the City of Industry (100 percent). The total construction cost is estimated between $9.3 and $25 million, depending on the alternative, and will be funded by SAFETEA-LU funds ($9.6 million) and local matching funds.

Construction is scheduled to begin in mid-2009. The project is anticipated to be operational in late 2010. The project will be constructed in accordance with Caltrans *Standard Construction Specifications,* which include measures to reduce noise and air emissions during construction.

Road construction outside the State ROW for SR-60 will be included in the project construction contract to properly tie into existing improvements and interconnect traffic signals as needed. Areas outside the State ROW are included with the Caltrans environmental review. Any roadway construction outside the State ROW will be subject to American Association of State Highway and Transportation Officials (AASHTO) or City of Diamond Bar standards.

1.2 Existing Facilities

SR-60 is a vital link in Southern California, connecting the Los Angeles metropolitan area and the Ports of Long Beach and Los Angeles with Interstates 10, 15, and 710. This transportation corridor network is designed to promote freight movement and economic growth. It provides access to major employment, retail, and entertainment centers from communities in the San Gabriel Valley, Pomona Valley, and Riverside and San Bernardino Counties to the Los Angeles Central Business District.

The segment of SR-60 from Fairway Drive to Brea Canyon Road currently has four mixed-flow lanes in each direction. Current traffic volumes show this route is one of the most heavily traveled freeways in the State, with annual average daily traffic (AADT) of 212,000 vehicles.

Currently, there is no direct access to SR-60 at the Lemon Avenue UC where Lemon Avenue passes under SR-60. Travelers access SR-60 at the adjacent interchanges at Fairway Drive in the City of Industry on the west and at Brea Canyon Road in the City of Diamond Bar on the east. These existing interchanges are approximately

4,750 ft (1,450 m) and 3,120 ft (950 m), respectively, from existing Lemon Avenue. The existing Brea Canyon Road interchange consists of a tight diamond configuration for the WB ramps and a hook configuration for the EB ramps. Due to the hook ramp configuration, the EB on-ramp provides limited storage for vehicles entering SR-60. An auxiliary lane is provided between the EB on-ramp and the southbound (SB) State Route 57 (SR-57) branch connector to mitigate the nonstandard weaving distance. However, the length of that auxiliary lane is only 781 ft (238 m) and is considerably less than the standard 2,500 ft (762 m) required.

Lemon Avenue, Brea Canyon Road, and Golden Springs Drive are all two lanes in each direction in the project area. The segment of Golden Springs Drive (east-west) between Lemon Avenue and Brea Canyon Road is a major arterial for many residential areas and businesses.

In addition, SR-60 has high volumes of weaving vehicles along the 1,161 ft (354 m) long segment between the Brea Canyon Road EB on-ramp and Brea Canyon Road, which is within 394 ft (120 m) of the ramp intersection. This segment of SR-60 is heavily congested throughout most of the day.

The following projects on SR-60 in the project vicinity are currently planned or under construction:

- SR-57/SR-60 Direct High Occupancy Vehicle (HOV) Connector Project: This project is currently under construction in the SR-57/SR-60 interchange, east of the location of the proposed SR-60/Lemon Avenue interchange project.
- SR-60 HOV Lanes Project: Construction of this project, to provide HOV lanes on the mainline SR-60 facility, is expected to begin sometime in 2007.
- SR-57/SR-60 Interchange Improvements Feasibility Study: This study, to evaluate possible improvements to the SR-57/SR-60 interchange, was initiated on March 15, 2006, and is expected to be completed in mid-2007.

The first two projects are assumed to be in place under the No Build and Build Alternatives for the proposed SR-60/Lemon Avenue interchange project.

1.3 Purpose and Need

1.3.1 Project Need

Currently, the Fairway Avenue and Brea Canyon Road interchanges provide access to and from SR-60 for the adjacent areas. The existing Brea Canyon Road interchange is a diamond-ramp configuration on the northern half and hook ramps on the southern half. This interchange is approximately 0.62 mi (1.0 km) west of the existing SR-60/ SR-57 interchange and is considerably less than the standard 2.0 mi (3.22 km) spacing requirement. To address the nonstandard spacing, the WB off-ramp to Brea Canyon Road is branched off from the SR-57 northbound (NB) connector to WB SR-60, to avoid the short weaving condition. The EB on-ramp from Brea Canyon Road, however, has a nonstandard weaving distance (1,161 ft [354 m]) versus the standard 5,280 ft (1,609 m) to the EB SR-60/SB SR-57 connector. This much-less-than-standard weaving distance contributes to traffic congestion on the SR-60 mainline.

The existing EB hook ramps intersect Golden Springs Drive 394 ft (120 m) west of the intersection with Brea Canyon Road and provide less than the standard 400 ft (122 m) spacing required in the Caltrans *Highway Design Manual* (HDM). This nonstandard spacing creates a traffic bottleneck between the intersections and, as a result, the Golden Springs Drive/Brea Canyon Road intersection currently operates at LOS F. The two commercial driveways opposite the ramp terminals also contribute to the poor LOS at these intersections and do not meet Caltrans current access control standards for new construction. That standard requires that access rights be acquired opposite ramp terminals to limit the volume of traffic and the number of signal phases, thereby optimizing capacity and operation at ramps. Additionally, both lanes of the EB on-ramp are currently metered, and the short storage space (141 ft [43 m]) will not accommodate future traffic demand at this existing ramp.

Segments of Brea Canyon Road (north of SR-60) and Golden Springs Drive (west of Brea Canyon Road) currently operate at LOS F. The existing (2006) peak-hour traffic volumes for these two local arterials were 2,257 and 2,579 vehicles per hour (vph), respectively. The projected volumes on these street segments in 2030 are 3,112 and 3,150 vph, respectively. The nearly 40 percent increase in vph for Brea Canyon Road and 22 percent increase for Golden Springs Drive will further deteriorate the already poor traffic operating conditions on these street segments. With the proposed SR-60/ Lemon Avenue interchange project, local commuters from north or south of SR-60

will be able to use Lemon Avenue to access SR-60, which will relieve some traffic congestion on Brea Canyon Road and Golden Springs Drive.

1.3.2 Project Purpose

Lemon Avenue was designated as an interchange location at SR-60 in the Freeway Agreement dated March 26, 1968, between the County and Caltrans. The purpose of the proposed project is to alleviate substantial traffic congestion and delays during the morning and afternoon peak periods on local streets and to provide improved access to and from SR-60 in the Cities of Diamond Bar and Industry, with a new freeway interchange at Lemon Avenue.

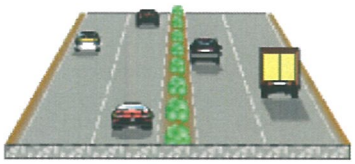
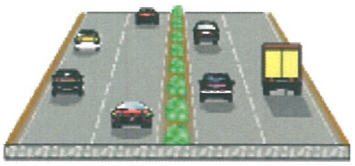
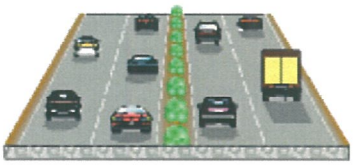
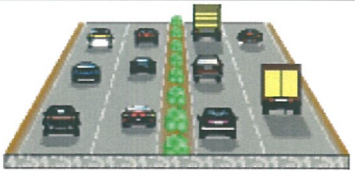
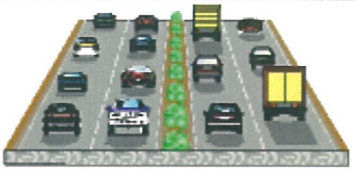
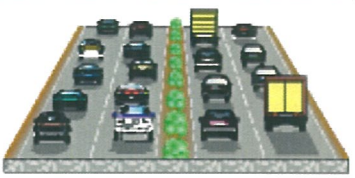
1.3.3 Need for the Project: Capacity and Transportation Demand

The existing and future with and without project traffic conditions in the project area were analyzed in detail in the *Traffic Operations Analysis* (Katz, Okitsu & Associates 2006). The findings of that analysis related to existing and forecast without project traffic conditions for the freeway mainline, and the potential benefits that would be provided by the proposed SR-60/Lemon Avenue interchange project are summarized in this section.

Level of Service

Traffic conditions on most road facilities are analyzed using the principles or the specific analysis methods in the *Highway Capacity Manual* (HCM, 2000 Edition). Chapter 16 of the HCM details analysis of signalized intersections, based on measurements or forecasts of delay created by traffic controls for traffic using all approaches to the intersection. Transportation engineers describe the quality of traffic flow in terms of LOS on a scale ranging from A to F that describes the conditions on a road during a specific time interval. LOS A indicates excellent operating conditions with little vehicle delay, and LOS F represents congested conditions with excessive vehicle delay. LOS E is typically defined as the operating capacity of a road. Figure 1.3 graphically depicts the LOS on freeways. Table 1.3-1 depicts the LOS criteria from the HCM shown in Figure 1.3.

LEVELS OF SERVICE
for Freeways

Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

SOURCE: Highway Capacity Manual, 2000 Edition

FIGURE 1.3
LOS on Freeways

SR-60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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Table 1.3-1 Level of Service Criteria from the HCM

LOS	Freeway Segments (Density – pc/km/ln)
A	7
B	11
C	16
D	22
E	28
F	> 28

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C.
pc/km/ln: passenger cars per kilometer per lane

Existing (2005) Conditions

Traffic volumes on SR-60 between Brea Canyon Road and Fairway Drive were obtained from the Caltrans Count Database. The latest available 2005 counts show this freeway segment carrying average daily traffic (ADT) of approximately 212,000 vehicles per day (vpd).

Based on Caltrans count data, the segment of SR-60 between Fairway Drive and Brea Canyon Road currently carries approximately 7,340 WB and 6,660 EB vph during the a.m. peak hour. This freeway segment carries approximately 6,620 WB and 6,020 EB vph during the p.m. peak hour. Based on current traffic counts and the existing freeway geometry, the existing LOS on this freeway segment were calculated. As shown in Table 1.3-2, that freeway segment is currently operating at LOS D or better during both the a.m. and p.m. peak hours, except for the EB segment between Fairview Drive and Brea Canyon Road, which is operating at LOS F during the p.m. peak hour.

Table 1.3-2 Existing (2006) Traffic Data

Mainline Freeway		AM Peak		PM Peak	
		Density	LOS	Density	LOS
Mainline Freeway – SR 60 (EB)					
-	Fairway Drive to Brea Canyon Road	17.8	D	-	F[a]
Mainline Freeway – SR 60 (WB)					
-	Brea Canyon Road to Fairway Drive	20.5	D	17.6	D

Source: *Draft Project Report* (Jacobs Engineering, 2007).

2030 Conditions

Future 2030 traffic forecasts were developed based on 2002 traffic data obtained from the Caltrans Traffic and Data System Vehicle Unit - 2005 All Volumes on CSHS.

Due to the current construction of the SR-60/SR-57 interchange improvements, 2002 data were deemed to be the most representative of "normal" operating conditions on SR-60 because the current freeway construction started in 2003. The Southern California Association of Governments (SCAG) Travel Demand Model was used to develop growth rates applied to the 2002 traffic data to forecast future 2030 traffic conditions in the study area.

Future 2030 traffic forecasts were developed for the No Build Alternative and the three Build Alternatives for the proposed interchange. Table 1.3-3 summarizes the forecast 2030 ADT along SR-60 between Fairway Drive and Brea Canyon Road, for the No Build and Build Alternatives.

Table 1.3-3 2030 Average Daily Traffic

Mainline Freeway Between		No Build	Alt 2	Alt 3	Alt 4
Mainline Freeway					
1	Fairway Dr & Lemon Ave	250,000	252,500	252,500	252,500
2	Lemon Ave & Brea Canyon Rd	250,000	248,200	250,500	242,800

Source: *Draft Project Report* (Jacobs Engineering, 2007).
Alt = Alternative

The a.m. and p.m. peak-hour 2030 traffic forecasts and analyses were developed for the freeway segment in the project vicinity. Tables 1.3-4 and 1.3-5 summarize the LOS under 2030 a.m. and p.m. peak-hour conditions for the No Build and Build Alternatives.

Table 1.3-4 2030 AM Peak-Hour Levels of Service

Mainline Freeway		No Build		Alt 2		Alt 3		Alt 4	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS
Mainline Freeway – SR-60 (EB)									
1	Fairway Dr to Lemon Ave	20.2	D	20.2	D	20.2	D	20.2	D
2	Lemon Ave to Brea Canyon Rd	20.2	D	20.2		20.7	D	21.0	D
Mainline Freeway – SR-60 (WB)									
1	Brea Canyon Rd to Lemon Ave	**24.6**	**E**	**24.1**	**E**	**24.2**	**E**	20.8	D
2	Lemon Ave to Fairway Dr	**24.6**	**E**	**25.8**	**E**	**25.7**	**E**	**25.7**	**E**

Source: *Draft Project Report* (Jacobs Engineering, 2007).
Notes:
[a] Level of Service based on existing operations

Table 1.3-5 2030 PM Peak Hour Levels of Service

Mainline Freeway		No Build		Alt 2		Alt 3		Alt 4	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS
Mainline Freeway – SR-60 (EB)									
1	Fairway Dr to Lemon Ave	-	F[a]	-	F[a]	-	F[a]	-	F[a]
2	Lemon Ave to Brea Canyon Rd	-	F[a]	-	F[a]	-	F[a]	-	F[a]
Mainline Freeway – SR-60 (WB)									
1	Brea Canyon Rd to Lemon Ave	**22.6**	**E**	**22.1**	**E**	**22.1**	**E**	18.8	D
2	Lemon Ave to Fairway Dr	**22.6**	**E**	**24.0**	**E**	**24.0**	**E**	**24.0**	**E**

Source: *Draft Project Report* (Jacobs Engineering, 2007).
Notes:
[a] Level of Service based on existing operations

Alternative 1 (No Build)

In 2030 under the No Build Alternative, the freeway segment in the project vicinity is forecast to operate at LOS E in the WB direction and LOS D and F in the EB direction during the a.m. and p.m. peak hour, respectively.

Alternative 2

In 2030 under Alternative 2, the freeway segment in the project vicinity is forecast to operate at LOS E in the WB direction and LOS D and F in the EB direction during the a.m. and p.m. peak hour, respectively.

Alternative 3

In 2030 under Alternative 3, the freeway segment in the project vicinity is forecast to operate at LOS E in the WB direction and LOS D and F in the EB direction during the a.m. and p.m. peak hour, respectively.

Alternative 4

In 2030 under Alternative 4, the freeway segment in the project vicinity is forecast to operate at LOS D/E in the WB direction and LOS D and F in the EB direction during the a.m. and p.m. peak hour, respectively.

1.3.4 Safety

Accident rates were compiled based on accident data provided by Caltrans from the Traffic Accident Surveillance and Analysis System (TASAS) for the period between April 1, 2002, and March 31, 2005. The segment of SR-60 between Fairway Drive and Brea Canyon Road was the focus of this analysis. Table 1.3-6 summarizes accident rates on SR-60 between post miles (PM) 21.5 and 23.0 (kilometer posts [KP]

34.56 and 36.96). Table 1.3-6 also summarizes the accident rates on the on-ramps and off-ramps to and from Fairway Drive and Brea Canyon Road.

Table 1.3-6 Accident Rates (per Million Vehicle Kilometers)

SEGMENT BETWEEN KILOMETER POST 34.56–36.96	ACCIDENT RATE					
	ACTUAL			AVERAGE		
	FATAL	FATAL + INJURY	TOTAL	FATAL	FATAL + INJURY	TOTAL
SR-60 EB	0.006	0.19	0.68	0.006	0.36	1.14
SR-60 WB	0.011	0.29	1.35	0.006	0.36	1.14
60 WB ON FROM FAIRWAY	0.000	0.90	1.81	0.002	0.32	0.80
60 EB ON FROM SB FAIRWAY	0.000	0.10	0.96	0.005	0.61	1.50
60 WB OFF TO FAIRWAY	0.000	0.00	0.18	0.001	0.24	0.70
60 EB ON FROM N FAIRWAY	0.000	0.54	3.25	0.003	0.61	1.50
60 WB ON FROM BREA CYN	0.000	0.00	0.61	0.002	0.22	0.60
60 EB OFF TO BREA CYN	0.000	0.14	1.14	0.005	0.39	1.15
60 EB ON FROM BREA CYN	0.000	0.00	0.95	0.002	0.20	0.60

Source: TASAS data (Caltrans, 2002 to 2005).

Table 1.3-6 provides a comparison to the average accident rates as provided in the TASAS reports. Based on the TASAS data, the following five locations were identified as experiencing higher than average accident rates from April 1, 2002, to March 31, 2005:

- SR-60 WB
- SR-60 WB on-ramp from Fairway Drive
- SR-60 WB off-ramp to Fairway Drive
- SR-60 EB on-ramp from northbound Fairway Drive
- SR-60 EB on-ramp from Brea Canyon Road

The remaining five locations had lower than average accident rates during this period.

The Selected Record Retrieval data from the TASAS data also provided a breakdown on the types of accidents recorded along the SR-60 mainline between PM 21.5 and 23.0 (KP 34.56 and 36.96). Table 1.3-7 summarizes that data.

Table 1.3-7 TASAS Accident Type Summary

TYPE OF COLLISION	EB MAIN (Kilometer Post 34.56-36.96)		WB MAIN (Kilometer Post 34.56-36.96)		TOTAL	
	ACCIDENTS	% ACCIDENTS	ACCIDENTS	% ACCIDENTS	ACCIDENTS	% ACCIDENTS
Head On	2	2%	0	0%	2	1%
Sideswipe	24	20%	41	17%	65	18%
Rear End	71	59%	160	67%	231	64%
Broadside	5	4%	4	2%	9	3%
Hit Object	17	14%	25	10%	42	12%
Overturn	1	1%	5	2%	6	2%
Auto/Ped	0	0%	2	1%	2	1%
Other	0	0%	3	1%	3	1%
Total	120		240		360	

Source: TASAS data (Caltrans, 2002 to 2005).

As shown in Table 1.3-7, the majority of accidents recorded during the specified period involved rear-end (64 percent), sideswipe (18 percent), and hit-object (12 percent). The other types of accidents constituted the remaining 6 percent of the total accidents.

Within the approximate 1.5-mile (mi) (2.41-kilometer [km]) long segment of SR-60 from PM 21.5 to 23.0 (KP 34.56 to 36.96), a higher rate of accidents (34 percent of the total accidents) occurred within the 0.2 mi (0.32 km) long segment between PM 22.7 and 23.0 (KP 36.46 and 36.96), both EB and WB. This segment of SR-60 is near the current Golden Springs Drive EB on-ramp and off-ramp, west of the Brea Canyon Road UC.

1.3.5 Intermodal Facilities

The Metropolitan Transportation Authority (MTA) Line 484 is a regional bus route that provides service between the City of Pomona and downtown Los Angeles. The line travels on Valley Boulevard in the study area. This service operates on an approximate frequency of 30 to 45 minutes during the weekday peak periods.

Foothill Transit (FT) Line 482 is a regional bus route that provides service between the City of Pomona and downtown Los Angeles. The line travels on Golden Springs Drive/Colima Road in the study area. This route operates on an approximate 30-minute frequency during weekday peak periods.

FT Line 493 is a regional bus route that provides service between the Phillips Ranch area and downtown Los Angeles. The line travels on Golden Springs Drive/Colima Road in the study area. This route operates on an approximate 10- to 15-minute frequency during weekday peak periods.

FT Line 497 is a regional bus route that provides service between the Chino Transit Center and downtown Los Angeles. The line travels on SR-60 in the study area. This route operates on an approximate 10- to 15-minute frequency during weekday peak periods.

The nearest Metrolink Station to the Lemon Avenue interchange is the City of Industry Station at 600 South Brea Canyon Road in the City of Industry. Metrolink is a commuter rail line that provides service between San Bernardino and Los Angeles Union Station, with stops at the City of Industry Station. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), which provides transit services to the Counties of Orange, San Bernardino, Ventura, Riverside, San Diego, and Los Angeles.

Ontario International Airport is a commercial service airport in the City of Ontario, approximately 20 mi (32 km) east of the SR-60/Lemon Avenue interchange.

There are no parallel or contiguous transportation facilities that could reduce traffic demand at the SR-60/Lemon Avenue interchange, thereby offsetting the need for this interchange.

1.3.6 Regional and System Planning

SR-60 is part of the National Highway System (NHS) and the State Freeway and Expressway (F&E) System. The proposed interchange at Lemon Avenue is consistent with the SR-57/SR-60 Direct HOV Connector project (currently under construction), and with the SR-60 HOV Lanes project (expected to be under construction in 2007).

The SR-60 Ultimate Transportation Corridor (UTC) for 2025 within the project limits, as identified in the *SR-60 Transportation Concept Report* (TCR, July 2005), is four mixed-flow lanes plus two HOV lanes and two truck lanes in each direction. On completion of the proposed SR-60 HOV Lanes project, this segment of SR-60 will have four mixed-flow lanes and one HOV lane in each direction. With the limited right-of-way in the vicinity, future truck lanes may be in aerial structures.

The SR-57/SR-60 Interchange Improvements Feasibility Study began on March 15, 2006, and is expected to be complete by mid-2007. The study, cosponsored by the Los Angeles Metropolitan Transportation Authority (MTA) and Caltrans in conjunction with the City of Diamond Bar, is being conducted to mitigate traffic congestion through the 2 mi (3.2 km) long junction of SR-60 and SR-57. Based on

available information, the SR-57/SR-60 Interchange Improvements project will not have a direct impact on the proposed Lemon Avenue interchange project because it is approximately 1.1 mi (1.8 km) east of the project area for the Lemon Avenue project.

Currently, the SR-57/SR-60 Interchange Improvements project is not included in the City of Diamond Bar Circulation Element. Two other local projects are planned in the project vicinity, the Southpoint West and Grand Avenue interchange improvements. Southpoint West, a 31.3-acre (ac) (12.7-hectare [ha]) tentative tract for 99 condominium units, is in the environmental phase with the Draft Environmental Impact Report (EIR) currently in circulation. The Southpoint West project site is approximately 0.6 mi (0.9 km) south of SR-60 and will not be directly affected by the proposed SR-60/Lemon Avenue interchange project. The Grand Avenue interchange improvement project is approximately 2 mi (3.3 km) east of Lemon Avenue and will not be directly affected by the proposed SR-60/Lemon Avenue interchange project.

1.4 Alternatives Under Consideration

The project alternatives consist of a No Build Alternative (Alternative 1) and three Build Alternatives (Alternatives 2, 3, and 4) as described below.

1.4.1 No Build Alternative (Alternative 1)

The No Build Alternative considers only those improvements that had been approved and funded at the time the PR for this project was prepared. These are:

- SR-57/SR-60 Direct HOV Connector project: This project is currently under construction.
- SR-60 HOV Lanes project: Construction of this project is anticipated to begin in 2007.

These improvements will do little in the way of providing adequate LOS and operational conditions at the existing ramps on the project segment of SR-60 and will mostly serve to handle the existing traffic demands on the facilities they are improving (SR-60, SR-57). These improvements are assumed to occur under the No Build Alternative and all three Build Alternatives for the SR-60/Lemon Avenue interchange.

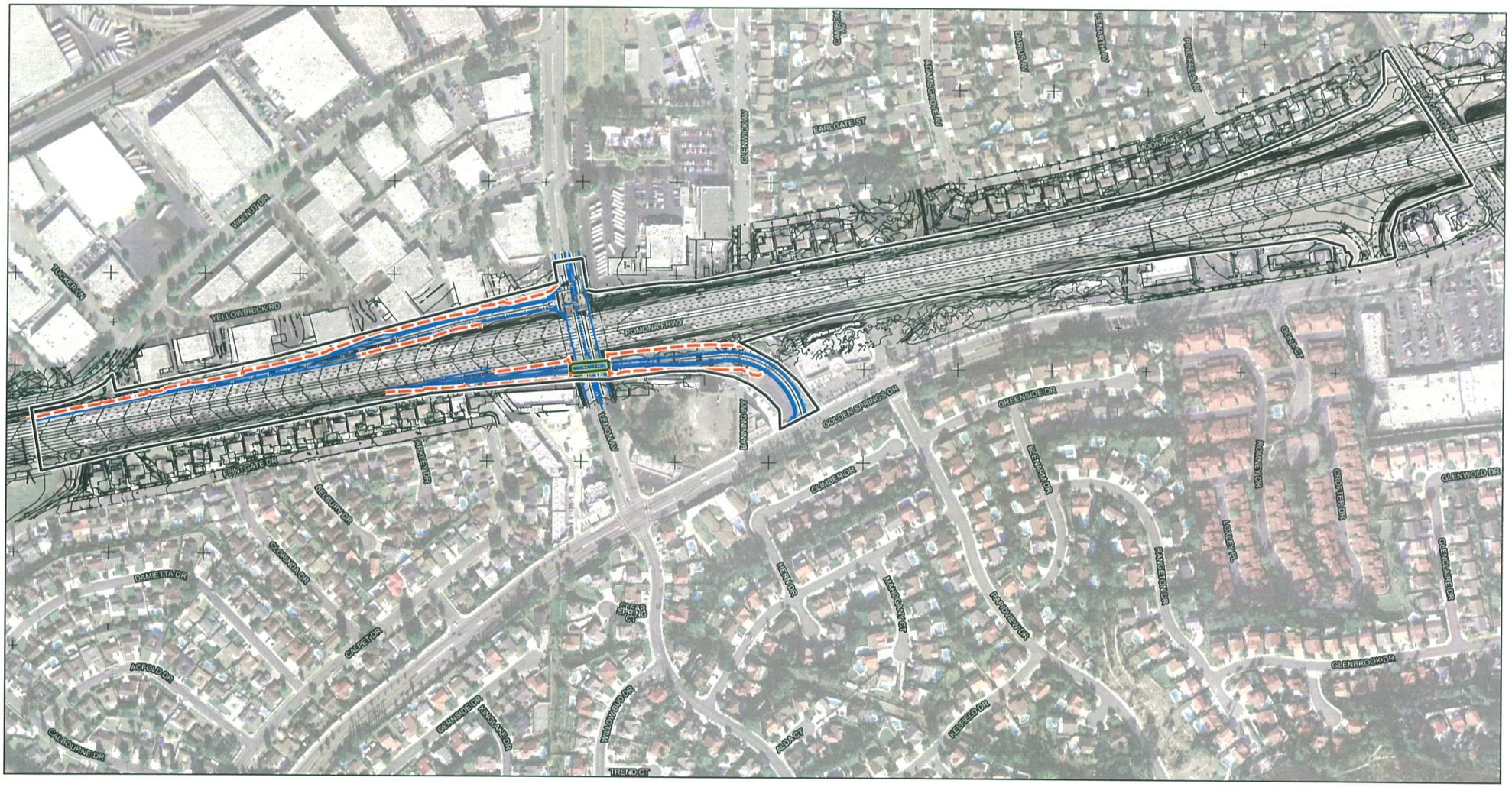
1.4.2 Alternative 2: Partial Interchange

1.4.2.1 Project Description

Under Alternative 2, a partial interchange, with a WB on-ramp from Lemon Avenue and an EB off-ramp over Lemon Avenue to Golden Springs Drive, would be constructed as shown on Figure 1.4. The existing sound wall along EB SR-60 west of Lemon Avenue would be removed, and a new sound wall would be installed along the edge of pavement of the EB off-ramp under this Alternative.

This Alternative is consistent with the Freeway Agreement dated March 26, 1968, and can be constructed within existing State ROW. No permanent ROW acquisition would be necessary for this Alternative. However, three temporary construction easements (TCEs), as described later in this section, will be required during construction of Alternative 2.

This partial interchange and the EB off-ramp, an isolated off-ramp, are nonstandard and have the potential for wrong-way movements and driver confusion. The proposed EB off-ramp would have a nonstandard superelevation transition and runoff due to the short distance between SR-60 and Golden Springs Drive. It would also require permanent closure of Banning Way for access control, which would impact planned development on the northeast corner of Golden Springs Drive and Lemon Avenue. That planned development would be required to take access from Lemon Avenue and/or Golden Springs Drive rather than Banning Way.



LEGEND

- Project Area
- Alternative 2
  - Grading Limit
  - Edge of Pavement
- Striping
- Retaining Wall
- Bridge

0 325 650
FEET

SOURCE: TerraServer (2004); TBM (2006); Jacobs (2006).

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FIGURE 1.4
Project Design - Alternative 2

SR-60/Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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The SR-60/Lemon Avenue interchange under Alternative 2 would provide the following features:

- **WB On-Ramp:** This ramp would extend west from Lemon Avenue, merging onto SR-60.
- **EB Off-Ramp:** This ramp would extend east from SR-60, joining Golden Springs Drive.

The conceptual design for Alternative 2 is shown on Figure 1.4. Detailed plans of Alternative 2 and typical cross sections are provided in Attachment A.

The estimated cost for Alternative 2, including final design, ROW acquisition, construction, and potential mitigation costs, is $9.7 million.

1.4.3 Alternative 3: Partial Interchange

Under Alternative 3, a partial (three-legged) interchange, with a WB on-ramp, an EB off-ramp, and an EB on-ramp at Lemon Avenue, would be constructed. It would also include the permanent removal of the existing EB off- and on-ramps at Brea Canyon Road. An auxiliary lane from the proposed EB on-ramp to the connector to SB SR-57 would be constructed. Figure 1.5 shows Alternative 3. The existing sound wall along EB SR-60 west of Lemon Avenue would be removed and new sound walls would be installed along the edge of pavement of the EB off- and on-ramps under this Alternative.

Removing the existing EB on- and off-ramps at Brea Canyon Road would increase the length of the existing auxiliary lane to more than the standard requirement of over 2,500 ft (762 m) and would provide an adequate weaving section on EB SR-60. It would also eliminate the traffic bottleneck at Golden Springs Drive between the EB ramps and Brea Canyon Road.

This alternative is not consistent with the Freeway Agreement dated March 26, 1968, and would require amendment of that Freeway Agreement. Alternative 3 would require the permanent partial acquisition of five residential parcels and one business parcel. No structures would be affected by these partial acquisitions. Alternative 3 would require eight TCEs during construction. The permanent ROW acquisitions and TCEs under Alternative 3 are described in detail later in this section.

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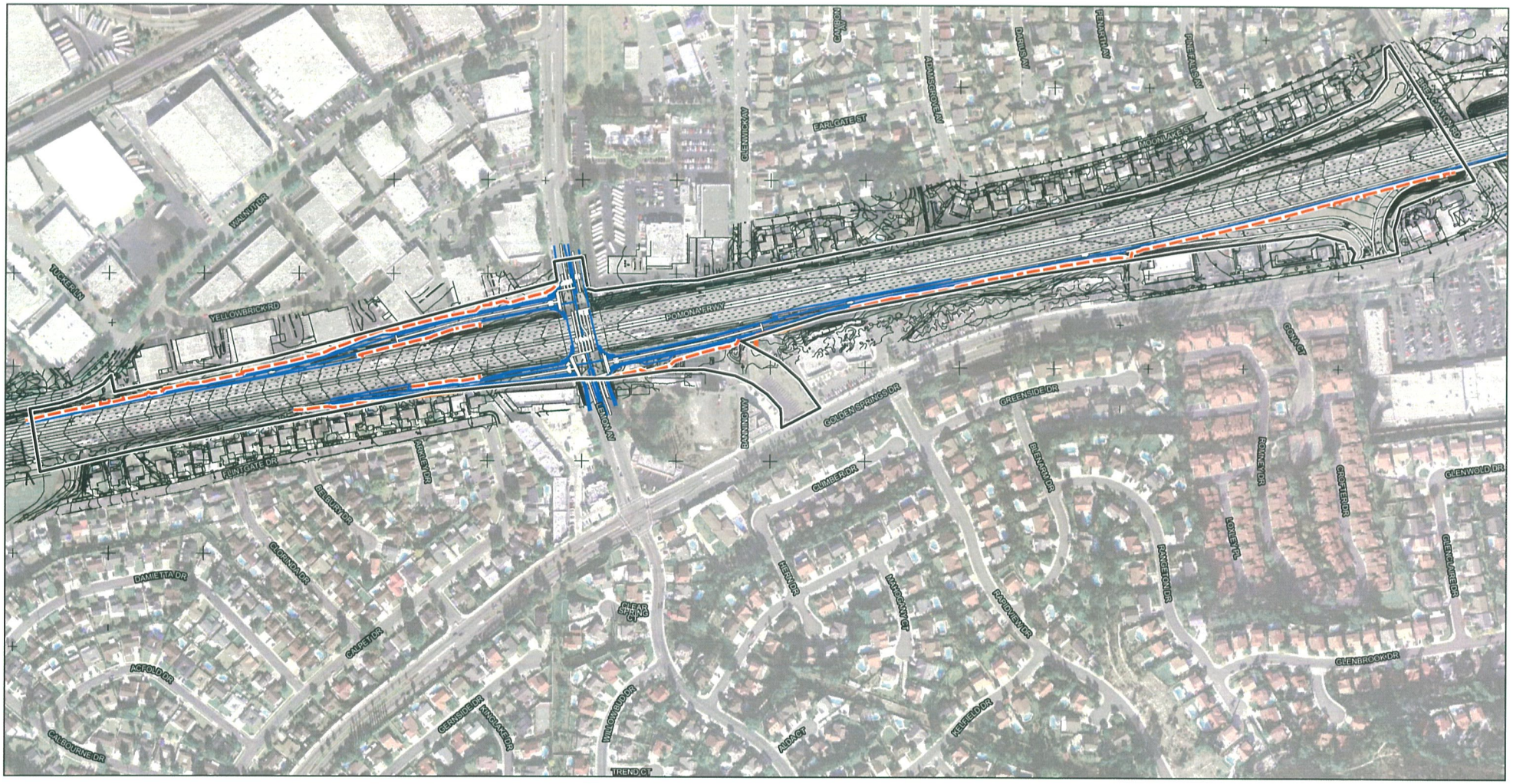

SOURCE: TerraServer (2004); TBM (2006); Jacobs (2006).

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FIGURE 1.5
Project Design - Alternative 3

SR-60/Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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The SR-60/Lemon Avenue interchange under Alternative 3 would provide the following features:

- **EB On-Ramp:** This ramp would extend east of Lemon Avenue, merging onto SR-60.
- **EB Off-Ramp:** This ramp would extend east from SR-60 to Lemon Avenue.
- **WB On-Ramp:** This ramp would extend west of Lemon Avenue, merging onto SR-60.

The conceptual design for Alternative 3 is shown on Figure 1.5. Detailed plans for Alternative 3 and typical cross sections are provided in Attachment A.

The estimated cost for Alternative 3 is $11.8 million. This includes final design, property acquisitions, construction, and potential mitigation costs.

Alternatives 3 and 4 would remove the less desirable hook ramps and, in turn, eliminate the nonstandard spacing and improve the traffic operation on Golden Springs Drive. With the hook ramps removed, the EB auxiliary lane to the SB SR-57 connector will be lengthened to more than the standard 2,500 ft (762 m). As a result, the segment of EB SR-60 between Lemon Avenue and SR-57 would not be classified as weaving, and the traffic operation will be improved accordingly. Furthermore, the new interchange location under Alternatives 3 and 4 is more favorable than the Brea Canyon Road interchange because it is spaced better (farther) from the SR-60/SR-57 interchange.

1.4.4 Alternative 4: Full Interchange

Under Alternative 4, a full interchange would be constructed at Lemon Avenue without eliminating the existing WB access from Brea Canyon Road. Alternative 4 is similar to Alternative 3, except that it adds a two-lane service road between Lemon Avenue and Brea Canyon Road. The service road would replace the existing WB on-ramp from Brea Canyon Road, parallel to and north of SR-60. The service road will parallel SR-60 to provide a connection from Brea Canyon Road to Lemon Avenue and will replace the existing WB on-ramp from Brea Canyon Road. It will serve dual functions as the WB on-ramp from Brea Canyon Road and the WB off-ramp to Lemon Avenue. This service road would terminate at Lemon Avenue. Alternative 4 is shown on Figure 1.6.

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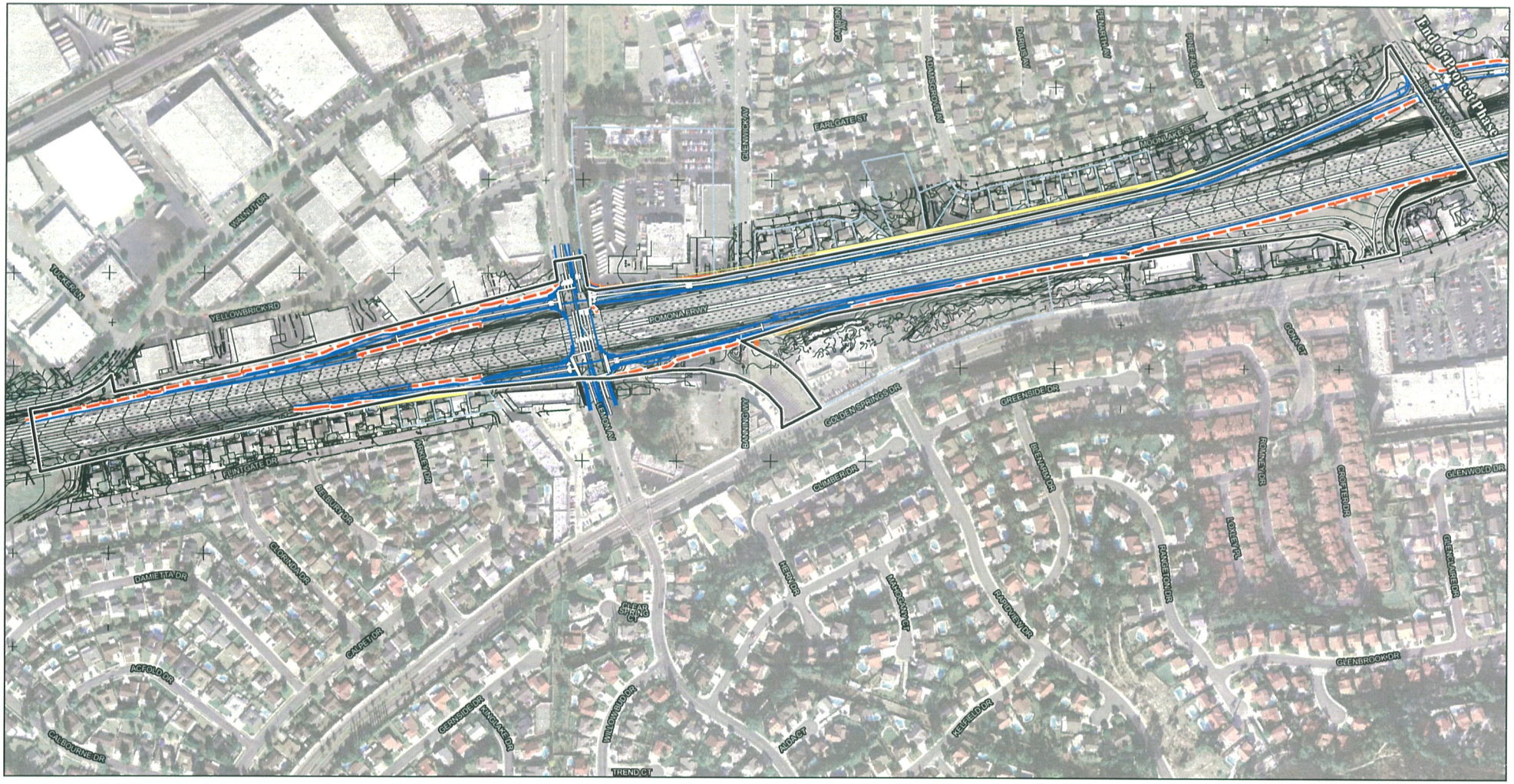

LEGEND

- Project Area
- Alternative 4
- Grading Limit
- Construction Easements
- Utility Easements
- Impacted Parcel*
- Striping
- Edge of Pavement
- Retaining Wall
- Right-of-Way

*Potentially partial impacts provided by Jacobs Engineering.

0 325 650
FEET

SOURCE: TerraServer (2004); TBM (2006); Jacobs (2006).

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FIGURE 1.6
Project Design - Alternative 4

SR-60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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This Alternative is not consistent with the Freeway Agreement dated March 26, 1968, and would require amendment of that agreement. Alternative 4 would require the permanent partial acquisition of 26 residential and 3 business parcels. No structures would be affected by these partial acquisitions. Alternative 4 would require 32 TCEs during construction. The permanent ROW acquisitions and TCEs under Alternative 4 are described in detail later in this section.

The SR-60/Lemon Avenue interchange under Alternative 4 would provide the following features:

- **EB On-Ramp:** This ramp would extend east from Lemon Avenue, merging onto SR-60.
- **EB Off-Ramp:** This ramp would extend east from SR-60 to Lemon Avenue.
- **WB On-Ramp:** This ramp would extend west from Lemon Avenue, merging onto SR-60.
- **WB Off-Ramp:** The existing WB off-ramp to Brea Canyon Road would be widened to accommodate a right-turn lane.
- **Service Road:** This service road would extend from Brea Canyon Road east to Lemon Avenue on the north side of SR-60.

The conceptual design for Alternative 4 is shown on Figure 1.6. Detailed plans for Alternative 4 and typical cross sections are provided in Attachment A.

The estimated cost for Alternative 4, including final design, ROW acquisition, construction, and potential mitigation is $25.6 million.

1.4.5 Nonstandard Mandatory and Advisory Design Features for the Build Alternatives

Nonstandard design features identified for Alternatives 2, 3, and 4 in the Draft PR are summarized in this section. The project includes several nonstandard features based on design standards described in the 2001 HDM, Fifth Edition, Change No. 5. Fact Sheet Exceptions to Mandatory and Advisory Design Standards will be prepared to document the nonstandard features once the preferred alternative is selected.

a. **Superelevation Transition:** The Advisory Standard in HDM Index 202.5 (1) states, "A superelevation transition should be designed in accordance with the diagram and tabular data shown in Figure 202.5A to satisfy the requirements of safety, comfort and pleasing appearance." The Advisory

Standard in HDM Index 202.5 (2) states, "Two-thirds of the superelevation should be on the tangent and one-third within the curve." The Advisory Standard in HDM Index 202.5 (3) states, "In restrictive situations . . . such as interchange ramps . . . the highest possible superelevation rate(s) and transition length should be used, but the rate of change in slope should not exceed 4% per 20 m." The EB off-ramp in Alternative 2 has a curve radius of 83 m, requiring a superelevation rate of 12 percent. Per the standard, a transition length of 20 m x 3 m = 60 m is required. In order for one-third of the superelevation to occur within the curve, a tangent length of 60 m x ⅔ = 40 m is required.

Location	Standard	Alternative 2	Alternative 3	Alternative 4
EB off-ramp terminus at Golden Springs Drive	40 m tangent	8 m tangent	n/a	n/a
EB ramps terminus at Brea Canyon Road	40 m tangent	21 m tangent (existing condition)	n/a	n/a

Source: *Draft Project Report* (Jacobs Engineering, 2007).
n/a: not applicable to this alternative

b. **Horizontal Clearances:** The Mandatory Standard in HDM Index 309.1(b) states, "The minimum horizontal clearance to walls, such as abutments, walls, retaining walls in cut location, and noise barriers on all freeway and expressway facilities, including auxiliary lanes, ramps and collector roads, shall not be less than 10 ft (3.0 m)." The left shoulder proposed for the service road in Alternative 4 is only 2 ft (0.6 m) wide and, therefore, will not provide the required horizontal clearance. A standard 10 ft (3.0 m) shoulder will be provided on the right side of the service road.

Location	Standard	Alternative 2	Alternative 3	Alternative 4
Wall on left side of Service Road	10 ft (3.0 m)	n/a	n/a	2 ft (0.6 m)

Source: *Draft Project Report* (Jacobs Engineering, 2007).
n/a: not applicable to this alternative

c. **Interchange Spacing:** The Mandatory Standard in HDM Index 501.3 states, "The minimum interchange spacing shall be 1 mi (1.61 km) in urban areas, 2 mi (3.22 km) in rural areas, and 2 mi (3.22 km) between freeway-to-freeway and local street interchanges."

Location	Standard	Existing	Alternative 2	Alternative 3	Alternative 4
Fairway Drive to Lemon Avenue	1.0 mi (1.6 km)	n/a	0.9 mi (1.4 km)	0.9 mi (1.4 km)	0.9 mi (1.4 km)
Lemon Avenue to Brea Canyon Road	1.0 mi (1.6 km)	n/a	0.6 mi (1.0 km)	0.6 mi (1.0 km)	0.6 mi (1.0 km)
Lemon Avenue to SR-57	2.0 mi (3.2 km)	n/a	1.2 mi (2.0 km)	1.2 mi (2.0 km)	1.2 mi (2.0 km)
Brea Canyon Road to SR-57	2.0 mi (3.2 km)	0.6 mi (1.0 km)	0.6 mi (1.0 km)	0.6 mi (1.0 km)	n/a

Source: *Draft Project Report* (Jacobs Engineering, 2007).

d. **Local Street Interchanges:** The Advisory Standard in HDM Index 502.2 states, "The use of isolated off ramps or partial interchanges should be avoided because of the potential for wrong way movements and added driver confusion." Alternatives 2 and 3 propose partial interchanges, and Alternative 4 proposes a full interchange. Alternative 4 provides the benefits of a full interchange but is still nonstandard, as the service road does not constitute an on-ramp.

Location	Standard	Alternative 2	Alternative 3	Alternative 4
Lemon Avenue I/C	Full I/C	Partial I/C	Partial I/C	Full I/C
Brea Canyon Road I/C	Full I/C	Full I/C	Partial I/C	N/A

Source: *Draft Project Report* (Jacobs Engineering, 2007).
I/C: interchange
N/A: not applicable

e. **Location of Ramp Intersections:** The Mandatory Standard in HDM Index 504.3(3) states, "For new construction or major reconstruction of interchanges, the minimum distance (curb return to curb return) between ramp intersections and local road intersections shall be 400 ft (125 m)." The Advisory Standard in HDM Index 504.3(3) states, "The preferred minimum distance should be 500 ft (160 m)."

Location	Standard	Proposed Alternative 2	Proposed Alternative 3	Proposed Alternative 4
On Lemon Avenue between WB on-ramp from Lemon Avenue and Earlgate Street	400 ft (122 m)	313 ft (95 ft)	313 ft (95 m)	313 ft (95 m)
On Lemon Avenue between EB off-ramp to Lemon Avenue and Golden Springs Drive	400 ft (122 m)	n/a	390 ft (119 m)	390 ft (119 m)

Source: *Draft Project Report* (Jacobs Engineering, 2007).
n/a: not applicable to this alternative

f. **Weaving Length:** Per Design Information Bulletin 77, the minimum weaving length, as defined in HDM Topic 504, is 600 m between two local street interchanges and 1,500 me between freeway-to-freeway and local street interchanges. Alternative 2 proposes to maintain the existing non-standard weaving length, and Alternatives 3 and 4 propose to improve the non-standard weaving length.

Location	Standard	Existing	Proposed Alt 2	Proposed Alt 3	Proposed Alt 4
Between on-ramp from Brea Canyon Road and connector to SB SR-57	5,280 ft (1609 m)	354 m	1,161 ft (354 m)	1,034 m	1,034m

Source: *Draft Project Report* (Jacobs Engineering, 2007).

1.4.6 Utilities

Overhead telephone, cable television, and electricity lines along Lemon Avenue would be protected in-place or relocated to allow for the construction of the interchange improvements. No high-risk facilities are known to exist to date. No violations of Caltrans utility access policy are known at this time. No substantial utility relocations are anticipated.

The following utility providers have facilities in the project area that may require minor relocation and/or protection in place during construction of the proposed SR-60/Lemon Avenue interchange improvements:

- A Verizon overhead telephone line crossing SR-60 is located approximately 525 ft (160 m) east of Lemon Avenue. It is anticipated that this telephone line can be protected in place during project construction. It is anticipated that the aerial telephone line is within an easement or has a Joint Use/Consent To Common Use Agreement with the State.
- A Walnut Valley Water District 8-inch (in) (200-millimeter [mm]) water line in an 18 in (450 mm) steel casing crosses SR-60 approximately 590 ft (180 m) east of Lemon Avenue. The EB off-ramp in Alternative 2 and the EB on-ramps in Alternatives 3 and 4 would be constructed beyond the limits of the existing steel casing; therefore, the casing would need to be extended beyond the project ROW for these alternatives. It is anticipated that the water line is within an easement or has a Joint Use/Consent To Common Use Agreement with the State.
- The EB off-ramp for Alternatives 3 and 4 will require relocating two Southern California Edison (SCE) power poles. The WB service road proposed in

Alternative 4 will require the relocation of nine power poles. The SCE power poles are currently located outside the State ROW in easements.

- The eastern project limit for Alternative 4 extends to Brea Canyon Road. Construction of the service road at Brea Canyon Road will not impact the existing underground gas, water, or sewer facilities located in Brea Canyon Road.
- There is an existing 7.9 x 4 ft (2.4 x 1.2 m) reinforced concrete box (RCB), owned by the Los Angeles County Department of Public Works Flood Control Division, approximately 164 ft (50 m) west of Lemon Avenue. It is anticipated that this facility is within an easement or Joint Use/Consent to Common Use Agreement with the State.

It is anticipated that no encroachment exceptions have previously been granted within the project limits for the proposed SR-60/Lemon Avenue interchange project.

1.4.7 Highway Planting

The roadside within the project limits is not included in the Qualify for Landscaping Area. If the City of Diamond Bar chooses to landscape the area in the project limits and/or interchange, a revised Maintenance Agreement between Caltrans and the City is required to define maintenance responsibilities of the new landscaped area. The existing vegetation consists of vines, trees, and ground cover. Minor highway planting would be included in the construction plans for the proposed SR-60/Lemon Avenue interchange project. The highway planting would consist of replacement planting for existing trees, shrubs, and ground cover lost during construction. The length of the plant establishment period will be identified in the construction plans. The planting palette for the interchange project would be similar to the planting palette for the SR-60 HOV Lanes project, which is currently under construction.

Irrigation work would consist of new irrigation systems as required for establishment of the replacement planting. Irrigation systems would be designed to use reclaimed water when made available.

1.4.8 Erosion Control

A Storm Water Pollution Prevention Plan (SWPPP) will be required prior to grading any part of this project.

Permanent erosion control measures will be incorporated in the project for the exposed 1:2 side slopes to help stabilize slopes, minimize catch basin siltation, and prevent storm water pollution. Permanent vegetative erosion control will be applied to all finished slopes.

Potential erosion control measures during construction will include best management practices (BMPs), which could include but are not limited to timing of grading to avoid the windy and rainy seasons, use of sandbags and/or hay bales in graded areas, silt fences, temporary drainage facilities, containment and settling ponds, and prompt seeding or revegetation of graded areas.

1.4.9 Noise Barriers

A *Noise Impact Study* (LSA Associates, Inc. 2007) was prepared. The recommendations made in the study for the Build Alternatives are described below.

To maintain aesthetic continuity in the City of Diamond Bar, the design of any noise barriers installed will be coordinated between the City and Caltrans during the final design phase. The final decision on noise barriers will be made on completion of the project design and public involvement processes. The public involvement process will include a public hearing or community meeting. For sound barriers that are within the State right-of-way, barriers will not be provided if more than 50 percent of the affected property owners do not favor the barriers. In addition, if sound barriers are outside the State right-of-way (along property lines), barriers will not be provided unless 100 percent of the property owners favor the barrier. For sound barriers that are within the State right-of-way, barriers will not be provided if more than 50 percent of the affected property owners do not favor the barriers. In addition, if sound barriers are outside the State right-of-way (along property lines), barriers will not be provided unless 100 percent of the property owners favor the barrier.

Existing sound walls along SR-60 within the project limits protect residential uses to the north and south from the high ambient noise levels. In the EB direction, there are two existing sound walls just west of Lemon Avenue. One wall runs along the edge of shoulder, and the other wall runs along the backyards of the residential properties. For the EB wall at the edge of shoulder, partial removal will be required for all three Build Alternatives. For the EB wall near the backyards, Alternative 2 would have no impacts and Alternatives 3 and 4 will require partial removal of that wall. In the WB direction, there are two existing sound walls north of SR-60 between Lemon Avenue

and Brea Canyon Road. One wall runs along the edge of shoulder, and the other wall runs along the backyards of the residential properties. These walls will not be impacted by Alternatives 2 or 3; however, both walls will be substantially impacted by the service road proposed in Alternative 4. The sound wall removal at each location described above is summarized by alternative in Table 1.4-1.

Table 1.4-1 Removal of Existing Sound Walls by Alternative

Sound Wall Removal Location	Alternative 2		Alternative 3		Alternative 4	
	Length, ft (m)	Height, ft (m)	Length, ft (m)	Length, ft (m)	Height, ft (m)	Length, ft (m)
EB SR-60 Edge of Shoulder	216	3.7	216	3.7	216	3.7
Proposed EB Off-Ramp	n/a	n/a	19	2.4	19	2.4
Proposed EB Off-Ramp	n/a	n/a	101	1.8	101	1.8
R/W Line South of Golden Springs Dr	167	0.9	167	0.9	167	0.9
R/W Line South of Golden Springs Dr	17	1.8	17	1.8	17	1.8
R/W Line South of Golden Springs Dr	131	2.1	131	2.1	131	2.1
WB SR-60 Edge of Shoulder	n/a	n/a	n/a	n/a	432	3.7
WB SR-60 Edge of Shoulder	n/a	n/a	n/a	n/a	370	3.1
Proposed Service Road	n/a	n/a	n/a	n/a	268	1.4

Source: *Draft Project Report* (Jacobs Engineering, 2007).
n/a: not applicable to this alternative.

The locations and dimensions for sound walls proposed to replace the removed sound walls and to reduce noise impacts associated with the project Build Alternatives are listed in Table 1.4-2. The locations of these sound walls are shown later in Figures 2.17-2, 2.17-3, and 2.17-4.

1.4.10 Nonmotorized and Pedestrian Features

The existing pedestrian/sidewalk facilities along Lemon Avenue will be replaced during the construction of the Build Alternatives. All pedestrian facilities, including sidewalks, access ramps, and crosswalks on Lemon Avenue will be designed and constructed consistent with the Americans with Disabilities Act (ADA).

The City of Diamond Bar has a designated Class II (striped) bike lane along Golden Springs Drive from Brea Canyon Road to the northerly city limit. According to the MTA Metro Bike Map, Golden Springs Drive between Lemon Avenue and Brea

Canyon Road is a designated Class II bike lane. In addition, Lemon Avenue between the Amtrak/Metrolink railroad tracks, across SR-60 to Golden Springs Drive is also a designated Class II bike lane.

Table 1.4-2 Proposed Sound Wall Locations by Alternative

Sound Wall Number	Proposed Sound Wall Location	Alternative 2		Alternative 3		Alternative 4	
		Length ft (m)	Height ft (m)	Length ft (m)	Height ft (m)	Length ft (m)	Height ft (m)
2	EB SR-60 edge of shoulder	701 (214)	10 (3.05) 12 (3.7) 14 (4.3)	767 (234)	8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3)	767 (234)	6 (1.8) 8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3)
3	South of SR-60, along Greenside Drive residential property lines	1,002 (305)	6 (1.8) 8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)	1,002 (305)	6 (1.8) 8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)	1,002 (305)	6 (1.8) 8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)
4	South of SR-60, along Romney Drive residential property lines	567 (173)	8 (2.4) 12 (3.7) 14 (4.3) 16 (4.9)	567 (173)	8 (2.4) 12 (3.7) 14 (4.3) 16 (4.9)	567 (173)	8 (2.4) 12 (3.7) 14 (4.3) 16 (4.9)
5	WB SR-60 edge of shoulder	295 (90)	10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)	295 (90)	10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)	295 (90)	10 (3.05) 12 (3.7) 14 (4.3) 16 (4.9)
6	North side of service road edge of shoulder	1,880 (573)	10 (3.05) 12 (3.7) 14 (4.3)	1,880 (573)	8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3)	5,549 (1,783)	6 (1.8) 8 (2.4) 10 (3.05) 12 (3.7) 14 (4.3)

Source: *Noise Impact Analysis* (LSA Associates, Inc., 2007).
n/a: not applicable to this alternative.

1.4.11 Other Features

1.4.11.1 HOV Lane

The on-ramps provided as part of the Build Alternatives would accommodate HOV lanes if determined necessary in the future. The SR-60 HOV Lanes project, scheduled for construction in 2007, will provide HOV lanes in the median of SR-60 within the project limits.

1.4.11.2 Ramp Metering

The on-ramps provided as part of the Build Alternatives will include ramp metering capabilities. The *Ramp Metering Development Plan,* which includes an inventory of all operational on-ramps, indicates that ramp metering is currently used for the

interchanges on either side of Lemon Avenue, at the Fairway Drive interchange to the west and the Brea Canyon Road interchange to the east. Additionally, it is expected that the SR-60 HOV Lanes project, scheduled for construction in 2007, will add capacity to the freeway segment, and ramp metering at Lemon Avenue may be required to improve or maintain effective operations on the freeway and parallel arterials.

1.4.11.3 Park-and-Ride Facilities

The use of park-and-ride lots to support ridesharing and the HOV lanes is planned along the SR-60 corridor. In addition, park-and-ride lots are also part of the Caltrans Long Range Operations Plan. The intent of the park-and-ride lots is to encourage carpooling and the use of HOV lanes. The proposed SR-60/Lemon Avenue interchange project does not include the provision of any park-and-ride facilities. There are two existing park-and-ride facilities in the project vicinity, at the City of Industry Metrolink Station at 600 South Brea Canyon Road and at Pathfinder Road at SR-57.

1.4.11.4 Truck Routes

The City of Diamond Bar truck route ordinance prohibits trucks from using streets that do not have a truck route designation. Within the project area, three streets are currently designated as truck routes, Golden Springs Dr between Brea Canyon Rd and Lemon Ave, Brea Canyon Rd north of Golden Springs Dr, and Lemon Ave north of Golden Springs Dr. Alternative 2 proposes to maintain these existing truck routes designations. However, Alternatives 3 and 4 propose to eliminate truck traffic south of SR-60 by removing the truck route designation on Golden Springs Dr. In addition, under Alternatives 3 and 4, the truck route designation will be eliminated for Brea Canyon Rd south of the WB ramps and Lemon Ave south of the EB ramps. Currier Rd is located approximately 0.5 miles north of SR-60 and will be available as an east-west truck route under all three alternatives. The truck route designations north of SR-60 will remain unchanged under all three alternatives.

1.4.11.5 Signage

Depending on the alternative selected as the Preferred Alternative, the EB ramp at Golden Springs Drive may be removed, along with the accompanying freeway signage. The language of any new signage installed as a result of the Preferred Alternative will be coordinated between the City of Diamond Bar and Caltrans to direct motorists to Brea Canyon Road.

1.4.12 Cost Estimates

This project is included in the adopted 2006 RTIP as "construction of new partial diamond interchange for State Route 60 (SR-60) at Lemon Ave (SAFETEA-LU #587)." This project is included in the adopted 2004 RTP Amendment as "construct on/off ramps." The pages from the RTIP and the RTP, which include citations to the SR-60/Lemon Avenue interchange project, are provided in Appendix H.

The estimated total costs for Alternatives 2, 3, and 4 are summarized in Table 1.4-3.

Table 1.4-3 Estimated Project Costs

Cost Breakdown	Alternative 2	Alternative 3	Alternative 4
Roadway	$756,499	$11,505,093	$22,904,336
Structure	$1,023,360	$0	$0
Right-of-way	$328,901	$531,330	$2,345,676
Total	$9,308,760	$12,036,424	$25,250,012

Source: *Draft Project Report* (Jacobs Engineering, 2007).
Note: Costs include project roadway, structure, and right-of-way costs. Capital outlay and support costs are not included.

1.4.13 Construction Timing and Staging

1.4.13.1 Construction Schedule

The construction of the proposed SR-60/Lemon Avenue interchange project would be initiated after completion of the environmental and PR processes as summarized in Table 1.4-4.

Table 1.4-4 Schedule

Approval of the Final PR/ Environmental Clearance	March 2008
Complete Final Design	February 2010
Complete Project Construction	February 2012

1.4.13.2 Construction Staging

To minimize impacts to freeway and local street operations during construction of the proposed SR-60/Lemon Avenue interchange project, construction will be staged as described below.

Stage 1

No freeway lane closures are proposed for Stage 1. However, the right shoulder on the freeway will be closed adjacent to the proposed ramp locations to allow for

construction of the ramp facilities. Construction during this stage will include parts of the ramps not requiring access to the mainline freeway, and retaining and sound walls. Local road intersections with the ramps will also be constructed during this stage and may require temporary lane closures on the local streets.

Stage 2

During Stage 2, night closures of freeway lanes are proposed for construction of the ramp tie-ins to the mainline freeway lanes. For Alternatives 3 and 4, additional night closures are proposed to allow for construction of the auxiliary lane.

Stage 3

Stage 3 is proposed for Alternatives 3 and 4 only. During this stage, the newly constructed on- and off-ramps will be operational, and the existing Brea Canyon EB on- and off-ramps will be closed. An EB freeway lane closure will be required to allow for removal of the EB Brea Canyon Road on- and off-ramps during this stage.

Table 1.4-5 summarizes the proposed lane and road closures during the construction of Alternatives 2, 3, and 4 by stage.

Table 1.4-5 Proposed Lane Closures by Alternative and Stage

Location of Temporary Closure	Alternative 2	Alternative 3	Alternative 4
Stage 1 Closures			
Freeway shoulder	Night closures for construction of the WB and EB ramps	Night closures for construction of the WB and EB ramps and auxiliary lane	Night closures for construction of the WB and EB ramps and auxiliary lane
Lemon Avenue	Night closures for construction of the WB ramp intersection	Night closures for construction of EB and WB ramp intersections	Night closures for construction of EB and WB ramp intersections
Golden Springs Drive	Night closures for construction of the EB off-ramp intersection	No closures required	No closures required
Stage 2 Closures			
Freeway Mainline	Night closures for construction of the EB and WB ramp tie-ins to the mainline freeway	Night closures for construction of the EB and WB ramp tie-ins to the mainline freeway and the auxiliary lane	Night closures for construction of the EB and WB ramp tie-ins to the mainline freeway and auxiliary lane
Golden Springs Drive	No closures required	Night closures for removal of the existing EB Brea	Night closures for removal of the existing EB Brea

Location of Temporary Closure	Alternative 2	Alternative 3	Alternative 4
		Canyon Road ramps	Canyon Road ramps
Stage 3 Closures			
Brea Canyon Road	No closures required	No closures required	Night closures for construction of the WB off-ramp and the service road intersections

Source: *Draft Project Report* (Jacobs Engineering, 2007).

1.4.14 Earthwork

The construction of Alternatives 2, 3, and 4 will result in excavation of existing soil material and placement of soil material. The estimated volumes of earthwork are summarized in Table 1.4-6. As shown, Alternative 2 would require the importation of material to accommodate the total amount of fill needed during construction. Alternatives 3 and 4 would not require the import of fill material and would result in the export of excess material from the construction site. The excess material would

Table 1.4-6 Estimated Earthwork Volumes

Type of Earthwork	Volumes in cubic yards (cubic meters)		
	Alternative 2	Alternative 3	Alternative 4
Excavation	4,580 (3,502)	25,843 (19,758)	36,209 (37,683)
Placement of fill	24,999 (19,112)	6,022 (4,604)	9,556 (7,307)
Imported material	20,418 (15,610)	0 (0)	0 (0)
Exported (excess) material	0 (0)	19,822 (15,155)	39,730 (30,375)

Source: Jacobs Engineering (2006).

either be used on other projects in the region, as suitable, or would be transported to area landfills for use as daily cover. If the excess material cannot be used in other construction projects or as daily cover at landfills, it will be disposed of in area landfills as waste.

1.4.15 Intersection Signalization

Alternatives 2, 3, and 4 include signalization of key intersections at the interchange. The anticipated traffic signal locations under the Build Alternatives are summarized in Table 1.4-7.

Table 1.4-7 Traffic Signal Locations

Proposed Signal Location	Proposed for Signal?		
	Alternative 2	Alternative 3	Alternative 4
On Lemon Avenue at the WB on-ramp	n/a	n/a	n/a
On Lemon Avenue at the Service Road	n/a	n/a	Yes
On Lemon Avenue at the EB off-ramp	n/a	Yes	Yes
On Lemon Avenue at the EB on-ramp	--[a]	Yes	Yes
On Golden Springs Drive at the EB off-ramp	Yes	n/a	n/a
On Brea Canyon Road at the WB service road	n/a	n/a	Yes

Source: Jacobs Engineering (2006).
[a] Right-turns only; will be controlled with either a stop or a yield sign.
n/a: not applicable to this alternative.

In addition, Alternative 4 includes modifications to the existing signal at Brea Canyon Road and Golden Springs Drive. The signal would be modified to provide a right-turn overlap phase for WB traffic. This signal modification would occur within the existing public ROW at this intersection.

1.4.16 Title VI Considerations

Curb ramps would be provided at all the intersections of Lemon Avenue and the SR-60 ramps under all the Build Alternatives. All pedestrian facilities, including sidewalks, access ramps, and crosswalks will be designed consistent with the ADA.

The proposed project would improve access to shopping, schools, hospitals, and recreational areas by providing an improved interchange for access to and from SR-60.

1.4.17 Comparison of the Alternatives

Table 1.4-8 summarizes the key characteristics of the No Build and the three Build Alternatives.

Table 1.4-8 Comparison of the Project Alternatives

Characteristic	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Cost	$0	$9,308,760	$12,036,424	$25,250,012
Partial Residential Acquisitions	0	0	5	26
Partial Business Acquisitions	0	0	1	3
Type of Interchange	No interchange	Partial interchange	Partial interchange	Full interchange

Characteristic	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Consistent with Freeway Agreement	No	Yes	No; would require amendment of Freeway Agreement	No; would require amendment of Freeway Agreement
Improves safety on mainline SR-60	No	Yes	Yes	Yes
Eliminates bottleneck on Golden Springs Drive	No	No	Yes	Yes
Improves weaving on SR-60 mainline	No	No	Yes	Yes

Source: LSA Associates, Inc. (2006).

1.4.18 Selection of the Preferred Alternative

After the public circulation period, all comments will be considered, and the Cities of Diamond Bar and Industry, and Caltrans will select a preferred alternative and make the final determination of the project's effect on the environment. In accordance with the California Environmental Quality Act (CEQA), if no unmitigable significant adverse impacts are identified, Caltrans will prepare a Mitigated Negative Declaration (MND) for this project. Similarly, if Caltrans determines the action does not significantly impact the environment, Caltrans, under its assumption of responsibility pursuant to 23 U.S.C 327, will issue a Finding of No Significant Impact (FONSI) for the project in accordance with the National Environmental Policy Act (NEPA).

1.4.19 Alternatives Considered But Eliminated from Further Discussion

Various alternatives to address the project purpose were evaluated. Criteria considered in evaluating alternatives included cost, constructability, property impacts, and compatibility with future improvements. The following alternatives were considered but are not evaluated in detail in this Initial Study/Environmental Assessment (IS/EA) due to design deficiencies and/or low cost/benefits.

1.4.19.1 Other Build Alternatives

In addition to Build Alternatives 2, 3, and 4, described earlier, two other Build Alternatives were considered but were eliminated from detailed consideration in the Draft PR and this IS/EA due to major design deficiencies and the least cost/benefit. Alternative 1 proposed a half-diamond interchange at Lemon Avenue with a WB on-ramp and an EB off-ramp. This alternative would have required the replacement of the existing sound wall along WB SR-60, west of the Lemon Avenue UC. This alternative was rejected from further consideration because it did not provide relief to

the existing short weaving section between the EB off-ramp from Brea Canyon Road and the SR-60/SR-57 freeway-to-freeway interchange. Therefore, Alternative 1 is not evaluated in detail in this IS/EA.

Alternative 5 proposed an interchange similar to Alternative 4, except with a hook ramp to provide the EB on- and off-ramps, between Lemon Avenue and Brea Canyon Road. This alternative would also have removed the existing EB on- and off-ramps at Brea Canyon Road. This alternative was rejected from further consideration because the hook ramps would have been nonstandard and, therefore, less desirable than the existing hook ramps. This alternative would also have resulted in greater ROW impacts on the existing commercial uses in the vicinity of the existing Brea Canyon Road ramps. Therefore, Alternative 5 is not evaluated in detail in this IS/EA.

1.4.19.2 Willow Mitigation Site Avoidance Alternatives

During the environmental evaluation of the project, an existing environmental mitigation site for willow trees was identified at the northwest quadrant of SR-60 and Lemon Avenue where the proposed WB on-ramp will be located. The Project Development Team (PDT) evaluated possible alternatives to avoid the mitigation site. The PDT considered two options that would avoid the mitigation site completely. These options are described in more detail in the "Fact Sheet for Alternatives Screening" (Jacobs Engineering, June 2006).

Option A

Option A was to eliminate the WB on-ramp completely from the three Build Alternatives. For Alternative 2, eliminating the WB on-ramp would leave this alternative with only the EB off-ramp. For Alternative 3, eliminating the WB on-ramp would result in only a WB on-ramp and off-ramp. For Alternative 4, eliminating the WB on-ramp would leave a WB on-ramp and off-ramp and the proposed service road connecting Brea Canyon Road and Lemon Avenue and would serve no purpose. For all three alternatives, this option would create a nonstandard and undesirable interchange configuration that would generate driver confusion and not meet the purpose and need for the project. Therefore, this option is not evaluated in detail in this IS/EA.

Option B

Option B was to relocate the WB on-ramp from the northwest quadrant to the northeast quadrant of the interchange. The PDT evaluated this option based on its compatibility with the three Build Alternatives, additional ROW impacts, and cost

impacts. The only reasonable configuration for Option B was to place a loop ramp at the northeast quadrant with a T-intersection tie-in to Lemon Avenue that would allow NB and SB access to the ramp. This option would be compatible with Alternatives 2 and 3 only. The proposed loop ramp would result in major ROW and cost impacts. The ROW impacts include acquiring approximately 136,700 square feet (12,699 square meters) from the Walnut School District property, and relocating the driveway to the District parking area. Additionally, access control standards would require relocating the entrance to the Earlgate Street cul-de-sac opposite the ramp entrance, resulting in the removal of three warehouses. The additional cost of this option, including ROW and construction, was approximately $10 million. Therefore, this option is not evaluated in detail in this IS/EA.

1.4.19.3 Transportation Systems Management Alternative

The purpose of the proposed SR-60/Lemon Avenue interchange project is to reduce peak-hour congestion at this ramp complex and improve local traffic flow across SR-60 on Lemon Avenue. A separate Transportation Systems Management (TSM) alternative was not developed because there is substantial existing transit service (rail and bus) provided in the Cities of Diamond Bar and Industry and because the proposed interchange improvements are needed to provide for improved access to and from SR-60 at Lemon Avenue. Therefore, no TSM alternative is evaluated in this IS/EA.

1.5 Permits and Approvals Needed

The City of Diamond Bar is planning to advertise, award, and administer the construction contract for the proposed SR-60/Lemon Avenue Interchange project. The City will obtain an encroachment permit from Caltrans to construct the proposed improvements within State ROW. An Encroachment Permit will be required by the construction contractor from the City of Diamond Bar for construction within City street ROW. Acquisition of the anticipated permits is expected to follow common procedures and should not require extensive lead time for approvals.

If Alternative 2 is selected as the preferred alternative, no amendment to the existing Freeway Agreement will be necessary. If either Alternative 3 or 4 is selected as the preferred alternative, the existing Freeway Agreement would need to be amended to reflect that alternative for the SR-60/Lemon Avenue interchange.

The following permits will be required for Alternatives 2, 3, and 4:

- A Nationwide Permit will be obtained through the United States Army Corps of Engineers (ACOE) prior to obtaining grading permits, pursuant to Section 404 of the Clean Water Act (CWA).
- A Streambed Alteration Agreement with the California Department of Fish and Game (CDFG) will be obtained prior to obtaining grading permits.
- A certification or waiver from the Region 4 Regional Water Quality Control Board (RWQCB) will be obtained pursuant to Section 401 of the CWA.

In addition, impacts to the jurisdictional areas within the project limits that require authorization from the above agencies (including ACOE, CDFG, and RWQCB) will require mitigation for loss of jurisdictional areas, including sensitive riparian vegetation. Mitigation, subject to the concurrence of the resource agencies, would entail one or more of the following options in order of preference: (1) on-site creation or enhancement of riparian habitat; (2) off-site creation or enhancement of riparian habitat; (3) participation in an established off-site mitigation bank program; and/or (4) preservation of undeveloped riparian woodland as permanent open space. The appropriate mitigation ratio will be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be affected.

As part of the Caltrans Project Delivery Storm Water Management Program described in the Caltrans Storm Water Management Plan (SWMP), selected BMPs will be incorporated into the design of the proposed project and will be implemented, as appropriate, during the project construction and operation. These BMPs will be implemented so as to meet or exceed the requirements of Caltrans National Pollutant Discharge Elimination System (NPDES) permit.

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Chapter 2 Affected Environment; Environmental Consequences; and Avoidance, Minimization, and Mitigation Measures

This section describes and discusses the environmental setting and study areas that may or will be affected by the proposed State Route 60 (SR-60)/Lemon Avenue interchange alternatives, and is organized as follows:

Human Environment

- Section 2.1 Land Use
- Section 2.2 Growth
- Section 2.3 Farmlands and Timberlands
- Section 2.4 Community Impacts
- Section 2.5 Relocation
- Section 2.6 Environmental Justice
- Section 2.7 Utilities and Emergency Services
- Section 2.8 Traffic and Transportation/Bicycle and Pedestrian Facilities
- Section 2.9 Visual and Aesthetics
- Section 2.10 Cultural Resources

Physical Environment

- Section 2.11 Hydrology and Floodplains
- Section 2.12 Water Quality and Storm Water Runoff
- Section 2.13 Geology, Soils, Seismic, and Topography
- Section 2.14 Paleontology
- Section 2.15 Hazardous Wastes and Materials
- Section 2.16 Air Quality
- Section 2.17 Noise

Biological Environment

- Section 2.18 Natural Communities
- Section 2.19 Wetlands and Other Waters
- Section 2.20 Plant Species
- Section 2.21 Animal Species
- Section 2.22 Threatened and Endangered Species
- Section 2.23 Invasive Species
- Section 2.24 Cumulative Impacts

HUMAN ENVIRONMENT

2.1 Land Use

For this analysis, the City of Diamond Bar *General Plan* (July 25, 1995; amended 1999) was reviewed to understand development trends, land use-related goals, and specific City policies that could affect or be affected by the proposed State Route 60 (SR-60)/Lemon Avenue interchange project. The project limits do not extend outside the City of Diamond Bar and do not extend into the City of Industry. Therefore, the City of Industry and land uses in that City are not discussed in this analysis.

2.1.1 Affected Environment

2.1.1.1 Existing and Future Land Uses

Existing Land Use

The City of Diamond Bar is at the interchange of two major freeways, State Route 57 (SR-57) and SR-60, in the southeast part of Los Angeles County (County). The City of Diamond Bar was one of the first planned communities in the west and was planned to maintain 85 percent of the land for residential uses, with the remaining land for infrastructure, commercial, and other nonresidential uses. As a result, according to the *General Plan,* the majority of the City of Diamond Bar is developed or planned for development in residential and open-space uses. Nonresidential uses comprise about 20 percent of the City's land area. Approximately 2 percent of the City land area is currently developed in light industrial, office, and commercial uses.

The project study area for land use is centered along existing SR-60 from approximately Brea Canyon Road to Fairway Drive. The existing land uses in this study area are characterized by urbanized development, including commercial, industrial, and residential uses. The existing land uses adjacent to the project site are predominantly low-density residential, commercial, and industrial. Land uses northeast of the location for the proposed SR-60/Lemon Avenue interchange are low-density residential and public/industrial (a school bus facility parking lot). Land uses to the northwest are industrial and consist largely of marble companies. Land uses to the southwest are primarily low-density residential, with a small strip of commercial uses along Lemon Avenue to Golden Springs Drive. Land uses to the southeast are low-density residential and commercial uses with some vacant land.

Planned Land Uses

The *General Plan* land use designations for the areas adjacent to the proposed SR-60/ Lemon Avenue interchange include light industrial, general commercial, and residential. These *General Plan* land use designations are shown on Figure 2.1-1 and are described briefly below. As shown on Figure 2.1-1, on the north side of SR-60, the *General Plan* land use designations include light industrial, low-medium residential, and professional office uses.

South of SR-60, low-density and low-medium density residential use designations dominate, with a general commercial area adjacent to SR-60. The area between SR-60 and Golden Springs Drive, east of Lemon Avenue, is designated general commercial. South of Golden Springs Drive, the area is designated single-family residential.

Two planned projects in the City of Diamond Bar are located south of the site for the proposed SR-60/Lemon Avenue interchange project. Banning Way, a 202-acre (ac) (82-hectare [ha]) mixed use development, is currently under construction at 20657 Golden Springs Drive (at the corner of Golden Springs Drive and Lemon Avenue). The Draft Environmental Impact Report (EIR) is currently in circulation for Southpoint West, a 31.3 ac (13 ha), 99-unit condominium complex south of Larkstone Drive and Diamond Crest Lane and east of Morning Sun Avenue.

Parks and Recreational Facilities

There are no existing or planned parks or recreational facilities in the immediate vicinity of the project segments of SR-60 and Lemon Avenue. Three recreation resources within an approximate 1-mile (mi) (1.6-kilometer [km]) radius of the project site are described below.

Ronald Reagan Park, at 2201 South Peaceful Hills Road in the City of Diamond Bar, is an approximately 6 ac (2.4 ha) active use park. Facilities at this park include 1 basketball court, 3 tennis courts, covered picnic tables, barbeques, a tot lot, restrooms, 33 parking spaces, and office/storage. This park is owned and operated by the City of Diamond Bar.

Starshine Park, at 20839 Starshine Road in the City of Diamond Bar, is an approximately 2 ac (0.8 ha) active use park. Facilities at this park include 1 handicap

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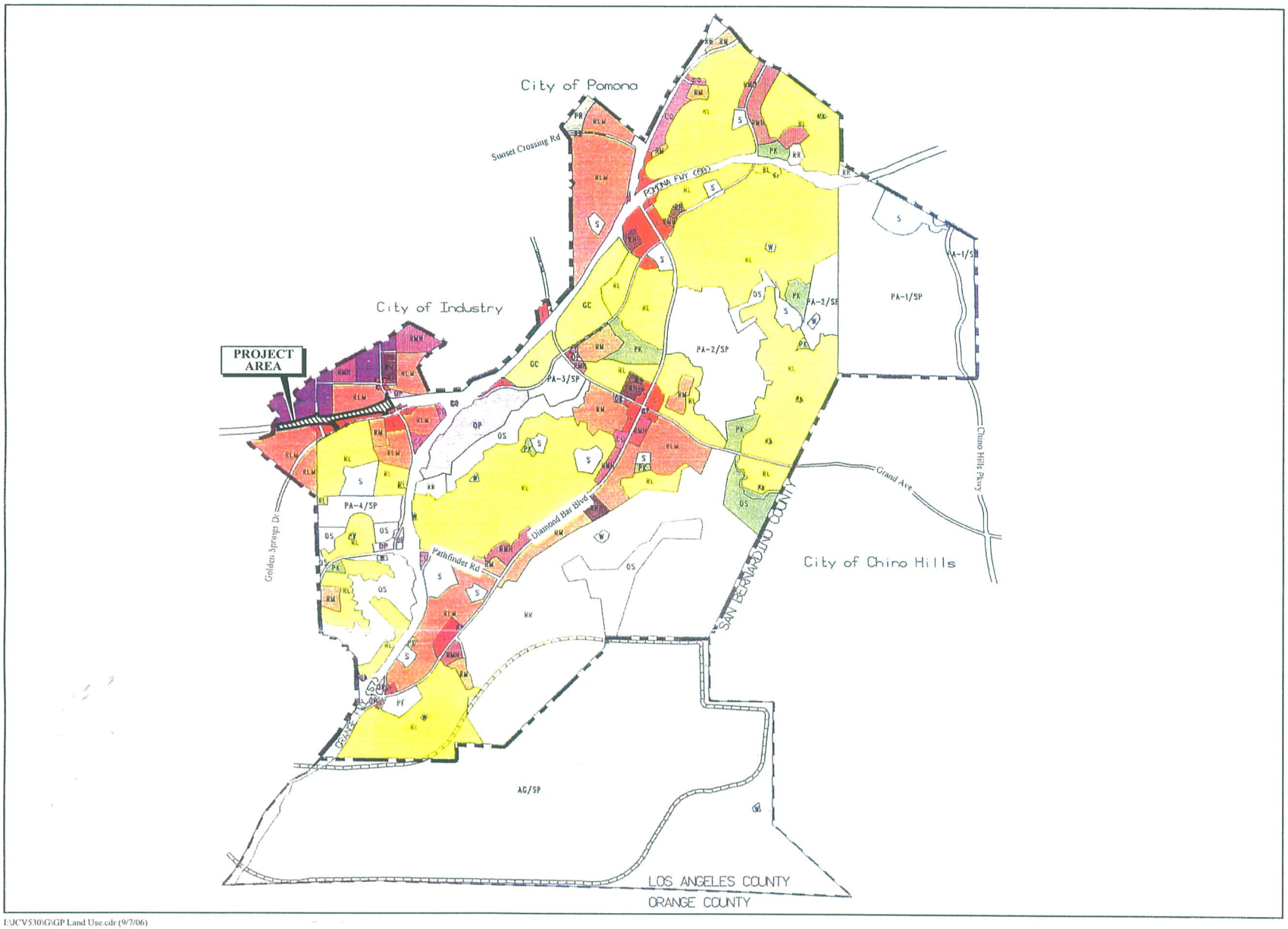

LEGEND

- RR Rural Residential (max. 1 du/acre)
- RL Low Density Residential (max. 3 du/acre)
- RLM Low-Medium Residential (max. 5 du/acre)
- RM Medium Density Residential (max. 12 du/acre)
- RMH Medium High Density Residential (max. 16 du/acre)
- RH High Density Residential (max. 20 du/acre)
- C General Commercial (max. 1.0 FAR)
- CO Commercial/Office (max. 1.0 FAR)
- OP Professional Office (max. 1.0 FAR)
- I Light Industrial (max. 1.0 FAR)
- Pf Public Facility
- W Water
- F Fire
- S School
- PK Park
- GC Golf Course
- OS Open Space
- PR Private Recreation
- AG Agriculture (max. 1 du/5 acres)
- SP Specific Plan Overlay
- PA Planning Area
- City Boundary
- Sphere of Influence
- Significant Ecological Area

SOURCE: City of Diamond Bar General Plan, Land Use Element, 7/25/95.

N

0 1800 3600
FEET

FIGURE 2.1-1
City of Diamond Bar
General Plan Land Use Map

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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parking stall, an accessible tot lot with separate play equipment for ages 2–5 and 5–12, a drinking water fountain, and a 1,012-foot (ft) (308-meter [m]) long perimeter walkway. This park is owned and operated by the City of Diamond Bar.

Los Angeles Royal Vista Golf Course is between the Fairway Drive/SR-60 interchange and Lemon Avenue, south of SR-60, in the City of Rowland Heights. Primary access to the golf course is from Golden Springs Drive. The golf course includes 18 holes, a driving range, and a clubhouse. The golf course is a public golf course owned by the County and operated by American Golf.

According to the City of Diamond Bar *General Plan,* there are no existing or planned recreation or bicycle trails along Lemon Avenue.

Existing Travel Patterns

Lemon Avenue runs north/south through the Cities of Diamond Bar, Industry, and Walnut. The segment of Lemon Avenue in the City of Diamond Bar is classified in the *General Plan Circulation Element* as a secondary arterial highway north of Golden Springs Drive and as a collector street south of Golden Springs Drive. The *Circulation Element* defines arterial roads as streets that carry the majority of traffic entering or traveling through the City. A major arterial has four or six through travel lanes of traffic and may include additional lanes to accommodate turning movements, parking, and bicycle traffic, all within right-of-way (ROW) between 100 and 200 ft (30.5 to 61 m) wide. A secondary arterial serves the same function as a major arterial, has no more than four lanes for through traffic, and may contain additional lanes to accommodate turning movements, parking, and bicycle traffic, all within ROW between 60 and 100 ft (18.3 to 30.5 m) wide. Arterials serve two primary functions: to move vehicles into and through the City of Diamond Bar, and to serve adjacent commercial uses. Collector streets are two- or four-lane roads that serve business or residential uses. Collector streets route traffic between arterial roads and local streets or route traffic directly from higher-intensity land uses.

Lemon Avenue north of Golden Springs Drive is currently a secondary arterial within an 80 ft (24.4 m) wide ROW. South of Golden Springs Drive, Lemon Avenue is currently a collector street within a 64 ft (19.5 m) wide ROW.

The City of Diamond Bar truck route ordinance prohibits trucks from using streets that do not have a truck route designation. Within the project area, three streets are currently designated as truck routes: Golden Springs Drive between Brea Canyon Road and Lemon Avenue, Brea Canyon Road north of Golden Springs Drive, and

Lemon Avenue north of Golden Springs Drive. Alternative 2 proposes to maintain these existing truck route designations. However, Alternatives 3 and 4 propose to eliminate truck traffic south of SR-60 by removing the truck route designation on Golden Springs Drive. In addition, under Alternatives 3 and 4, the truck route designation will be eliminated for Brea Canyon Road south of the WB ramps and Lemon Avenue south of the EB ramps. Currier Road is located approximately 0.5 mile north of SR-60 and will be available as an east-west truck route under all three alternatives. The truck route designations north of SR-60 will remain unchanged under all three alternatives.

Brea Canyon Road is currently designated to include a Class II bikeway, which is defined as a separately striped lane with signs along the road.

Existing traffic volumes and patterns on Lemon Avenue, Golden Springs Drive, SR-60, and other streets in this area are described later in Section 2.8, Traffic and Transportation/Pedestrian and Bicycle Facilities. Transit and rail services are also provided in the City of Diamond Bar, as described in Section 2.8.

2.1.1.2 Consistency with State, Regional, and Local Plans

City of Diamond Bar General Plan

The City of Diamond Bar *General Plan* was adopted on July 25, 1995, and was amended in 1999. In the *General Plan* Vision Statement, the City identified the following goals to be achieved and maintained regarding land use, circulation, housing, and open space planning:

- Retention of the rural/country living community character
- Preservation of open space resources
- Reduction of regional traffic impacts on local streets
- Promotion of viable commercial activity and provision of well-maintained, attractive housing
- Creation of a community environment

Relevant land use, recreation, and circulation/transportation goals and objectives in the City of Diamond Bar *General Plan* are described in the following sections.

Land Use Goals and Objectives

Goal 2: Consistent with the Vision Statement, manage land use with respect to the location, density and intensity, and quality of development. Maintain consistency

with the capabilities of the City and special districts to provide essential services which achieve sustainable use of environmental and man-made resources.

Objective 2.1: Promote land use patterns and intensities which are consistent with the Resource Management and Circulation Elements.

Goal 4: Consistent with the Vision Statement, encourage long-term and regional perspectives in local land use decisions but not at the expense of Quality of Life for Diamond Bar residents.

Objective 4.1: Promote and cooperate in efforts to provide reasonable regional land use and transportation/circulation planning programs.

Circulation Goals and Objectives

Goal 1: Consistent with the Vision Statement, enhance the environment of the City's street network. Work toward improving the problems presented by the intrusion of regionally oriented commuter traffic through the City and into residential neighborhoods. Consider programs to reinforce the regional transportation and circulation systems to adequately accommodate regional needs.

Objective 1.1: Participate in local and regional transportation-related planning and decision-making.

Objective 1.2: Balance the need for optimum traffic flow on City Arterials within economic realities, environmental and aesthetic considerations.

Goal 3: Consistent with the Vision Statement, maintain an adequate level of service (LOS) on area roadways.

Objective 3.1: Improve the safety and efficiency of existing transportation facilities.

Transportation Plans

Regional and subregional transportation plans and programs that apply to the Cities of Diamond Bar and Industry and SR-60 include the *Los Angeles County Congestion Management Plan* (CMP), the Southern California Association of Governments (SCAG) *Comprehensive Transportation Plan* (CTP), the *Regional Transportation Improvement Program* (RTIP), and the *Regional Transportation Plan* (RTP). The proposed SR-60/Lemon Avenue interchange project is included in the final adopted 2006 RTIP as "construction of new partial diamond interchange for State Route 60

(SR-60) at Lemon Ave (SAFETEA-LU #587)." The proposed project is included in the adopted 2004 RTP Amendment (April 2004) as "construct on/off ramps." The page from the RTIP that includes citations to the SR-60/Lemon Avenue interchange project is provided in Appendix H.

2.1.2 Impacts

2.1.2.1 Permanent Impacts

Alternative 1, the No Build Alternative, would not result in any right-of-way acquisition or other impacts related to land use. However, this alternative is not consistent with the City of Diamond Bar *General Plan* goals and relevant transportation plans because it would not provide transportation improvements consistent with existing and planned development in the Cities of Diamond Bar and Industry.

Alternative 2 would not result in any ROW acquisition. This alternative would be consistent with the City of Diamond Bar *General Plan* and relevant transportation plans because it would alleviate traffic congestion and delays during the morning and afternoon peak periods on local streets and would not conflict with current land use or land use zoning. Alternative 2 would not result in adverse impacts to the three recreation resources in the area because it would not take any property from those resources and would not change traffic volumes or access directly to those resources.

Alternative 2 would require the closure of Banning Way. As a result, the Banning Way Mixed-Use Development project, which is under construction at the northeast corner of Golden Springs Drive and Lemon Avenue, would be required to take access from Golden Springs Drive and not Banning Way. The City of Diamond Bar required the Banning Way project developer to evaluate using only Golden Springs Drive for access instead of both Golden Springs Drive and Banning Way. That project developer is aware that, if Alternative 2 is selected, the access to that parcel would require modification to allow access only from Golden Springs Drive. As a result of this early planning and consideration, Alternative 2 is not considered to result in an adverse impact on access to/from the Banning Way Mixed-Use Development project.

Alternatives 3 and 4 would result in the acquisition of partial parcels of land, but no structures, as listed earlier in Table 1-11. These acquisitions would not substantively modify or change the existing land uses on the parcels or the *General Plan* land use designations for these parcels. These alternatives would be consistent with the City of

Diamond Bar *General Plan* and relevant transportation plans because they would provide transportation improvements consistent with existing and planned development in the Cities of Diamond Bar and Industry. Alternatives 3 and 4 would not result in adverse impacts to the three recreation resources in the area because they would not take any property from those resources and would not change traffic volumes or access directly to those resources. Amendments to the RTP and RTIP are not required for Alternatives 3 and 4 because they both propose a partial interchange at Lemon Avenue. Therefore, Alternatives 3 and 4 are consistent with the RTIP and the RTP.

Alternatives 2, 3, and 4 would not require a Section 4(f) evaluation for impacts to parks or recreation facilities or National Register of Historic Places listed or eligible properties. Refer to Appendix B, Resources Evaluated Relative to the Requirements of Section 4(f), for a discussion of the evaluation of resources relative to the requirements of Section 4(f) for the proposed project.

2.1.2.2 Temporary Impacts

Alternative 1 would not result in any construction or temporary impacts related to land use.

During construction of Alternatives 2, 3, and 4, temporary delays and/or detours could affect businesses in the vicinity of the project construction. However, such delays or detours would not result in changes in existing land uses or General Plan land use designations in this area. Due to the distances of the three recreation resources from the project area, no temporary impacts on these resources are anticipated during construction of Alternatives 2, 3, or 4.

2.1.3 Avoidance, Minimization, and Mitigation Measures

Alternatives 2, 3, and 4 for the proposed Lemon Avenue/SR-60 interchange project would not result in adverse impacts related to land use or relevant plans. No avoidance, minimization, or mitigation measures are required.

2.2 Growth

The analysis of the potential growth-inducing impacts of the proposed SR-60/Lemon Avenue interchange project is based on information from the United States Census Bureau's 2000 Census.

2.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act (NEPA), require evaluation of the potential environmental consequences of proposed federal activities and programs. This provision includes a requirement to examine indirect consequences that may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 Code of Federal Regulations (CFR) 1508.8, refer to these consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. Section 15126.2(d) of the *CEQA Guidelines* requires that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

2.2.2 Affected Environment

2.2.2.1 Population

This section describes demographic characteristics of Los Angeles County and the Cities of Diamond Bar and Industry. The study area for potential growth effects includes both cities, and as a result, extends beyond the immediate project limits to include areas in those cities anticipated to be potentially directly and/or indirectly affected and/or benefited by the proposed SR-60/Lemon Avenue interchange project. To portray the demographic characteristics of this community impact study area, 2000 United States census tract information was evaluated.

The United States Census Bureau reports that the population in the County totaled 7,041,980 persons in 1970. The population increased by almost 26 percent, to

9,519,338 persons in 2000. SCAG projects that the population in the County will increase more than 19 percent from 2000 to 11,870,934 persons by 2025.

The City of Diamond Bar has experienced a higher degree of population growth than the County over this period. According to the Census Bureau, the City's population totaled 10,576 people in 1970 and rose by approximately 81 percent to 56,287 people in 2000. SCAG projects that the rate of population growth in the City will decline over the next two decades, with the population expected to rise by only 15 percent to 66,146 people in 2025.

The City of Industry experienced a lower degree of population growth than the County over this period. According to the Census Bureau, the City's population totaled 712 people in 1970 and rose by approximately 9 percent to 777 people in 2000. SCAG projects that the rate of population growth in the City will decline over the next two decades, with the population expected to rise by only 2.8 percent to 799 people in 2025.

2.2.2.2 Housing

Housing profiles for the Cities of Diamond Bar and Industry and for Los Angeles County are shown in Table 2.2-1.

Table 2.2-1 Housing Profiles

	City of Diamond Bar	City of Industry	Los Angeles County
Total Housing Units	17,959	124	3,270,909
Housing Units Occupied	17,651	121	3,133,774
Owner-Occupied Housing Units	14,572	48	1,499,744
Renter-Occupied Housing Units	3,079	73	1,634,030
Housing Affordability Index	n/a	n/a	36%
Median Home Price	$245,800	$179,500	$209,300

Source: United States Census Bureau, 2000, www.scag.ca.gov/economy.
n/a = not available

The median home price of $245,800 in the City of Diamond Bar is higher than the County median home price of $209,300. The median home price in the City of Industry is lower than that of the County, at $179,500. Eighty-three percent of homes in the City of Diamond Bar are owner-occupied housing units, while only 48 percent of homes in the County are owner-occupied. The City of Industry has the lowest percentage of owner-occupied housing units, at 39 percent. The County average (48 percent) of owner-occupied housing units is 9 percent lower than the State average (57 percent).

2.2.2.3 Employment and Income

The percentages of employees by occupation and industry for the Cities of Diamond Bar and Industry, the County, and the State are shown in Table 2.2-2. Total employment in Los Angeles County is projected to increase from 4,453,477 jobs in 2000 to over 5,520,139 jobs in 2025 (SCAG 2005).

Table 2.2-2 Business Patterns in 2000

Occupation	Percent Distribution by Occupation			
	City of Diamond Bar	City of Industry	County	State
Management, professional, and related occupations	47.4	18.6	34.3	36
Service occupations	7.7	23.3	14.7	14.8
Sales and office occupations	32.1	25.8	27.6	26.8
Farming, fishing, and forestry occupations	0.1	0.0	0.2	1.3
Construction, extraction, and maintenance occupations	5.1	8.6	7.8	8.4
Production, transportation, and material moving occupations	7.5	23.7	15.5	12.7
Agriculture, forestry, fishing, and hunting	0.3	0.0	0.3	1.9
Manufacturing	13.4	11.8	14.8	13.1
Retail Trade	12.1	10.4	10.5	11.2
Professional, scientific, management, administrative, and waste management services	9.2	17.6	11.5	11.6
Educational, health, and social services	21.9	4.3	18.3	18.5
Arts, entertainment, recreation, accommodation, and food services	4.7	17.6	8.4	8.2

Source: United States Census Bureau, 2000.

According to the 2000 Census, management, professional, and related occupations and sales and office occupations comprise the highest and second-highest occupations, at 34 and 28 percent, respectively, of the total employed population in the County. Educational, health, and social services and manufacturing account for the highest and second-highest industry sectors, at 18 and 15 percent, respectively, of the total employed population in the County.

According to the 2000 Census, management, professional, and related occupations and sales and office occupations comprise the two highest occupations in the City of Diamond Bar, at 47 and 32 percent, respectively, of the total employed population. Educational, health, and social services, and manufacturing account for the two highest industry sectors in the City of Diamond Bar, at 22 and 13 percent, respectively, of the total employed population.

According to the 2000 Census, the two highest occupations in the City of Industry are sales and office occupations and production, and transportation and material moving occupations, at 26 and 24 percent, respectively, of the total employed population. The two highest industry sectors in the City of Industry, at 18 percent each of the total employed population, are: (1) professional, scientific, management, administrative, and waste management services and arts, and (2) entertainment, recreation, accommodation, and food services.

Median household incomes in 1999 in the Cities of Diamond Bar and Industry and the County were $68,871, $49,423, and $42,189, respectively. The median incomes in the two cities and the County were, respectively, about 45 percent above, 4 percent above, and 11 percent below the Statewide median income. The proportion of persons living in poverty in the City of Diamond Bar, at 6 percent, was nearly 11 percent lower than the County rate and 8 percent lower than the City of Industry and Statewide averages. County residents have fewer high school and college diplomas than the State average, while more City of Diamond Bar residents have high school and college diplomas than the State average.

2.2.2.4 Commuting Characteristics

The 2000 Census provides measures of commuting patterns in the Cities of Diamond Bar and Industry and the County, as summarized in Table 2.2-3.

Table 2.2-3 Commuting Patterns in 2000

Commute Pattern	Percentage		
	City of Diamond Bar	City of Industry	County
Travel Time to Work Greater Than 30 Minutes One-Way	66	44	60
Commute Alone	81	55	70
Carpool	13	16	15
Walk, Bicycle, Motorcycle, or Work from Home	4	29	8

Source: United States Census Bureau, 2000.

As employment and population continue to increase throughout Southern California, including the Cities of Diamond Bar and Industry, hours of traffic delay and daily vehicle miles traveled per person are projected to increase as well.

2.2.3 Impacts

The existing condition of the SR-60/Lemon Avenue interchange area is not consistent with the regional mobility goals and objectives of the California Department of Transportation (Caltrans) and the Cities of Diamond Bar and Industry. Therefore, the No Build Alternative would hinder the planned transportation development of the local planning agencies. This alternative would not accommodate growth that has already occurred and growth that is forecast in the cities and County based on adopted land use plans. Traffic on SR-60 is expected to remain congested during peak hours through 2030. While the No Build Alternative would not reduce traffic volumes, it would not induce growth to occur elsewhere in the cities or County. Therefore, the No Build Alternative is not anticipated to influence either the amount or location of growth in the Cities of Diamond Bar and Industry or in the County.

The proposed SR-60/Lemon Avenue interchange project would improve local circulation and access onto, and egress from, the SR-60 mainline, thereby enhancing safety and accommodating projected future traffic volumes in the project vicinity. Alternatives 2, 3, and 4 are consistent with the regional mobility goals of Caltrans and the Cities of Diamond Bar and Industry.

The project area is urbanized and largely built out. Therefore, the proposed Build Alternatives would not be considered a barrier to future population and employment growth in the study area. The proposed interchange would accommodate the growth planned for the local and regional transportation system and would not cause new, unplanned growth in the study area. Growth in the Cities of Diamond Bar and Industry as well as the County is expected to occur with or without the project because an interchange improvement cannot on its own affect variables such as economic opportunities, employment, or housing availability, which directly affect local and regional growth. The proposed project improves the function of the SR-60 mainline, access to and egress from the SR-60 mainline, and local area intersections. Therefore, Alternatives 2, 3, and 4 for the proposed SR-60/Lemon Avenue interchange project are not considered growth-inducing.

Alternatives 2, 3, and 4 will serve existing traffic and traffic generated by future growth already accounted for in adopted local and regional land use and transportation plans. The forecast growth in population and employment in Los Angeles County and the Cities of Diamond Bar and Industry will be based largely on market and economic conditions and the availability of a variety of housing and

employment opportunities in these areas. The proposed project would not result in a substantial increase in overall traffic capacity. Furthermore, the forecast growth in the County and the cities is expected to occur with or without the proposed SR-60/ Lemon Avenue interchange project. Therefore, Alternatives 2, 3, and 4 would not contribute to growth-inducing impacts in the Cities of Diamond Bar and Industry or in the County overall.

2.2.4 Avoidance, Minimization, and Mitigation Measures

Alternatives 2, 3, and 4 for the proposed Lemon Avenue/SR-60 interchange project are not considered to be growth-inducing, and no avoidance, minimization, or mitigation measures are required.

2.3 Farmlands and Timberlands

The following information is summarized from the City of Diamond Bar *General Plan* (1995) and City of Industry *General Plan* (1971).

The City of Diamond Bar planning area, which includes the incorporated City and its sphere of influence (SOI), covers approximately 14.9 square miles (sq mi) (3,859 ha). This planning area does not include any designated farmland or farmland of Statewide, regional, or areawide significance. As noted earlier, the City is currently largely built out in urban uses.

The City of Industry planning area, which includes the incorporated City and its SOI, covers approximately 14 sq mi (3,626 ha). According to the State Department of Conservation's Important Farmland in California 2002 map (www.consrv.ca.gov/DLRP/fmmp/images/fmmp2002_200.pdf, accessed on October 23, 2006), this planning area is categorized as "urban and builtup" and does not include any designated farmland or farmland of Statewide, regional, or areawide significance. There are no agricultural activities associated with the project site.

There are no timberlands present in the project area.

Because there are no designated farmlands or timberlands in the part of the City of Diamond Bar crossed by the project segments of SR-60 and Lemon Avenue, there is no potential for Alternatives 2, 3, or 4 to adversely impact farmland or timberland resources. Consequently, no further discussion regarding these types of resources is provided in this Initial Study (IS)/Environmental Assessment (EA).

2.4 Community Impacts

The following information is summarized from the United States Census Bureau 2000 Census, SCAG growth projections, California Department of Finance (DOF) population projections (2000 to 2050), and the *Roadside Business Analysis* (LSA Associates, Inc. 2006).

2.4.1 Regulatory Setting

The National Environmental Policy Act of 1969 (NEPA), as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The FHWA, in its implementation of NEPA (23 USC 109[h]), directs that final decisions regarding projects be made in the best overall public interest. This requires taking into account adverse environmental impacts such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Because the proposed SR-60/Lemon Avenue interchange project would result in a physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

2.4.2 Affected Environment

This section describes the demographic characteristics of the project study area, which is generally bounded by the City of Walnut on the north, the City of Rowland Heights on the south, the City of Hacienda Heights on the west, and San Bernardino County on the east. The study area for community impacts extends beyond the proposed interchange location to include those areas that could potentially be directly and/or indirectly impacted and/or benefited by the proposed SR-60/Lemon Avenue interchange project. To portray the demographic characteristics of this community impact study area, one census tract from the 2000 Census was evaluated, as shown in Figure 2.4-1.

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LEGEND

- Project Area
- Project Area Census Tract

Percent Hispanic Population - 36%
Percent Non-White Population - 54%
Percent Poverty - 5%
Median Household Income - $62,929
Percent Population Below 18 and Over Age 65 - 9%

N

0 1,250 2,500 Feet

SOURCE: U.S. CENSUS BUREAU, 2000.

I:\JCV530\GIS\env_justice.mxd (5/11/2007)

FIGURE 2.4-1
Study Area Census Tract

SR-60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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2.4.2.1 Community Character

As shown on Figure 2.4-1, the City of Diamond Bar is crossed by SR-60 and SR-57, which provide access from the City to Los Angeles, San Bernardino, Riverside, and Orange Counties.

The City of Diamond Bar, in the hills and valleys of Brea Canyon, was incorporated in 1989. The City currently covers 14.9 sq mi (3,859 ha), of which 54.6 percent is developed in residential uses, 0.9 percent is industrial, 3.3 percent is office/commercial, 19 percent is parks/recreation and public facilities, and 22.2 percent is vacant. The estimated population of the City of Diamond Bar in 2005 was 59,203 persons. The City has extensive suburban residential areas. The majority of these developments were constructed after SR-60 and do not appear to experience adverse impacts related to community character and cohesion as a result of the presence of SR-60.

The City of Industry was incorporated in 1957 and covers approximately 14 sq mi (3,626 ha) east of Interstate 605 (I-605) and extending approximately parallel to SR-60 for approximately 15 mi (24 km) east to the Cities of Pomona, Diamond Bar, and Walnut. Part of the east boundary of the City is formed by SR-57. With only 3.12 percent of total area in the San Gabriel Valley (Valley), the City of Industry is the source of more than 37 percent of all basic manufacturing jobs and over 80,000 total jobs in the Valley communities. Other major employers in the City include commercial and other industrial uses. Residential uses are limited and dispersed in the City of Industry, and do not exhibit any specific characteristics of cohesion.

The Cities of Diamond Bar and Industry are over 40 mi (64 km) from the Los Angeles and Long Beach Harbors and Los Angeles International Airport (LAX), and approximately 20 mi (32 km) from Ontario International Airport. This area is crossed by two transcontinental rail lines operated by Union Pacific Railroad (UPRR), both of which are north of and approximately parallel to SR-60. One of the UPRR lines is also used to provide MetroLink commuter rail passenger service.

Figure 2.4-1, provided earlier, summarizes the demographic characteristics for Census Tract 4033.03. Table 2.4-1 shows the ethnic composition of the Cities of Diamond Bar and Industry and Los Angeles County. The predominant population in the City of Diamond Bar is Asian (42 percent), followed by 41 percent White and 4.8 percent African American. The City averages are different than the County as a whole, which is 48.7 percent White, 11.9 percent Asian, and 9.8 percent Other.

Table 2.4-1 Ethnic Composition (2000)

Jurisdiction	Total Percentages[a]							
	White	African American	American Indian/ Native American	Asian	Hawaiian/ Pacific Islander	Hispanic	Other	Two or more Ethnicities
Los Angeles County	48.7%	9.8%	0.8%	11.9%	0.3%	44.6%	23.5%	n/a
City of Diamond Bar	41%	4.8%	0.3%	42.8%	0.1%	18.5%	6.8%	n/a
City of Industry	54.8%	4.2%	2.7%	3.9%	0	60.2%	29.5%	n/a
Census Tract 4033.33	1,225 (46.5%)	106 (4.0%)	11 (0.42%)	751 (28.5%)	4 (0.15%)	n/a	457 (2.16%)	82 (3.11%)

Source: United States Census Bureau, 2000 Census.
[a] Percentages do not add to 100 percent because White, African American, American Indian/Native American, Hawaiian/Pacific Islander, and Other populations include persons identified with one ethnicity only; the Hispanic population overlaps with other ethnicities.

In the City of Industry, the population is largely White (54.8 percent) or Hispanic (60.2 percent). The White population exceeds the County average, while the Black and Asian populations in the City of Industry are substantially below the County averages.

As discussed earlier, Census Tract 4033.03 includes the SR-60/Lemon Avenue interchange area. Table 2.4-1 summarizes the ethnic composition of this census tract. As shown, the majority of the population in this census tract are White (46.5 percent). Asians and African Americans account for 28.5 percent and 4 percent, respectively, of the population in this census tract.

Table 2.4-2 shows the distribution of the population by age in Census Tract 4033.03, the Cities of Diamond Bar and Industry, the County, and the State. As shown, the median age for the City of Diamond Bar (36.5 years) is 12 percent higher than for averages of the County (32 years) and the State (33 years). Higher median age is often characteristic of a more mature and affluent community. The City of Industry median age (37.1 years) was almost 14 percent higher than the County average (32 years).

Table 2.4-2 Age Composition in the Cities and County (2000)

Characteristic	Census Tract 4033.03	City of Diamond Bar	City of Industry	County of Los Angeles	State of California
Median Age	36.0	36.5	37.1	32	33.3
Population < 18	26.1%	29.9%	26.3%	28%	30.1%
Population 18 to 64	64.3%	62.6%	54.4%	62.2	59.1%
Population > 64	9.6%	7.5%	19.2%	9.7	10.7%
Total Population	2,636	56,287	777	9,5191,338	33,871,648

Source: United States Census Bureau, Census 2000.

Table 2.4-3 provides other demographic characteristics for Census Tract 4033.03, the Cities of Diamond Bar and Industry, the County, and the State. As shown, the rate of population growth in the City of Diamond Bar (5 percent) between 1990 and 2000 was comparable to the County growth rate (7 percent) and one-third the State growth rate (14.4 percent). Median household income in the City of Diamond Bar ($68,871) was approximately 39 percent higher than for the County ($42,189) and State ($47,493). The proportion of persons living in poverty in the City (6 percent) was substantially lower than the County (17.9 percent) and Statewide averages (14.4 percent). More residents of the City of Diamond Bar and the County hold high school and college diplomas compared to the State average. The rate of home ownership in the County (47.9 percent) is lower than the City (82.6 percent) and State (57 percent) averages.

Table 2.4-3 Local, Regional, and State Demographic Characteristics

	Census Tract 4033.03	City of Diamond Bar	City of Industry	County of Los Angeles	State of California
Population change (1990 to 2000)	n/a	5%	19%	7%	14%
Median household income	$62,929	$68,871	$49,423	$42,189	$47,493
Persons below poverty (1999)	4.6%	6%	14.5%	17.9%	14%
High school graduates (over age 25)	79.6%	90.7%	66.6%	69.9%	50%
College graduates (over age 25)	28.4%	42.3%	12%	24.9%	27%
Home ownership rate	89.8%	82.6%	39.7%	47.9%	57%
Persons per household	3.45	3.18	4.24	2.98	2.87

Source: United States Census Bureau, Census 2000.

Population growth in the City of Industry (19 percent) was comparable to the rate of growth statewide in the last decade (14 percent) and approximately three times the County growth rate (7 percent). The median household income in the City ($49,423) was comparable to the State average ($47,493) and well above the County average ($42,189). The proportion of persons living in poverty in the City (14.5 percent) was similar to the Statewide average (14 percent) and lower than the County average (17.9 percent). Fewer residents of the City hold high school and college diplomas compared to the County average, while the rate of home ownership in the County (47.9 percent) was higher than in the City average (37 percent) and lower than the State average (57 percent).

The median household income in Census Tract 4033.03, at $62,929, is slightly below the City of Diamond Bar average ($68,871) and well above the City of Industry

average ($49,423). There were 122 persons below poverty level out of a total population of 2,636 persons in Census Tract 4033.03 in 2000.

Indicators that a community has a high degree of cohesion are long-term residents, households of two or more people, high rates of home ownership, ethnic homogeneity, and a high percentage of elderly residents. As indicated earlier, the Cities of Diamond Bar and Industry are ethnically diverse and have percentages of elderly residents (7.5 and 19 percent, respectively), comparable to or higher than the 9 percent County average. The home ownership rate in the City of Diamond Bar is substantially higher than the County average, and the home ownership rate in the City of Industry is lower than the County average. Overall, based on these indicators, the City of Diamond Bar is considered to have a high degree of cohesion. However, because of the limited population in the City of Industry, that City is not as likely to have a high level of community cohesion.

2.4.2.2 Local Businesses

Businesses in the project area include several family-style chain restaurants, fast-food restaurants, nonchain restaurants, small service-oriented businesses, and a couple of large retail stores. There are several businesses around the intersection of Golden Springs Drive and Brea Canyon Boulevard: a Mobil gas station and a Carrows restaurant on the southeast corner, a Shell gas station and an In-and-Out Burger restaurant on the northeast corner, a Chevron gas station and a McDonald's restaurant at the southwest corner, and a Bob's Big Boy restaurant and a Del Taco restaurant at the northwest corner. These businesses are all visible from vehicles traveling on SR-60 and are considered Traffic-Dependent, relying predominantly on pass-by traffic and impulse purchases.

There is a large strip mall northwest of the Golden Springs Drive/Brea Canyon Boulevard intersection, behind the Bob's Big Boy and Del Taco restaurants. This center includes a large grocery store, a PetsMart, and a Jo-Ann Crafts/Fabric Store. The grocery store is a Variable Traffic-Dependent business, while the PetsMart and Jo-Ann Crafts/Fabric Store are Nontraffic-Dependent. Also located in this strip mall are a variety of small, mostly independent businesses including a nail salon, florist, pizza parlor, beauty supply, hair and skin care salons, pharmacist, Certified Public Accountant (CPA), GNC nutrition store, and a bank. These are typical Nontraffic-Dependent businesses, relying on destination shopping where customers are seeking specific goods or services rather than impulse shopping.

West of the Golden Springs Drive/Brea Canyon Boulevard intersection, on the north side of Golden Springs Drive, is a Coco's restaurant. Continuing west on Golden Springs Drive is a small strip mall with a pet hospital, an art learning center, a kitchen and bath design and remodeling center, and a music instrument store. These businesses, with the exception of the Coco's restaurant, are considered Nontraffic-Dependent.

The next strip mall to the west houses a Quiznos restaurant, an insurance office, a realty agency, Budget Truck Rental, a tanning salon, and a nutrition store. The restaurant is a Traffic-Dependent business, while the others are considered Nontraffic-Dependent.

There is an LA Fitness Center at the intersection of Golden Springs Drive and Rapidview Drive. This is considered a Nontraffic-Dependent business because customers would make a specific trip to visit the gym. Due west of the LA Fitness Center, at Banning Way, is a building that houses an attorney's office and an orthodontist's office. These are considered Nontraffic-Dependent businesses. New commercial construction is under way between Banning Way and Lemon Avenue.

At the northwest corner of the Golden Springs Drive and Lemon Avenue intersection, there is a large shopping center with several small Korean and Japanese restaurants, two clothing stores, a gift shop, beauty salon, tutoring/after-school learning center, travel agency, realty office, CPA, dental office, and medical supply store. With the exception of the restaurants, the majority of the businesses in this shopping center are considered Nontraffic-Dependent. These stores rely on destination shopping (i.e., consumers make a specific trip to certain stores for particular goods and services rather than pass-by impulse shopping).

The businesses in the small strip mall at the southeast corner of the Lemon Avenue and Golden Springs Drive intersection include a liquor store, small cafe, dry cleaner, hair salon, mail center, and an educational/teacher supply store. The stores are considered Nontraffic-Dependent with the exception of the cafe, which is a Traffic-Dependent business, and the liquor store, which is a Variable Traffic-Dependent business.

2.4.2.3 Schools

Walnut Valley Unified School District (USD) provides school services and facilities in the City of Walnut and parts of the Cities of Diamond Bar, Industry, and West Covina. Walnut Elementary School is approximately 0.2 mi (0.3 km) north of SR-60,

on the east side of Lemon Avenue, at 841 South Glenwick Avenue in the City of Walnut. The School is north of the Walnut Valley USD operations facility. This School serves K–5 students. Vehicular and pedestrian access to the school property is via South Glenwick Avenue and Lycoming Avenue. There is no direct access to the school from Lemon Avenue. Students for this facility come from the surrounding areas.

Del Paso High School is approximately 0.8 mi (1.4 km) north of SR-60, on the east side of Lemon Avenue at 476 Lemon Avenue in the City of Walnut. This school serves grades 9–12. Vehicular and pedestrian access to the school property is via Lemon Avenue. Students for this facility come from the surrounding areas.

The City of Diamond Bar *General Plan Circulation Element* identifies Lemon Avenue north of Golden Springs Road as a Secondary Arterial. A Secondary Arterial is defined as carrying traffic entering and/or traveling through the City, with four lanes for through traffic and additional lanes to accommodate turning movements, parking, and bicycle traffic. The segment of Lemon Avenue south of Golden Springs Drive in the City is designated as a Collector Street that is intended to carry traffic between the arterial street network and local streets or high intensity land uses. The *General Plan Circulation Element* identifies Lemon Avenue north of Golden Springs Drive as a designated truck route. Golden Springs Drive between Lemon Avenue and Brea Canyon Road and Brea Canyon Road north of Golden Springs Drive are also designated truck routes in the City of Diamond Bar.

Traffic signals are provided at the intersections of Lemon Avenue with Valley Boulevard, Business Parkway/Currier Road, Lycoming Street, and Golden Springs Drive. Painted pedestrian crossings are provided at these signalized intersections. There are no traffic controls (signals or stop signs) and no painted pedestrian crossings at the intersections of Lemon Avenue with Walnut Drive and Earlgate Street. Traffic signing and controls on the segment of Lemon Avenue between SR-60 and Valley Boulevard include railroad crossing lights, arms, and signing; traffic speed signs; school zone signs; and other traffic direction and informational signing. The existing speed limit on Lemon Avenue north of SR-60 is 45 miles per hour (mph) (72 kilometers per hour [kph]).

2.4.3 Impacts

The assessment of the potential for the proposed SR-60/Lemon Avenue interchange project to adversely or beneficially affect community cohesion in the Cities of Diamond Bar and Industry was based on 2000 Census data for Census Tract 4033.03. The questions asked in assessing whether the project would result in adverse or beneficial effects to community character and cohesion were:

- What features, services, and/or amenities in these cities contribute to the overall community character and the cohesiveness of the area? What is the overall character of this area?
- Would the proposed SR-60/Lemon Avenue interchange project result in adverse effects that would result in degradation of the community character of the area?
- Would the proposed project result in adverse effects that would contribute to the degradation of the existing cohesiveness of the area?
- Would the proposed SR-60/Lemon Avenue project result in beneficial effects that might positively affect the overall community character and/or the cohesiveness of the area?

2.4.3.1 Permanent Impacts

The Lemon Avenue/SR-60 interchange project would provide a new freeway interchange on an existing freeway and surface arterial. The project would not require the acquisition and relocation of any residential or business uses. The project would not result in new divisions within the Cities of Diamond Bar and Industry. The project would result in new freeway facilities at Lemon Avenue, but these would be consistent with the existing freeway, Lemon Avenue, and other uses in the area.

According to the *Roadside Business Analysis,* the operation of any of the proposed Build Alternatives would redistribute traffic flow on the local road system. The redistribution of traffic would likely benefit local businesses at the specified intersections, especially for businesses that are Traffic-Dependent, relying on pass-by traffic and impulse shopping. Gas stations, convenience stores, and fast-food restaurants would likely benefit from increases in a.m. peak volumes due to commuters utilizing those goods and services. An increase in p.m. peak volumes would likely benefit fast-food restaurants, family-style restaurants, and grocery stores, with commuters making purchases on their way home from work. Nontraffic-Dependent businesses would likely benefit from this increase from commuters running errands on their way home from work. While the Caltrans Guidelines

referenced above do not specifically address the concept of "adjacencies" as a methodology to analyze roadside business impacts, the concept is an important factor in retail leasing and location selection. For example, larger businesses that are non- or variable-traffic-dependent could act as an anchor for smaller, traffic-dependent businesses. Examples of this in the SR-60/Lemon Avenue project area are the PetSmart, Jo-Ann Crafts/Fabric, and Market World grocery stores, which could draw consumers to other, smaller stores in the same complex. Alternatively, customers patronizing one of the smaller stores may be drawn to one or more of the larger stores for last-minute and/or impulse purchases. The focus of this qualitative analysis is the potential impacts to businesses abutting the route of each alternative due to access restrictions during construction, and the potential change to businesses due to recirculation of traffic after construction activities.

During the public comment period for the Notice of Preparation (NOP), comments were received regarding potential safety issues associated with traffic volumes on Lemon Avenue in the vicinity of Walnut Elementary School. An analysis of existing and future traffic volumes on Lemon Avenue was conducted to assess whether the proposed project would result in adverse safety conditions on Lemon Avenue in the vicinity of the school.

As noted earlier, the City of Diamond Bar *General Plan Circulation Element* identifies Lemon Avenue north of Golden Springs Road as a Secondary Arterial. The *General Plan Circulation Element* also identifies Lemon Avenue north of Golden Springs Drive as a designated truck route.

The City of Industry *General Plan Circulation Element* identifies Lemon Avenue north of the railroad tracks as a Major Arterial. The *Circulation Element* further indicates that the principal criteria governing the arterial system are regional rather than City needs.

Lemon Avenue is currently used by students accessing Del Paso High School via Lemon Avenue and Walnut Elementary School via Lycoming Street and South Glenwick Avenue. The nearest signalized intersections with painted pedestrian crossing facilities are provided at Valley Boulevard, Business Parkway/Currier Road, and Lycoming Street. There are no signals or painted pedestrian crossing facilities on Lemon Avenue.

The existing numbers of lanes and the traffic controls on the segment of Lemon Avenue from Valley Boulevard to Golden Springs Drive are summarized in Table 2.4-4.

The *Traffic Impact Analysis* (Katz Okitsu & Associates, 2006) forecast traffic levels on Lemon Avenue in 2030 for the No Build and Build Alternatives. The findings of the *Traffic Impact Analysis* are discussed in detail later in Section 2.8, Transportation and Traffic/Pedestrian and Bicycle Facilities. The existing and forecast a.m. and p.m. traffic volumes on Lemon Avenue immediately north of SR-60, for the No Build and Build Alternatives, from the *Traffic Impact Analysis* are summarized in Table 2.4-5.

Table 2.4-4 Existing Lane Configurations on Lemon Avenue

Intersection: Lemon Avenue at	Southbound Lanes	Northbound Lanes	Traffic Controls	Painted Pedestrian Crossing
Valley Boulevard	2 through 1 right-turn only 1 left-turn only	1 through 1 through/right-turn 1 left-turn only	4-way signal with no left-turn only phases	Yes
Business Parkway/Currier Road	1 through 1 through/right-turn 1 left-turn only	1 through 1 through/right-turn 1 left-turn only	4-way signal with no left-turn only phases	Yes
Lycoming Street	2 through 1 left-turn only	1 through 1 through/right-turn	3-way signal with a southbound left-turn phase	Yes
Walnut Drive	1 through 1 through/right-turn	2 through 1 left-turn only	No signal or stop signs	No
Earlgate Street	1 through 1 through/right-turn 1 left-turn only	1 through 1 through/right-turn 1 left-turn only	No signal or stop signs	No
Golden Springs Drive	2 through 1 right-turn only 1 left-turn only	1 through/right-turn 1 left-turn only	4-way signal with left-turn phases	Yes

Source: LSA Associates, Inc., 2006.

Table 2.4-5 AM and PM Peak-Hour Traffic Volumes and Levels of Service on Lemon Avenue North of SR-60

Alternative	AM Peak Hour Traffic Volumes and LOS			PM Peak Hour Traffic Volumes and LOS		
	NB	SB	LOS	NB	SB	LOS
2006 Existing	830	494	D	388	775	C
2030 No Build	921	551	E	438	886	D
2030 Alternative 2	922	727	D	457	1,144	D
2030 Alternative 3	974	781	D	481	1,212	D
2030 Alternative 4	1,169	817	D	601	1,249	C

Source: *Traffic Impact Analysis* (Katz Okitsu & Associates, 2006).
Note: NB = northbound; SB = southbound; LOS = levels of service

As shown in Table 2.4-5, the forecast 2030 traffic volumes on Lemon Avenue north of SR-60 will be greater under the three Build Alternatives than under the No Build Alternative, in both the northbound and southbound directions. The LOS on this segment of Lemon Avenue will decrease from 2006 to 2030, with or without the Build Alternatives. Although the traffic volumes in the peak periods on Lemon Avenue north of SR-60 are forecast to increase in the future under the Build Alternatives, those Alternatives are not anticipated to result in an adverse impact on the safety of students at Walnut Elementary School and Del Paso High School for the following reasons:

- Lemon Avenue is an existing arterial that would not further subdivide this area if an interchange is added at SR-60. No new intersections would be created in the vicinity of either school. The intersections at Lemon Avenue at SR-60 will include traffic controls (signals and/or stop signs) as described in Section 1.0, Proposed Project. The intersections at Lemon Avenue at SR-60 will also include appropriate pedestrian crossing facilities. The existing traffic controls and pedestrian facilities on Lemon Avenue north of SR-60 would not be changed under the project alternatives.
- The forecast 2030 with and without project peak hour traffic volumes on Lemon Avenue are consistent with the designation of Lemon Avenue as a secondary arterial in Diamond Bar and as a Major Arterial in Industry.
- Alternatives 2, 3, and 4 would not reduce the LOS on this segment of Lemon Avenue.
- The existing traffic controls and signing on Lemon Avenue north of SR-60 would continue to be provided in the future. In addition, the City of Diamond Bar, as part of its ongoing maintenance of streets in the City, will continue to evaluate the need for modified and/or improved controls and signing based on actual pedestrian and vehicular traffic volumes on this segment of Lemon Avenue.

In summary, Alternatives 2, 3, and 4 would not result in permanent adverse impacts related to community character and cohesion.

The No Build Alternative would not result in any traffic redistribution in the area. Therefore, the No Build Alternative would not result in beneficial impacts related to community character and cohesion.

2.4.3.2 Temporary Impacts

Through traffic will be permitted on Lemon Avenue and SR-60 during the construction of Alternatives 2, 3, and 4. The temporary closure of some travel lanes on Lemon Avenue and adjoining freeway on- and off-ramps may be necessary during construction to accommodate the construction activities, which could impede access of residents, visitors, and business travelers to land uses in the area.

According to the *Roadside Business Analysis*, construction of the proposed project may result in a substantial temporary impacts on businesses along the project segment of SR-60. Restricted or delayed access on the existing SR-60 ramps and local streets during construction could temporarily impede access to land uses in the area, delay goods shipment, and impede business access. The presence of construction equipment and the temporary removal of billboards could diminish the visibility of businesses from the freeway. In addition, businesses may experience temporary noise and dust impacts from construction activity. No existing on-street parking is expected to be affected during construction of the proposed project. However, for some businesses, especially small retail operations, the temporary effects during the approximately 3-year construction period could substantially affect their operations and viability. The specific effects on each business would depend on the site-specific conditions and the strength of the business at the outset of construction. Larger businesses should have less difficulty than smaller ones. Businesses with specific or loyal client bases (such as those that provide unique goods or services) would have less difficulty than those depending on trade from the general public and pass-by traffic. The temporary impacts would occur over the approximately 3-year construction period for the proposed project.

The Traffic Management Plan (TMP) described in detail later in Section 2.8, Traffic and Transportation/Pedestrian and Bicycle Facilities, would ensure that residents, visitors, and business travelers in the area can access land uses in this area during construction. As part of the TMP, a public awareness campaign will be conducted prior to and during construction. The public awareness campaign will include Public Information (i.e. brochures, mailers, press releases and internet notices), Incident Management (Construction Zone Enhanced Enforcement Program [COZEEP]); and Construction Strategies such as a Lane Closure Chart. Temporary impacts to businesses associated with construction activities will be substantially mitigated with implementation of the TMP during construction.

In addition to a TMP, it is anticipated that construction will be phased to minimize traffic interruptions to local businesses and residents. For example, the eastbound off-ramp at Brea Canyon Road will not be closed until the eastbound off-ramp at Lemon Avenue is operational, and the eastbound on-ramp at Brea Canyon Road will not be closed until the eastbound on-ramp at Lemon Avenue is operation. The specific phasing/sequencing and duration of the construction will be determined during the PS&E phase of the project. Therefore, the construction of Alternatives 2, 3, and 4 would not result in temporary adverse impacts related to community character and cohesion.

The No Build Alternative would not result in any project construction in the area. Therefore, the No Build Alternative would not result in adverse temporary impacts related to community character and cohesion.

2.4.4 Avoidance, Minimization, and Mitigation Measures

Alternatives 2, 3, and 4 would not result in permanent adverse impacts related to community character and cohesion. Temporary adverse traffic impacts would be substantially mitigated based on implementation of the TMP, as described later in Section 2.8.

2.5 Relocations

The analysis of the potential impacts of the proposed SR-60/Lemon Avenue interchange project is based on the anticipated property acquisition for Alternatives 2, 3, and 4, as discussed earlier in Section 1, Proposed Project.

2.5.1 Regulatory Setting

Caltrans Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 CFR Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. The Caltrans RAP is provided in Appendix D.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et. seq.). Appendix C provides a copy of the Caltrans Title VI Policy Statement.

2.5.2 Affected Environment

The affected environment in the project area was described earlier in Section 2.4.1.2, Affected Environment, in relation to community character and cohesion.

2.5.3 Impacts

Project impacts include full and partial acquisitions, which may displace or alter existing uses. Two types of effects to properties were analyzed for the proposed SR-60/Lemon Avenue interchange project:

- Full acquisition of a property would occur if an entire parcel is within the footprint (right-of-way) or construction disturbance limits of the project alternatives or if the majority of a building lies within the footprint or construction disturbance limits of an alternative. Full acquisitions would require relocation of the displaced residents, employees, and businesses to other locations.

- Partial acquisition of a property occurs if any part of a parcel is within the footprint (right-of-way) or construction disturbance limits of an alternative but does not require the acquisition of the entire parcel. These impacts may range from a sliver or edge of a parcel to substantial parts that fall short of acquisition of the entire parcels.

Alternative 1, the No Build Alternative, would not require the acquisition of any property because this alternative does not propose any improvements or construction.

Alternative 2 would not require the acquisition of any ROW. The improvements proposed under Alternative 2 would be constructed entirely within existing State and City of Diamond Bar publicly owned ROW. Therefore, Alternative 2 would not result in any adverse impacts related to property acquisition or relocations.

Alternatives 3 and 4 would require the acquisition of privately owned ROW. The anticipated property acquisitions under Alternatives 3 and 4 are shown in Figures 2.5-1 and 2.5-2, respectively, and are summarized in Table 2.5-1. These property acquisitions will all be partial acquisitions and will not affect any existing structures on the affected parcels. Therefore, although Alternatives 3 and 4 would result in the acquisition of ROW, there would be no adverse impacts related to relocations or the displacement of existing uses because the acquisitions do not involve any structures or displacements of the existing uses.

Table 2.5-1 Properties to be Affected by Partial Acquisitions Under Alternatives 3 and 4

Assessor's Parcel Number	Area Acquired Under Alternative 3 in Square Feet (Square Meters)	Area Acquired Under Alternative 4 in Square Feet (Square Meters)
8760-015-901	--	10,356 (962.1)
8762-034-001	928 (86.2)	928 (86.2)
8762-034-002	709 (65.9)	709 (65.9)
8762-034-003	485 (45.1)	485 (45.1)
8762-034-004	261 (24.3)	261 (24.3)
8762-034-005	50 (4.6)	50 (4.6)
8760-015-902	--	319 (29.6)
8760-016-025	--	272 (25.3)
8760-016-026	--	349 (32.4)
8763-007-025	4,945 (459.4)	4,945 (459.4)
8760-016-001	--	806 (74.9)
8760-015-002	--	970 (90.1)
8760-016-003	--	1,246 (115.7)
8760-016-004	--	30 (2.8)
8760-016-021	--	622 (57.8)
8760-016-022	--	341 (31.6)

Assessor's Parcel Number	Area Acquired Under Alternative 3 in Square Feet (Square Meters)	Area Acquired Under Alternative 4 in Square Feet (Square Meters)
8760-016-023	--	281 (26.1)
8760-016-024	--	275 (25.5)
8760-016-027	--	20 (1.9)
8760-016-028	--	681 (63.3)
8760-019-057	--	38 (3.6)
8760-019-058	--	253 (23.5)
8760-019-059	--	506 (47.0)
8760-019-060	--	751 (69.7)
8760-019-061	--	1,010 (93.8)
8760-019-062	--	1,168 (108.6)
8760-019-063	--	1,065 (99.0)
8760-019-064	--	962 (89.4)
8760-019-065	--	884 (82.2)
Total	**7,378 (686)**	**30,583 (2,841)**

Source: *Draft Project Report* (Jacobs Engineering, 2007).

In addition to these partial acquisitions, Alternatives 3 and 4 will require cancellation of two existing leases of non-residential property leased from Caltrans. These leases, between Caltrans and two businesses, allow for cancellation of the leases when the State needs the property for highway improvements. However, the lease agreement with one of the nonresidential properties leased from Caltrans stipulated that in the event of the lease being cancelled, the business is entitled to Relocation Assistance, as discussed in Appendix D. As described in the Relocation Impact Memorandum prepared for the project, there is sufficient commercial/industrial space equal to or better than the displaced property available for lease or purchase if a business is required to relocate as a result of the proposed project. Therefore, Alternative 3 and 4 would not result in adverse impacts related to the leases on this State ROW.

Property Tax Revenue

Property taxes are levied on the assessed value of privately owned property. Alternatives 1 and 2 would not require the acquisition of privately owned property and would, therefore, not result in changes in the property tax revenues generated in the City of Diamond Bar.

Alternatives 3 and 4 would require the acquisition of partial parcels of property as shown earlier in Table 2.5-1 and the cancellation of two existing commercial leases on State ROW. Because property acquisition only includes limited areas of privately owned property and would not result in the removal of any existing structures, the potential reduction in the City of Diamond Bar property tax revenues would be very small. The two leased areas are on State-owned ROW, and those areas do not

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SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	SQ METERS	TAKE	TYPE
8762-034-001	TANAKA JUAN & SAMANTHA	635	59.0	TCE	PARTIAL
		928	86.2	FEE	PARTIAL
8762-034-002	AGUSTIN FRANCA	571	53.0	TCE	PARTIAL
		709	65.9	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-003	MINNIEFIELD ROBERT	571	53.0	TCE	PARTIAL
		485	45.1	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-004	ARIAS STEPHANIA	571	53.0	TCE	PARTIAL
		261	24.3	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-005	MEXIA PAUL & GABRIELLA	559	51.9	TCE	PARTIAL
		50	4.6	FEE	PARTIAL
		598	55.5	UTIL ESMT	PARTIAL
8762-034-006	LOPEZ FELIPE & MARIA	385	35.7	TCE	PARTIAL
		592	55.0	UTIL ESMT	PARTIAL
8762-034-022	GOLDEN SPRINGS PROPERTY, LLC	2998	276.6	TCE	PARTIAL

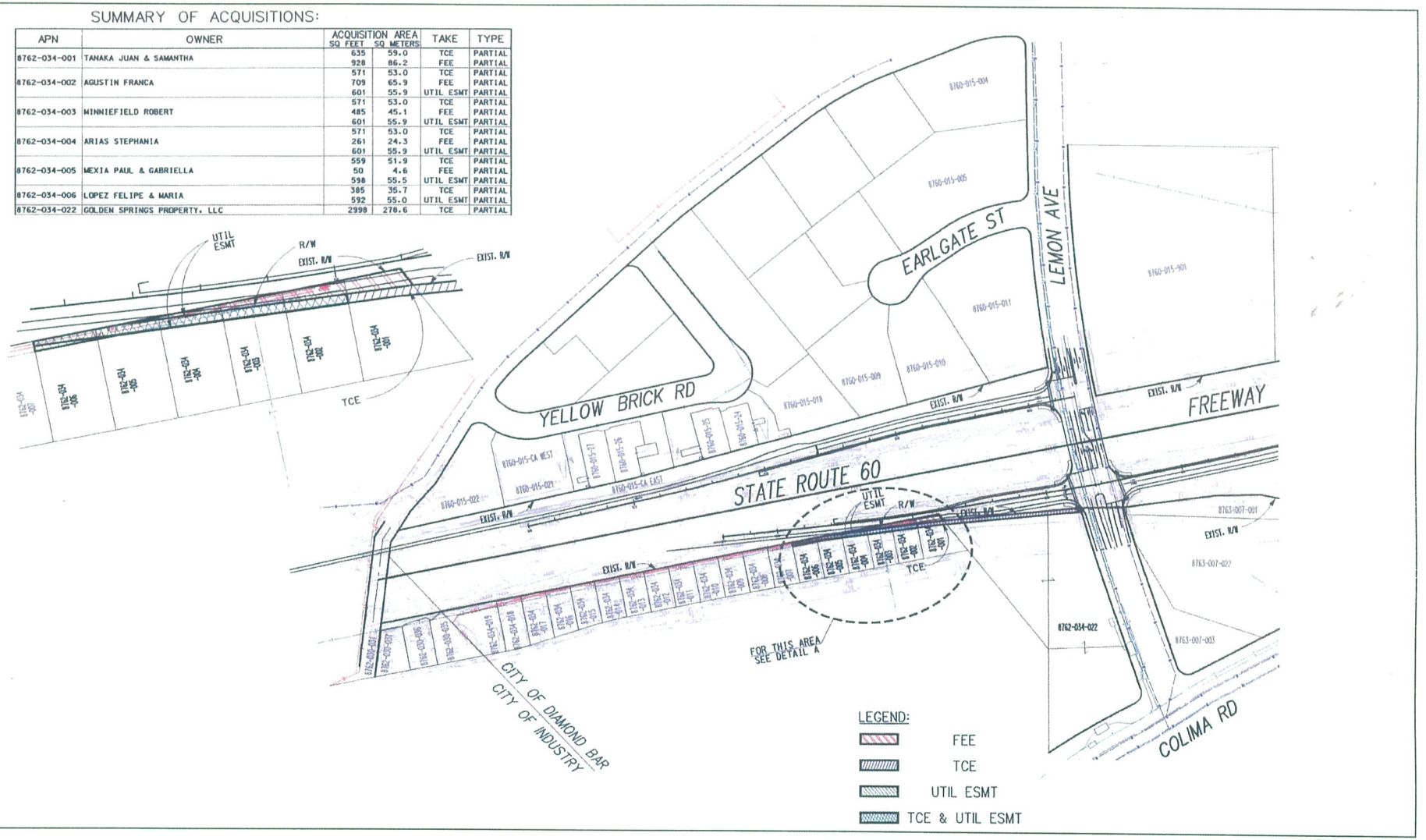

FIGURE 2.5-1
(Page 1 of 2)
Property Acquisitions Under Alternative 3

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: Jacobs Engineering (2006).

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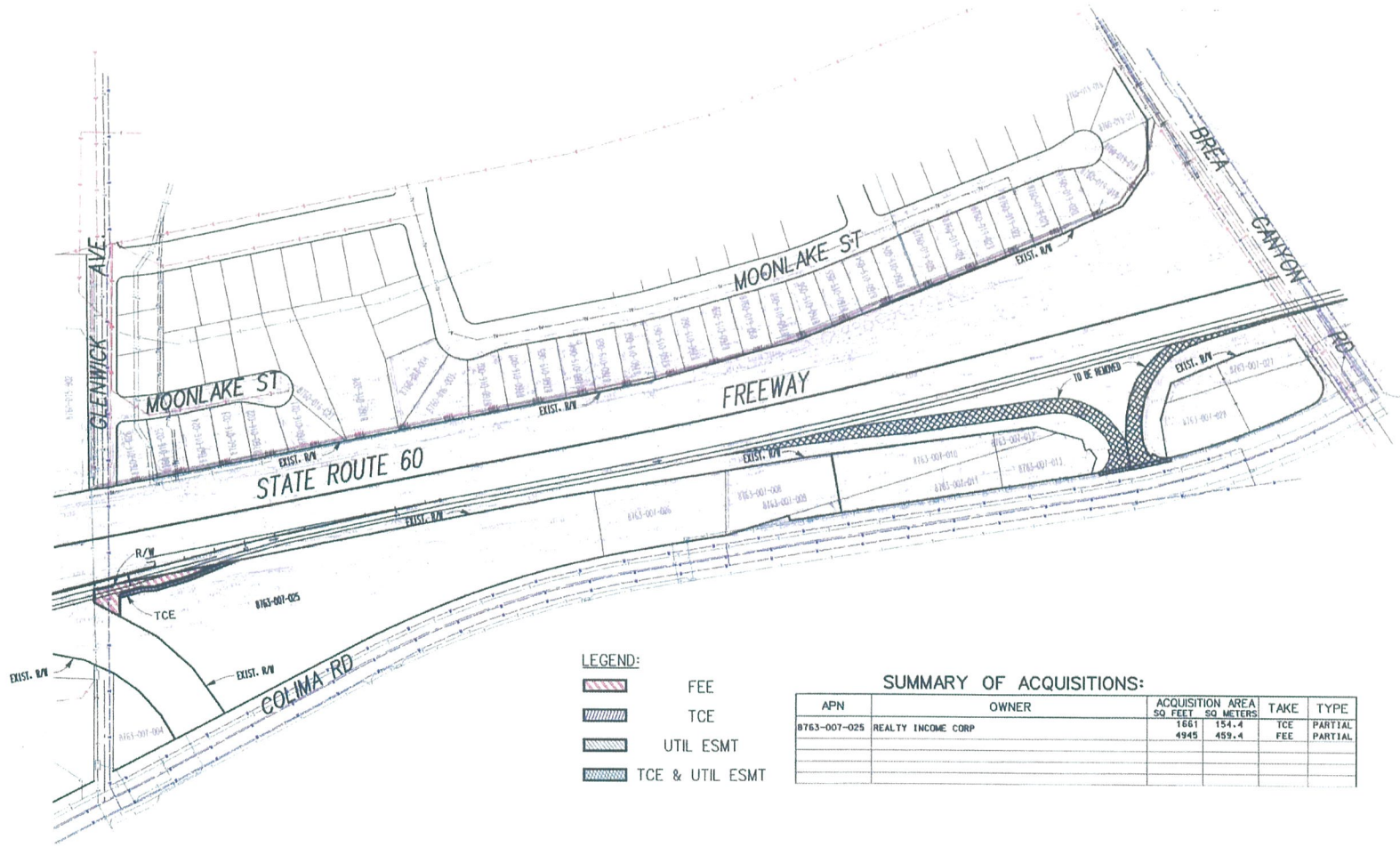

SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	ACQUISITION AREA SQ METERS	TAKE	TYPE
8763-007-025	REALTY INCOME CORP	1661	154.4	TCE	PARTIAL
		4945	459.4	FEE	PARTIAL

FIGURE 2.5-1
(Page 2 of 2)
Property Acquisitions Under Alternative 3

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: Jacobs Engineering (2006).

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SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	SQ METERS	TAKE	TYPE
8760-015-901	WALNUT VALLEY UNIFIED SCHOOL DISTRICT	3530	328.0	TCE	PARTIAL
		10356	962.1	FEE	PARTIAL
8762-034-001	TANAKA JUAN & SAMANTHA	635	59.0	TCE	PARTIAL
		928	86.2	FEE	PARTIAL
8762-034-002	AGUSTIN FRANCA	571	53.0	TCE	PARTIAL
		709	65.9	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-003	MINNIEFIELD ROBERT	571	53.0	TCE	PARTIAL
		485	45.1	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-004	ARIAS STEPHANIA	571	53.0	TCE	PARTIAL
		261	24.3	FEE	PARTIAL
		601	55.9	UTIL ESMT	PARTIAL
8762-034-005	MEXIA PAUL & GABRIELLA	559	51.9	TCE	PARTIAL
		50	4.6	FEE	PARTIAL
		598	55.5	UTIL ESMT	PARTIAL
8762-034-006	LOPEZ FELIPE & MARIA	385	35.7	TCE	PARTIAL
		592	55.0	UTIL ESMT	PARTIAL
8762-034-022	GOLDEN SPRINGS PROPERTY, LLC	2998	278.6	TCE	PARTIAL

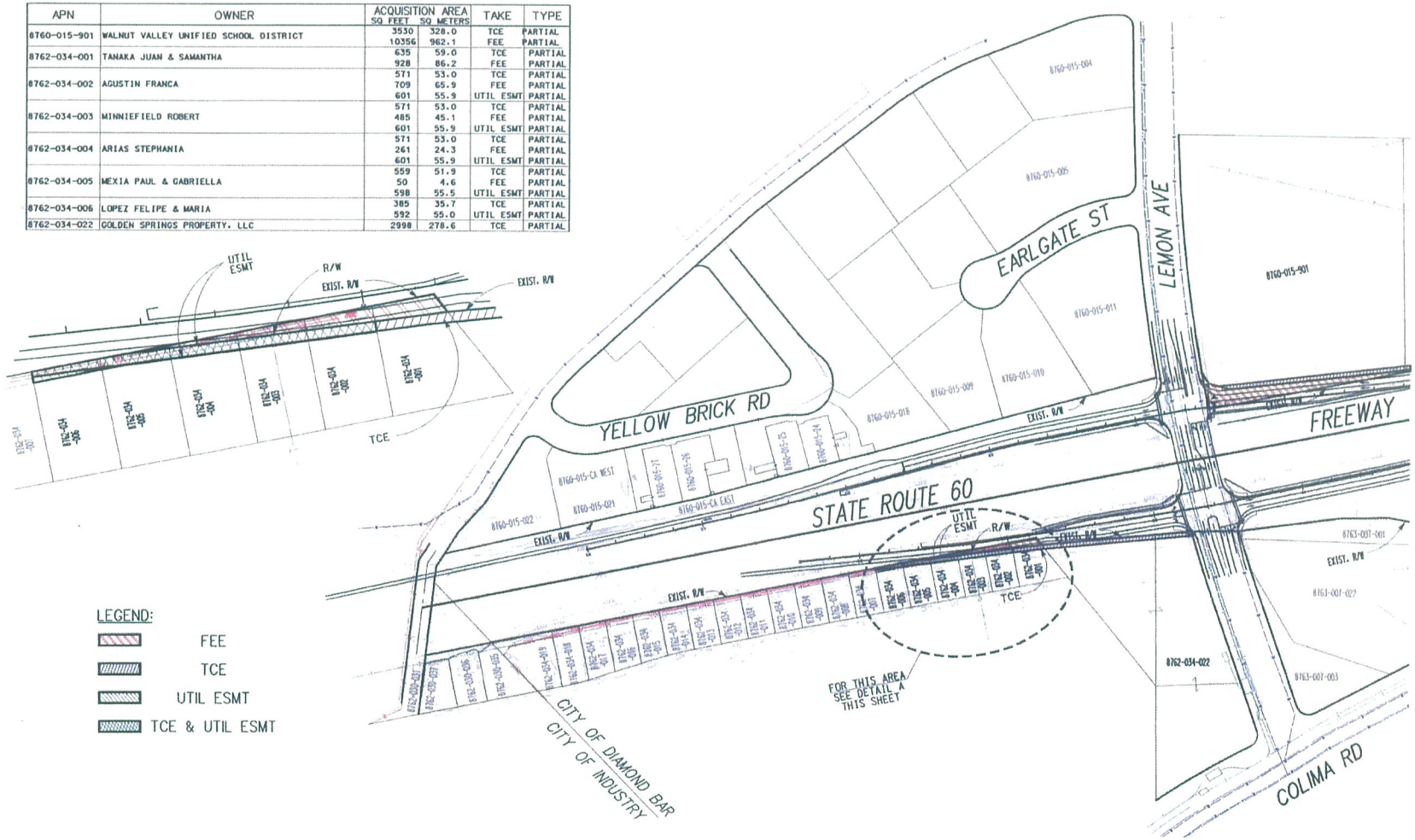

FIGURE 2.5-2
(Page 1 of 3)
Property Acquisitions Under Alternative 4

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: Jacobs Engineering (2006).

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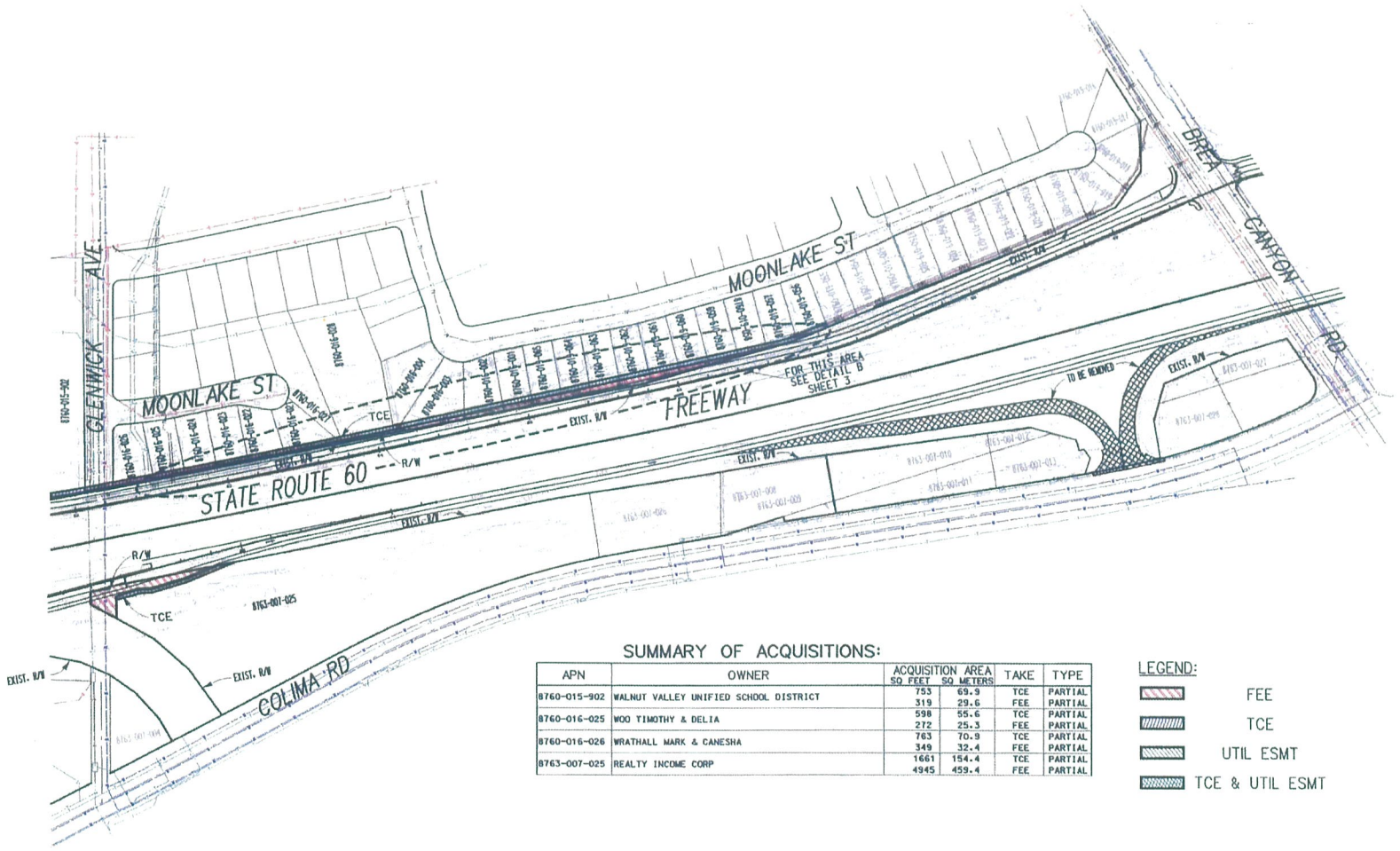

SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	SQ METERS	TAKE	TYPE
8760-015-902	WALNUT VALLEY UNIFIED SCHOOL DISTRICT	753	69.9	TCE	PARTIAL
		319	29.6	FEE	PARTIAL
8760-016-025	WOO TIMOTHY & DELIA	598	55.6	TCE	PARTIAL
		272	25.3	FEE	PARTIAL
8760-016-026	WRATHALL MARK & CANESHA	763	70.9	TCE	PARTIAL
		349	32.4	FEE	PARTIAL
8763-007-025	REALTY INCOME CORP	1661	154.4	TCE	PARTIAL
		4945	459.4	FEE	PARTIAL

LEGEND:

- FEE
- TCE
- UTIL ESMT
- TCE & UTIL ESMT

FIGURE 2.5-2
(Page 2 of 3)
Property Acquisitions Under Alternative 4

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: Jacobs Engineering (2006).

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SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	SQ METERS	TAKE	TYPE
8760-016-001	SHAALAN MOHAMED & SANDRA	623	57.8	TCE	PARTIAL
		806	74.9	FEE	PARTIAL
		623	57.8	UTIL ESMT	PARTIAL
8760-015-002	PALACIO ANGEL & ROSALINDA	825	76.6	TCE	PARTIAL
		970	90.1	FEE	PARTIAL
		825	76.6	UTIL ESMT	PARTIAL
8760-016-003	FUNG KIN	1402	130.2	TCE	PARTIAL
		1246	115.7	FEE	PARTIAL
		1402	130.2	UTIL ESMT	PARTIAL
8760-016-004	MILLER DONALD & JOSEFINA	123	11.5	TCE	PARTIAL
		30	2.8	FEE	PARTIAL
		123	11.5	UTIL ESMT	PARTIAL
8760-016-021	OSORNIO RAFAEL	1147	106.5	TCE	PARTIAL
		622	57.8	FEE	PARTIAL
		1147	106.5	UTIL ESMT	PARTIAL
8760-016-022	MOHAMEDY ARIF & RUQUIYA MOHAMEDY IQBAL & ZULEKHA	777	72.2	TCE	PARTIAL
		341	31.6	FEE	PARTIAL
		777	72.2	UTIL ESMT	PARTIAL
8760-016-023	NGUYEN PETER	673	62.6	TCE	PARTIAL
		281	26.1	FEE	PARTIAL
		673	62.6	UTIL ESMT	PARTIAL
8760-016-024	LAUB ELENORE VASQUEZ MARGARET	598	55.6	TCE	PARTIAL
		275	25.5	FEE	PARTIAL
8760-016-027	THATCHER WILLIAM & EDITH	80	7.5	TCE	PARTIAL
		20	1.9	FEE	PARTIAL
		80	7.5	UTIL ESMT	PARTIAL
8760-016-028		1123	104.3	TCE	PARTIAL
		681	63.3	FEE	PARTIAL
		1123	104.3	UTIL ESMT	PARTIAL

SUMMARY OF ACQUISITIONS:

APN	OWNER	ACQUISITION AREA SQ FEET	SQ METERS	TAKE	TYPE
8760-019-056	GILLILAND MACK	107	9.9	TCE	PARTIAL
		627	58.3	UTIL ESMT	PARTIAL
8760-019-057	CIRIA RICARDO & MARIA	633	58.8	TCE	PARTIAL
		38	3.6	FEE	PARTIAL
		633	58.8	UTIL ESMT	PARTIAL
8760-019-058	MILLER RICHARD & KATHLEEN	623	57.9	TCE	PARTIAL
		253	23.5	FEE	PARTIAL
		623	57.9	UTIL ESMT	PARTIAL
8760-019-059	YBANEZ JORGE & NORMA	637	59.2	TCE	PARTIAL
		506	47.0	FEE	PARTIAL
		637	59.2	UTIL ESMT	PARTIAL
8760-019-060	PARKS MARY	634	58.9	TCE	PARTIAL
		751	69.7	FEE	PARTIAL
		634	58.9	UTIL ESMT	PARTIAL
8760-019-061	THOMPSON HELOISE	638	59.3	TCE	PARTIAL
		1010	93.8	FEE	PARTIAL
		638	59.3	UTIL ESMT	PARTIAL
8760-019-062	LOPEZ DAVID & RITA	649	60.3	TCE	PARTIAL
		1168	108.6	FEE	PARTIAL
		649	60.3	UTIL ESMT	PARTIAL
8760-019-063	CANALES RUBEN & MARTHA	637	59.2	TCE	PARTIAL
		1065	99.0	FEE	PARTIAL
		637	59.2	UTIL ESMT	PARTIAL
8760-019-064	AMPON JOSEPH	623	57.9	TCE	PARTIAL
		962	89.4	FEE	PARTIAL
		623	57.9	UTIL ESMT	PARTIAL
8760-019-065	MAGALLANES ANGEL & ROSIE	623	57.8	TCE	PARTIAL
		884	82.2	FEE	PARTIAL
		623	57.8	UTIL ESMT	PARTIAL

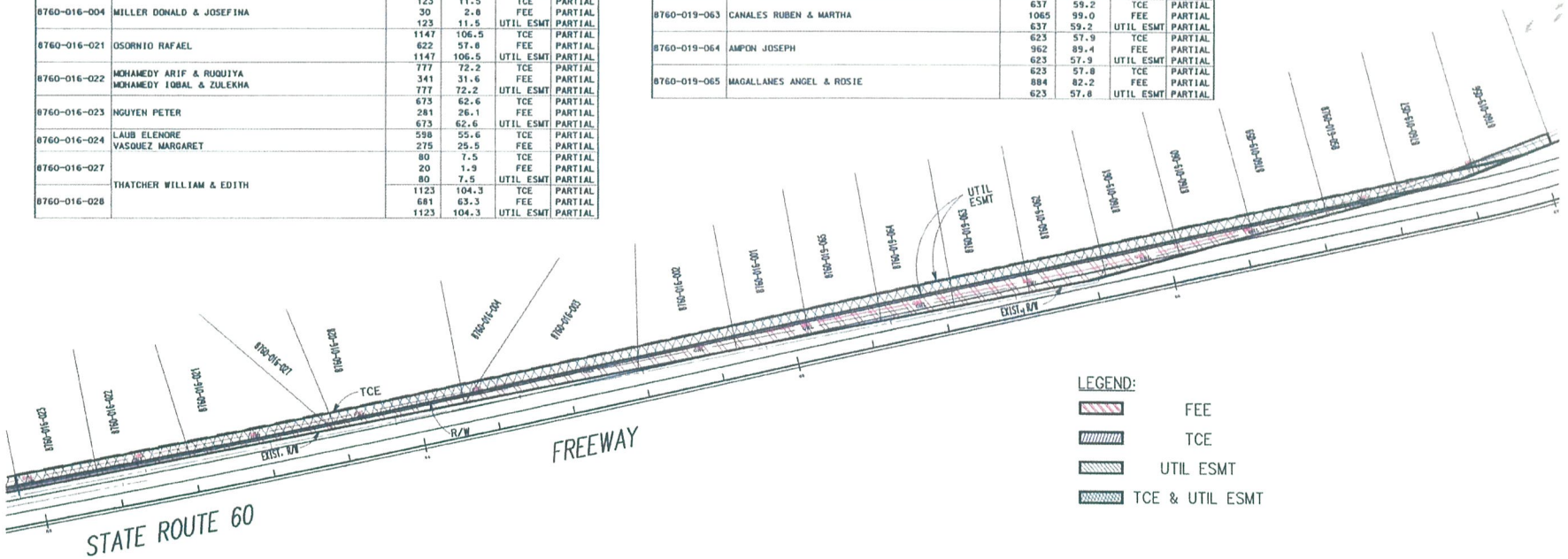

FIGURE 2.5-2
(Page 3 of 3)
Property Acquisitions Under Alternative 4

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: Jacobs Engineering (2006).

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currently generate the City of Diamond Bar property tax revenue. Therefore, Alternatives 3 and 4 would not result in an adverse impact related to property tax revenues.

Construction Employment

This section estimates the number of temporary jobs that would be created by construction of the SR-60/Lemon Avenue interchange project, which would be a beneficial impact of the project.

Construction of the SR-60/Lemon Avenue alternatives would have a short-term effect on employment and business in the area. Employment experience related to highway construction compiled by Caltrans indicates each $10 million in design and construction costs generates approximately 323 direct and off-site jobs. Based on this factor, total construction jobs generated by the SR-60/Lemon Avenue Build Alternatives are estimated in Table 2.5-2. Table 2.5-2 shows that implementation of Alternatives 2, 3, and 4 would generate an estimated 286, 360, and 774 construction jobs, respectively. These construction jobs would generate temporary employment and revenue for both the local and regional economies.

Table 2.5-2 Estimated Construction Employment

Alternative	Capital Construction Costs[a]	Estimated Employment Generated
2	$9,308,760	286
3	$12,036,424	360
4	$25,250,012	774

[a] Capital construction costs from the *Draft Project Report* (Jacobs Engineering, Inc. 2007).

In addition to these construction jobs, construction workers would likely patronize local businesses, thereby generating short-term revenue increases in the local area. The short-term revenue increases would, in turn, result in a short-term increase in sales tax revenues to the Cities of Diamond Bar and Industry. This would be a beneficial effect of the Build Alternatives. However, this effect of construction activity on local businesses and tax revenues cannot be quantified.

The No Build Alternative would not result in the construction of a SR-60/Lemon Avenue interchange. Therefore, the No Build Alternative would not result in any beneficial effects related to the generation of employment.

2.5.4 Avoidance, Minimization, and Mitigation Measures

Alternatives 1, 2, 3, and 4 would not result in adverse impacts related to community character and cohesion. No mitigation is required.

Compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act) of 1970 (Public Law 91-646, 84 Statutes 1894) would minimize the adverse impacts of Alternatives 3 and 4 related to acquisition of partial parcels. The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by its projects. As discussed earlier, Alternatives 3 and 4 would result in partial acquisitions only and would not result in the relocation of any uses or residents and businesses. The Uniform Act provides for uniform and equitable treatment by federal or federally assisted programs of persons displaced from their homes, businesses, or farms, and establishes uniform and equitable land acquisition policies. The City of Diamond Bar will provide affected property owners with a copy of the Uniform Act.

Alternative 1 would not result in adverse impacts related to relocation because no property would be acquired under this Alternative. No mitigation is required.

2.6 Environmental Justice

The analysis of the potential impacts of the proposed SR-60/Lemon Avenue interchange project related to environmental justice is based on information from the 2000 Census.

2.6.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* signed by President Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the United States Department of Health and Human Services (DHHS) poverty guidelines. For 2006, this was $20,000 for a family of four.[1]

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have been included in the proposed SR-60/Lemon Avenue interchange project. Title VI requires that no person, because of race, color, religion, national origin, sex, age, or handicap, be excluded from participation in, be denied benefits of, or be subjected to discrimination by any federal aid activity. Caltrans commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which is provided in Appendix C. The Americans with Disabilities Act of 1990 (ADA) extends the protection of the 1964 Civil Rights Act to the disabled, prohibiting discrimination in public accommodations, transportation, and other services.

2.6.2 Affected Environment

The key data relating to minority, elderly, low-income, and transit-dependent populations in the Cities of Diamond Bar and Industry are from social and

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[1] United States Department of Health and Human Services, (www.aspe.hhs.gov/poverty/04fedreg.htm), accessed September 6, 2006.

economical indices used by the United States Census Bureau, the Bureau of Labor Statistics, and the United States Department of Housing and Development.

2.6.2.1 Minority Populations

Based on information from the United States Census Bureau, ethnicity patterns in the City of Diamond Bar have changed dramatically since 1990. In 1990, the population of the City of Diamond Bar was predominantly White (53 percent), compared to 34 percent for the County. Asians constituted the largest minority group, accounting for 24 percent of the population (more than twice the County rate). African-Americans accounted for 5.5 percent of the population in the City. The next decade brought substantial changes to the ethnic composition of the City's population.

Based on the 2000 United States Census, Asians are the majority in the City of Diamond Bar at 43 percent, followed by White (41 percent), compared to 11.9 and 48.7 percent, respectively, for the County. As shown earlier in Table 2.4-1, the ethnicity of the City of Diamond Bar differs substantially from that of the County as a whole.

The 2000 Census shows that the White population faced a 20 percent decline and accounted for 55 percent of the total population in the City of Industry. The African-American population is still rising and accounted for 4.2 percent of the total population, which is less than half the County rate (9.8 percent). The second largest minority group was Asians, at approximately 3.9 percent of the population in the City of Industry, which is one-third the County average (11.3 percent).

2.6.2.2 Low-Income Populations

According to the DHHS 2000 Poverty Guidelines, the poverty threshold for a family of four was $20,000 in 2006. The median household incomes of the Cities of Diamond Bar and Industry and Census Tract 4033.03 were higher, or comparable, with both the regional and State incomes. Based on the 2000 Census, the City of Diamond Bar and Census Tract 4033.03 have 6 and 5 percent poverty rates, respectively. This is substantially lower than the regional and State averages (17.9 and 14.2 percent, respectively). The City of Industry's poverty rate, 14.5 percent, is lower than the regional average but similar to the State average.

In the City of Diamond Bar, the median household income in 2000 was $68,871, more than 63 percent higher than the County average. The median household income of Census Tract 4033.03 was $62,929, 42 percent higher than the County average. While the City of Industry's median household income is approximately $20,000 less than that of the City of Diamond Bar or Census Tract 4033.03, it is still higher than both the regional and State averages.

The Federal Transit Administration (FTA) defines transit-dependent persons as those without private transportation, the elderly (over age 65), youths (under age 18), and persons below poverty or median income levels defined by the United States Census Bureau. Table 2.6-1 shows the age distribution of the population in the study area. According to the 2000 Census, 37.4 percent of the population in the City of Diamond Bar is defined as transit-dependent, which is similar to the County average of 37.7 percent. The City of Industry's population is 45.5 percent transit-dependent, 20 percent higher than the County average. Census Tract 4033.03 has a transit-dependent population that is 76 percent lower than that of the County.

Table 2.6-1 Age Distribution

Jurisdiction	Percentage		
	Population Less Than 18	Population 18 to 64	Population Greater Than 64
County			
Los Angeles County	28	62.2	7.3
Cities			
City of Diamond Bar	29.9	62.6	7.5
City of Industry	26.3	54.4	19.2
Study Area Census Tract			
Census Tract 4033.03	26.1	64.3	9.6

Source: 2000 United States Census.

2.6.3 Impacts

Table 2.6-2 summarizes the primary environmental justice characteristics for the Cities of Diamond Bar and Industry, Census Tract 4033.03, the County, and the State.

Table 2.6-2 Environmental Justice

Characteristic	Cities		Census Tract 4033.03	Los Angeles County (Regional)	State of California
	Diamond Bar	Industry			
Non-White residents	54.8%	40.3%	54%	46.3%	35.7%
Median household income	$68,871	$49,423	$62,929	$42,189	$47,493
Percent poverty	6%	14.5%	5%	17.9%	14.2%

Characteristic	Cities		Census Tract 4033.03	Los Angeles County (Regional)	State of California
	Diamond Bar	Industry			
Transit-dependent persons*	37.4 %	45.5%	9%	37.7%.	2.17%
Hispanic residents	18.5%	60.2%	36%	44.6%	32.4%

Source: United States Census 2000.
* Less than 18 years old and greater than 65 years old.

As shown in Table 2.6-2, above, the percentage of non-White residents in the City of Diamond Bar is substantially higher than in the City of Industry and than the regional and State averages; however, it is comparable to Census Tract 4033.03. The percentage of Hispanic residents is substantially lower in the City of Diamond Bar than in the City of Industry, Census Tract 4033.03, and than the regional and State averages.

The proportion of transit-dependent persons in the two cities is comparable to the County average; however, Census Tract 4033.03 has a substantially lower percentage of transit-dependent persons than either the City of Diamond Bar or the regional average.

The median household incomes of the two cities and Census Tract 4033.03 are higher than the regional average. In the City of Diamond Bar and Census Tract 4033.03, the median household income is nearly $24,000 higher than the regional average.

Therefore, the residents of the Cities of Diamond Bar and Industry, including Census Tract 4033.03, do not represent an usually high level of minority, low-income, or transit-dependent population. Based on this analysis, the proposed SR-60/Lemon Avenue interchange project will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898.

Alternative 1 would not result in any construction or property acquisition and would not result in direct adverse impacts to environmental justice populations. In addition, Alternative 1 would not result in any benefits to environmental justice populations.

Alternative 2 would not result in any property acquisition and, therefore, would not result in direct adverse impacts on environmental justice populations.

Alternatives 3 and 4 would result in acquisition of partial parcels but would not result in the displacement or relocation of any residential or business uses. Therefore, Alternatives 3 and 4 would not result in direct adverse impacts on environmental justice populations.

Alternatives 2, 3, and 4 would result in the addition of a new interchange at Lemon Avenue that would benefit all populations in the area, including environmental justice populations, by providing traffic improvements.

Based on the above discussion and analysis, none of the proposed Build Alternatives will cause disproportionately high and adverse effects on any minority or low-income populations per E.O. 12898 regarding Environmental Justice.

2.6.4 Avoidance, Minimization, and Mitigation Measures

Alternatives 2, 3, and 4 will not result in adverse impacts related to environmental justice populations. No avoidance, minimization, or mitigation measures are required.

2.7 Utilities and Emergency Services

The analysis of the potential impacts of the proposed SR-60/Lemon Avenue interchange project was based on review of existing utility and service providers and facilities in and immediately adjacent to the project disturbance limits as provided in the Draft PR (Jacobs Engineering, Inc. 2007).

2.7.1 Affected Environment

2.7.1.1 Utilities

Public utilities in the vicinity of the site for the proposed SR-60/Lemon Avenue interchange include sewer and water lines, electrical power, natural gas, telephone service, and communication services. The Los Angeles County Sanitation District operates and maintains the sewer lines. The Metropolitan Water District of Southern California and Walnut Valley Water District provide potable water lines to the project area. Electricity is provided by Southern California Edison, and natural gas services are provided by the Southern California Gas Company. Cable lines and telephone services to the project area are provided by several companies.

An overhead telephone line crosses SR-60 east of Lemon Avenue. There is an aerial electric line west of Lemon Avenue and south of the SR-60 ROW. A 27-inch (in) (680-millimeter [mm]) sewer line, 36 in (900 mm) water line, 8 in (200 mm) and 24 in (610 mm) gas lines, and a telephone duct bank are located in Brea Canyon Road.

2.7.1.2 Emergency Services

Emergency service providers in the project area are.

- There are no police department facilities in the project area. The Los Angeles County Sheriff's Department operates the Walnut-Diamond Bar Sheriff's Station located at 21695 East Valley Boulevard in the City of Walnut.
- Police services on SR-60 are provided by the California Highway Patrol (CHP).
- There are no fire department facilities in the project area. The Los Angeles County Fire Department provides fire protection services to the City of Diamond Bar. The project area is serviced by Diamond Bar Fire Stations 119 and 121, which are respectively located at 20480 Pathfinder Road and 346 Armitos Place.
- Hospital services in the City of Diamond Bar are provided by Magan Medical Clinic, Inc. Paramedic and emergency medical services in the City of Diamond Bar are provided by the Los Angeles County Fire Department.

2.7.2 Impacts

2.7.2.1 Permanent Impacts

The proposed SR-60/Lemon Avenue interchange project does not include new residential, commercial, or industrial uses that would require additional services or utilities. The proposed SR-60/Lemon Avenue interchange project would not result in the expansion of water and wastewater facilities. Therefore, no permanent utility or emergency services impacts due to Alternatives 2, 3, and 4 are expected.

The No Build Alternative would not result in modifications or changes to the existing SR-60/Lemon Avenue facilities and, therefore, would result in no long-term impacts related to utilities. However, continued and increasing congestion at this interchange under the No Build Alternative would continue to result in potential delays for emergency service vehicles traveling on SR-60, Lemon Avenue, Brea Canyon Road, Golden Springs Drive, and other roads in the area.

2.7.2.2 Temporary Impacts

There are electrical lines, sewer lines, water lines, and natural gas lines within and/or immediately adjacent to the project disturbance limits. Table 2.7-1 lists the utilities that may be impacted during construction of the proposed SR-60/Lemon Avenue interchange project. The potential for interruption of these services will be considered during the design phase and coordinated with the utility agencies.

As shown earlier in Table 1-16, the construction of Alternative 2 would not result in the generation of excess soil material. However, the construction of Alternative 2 would result in the generation of construction debris that would require disposal.

As shown earlier in Table 1-16, the construction of Alternatives 3 and 4 would result in the generation of excess soil material that would require disposal off site. The excess soil material generated during the construction of Alternatives 3 and 4 would either be used as fill on other projects in the region, as suitable, or would be transported to area landfills for use as daily cover. If the excess material cannot be used as fill in other construction projects or as daily cover at landfills, it will be disposed of in area landfills as waste. In addition, the construction of Alternatives 3 and 4 would result in the generation of other construction debris requiring disposal.

Table 2.7-1 Utility Impacts

Utility Provider	Type of Utility	Potential Impacts
Verizon	Overhead telephone	There is an overhead line crossing SR-60 east of Lemon Avenue. Protection in place will be required for construction of the new eastbound (EB) off-ramp (Alterative 2) and EB on-ramp (Alternatives 3 and 4). Construction of the westbound (WB) service road (Alternative 4) will require permanent relocation of the existing pole on the north side of SR-60.
Los Angeles County Sanitation Districts	Sanitary sewer lines	A 27 in (680 mm) sewer is located in Brea Canyon Road. Protection in place may be required in areas where excavations may occur.
Metropolitan Water District of Southern California	Potable water transmission lines	The Orange County Feeder, an existing 36 in (900 mm) waterline, is located in Brea Canyon Road. Protection in place may be required in areas where excavations may occur.
Southern California Edison	Overhead electric lines	There is an existing aerial line west of Lemon Avenue south of the State ROW for SR-60. Construction of the EB off-ramp (Alternatives 3 and 4) will require the relocation of two poles. Acquisition of a utility easement may be required. There is another line running east-west on the north side of SR-60 between Lemon Avenue and Brea Canyon Road. Relocation of nine poles will be required for the WB service road (Alternative 4). Acquisition of utility easements may be required. These utilities will be impacted during construction. Interruption of these services will be considered during the design phase and coordinated with the utility owner.
Southern California Gas Company	Natural gas lines	Existing 8 in (200 mm) and 24 in (610 mm) gas lines are located in Brea Canyon Road. Protection in place may be required in areas where excavation may occur during project construction.
Walnut Valley Water District	Underground water lines	An 8 in (200 mm) water line located in an 18 in (450 mm) steel casing crosses SR-60 east of Lemon Avenue. Construction of the EB off-ramp (Alternative 1) or EB on-ramp (Alternatives 3 and 4) would be located over this water line. The steel casing would need to be extended beyond the limits of the new construction. This water line may be impacted during construction. Interruption of services will be considered during the design phase and coordinated with the utility owner.
General Telephone	Underground telephone	A telephone duct bank is located on Brea Canyon Road. Protection in place may be required in areas where excavations may occur.

Source: *Draft Project Report* (Jacobs Engineering, Inc., 2007).

All construction debris will be properly disposed of in greenwaste facilities (for landscaping and potentially some soil materials) and/or landfills. The disposal of excess soil, if deposited in landfills as waste, would occur over several months and, therefore, would not adversely affect the ability of landfills to accept and process waste. The other construction debris will be limited and, similarly, would not adversely affect the ability of landfills to accept and process waste.

Construction of the proposed SR-60/Lemon Avenue interchange project would result in the generation of construction debris that would require disposal. This temporary impact is not expected to negatively affect the capacity of local landfills. The proposed project would comply with all applicable federal, State, and local statutes related to solid waste disposal. Therefore, Alternatives 2, 3, and 4 would not result in adverse impacts related to solid waste.

There may be limited, short-term impacts on emergency services during construction of the proposed SR-60/Lemon Avenue interchange project. This is typical of any road improvement project due to temporary increases in traffic congestion and delays during construction that could result in increased travel times for emergency vehicles.

The No Build Alternative would not result in any construction. Therefore, the No Build Alternative would result in no adverse short-term impacts related to utilities and emergency services.

2.7.3 Avoidance, Minimization, and Mitigation Measures

2.7.3.1 Utilities

Mitigation is not needed for permanent utility impacts because the proposed SR-60/ Lemon Avenue interchange project would not result in the need for additional or new utilities. However, if it is determined during final design that relocation or protection in place of utilities is necessary during construction of Alternatives 2, 3, and 4, early and continuing coordination with the respective service providers and the City would be conducted.

2.7.3.2 Emergency Services

Mitigation is not needed for permanent service impacts because the proposed SR-60/ Lemon Avenue interchange project would not result in a need for additional or new emergency services. Temporary construction-related impacts under Alternatives 2, 3, and 4 would be addressed through the TMP before and during construction to minimize localized congestion and travel delays during construction. Mitigation Measure TRA-1, provided later in Section 2.8, Transportation and Traffic/Pedestrian and Bicycle Facilities, requires the preparation of a TMP and its implementation during construction.

2.8 Traffic and Transportation/Pedestrian and Bicycle Facilities

The following information is based on the *Draft Traffic Study* (Katz, Okitsu & Associates, December 22, 2006) for the proposed project. A copy of the traffic study is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.8.1 Regulatory Setting

FHWA directs that full consideration be given to the safe accommodation of pedestrians and bicyclists during the development of federal aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled be considered in all federal aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

Caltrans, FHWA, and the Cities of Diamond Bar and Industry are committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public as a result of the proposed project will be provided to persons with disabilities.

2.8.2 Affected Environment

Fieldwork was conducted in the project study area to identify existing traffic controls and approach lane configurations at each study intersection, and to identify the locations of existing on-street parking and transit stops.

2.8.2.1 Methodology

A LOS analysis was conducted for the study locations including the SR-60 mainline, ramps, ramp intersections, and local intersections. The methodologies used for these analyses are described below.

The *Highway Capacity Manual* (HCM) (Transportation Research Board [TRB], 2000) is the method preferred by Caltrans for traffic analysis. The HCM method was used for determining the LOS at freeways, ramps, associated ramp intersections, and

weaving sections. The HCM expresses LOS in terms of average delay in seconds per vehicle for signalized intersections. For all freeway facilities, including mainline, ramps, and weaving sections, LOS is defined based on density expressed as passenger cars per kilometer per lane (pc/km/ln).

The *Intersection Capacity Utilization* (ICU) method for analysis of signalized intersections is the methodology preferred by the Cities of Diamond Bar and Industry. The ICU method was used at all local signalized intersections for the purpose of determining LOS.

LOS values range from A to F. LOS A indicates excellent operating conditions with little delay to motorists, whereas LOS F represents congested conditions with excessive vehicle delay. LOS E is typically defined as the operating capacity of a road.

Tables 2.8-1 and 2.8-2 define the LOS criteria for the HCM and ICU methodologies, respectively.

2.8.2.2 Existing Road System

The segment of SR-60 from Fairway Drive to Brea Canyon Road currently has four mixed-flow lanes in each direction. There is currently no direct access to SR-60 at the existing Lemon Avenue undercrossing (UC). Local travelers access SR-60 through the adjacent interchanges at Fairway Drive (to the west in the City of Industry) and Brea Canyon Road (to the east in the City of Diamond Bar). At present, there are substantial construction activities near/at the SR-60/SR-57 interchange that began in 2003. The SR-60 WB on-ramp at Brea Canyon Road is currently closed and under reconstruction.

The key roads in the study area are described in Table 2.8-3. This discussion is limited to the specific roads that traverse the study intersections and serve the project site. A detailed figure in the *Draft Traffic Study* (Figure 7) shows the existing lane configurations and traffic controls at the study area intersections.

2.8.2.3 Existing Transit Services

The project study area is served by bus transit lines operated by the Los Angeles County Metropolitan Transportation Authority (MTA) and Foothill Transit (FT). The transit lines that traverse major roads in the vicinity of the project site are described below.

Table 2.8-1 Highway Capacity Manual Level of Service Definitions

LOS	Signalized Intersections, Delay per Vehicle (s/veh)	Freeway Segments, Density (pc/km/ln)	Weaving - Freeway, Density (pc/km/ln)	Ramps, Density (pc/km/ln)
A	< 10	7	6	6
B	> 10 and < 20	11	12	12
C	> 20 and < 35	16	17	17
D	> 35 and < 55	22	22	22
E	> 55 and < 80	28	27	>22
F	> 80	> 28	> 27	Demand Exceeds Capacity

Source: *Highway Capacity Manual,* Transportation Research Board, Washington D.C.
> = greater than
< = less than
pc/km/ln = passenger cars per kilometer per lane
s/veh = seconds per vehicle

Table 2.8-2 Intersection Capacity Utilization Level of Service Definitions

LOS	Interpretation	Signalized Volume to Capacity Ratio (ICU)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.000–0.600
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	0.601–0.700
C	Good operation. Occasionally backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	0.701–0.800
D	Fair operation. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	0.801–0.900
E	Poor operation. Some long standing vehicular queues develop on critical approaches.	0.901–1.000
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	Over 1.000

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, D.C., 2000, and *Interim Materials on Highway Capacity*, NCHRP Circular 212, 1982.

Table 2.8-3 Existing Road Descriptions

Segment	No. of Lanes		Posted Speed Limit (mph)	Median Type	Parking Restrictions		General Land Use
	NB/EB	SB/WB			NB/EB	SB/WB	
Fairway Drive							
South of Colima Road	2	2	45	Raised	NR	1 hr, 6:00 a.m.–6:00 p.m.	Commercial
North of Colima Road	2	2	40	Raised	NPAT	NPAT	Commercial
South of SR-60 EB Ramps	2	2	40	Raised	10:00 p.m.–6:00 a.m. NCVP over 5 tons	CVNPAT over 5 tons	Commercial
North of SR-60 WB Ramps	2	2	40	Raised	NPAT	NPAT	Commercial
Golden Springs Drive/Colima Road							
West of Fairway Drive	3	3	45	Striped	NPAT	NPAT	Commercial
East of Fairway Drive	3	3	45	Striped	NPAT	NPAT	Commercial
West of Lemon Avenue	2	2	50	Raised	NPAT	NPAT	Commercial/Residential
East of Lemon Avenue	2	2	40	Striped	NPAT	NPAT	Commercial/Residential
West of SR-60 EB Ramps	2	2	40	Striped	NPAT	NPAT	Commercial
East of SR-60 EB Ramps	2	2	40	Striped	NPAT	NPAT	Commercial
East of Brea Canyon Road	2	2	40	Striped	NPAT	NPAT	Commercial
Lemon Avenue							
North of Valley Boulevard	2	2	45	Raised	NR	NPAT	Commercial/Office
South of Valley Boulevard	2	2	45	Raised	NPAT	NPAT	Industrial
North of Golden Springs Drive	2	2	45	Raised	4:00 p.m.–8:00 a.m. NCVP; 1 hr, 8:00 a.m.–4:00 p.m. CVP	CVNPAT	Commercial
South of Golden Springs Drive	1	1	25	Striped	NR	NR	Residential
Brea Canyon Road							
North of SR-60 WB Ramps	2	2	45	Striped	NPAT	30 min, CVP	Commercial/Industrial
North of Golden Springs Drive	2	2	45	Raised	NPAT	NPAT	Commercial
South of Golden Springs Drive	2	2	45	Striped	NPAT	NPAT	Commercial/Residential
Valley Boulevard							
West of Lemon Avenue	3	2	50	Raised	NPAT	NPAT	Commercial/Office
East of Lemon Avenue	3	2	50	Raised	NPAT	NPAT	Commercial

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2007).
NB = northbound
EB = eastbound
SB = southbound
WB = westbound
NPAT = No parking anytime
NCVP = No commercial vehicle parking
CVP = Commercial vehicle parking
CVNPAT = Commercial vehicle no parking anytime
NR = No restriction

MTA Transit Lines

MTA Line 484 is a regional bus route that provides service between the City of Pomona and downtown Los Angeles. The line travels on Valley Boulevard in the study area. This service operates on an approximate frequency of 30 to 45 minutes during the weekday peak periods.

Foothill Transit Lines

FT Line 482 is a regional bus route that provides service between the City of Pomona and downtown Los Angeles. The line travels on Golden Springs Drive/Colima Road in the study area. This route operates on an approximate 30-minute frequency during weekday peak periods.

FT Line 493 is a regional bus route that provides service between the Phillips Ranch area and downtown Los Angeles. The line travels on Golden Springs Drive/Colima Road in the study area. This route operates on an approximate 10- to 15-minute frequency during weekday peak periods.

FT Line 497 is a regional bus route that provides service between the Chino Transit Center and downtown Los Angeles. The line travels on SR-60 in the study area. This route operates on an approximate 10- to 15-minute frequency during weekday peak periods.

2.8.2.4 Project Study Area

The project study area for the traffic analysis was defined in consultation with staff from Caltrans District 7 and the Cities of Diamond Bar and Industry. The study area for the traffic analysis for the proposed SR-60/Lemon Avenue interchange project was defined to include the following:

Project Study Area Intersections

1. Fairway Drive and the SR-60 WB ramps
2. Fairway Drive and the SR-60 EB ramps
3. Fairway Drive and Colima Road
4. Lemon Avenue and Valley Boulevard
5. Lemon Avenue and Golden Springs Drive
6. Golden Springs Drive and the SR-60 EB ramps
7. Brea Canyon Road and the SR-60 WB ramps
8. Brea Canyon Road and the SR-60 EB ramps
9. Lemon Avenue and the SR-60 WB ramp(s) (future intersection under Build Alternatives 2, 3, and 4)
10. Lemon Avenue and the SR-60 EB ramps (future intersection under Build Alternatives 3 and 4)
11. West Golden Springs Drive and the SR-60 EB off-ramp (future intersection under Build Alternative 2)

Project Study Area Road Segments

1. Lemon Avenue north of SR-60
2. Lemon Avenue south of SR-60
3. Golden Springs Drive west of Lemon Avenue
4. Golden Springs Drive east of Lemon Avenue
5. Golden Springs Drive west of Brea Canyon Road
6. Golden Springs Drive east of Brea Canyon Road
7. Brea Canyon Road north of the SR-60 WB ramps

Project Study Area Freeway Mainline Segments

1. EB SR-60 between Fairway Drive and Lemon Avenue
2. EB SR-60 between Lemon Avenue and Brea Canyon Road
3. WB SR-60 between Brea Canyon Road and Lemon Avenue
4. WB SR-60 between Lemon Avenue and Fairway Drive

Project Study Area Freeway On-Ramp (Merge) Locations

SR-60 WB

1. Brea Canyon (No Build and Alternatives 2 and 3)
2. Lemon Avenue (Alternatives 2, 3, and 4)
3. Fairway Drive

SR-60 EB

4. NB Fairway Drive
5. SB Fairway Drive
6. Lemon Avenue (Alternatives 3 and 4)
7. Golden Springs Drive (No Build and Alternative 2)

Project Study Area Freeway Off-Ramp (Diverge) Locations

SR-60 WB

1. Brea Canyon Road via the Connector Road (No Build and Alternatives 2, 3, and 4)
2. Brea Canyon Road via SR-57 (No Build and Alternatives 2, 3, and 4)
3. Fairway Drive

SR-60 EB

4. Fairway Drive
5. Lemon Avenue (Alternatives 3 and 4)
6. West Golden Springs Drive (Alternative 2)
7. East Golden Springs Drive (No Build and Alternative 2)

Project Study Area Freeway Weaving Section

1. EB SR-60 between on-ramp from Golden Springs Drive and SR-57

The project study area intersections and freeway segments are shown in detail on Figure 6 in the *Draft Traffic Study*.

2.8.2.5 Existing Levels of Service

Existing a.m. and p.m. peak-hour operating conditions were developed based on traffic counts at the study area intersections conducted in 2006. Based on those traffic counts, LOS were calculated for all the study area locations as summarized in Table 2.8-4 and described briefly below.

Existing Intersections LOS

As shown in Table 2.8-4, under 2006 conditions, the following 2, of the 11 study intersections, currently operate near or over capacity (i.e., LOS E or F):

- Fairway Drive and Colima Road during the p.m. peak period, LOS F
- Brea Canyon Road and Golden Springs Drive during the p.m. peak period, LOS F

The remaining 9 study area intersections currently operate at LOS D or better.

Existing Road Segments LOS

Under 2006 conditions, 5 of the 7 road segments operate near or at capacity during the a.m. and/or p.m. peak hours. As shown in Table 2.8-4, the four segments of Golden Springs Drive near Lemon Avenue and Brea Canyon Road currently operate at LOS E or F. In addition, Brea Canyon Road north of the SR-60 WB ramps also operates at LOS F in the a.m. and p.m. peak hours.

Existing SR-60 Mainline LOS

Based on freeway traffic volumes obtained from Caltrans and the HCM methodology for calculating freeway operations, SR-60 between Fairway Drive and Brea Canyon Road currently operates at acceptable LOS (LOS C and D) during both the a.m. and p.m. peak hours.

Existing Ramps (Merge) LOS

As shown in Table 2.8-4, analysis of the WB on-ramps (ramp merge) shows that the Fairway Drive WB on-ramps currently operate at acceptable LOS (LOS C and D). The WB Brea Canyon on-ramp is currently closed for construction. Analysis of the EB on-ramps shows that both the Fairway Drive EB on-ramps (NB and SB) currently operate at acceptable LOS (LOS C) during the a.m. and p.m. peak hours.

Table 2.8-4 Existing Level of Service Summary

Study Intersections		AM Peak		PM Peak	
		V/C or Del/Veh	LOS	V/C or Del/Veh	LOS
1	Fairway Dr & SR-60 WB Ramps [a]	24.9	C	28.4	C
2	Fairway Dr & SR-60 EB Ramps [a]	13.8	B	11.0	B
3	Fairway Dr & Colima Rd [b]	0.739	C	**1.001**	**F**
4	Lemon Ave & Valley Blvd [b]	0.724	C	0.797	C
5	Lemon Ave & Golden Springs Dr [b]	0.784	C	0.669	B
6	Golden Springs Dr & SR-60 EB Ramps [a]	33.2	C	43.7	D
7	Brea Canyon Rd & SR-60 WB Ramps [a]	13.7	B	13.0	B
8	Brea Canyon Rd & Golden Springs Dr [b]	0.731	C	**1.033**	**F**
9	Lemon Ave & SR-60 WB Ramps	Future Intersection			
10	Lemon Ave & SR-60 EB Ramps	Future Intersection			
11	West Golden Springs Dr & SR-60 EB Off-Ramp	Future Intersection			
[a] LOS based on *Highway Capacity Manual* (2000) method.					
[b] LOS based on ICU method.					
Roadway Segments		**AM Peak**		**PM Peak**	
		V/C	**LOS**	**V/C**	**LOS**
1	Lemon Ave - North of SR-60	0.849	D	0.746	C
2	Lemon Ave - South of SR-60	0.849	D	0.746	C
3	Golden Springs Dr - West of Lemon Ave	0.942	**E**	1.222	**F**
4	Golden Springs Dr - East of Lemon Ave	0.906	**E**	1.164	**F**
5	Golden Springs Dr - West of Brea Canyon Rd	1.264	**F**	1.653	**F**
6	Golden Springs Dr - East of Brea Canyon Rd	1.102	**F**	1.288	**F**
7	Brea Canyon Rd - North of Brea Canyon WB Ramps	1.188	**F**	1.447	**F**
Mainline Freeway		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**
Mainline Freeway – SR-60 (EB)					
1	Fairway Dr to Lemon Ave				
2	Lemon Ave to Brea Canyon Rd	17.8	D	-	F [a]
Mainline Freeway – SR-60 (WB)					
3	Brea Canyon Rd to Lemon Ave				
4	Lemon Ave to Fairway Dr	20.5	D	17.6	D
[a] LOS based on field observations.					
Ramp - Merge		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**
Freeway On-Ramp (Merge) – SR-60 (WB)					
1	Brea Canyon Rd	Not in Operation			
2	Lemon Ave	Future Ramp			
3	Fairway Dr	15.4	C	14.8	C
Freeway On-Ramp (Merge) – SR-60 (EB)					
4	Northbound Fairway Dr	14.5	C	13.3	C
5	Southbound Fairway Dr	13.4	C	12.3	C
6	Lemon Ave	Future Ramp			
Ramp - Diverge		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**
Freeway Off-Ramp (Diverge) - SR-60 WB)					
1	Brea Canyon Rd	22.1	D	19.6	D
2	Fairway Dr	22.2	**E**	19.7	D
Freeway Off-Ramp (Diverge) - SR-60 EB)					
3	Fairway Dr	20.8	D	17.5	D
4	Lemon Ave	Future Ramp			
5	West Golden Springs Dr	Future Ramp			
6	East Golden Springs Dr	19.4	D	17.2	D
Freeway - Weaving		**AM Peak**		**PM Peak**	

		Density	LOS	Density	LOS
1	EB On-Ramp from Golden Springs Drive to SR-57	15.0	C	15.3	C

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2007).
v/c = volume-to-capacity
Del/Veh = delay per vehicle

Existing Ramps (Diverge) LOS

Analysis of the WB off-ramps (ramp diverge) shows that all ramps are operating at acceptable LOS (LOS D) with the exception of the Fairway Drive WB off-ramp, which currently operates at or near capacity (LOS E).

Existing Weaving LOS

Based on Caltrans data, the weaving section on EB SR-60 between the on-ramp from Golden Springs Drive and SR-57 is currently operating at acceptable LOS (LOS C) during the a.m. and p.m. peak hours.

2.8.3 Impacts

2.8.3.1 Study Scenarios

The traffic study addressed the following scenarios:

- Existing 2006 Conditions
- Future 2030 No Build Alternative (No Project)
- Future 2030 with Alternative 1
- Future 2030 with Alternative 2
- Future 2030 with Alternative 3
- Future 2030 with Alternative 4

The analyses of these scenarios included detailed analysis of morning a.m. and evening p.m. peak hours of traffic at all study locations. The *Draft Traffic Study* provides a detailed description of the methodology and analyses to forecast future traffic conditions in 2030, with and without the proposed project. The findings from those analyses are summarized in the following sections.

Regional study locations (freeways, ramps, and ramp intersections) under Caltrans jurisdiction were analyzed using HCM methodology, as previously discussed. For that analysis, LOS results are based on average vehicle delay at signalized intersections and density at the freeway mainline, ramp, and weaving section. To ensure that the freeway system maintains adequate capacity, a target LOS E was identified as desirable for 2030 freeway operations.

For local intersections and road segments under the jurisdiction of the Cities of Diamond Bar and Industry, the study used the City of Diamond Bar traffic criterian. Based on those criteria, an adverse traffic impact is an increase in the volume-to-capacity (v/c) ratio of 0.02 (2 percent) or greater that results in a LOS E or F at that intersection or road segment.

The proposed SR-60/Lemon Avenue interchange project is not expected to substantially affect regional traffic levels because the project is considered an enhancement to the existing circulation system. Potential impacts identified are associated with the redistribution of traffic, mainly on the local road system, which may affect certain local intersections and specific freeway access points, as described in the following sections.

2.8.3.2 Future 2030 No Build Conditions

Table 2.8-5 summarizes the LOS analysis for the 2030 No Build project scenario. The findings of that analysis are summarized below.

2030 No Build Intersections LOS

As shown in Table 2.8-5, under the 2030 No Build Alternative, the following 3 of the 11 study area intersections are forecast to operate near or over capacity (i.e., LOS E or F):

- Fairway Drive and Colima Road during the p.m. peak hour, LOS F
- Lemon Avenue and Valley Boulevard during the p.m. peak hour, LOS E
- Brea Canyon Road and Golden Springs Drive during the a.m. peak hour, LOS E; during the p.m. peak hour, LOS F

The remaining 8 study intersections are forecast to operate at LOS D or better in 2030 under the No Build Alternative.

2030 No Build Road Segments LOS

As shown earlier, under 2006 conditions, 5 of the 7 road segments operate near or at capacity during the a.m. and/or p.m. peak hours. As shown in Table 2.8-5, all 7 road segments are forecast to operate at near or over capacity (LOS E or F) during the a.m. and/or p.m. peak hour in 2030 under the No Build Alternative.

Table 2.8-5 Future 2030 No Build Level of Service Summary

Study Intersections		Existing 2006 Conditions				2030 No Build Alternative			
		AM Peak		PM Peak		AM Peak		PM Peak	
		V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS
1	Fairway Dr & SR-60 WB Ramps [a]	24.9	C	28.4	C	29.5	C	38.5	D
2	Fairway Dr & SR-60 EB Ramps [a]	13.8	B	11.0	B	14.9	B	11.7	B
3	Fairway Dr & Colima Rd [b]	0.739	C	**1.001**	**F**	0.815	D	**1.109**	**F**
4	Lemon Ave & Valley Blvd [b]	0.724	C	0.797	C	0.824	D	**0.908**	**E**
5	Lemon Ave & Golden Springs Dr [b]	0.784	C	0.669	B	0.849	D	0.744	C
6	Golden Springs Dr & SR-60 EB Ramps [a]	33.2	C	43.7	D	38.6	D	52.5	D
7	Brea Canyon Rd & SR-60 WB Ramps [a]	13.7	B	13.0	B	25.0	C	17.7	B
8	Brea Canyon Rd & Golden Springs Dr [b]	0.731	C	**1.033**	**F**	**0.925**	**E**	**1.100**	**F**
9	Lemon Ave & SR-60 WB Ramps	Future Intersection				Not Included In This Alternative			
10	Lemon Ave & SR-60 EB Ramps	Future Intersection				Not Included In This Alternative			
11	West Golden Springs Dr & SR-60 EB Off-Ramp	Future Intersection				Not Included In This Alternative			
[a] LOS based on *Highway Capacity Manual* (2000) method.									
[b] LOS based on ICU method.									
Roadway Segments		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		V/C	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
1	Lemon Ave - North of SR-60	0.849	D	0.746	C	0.944	**E**	0.849	D
2	Lemon Ave - South of SR-60	0.849	D	0.746	C	0.944	**E**	0.849	D
3	Golden Springs Dr - West of Lemon Ave	0.942	**E**	1.222	**F**	0.996	**E**	1.294	**F**
4	Golden Springs Dr - East of Lemon Ave	0.906	**E**	1.164	**F**	1.013	**F**	1.293	**F**
5	Golden Springs Dr - West of Brea Canyon Rd	1.264	**F**	1.653	**F**	1.613	**F**	2.019	**F**
6	Golden Springs Dr - East of Brea Canyon Rd	1.102	**F**	1.288	**F**	1.740	**F**	1.937	**F**
7	Brea Canyon Rd - North of Brea Canyon WB Ramps	1.188	**F**	1.447	**F**	1.899	**F**	1.995	**F**
Mainline Freeway		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**
Mainline Freeway - SR-60 (EB)									
1	Fairway Dr to Lemon Ave								
2	Lemon Ave to Brea Canyon Rd	17.0	D	-	F [a]	19.2	D	-	**F**
Mainline Freeway - SR-60 (WB)									
3	Brea Canyon Rd to Lemon Ave								
4	Lemon Ave to Fairway Dr	19.4	D	16.9	D	22.8	**E**	21.2	D
[a] LOS based on field observations.									

Ramp - Merge		AM Peak		PM Peak		AM Peak		PM Peak	
		Density	LOS	Density	LOS	Density	LOS	Density	LOS
Freeway On-Ramp (Merge) - SR-60 (WB)									
1	Brea Canyon Rd	Not in Operation				16.8	C	16.0	C
2	Lemon Ave	Future Ramp				Not Included In This Alternative			
3	Fairway Dr	15.4	C	14.8	C	16.5	C	16.4	C
Freeway On-Ramp (Merge) - SR-60 (EB)									
4	Northbound Fairway Dr	14.5	C	13.3	C	15.6	C	15.1	C
5	Southbound Fairway Dr	13.4	C	12.3	C	14.4	C	13.9	C
6	Lemon Ave	Future Ramp				Not Included In This Alternative			
Ramp - Diverge		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**
Freeway Off-Ramp (Diverge) - SR-60 WB)									
1	Brea Canyon Rd	22.1	D	19.6	D	New Connector Rd/Flyover			
2	Fairway Dr	22.2	**E**	19.7	D	24.3	**E**	22.7	**E**
Freeway Off-Ramp (Diverge) - SR-60 EB)									
3	Fairway Dr	20.8	D	17.5	D	22.7	**E**	20.1	D
4	Lemon Ave	Future Ramp				Not Included In This Alternative			
5	West Golden Springs Dr	Future Ramp				Not Included In This Alternative			
6	East Golden Springs Dr	19.4	D	17.2	D	21.5	D	19.7	D
Freeway - Weaving		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**
1	EB On-Ramp from Golden Springs Drive to SR-57	15.0	C	15.3	C	22.8	**E**	26.4	**E**

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2007).

2030 Without Project SR-60 Mainline LOS

Based on the freeway traffic forecasts, mainline operations between Fairway Drive and Brea Canyon Road are expected to operate at acceptable LOS in 2030 under the No Build Alternative. The LOS on the WB segment of SR-60 between Lemon Avenue and Fairway Drive is expected to deteriorate from LOS D to LOS E in 2030 under the No Build Alternative.

2030 No Build Ramps (Merge) LOS

As shown in Table 2.8-5, analysis of the WB on-ramps (ramp merge) indicates that all the study area on-ramps are expected to operate at acceptable LOS (LOS C) in 2030 under the No Build Alternative.

2030 No Build Ramps (Diverge) LOS

Analysis of the WB off-ramps (ramp diverge) shows that all but the following two ramps are forecast to operate at acceptable LOS (LOS D) in 2030 under the No Build Alternative:

- Fairway Drive WB off-ramp, LOS E during the a.m. and p.m. peak hours
- Fairway Drive EB off-ramp, LOS E during the a.m. peak hour

2030 No Build Weaving LOS

Based on freeway forecasts, the weaving section along EB SR-60 between the on-ramp from Golden Springs Drive and SR-57 is forecast to deteriorate to LOS E during both the a.m. and p.m. peak hours in 2030 under the No Build Alternative.

2.8.3.3 Future 2030 With Project Conditions With Alternative 2

Alternative 2 proposes to construct a WB on-ramp at Lemon Avenue and an EB off-ramp via Golden Springs Drive (western segment near Lemon Avenue). The existing WB ramps at Brea Canyon Road and EB ramps at East Golden Springs Drive would remain under Alternative 2.

Alternative 2 would provide another option for vehicles bound for WB SR-60. In addition to the existing WB on-ramps at Brea Canyon Road and Fairway Drive, Lemon Avenue would provide an additional on-ramp to WB SR-60 under Alternative 2. Alternative 2 would also provide an option to exit SR-60 on Golden Springs Drive near Lemon Avenue in addition to the existing off-ramp on Golden Springs Drive near Brea Canyon Road. At this time, the proposed EB off-ramp is anticipated to be restricted to right turns only.

Table 2.8-6 summarizes the LOS analysis for 2030 with Alternative 2. Table 2.8-6 also provides a comparison of the LOS between Alternative 2 and Alternative 1 (No Build) for the purpose of identifying potential adverse traffic impacts under Alternative 2. Based on that analysis, only one location is identified as being potentially adversely impacted under 2030 Alternative 2 conditions:

- Intersection of Lemon Avenue and Valley Boulevard (p.m. peak hour)

Table 2.8-6 2030 With Alternative 2 Level of Service Summary

Study Intersections		Future No Build				Alternative 2						
		AM Peak		PM Peak		AM Peak		PM Peak		Change in V/C, Delay		
		V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	AM Peak	PM Peak	Adverse Impact?
1	Fairway Dr & SR-60 WB Ramps [a]	29.5	C	38.5	D	24.8	C	28.7	C	-4.7	-9.8	No
2	Fairway Dr & SR-60 EB Ramps [a]	14.9	B	11.7	B	14.8	B	11.8	B	-0.1	0.1	No
3	Fairway Dr & Colima Rd [b]	0.815	D	**1.109**	**F**	0.806	D	**1.109**	**F**	-0.009	0.000	No
4	Lemon Ave & Valley Blvd [b]	0.824	D	**0.908**	**E**	0.820	D	**0.966**	**E**	-0.004	0.058	**Yes**
5	Lemon Ave & Golden Springs Dr [b]	0.849	D	0.744	C	0.878	D	0.788	C	0.029	0.044	No
6	Golden Springs Dr & SR-60 EB Ramps [a]	38.6	D	52.5	D	37.9	D	**57.2**	**E**	-0.7	4.7	No
7	Brea Canyon Rd & SR-60 WB Ramps [a]	25.0	C	17.7	B	24.7	C	17.8	B	-0.3	0.1	No
8	Brea Canyon Rd & Golden Springs Dr [b]	**0.925**	**E**	**1.100**	**F**	**0.910**	**E**	**1.102**	**F**	-0.015	0.002	No
9	Lemon Ave & SR-60 WB Ramps	Not Included In This Alternative				3.7	A	2.2	A	-	-	No
10	Lemon Ave & SR-60 EB Ramps	Not Included In This Alternative				Not Included In This Alternative				-	-	No
11	West Golden Springs Dr & SR-60 EB Off-Ramp	Not Included In This Alternative				12.5	B	11.3	**B**	-	-	No
[a]	LOS based on *Highway Capacity Manual* (2000) method.											
[b]	LOS based on ICU method.											
Roadway Segments		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in V/C Delay**		**Adverse Impact?**
		V/C	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**AM Peak**	**PM Peak**	
1	Lemon Ave - North of SR-60	0.944	E	0.849	D	0.846	D	0.821	D	-0.098	-0.028	No
2	Lemon Ave - South of SR-60	0.944	E	0.849	D	0.786	C	0.711	C	-0.158	-0.137	No
3	Golden Springs Dr - West of Lemon Ave	0.996	E	1.294	F	0.983	E	1.292	F	-0.013	-0.002	No
4	Golden Springs Dr - East of Lemon Ave	1.013	F	1.293	F	1.004	F	1.312	F	-0.009	0.019	No
5	Golden Springs Dr - West of Brea Canyon Rd	1.613	F	2.019	F	1.603	F	2.015	F	-0.010	-0.004	No
6	Golden Springs Dr - East of Brea Canyon Rd	1.740	F	1.937	F	1.740	F	1.937	F	0.000	0.000	No
7	Brea Canyon Rd - North of Brea Canyon WB Ramps	1.899	F	1.995	F	1.865	F	1.946	F	-0.034	-0.049	No

Mainline Freeway		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
Mainline Freeway - SR-60 (EB)												
1	Fairway Dr to Lemon Ave	20.2	D	-	F[a]	20.2	D	-	F[a]	0.0	0.0	No
2	Lemon Ave to Brea Canyon Rd	20.2	D	-	F[a]	20.0	D	-	F[a]	-0.2	0.0	No
Mainline Freeway - SR-60 (WB)												
3	Brea Canyon Rd to Lemon Ave	24.6	E	22.6	E	24.1	E	22.1	E	-0.5	-0.5	No
4	Lemon Ave to Fairway Dr	24.6	E	22.6	E	25.8	E	24.0	E	1.2	1.4	No
[a]	LOS based on existing operations.											

Ramp - Merge		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
Freeway On-Ramp (Merge) - SR-60 (WB)												
1	Brea Canyon Rd	16.8	C	16.0	C	16.8	C	16.0	C	0.0	0.0	No
2	Lemon Ave	Not Included In This Alternative				17.7	D	17.1	D	-	-	No
3	Fairway Dr	16.5	C	16.4	C	16.8	C	16.7	C	0.3	0.3	No
Freeway On-Ramp (Merge) - SR-60 (EB)												
4	Northbound Fairway Dr	15.6	C	15.1	C	15.6	C	15.1	C	0.0	0.0	No
5	Southbound Fairway Dr	14.4	C	13.9	C	14.4	C	13.9	C	0.0	0.0	No
6	Lemon Ave	Not Included In This Alternative				Not Included In This Alternative				-	-	No

Ramp - Diverge		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
Freeway Off-Ramp (Diverge) - SR-60 (WB)												
1	Brea Canyon Rd	New Connector Rd/Flyover				New Connector Rd/Flyover				-	-	No
2	Fairway Dr	24.3	E	22.7	E	24.7	E	23.3	E	0.4	0.6	No
Freeway Off-Ramp (Diverge) - SR-60 (EB)												
3	Fairway Dr	22.7	E	20.1	D	22.7	E	20.1	D	0.0	0.0	No
4	Lemon Ave	Not Included In This Alternative				Not Included In This Alternative				-	-	No
5	West Golden Springs Dr	Not Included In This Alternative				20.0	D	19.2	D	-	-	No
6	East Golden Springs Dr	21.5	D	19.7	D	21.3	D	19.5	D	-0.2	-0.2	No

Freeway - Weaving		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
1	EB On-Ramp from Golden Springs Drive to SR-57	22.8	E	26.4	E	22.8	E	26.4	E	0.0	0.0	No

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2006).

The City of Industry is currently pursuing improvements at the intersection of Lemon Avenue and Valley Boulevard separately from the proposed SR-60/Lemon Avenue interchange project. Those intersection improvements include an additional WB left-turn lane at that intersection. If that additional WB left-turn lane is assumed to be in place when Alternative 2 is operational, then this intersection would not be adversely affected by Alternative 2. The intersection improvements are being undertaken by the City of Industry as a cooperative undertaking with the City of Walnut and the UPRR (VB-0320 R Valley Boulevard Intersection and Traffic Signal Modifications at Fairway Drive and Lemon Avenue). The Valley Boulevard/Lemon Avenue improvements are currently in final design. Construction is scheduled to begin in June 2008 and these intersection improvements are scheduled to be operational in September 2008. Based on the current schedule for those intersection improvements, it is assumed that they will be in place by the time Alternative 2 becomes operational. Therefore, Alternative 2 would not result in adverse transportation impacts at the intersection of Lemon Avenue and Valley Boulevard.

2.8.3.4 Future 2030 With Project Conditions With Alternative 3

Alternative 3 proposes to construct a 3/4 diamond interchange, which excludes a WB off-ramp. In addition, the existing EB ramps at Golden Springs Drive would be eliminated under Alternative 3. Alternative 3 would provide another option for vehicles bound for WB SR-60 in addition to the existing WB on-ramps at Brea Canyon Road and Fairway Drive. Lemon Avenue would also provide EB on- and off-ramps to SR-60.

Based on consultation with staff from the Cities of Diamond Bar and Industry, the traffic volume forecasts assume the prohibition of truck traffic on Golden Springs Drive under this Alternative. With the proposed SR-60/Lemon Avenue interchange improvements under Alternative 3, EB SR-60 truck traffic will be redirected to the new interchange at Lemon Avenue via Currier Road.

As part of Alternative 3, the intersection of Lemon Avenue and Golden Springs Drive will be improved to provide an additional SB left-turn lane and EB left-turn lane. The SB approach would provide two exclusive left-turn lanes, one through lane, and one right-turn lane. The EB approach would provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. In addition, the north-south signal phasing would be modified from its current split-phase configuration to protected phasing. It is also anticipated that the WB and SB approaches will include a right-turn overlap phase.

Under Alternative 3, the existing EB SR-60 freeway ramps at Golden Springs Drive will be relocated to Lemon Avenue, which would improve the substandard weaving section to SR-57 and improve traffic operations and safety.

Table 2.8-7 summarizes the LOS results for Alternative 3 at the study area locations. Table 2.8-7 also provides a comparison of the LOS results for Alternative 3 and Alternative 1 (No Build) for the purpose of identifying potential adverse traffic impacts under Alternative 3. Based on the results shown in Table 2.8-7, the following are locations identified as being potentially adversely impacted under 2030 Alternative 3 conditions:

- Intersection of Lemon Avenue and Valley Boulevard (p.m. peak hour)
- Road Segment of Golden Springs Drive east of Lemon Avenue (a.m. and p.m. peak hours)

As described earlier under Alternative 2, the City of Industry is currently pursuing improvements at the intersection of Lemon Avenue and Valley Boulevard, including an additional WB left-turn lane. Those intersection improvements being undertaken by the City of Industry are assumed to be in place by the time Alternative 3 becomes operational. Therefore, Alternative 3 would not result in adverse transportation impacts at the intersection of Lemon Avenue and Valley Boulevard.

As shown in Table 2.8-7, the segment of Golden Springs Drive east of Lemon Avenue would continue to operate at LOS F under the No Build Alternative and Alternative 3 in 2030. This road segment would be considered to be locally adversely affected under the City's impact criteria; however, because this road segment would operate at LOS F with or without Alternative 3, Caltrans does not consider this street segment to be adversely affected by Alternative 3.

2.8.3.5 Future 2030 With Project Conditions With Alternative 4

Alternative 4 proposes to construct a modified diamond interchange with a service road north of and parallel to SR-60 to connect Brea Canyon Road to Lemon Avenue. The existing EB ramps at Golden Springs Drive and WB on-ramp from Brea Canyon would be eliminated.

Table 2.8-7 2030 With Alternative 3 Level of Service Summary

Study Intersections		Future No Build				Alternative 3						
		AM Peak		PM Peak		AM Peak		PM Peak		Change in V/C, Delay		Adverse Impact?
		V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	AM Peak	PM Peak	
1	Fairway Dr & SR-60 WB Ramps [a]	29.5	C	38.5	D	25.4	C	28.7	C	-4.1	-9.8	No
2	Fairway Dr & SR-60 EB Ramps [a]	14.9	B	11.7	B	14.8	B	11.8	B	-0.1	0.1	No
3	Fairway Dr & Colima Rd [b]	0.815	D	**1.109**	F	0.809	D	**1.109**	F	-0.006	0.000	No
4	Lemon Ave & Valley Blvd [b]	0.824	D	**0.908**	E	0.820	D	**0.973**	E	-0.004	0.065	Yes
5	Lemon Ave & Golden Springs Dr [b]	0.849	D	0.744	C	0.883	D	0.878	D	0.034	0.134	No
6	Golden Springs Dr & SR-60 EB Ramps [a]	38.6	D	52.5	D	Eliminated From This Alternative				---	---	No
7	Brea Canyon Rd & SR-60 WB Ramps [a]	25.0	C	17.7	B	23.6	C	17.0	B	-1.4	-0.7	No
8	Brea Canyon Rd & Golden Springs Dr [b]	**0.925**	E	**1.100**	F	**0.901**	E	**1.061**	F	-0.024	-0.039	No
9	Lemon Ave & SR-60 WB Ramps	Not Included In This Alternative				4.2	A	2.3	A	---	---	No
10	Lemon Ave & SR-60 EB Ramps	Not Included In This Alternative				19.8	B	20.1	C	---	---	No
11	West Golden Springs Dr & SR-60 EB Off-Ramp	Not Included In This Alternative				Doesn't Exist In This Alternative				---	---	No
[a]	LOS based on *Highway Capacity Manual* (2000) method.											
[b]	LOS based on ICU method.											

Roadway Segments		AM Peak		PM Peak		AM Peak		PM Peak		Change in V/C Delay		Adverse Impact?
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	AM Peak	PM Peak	
1	Lemon Ave - North of SR-60	0.944	E	0.849	D	0.750	C	0.724	C	-0.194	-0.125	No
2	Lemon Ave - South of SR-60	0.944	E	0.849	D	0.832	D	0.818	D	-0.112	-0.031	No
3	Golden Springs Dr - West of Lemon Ave	0.996	E	1.294	F	0.992	E	1.292	F	-0.004	-0.002	No
4	Golden Springs Dr - East of Lemon Ave	1.013	F	1.293	F	1.442	F	1.804	F	0.428	0.511	Yes
5	Golden Springs Dr - West of Brea Canyon Rd	1.613	F	2.019	F	1.431	F	1.872	F	-0.182	-0.147	No
6	Golden Springs Dr - East of Brea Canyon Rd	1.740	F	1.937	F	1.687	F	1.913	F	-0.053	-0.024	No
7	Brea Canyon Rd - North of Brea Canyon WB Ramps	1.899	F	1.995	F	1.797	F	1.887	F	-0.102	-0.108	No

Mainline Freeway		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
Mainline Freeway - SR-60 (EB)												
1	Fairway Dr to Lemon Ave	20.2	D	-	F[a]	20.2	D	-	F[a]	0.0	0.0	No
2	Lemon Ave to Brea Canyon Rd	20.2	D	-	F[a]	20.7	D	-	F[a]	0.5	0.0	No
Mainline Freeway - SR-60 (WB)												
3	Brea Canyon Rd to Lemon Ave	24.6	E	22.6	E	24.2	E	22.1	E	-0.4	-0.5	No
4	Lemon Ave to Fairway Dr	24.6	E	22.6	E	25.7	E	24.0	E	1.1	1.4	No
[a]	Level of Service based on existing operations.											
Ramp - Merge		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	**Impact?**
Freeway On-Ramp (Merge) - SR-60 (WB)												
1	Brea Canyon Rd	16.8	C	16.0	C	16.8	C	16.1	C	0.0	0.1	No
2	Lemon Ave	Not Included In This Alternative				17.4	D	16.7	C	---	---	No
3	Fairway Dr	16.5	C	16.4	C	16.7	C	16.7	C	0.2	0.3	No
Freeway On-Ramp (Merge) - SR-60 (EB)												
4	Northbound Fairway Dr	15.6	C	15.1	C	15.6	C	15.1	C	0.0	0.0	No
5	Southbound Fairway Dr	14.4	C	13.9	C	14.4	C	13.9	C	0.0	0.0	No
6	Lemon Ave	Not Included In This Alternative				Not Applicable				---	---	No
Ramp - Diverge		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	**Impact?**
Freeway Off-Ramp (Diverge) - SR-60 WB)												
1	Brea Canyon Rd	New Connector Rd/Flyover				New Connector Rd/Flyover				---	---	No
2	Fairway Dr	24.3	E	22.7	E	24.6	E	23.3	E	0.3	0.6	No
Freeway Off-Ramp (Diverge) - SR-60 EB)												
3	Fairway Dr	22.7	E	20.1	D	22.7	E	20.1	D	0.0	0.0	No
4	Lemon Ave	Not Included In This Alternative				21.7	D	20.0	D	---	---	No
5	West Golden Springs Dr	Not Included In This Alternative				Doesn't Exist In This Alternative				---	---	No
6	East Golden Springs Dr	21.5	D	19.7	D	Doesn't Exist In This Alternative				---	---	No
Freeway - Weaving		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	**Impact?**
1	EB On-Ramp from Golden Springs Drive to SR-57	22.8	E	26.4	E	Weaving Analysis Not Applicable				---	---	No

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2006).

As under Alternative 3, based on consultation with staff from the Cities of Diamond Bar and Industry, the traffic volume forecasts assume the prohibition of truck traffic on Golden Springs Drive and Brea Canyon Road under Alternative 4. With the proposed SR-60/Lemon Avenue interchange improvements under Alternative 4, SR-60 truck traffic will be redirected to the new interchange at Lemon Avenue via Currier Road and the service road.

As part of Alternative 4, the intersection of Lemon Avenue and Golden Springs Drive will be improved to provide an additional SB left-turn lane and EB left-turn lane. The SB approach would provide two exclusive left-turn lanes, one through lane, and one right-turn lane. The EB approach would provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. In addition, the north-south signal phasing would be modified from its current split-phase configuration to protected phasing. It is also anticipated that the WB and SB approaches would provide a right-turn overlap phase.

It should be noted that under Alternative 4, the existing EB SR-60 ramps at Golden Springs Drive will be removed, which would improve the substandard weaving section to SR-57. This would improve traffic operations and safety.

Table 2.8-8 summarizes the LOS results for Alternative 4 at the study area locations. Table 2.8-8 also provides a comparison of the LOS results of Alternative 4 and Alternative 1 (No Build) for the purpose of identifying potential adverse traffic impacts under Alternative 4. Based on the results shown in Table 2.8-8, the following locations were identified as being potentially adversely impacted under 2030 Alternative 4 conditions:

- Intersection of Lemon Avenue and Valley Boulevard during the p.m. peak hour
- Intersection of Brea Canyon Road and Golden Springs Drive during the a.m. peak hour
- Road segment of Golden Springs Drive east of Lemon Avenue during the a.m. and p.m. peak hours

As described earlier under Alternative 2, the City of Industry is currently pursuing improvements at the intersection of Lemon Avenue and Valley Boulevard, including an additional WB left-turn lane. Those intersection improvements being undertaken by the City of Industry are assumed to be in place by the time Alternative 4 becomes operational. Therefore, Alternative 4 would not result in adverse transportation impacts at the intersection of Lemon Avenue and Valley Boulevard.

Table 2.8-8 2030 With Alternative 4 Level of Service Summary

	Study Intersections	Future No Build				Alternative 4						
		AM Peak		PM Peak		AM Peak		PM Peak		Change in V/C Delay		Adverse Impact?
		V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	V/C or Del/Veh	LOS	AM Peak	PM Peak	
1	Fairway Dr & SR-60 WB Ramps [a]	29.5	C	38.5	D	25.4	C	28.7	C	-4.1	-9.8	No
2	Fairway Dr & SR-60 EB Ramps [a]	14.9	B	11.7	B	15.6	B	12.4	B	0.7	0.7	No
3	Fairway Dr & Colima Rd [b]	0.815	D	**1.109**	**F**	0.809	D	**1.109**	**F**	-0.006	0.000	No
4	Lemon Ave & Valley Blvd [b]	0.824	D	**0.908**	**E**	0.820	D	**0.973**	**E**	-0.004	0.065	**Yes**
5	Lemon Ave & Golden Springs Dr [b]	0.849	D	0.744	C	0.737	C	0.675	B	-0.112	-0.069	No
6	Golden Springs Dr & SR-60 EB Ramps [a]	38.6	D	52.5	D	Eliminated From This Alternative				---	---	No
7	Brea Canyon Rd & SR-60 WB Ramps [a]	25.0	C	17.7	B	40.6	D	26.0	C	15.6	8.3	No
8	Brea Canyon Rd & Golden Springs Dr [b]	**0.925**	**E**	**1.100**	**F**	**0.951**	**E**	**0.955**	**E**	0.026	-0.145	**Yes**
9	Lemon Ave & SR-60 WB Ramps	Not Included In This Alternative				18.6	B	21.0	C	---	---	No
10	Lemon Ave & SR-60 EB Ramps	Not Included In This Alternative				20.2	B	18.1	B	---	---	No
11	West Golden Springs Dr & SR-60 EB Off-Ramp	Not Included In This Alternative				Doesn't Exist In This Alternative				---	---	No
[a]	LOS based on *Highway Capacity Manual* (2000) method.											
[b]	LOS based on ICU method.											
	Roadway Segments	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in V/C Delay**		**Adverse Impact?**
		V/C	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**AM Peak**	**PM Peak**	
1	Lemon Ave - North of SR-60	0.944	E	0.849	D	0.849	D	0.791	C	-0.095	-0.058	No
2	Lemon Ave - South of SR-60	0.944	E	0.849	D	0.715	C	0.635	B	-0.229	-0.214	No
3	Golden Springs Dr - West of Lemon Ave	0.996	E	1.294	F	0.992	E	1.067	F	-0.004	-0.227	No
4	Golden Springs Dr - East of Lemon Ave	1.013	F	1.293	F	1.237	F	1.487	F	0.223	0.194	**Yes**
5	Golden Springs Dr - West of Brea Canyon Rd	1.613	F	2.019	F	1.256	F	1.624	F	-0.357	-0.395	No
6	Golden Springs Dr - East of Brea Canyon Rd	1.740	F	1.937	F	1.687	F	1.913	F	-0.053	-0.024	No
7	Brea Canyon Rd - North of Brea Canyon WB Ramps	1.899	F	1.995	F	1.701	F	1.883	F	-0.197	-0.112	No

Mainline Freeway		AM Peak		PM Peak		AM Peak		PM Peak		Change in Density		Adverse Impact?
		Density	LOS	Density	LOS	Density	LOS	Density	LOS	AM Peak	PM Peak	
Mainline Freeway - SR-60 (EB)												
1	Fairway Dr to Lemon Ave	20.2	D	-	F [a]	20.2	D	-	F [a]	0.0	-	No
2	Lemon Ave to Brea Canyon Rd	20.2	D	-	F [a]	21.0	D	-	F [a]	0.8	-	No
Mainline Freeway - SR-60 (WB)												
3	Brea Canyon Rd to Lemon Ave	24.6	**E**	22.6	E	20.8	**D**	18.8	D	-3.8	-3.8	No
4	Lemon Ave to Fairway Dr	24.6	**E**	22.6	E	25.7	**E**	**24.0**	**E**	1.1	1.4	No
[a]	LOS based on existing operations.											
Ramp - Merge		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse Impact?**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	
Freeway On-Ramp (Merge) - SR-60 (WB)												
1	Brea Canyon Rd	16.8	C	16.0	C	New Frontage Road				---	---	No
2	Lemon Ave	Not Included In This Alternative				16.5	C	15.8	C	---	---	No
3	Fairway Dr	16.5	C	16.4	C	16.7	C	16.7	C	0.2	0.3	No
Freeway On-Ramp (Merge) - SR-60 (EB)												
4	Northbound Fairway Dr	15.6	C	15.1	C	15.6	C	15.1	C	0.0	0.0	No
5	Southbound Fairway Dr	14.4	C	13.9	C	14.4	C	13.9	C	0.0	0.0	No
6	Lemon Ave	Not Included In This Alternative				Ramp Merge Eliminated				-	-	No
Ramp - Diverge		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse Impact?**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	
Freeway Off-Ramp (Diverge) - SR-60 (WB)												
1	Brea Canyon Rd	New Connector Rd/Flyover				New Connector Rd/Flyover				---	---	No
2	Fairway Dr	**24.3**	**E**	22.7	**E**	**24.6**	**E**	**23.3**	**E**	0.3	0.6	No
Freeway Off-Ramp (Diverge) - SR-60 (EB)												
3	Fairway Dr	**22.7**	**E**	20.1	D	**22.7**	**E**	20.1	D	0.0	0.0	No
4	Lemon Ave	Not Included In This Alternative				21.7	D	20.0	D	---	---	No
5	West Golden Springs Dr	Not Included In This Alternative				Doesn't Exist In This Alternative				---	---	No
6	East Golden Springs Dr	21.5	D	19.7	D	Doesn't Exist In This Alternative				---	---	No
Freeway - Weaving		**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**		**Change in Density**		**Adverse Impact?**
		Density	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**Density**	**LOS**	**AM Peak**	**PM Peak**	
1	EB On-Ramp from Golden Springs Drive to SR-57	22.8	E	26.4	E	Weaving Analysis Not Applicable				---	---	No

Source: *Draft Traffic Study* (Katz, Okitsu & Associates, 2006).

Based on the findings of the traffic analysis, Alternative 4 would result in an adverse impact at the intersection of Brea Canyon Road and Golden Springs Drive in the a.m. peak period. Modification of the existing traffic signal at this intersection to provide a right-turn overlap phase for WB traffic would avoid this adverse impact. As a result, the project description for Alternative 4 was modified, based on the findings of the traffic analysis, to include modifications to this existing signal and avoid this impact. Therefore, Alternative 4 would not result in an adverse impact at the intersection of Brea Canyon Road and Golden Springs Drive.

As shown in Table 2.8-8, the segment of Golden Springs Drive east of Lemon Avenue would continue to operate at LOS F under the No Build Alternative and Alternative 4 in 2030. This road segment would be considered to be locally adversely affected under the City's impact criteria; however, because this road segment would operate at LOS F with or without Alternative 4, Caltrans does not consider this segment to be adversely affected by Alternative 4.

2.8.3.6 Congestion Management Plan Conformance

The CMP was created Statewide as a result of Proposition 111 and was implemented locally by the MTA. The CMP for the County requires that the traffic impact of individual development projects that are potentially of regional significance be analyzed. A specific system of arterial roads plus all freeways comprises the CMP system. Per the CMP Transportation Impact Analysis (TIA) Guidelines, a traffic impact analysis is conducted:

- At CMP arterial monitoring intersections, including freeway on-ramps or off-ramps where the proposed project will add 50 or more vehicle trips during either a.m. or p.m. weekday peak hours
- At CMP mainline freeway monitoring locations where the project will add 150 or more trips in either direction during either the a.m. or p.m. weekday peak hours

Although the proposed SR-60/Lemon Avenue interchange project is not expected to generate new vehicular trips on area roads and freeways, a detailed *Draft Traffic Study,* including local and regional roads, was conducted. The *Draft Traffic Study* adequately addressed the County CMP guidelines.

2.8.3.7 Potential Impacts During Project Construction

The anticipated staging of the construction of Alternatives 2, 3, and 4 was summarized earlier in Table 1-16. It is anticipated that the construction of Alternatives 2, 3, and 4 will require some lane and road closures and will result in

detours and temporary traffic delays. Alternative 2 would require the importation of fill material. In addition, Alternatives 3 and 4 would result in the generation of excess material. Table 2.8-9 summarizes the amount of excess material that would be removed from the site under Alternatives 3 and 4 and the amount of imported material under Alternatives 2, 3, and 4. Table 2.8-9 also converts these volumes (in cubic yards [cy]) to truck trips, assuming 13 cy of material per trip.

Table 2.8-9 Summary of Imported and Exported Material by Alternative

Alternative	Imported Material		Exported Material		Total Truck Trips
	cubic yards (cy)	No. of Truck Trips	cubic yards (cy)	No. of Truck Trips	
2	20,418	1,571	0	0	1,571
3	0	0	19,822	1,525	1,525
4	0	0	39,730	3,056	3,056

The total number of truck trips for import and export of materials ranges from 1,525 for Alternative 3 to 3,056 for Alternative 4. These trips would be added to the area road system over the grading, excavation, and fill construction periods.

To reduce the potential impacts of project construction related to short-term delays and detours and construction haul vehicle trips, a TMP will be incorporated during construction. Refer to Mitigation Measure TRA-1 for a more detailed description of the TMP.

2.8.4 Avoidance, Minimization, and Mitigation Measures

2.8.4.1 Short-Term Measures

TRA-1 During final design, a detailed TMP will be developed for implementation during project construction. The TMP will be a specialized program tailored to accommodate major traffic movements during construction and to mitigate construction impacts by applying a variety of traffic management techniques. These techniques are anticipated to include, but not be limited to, traffic controls, traffic diversions to alternate routes, transportation demand management, public awareness measures (including signing, mailers, brochures, newspaper articles, the Internet), and a Construction Zone Enhanced Enforcement Program (COZEEP). The objective of the TMP is to maintain the safe movement of vehicles through the construction zone as well as the highest level of traffic circulation and

access during the project construction period. The TMP will include a public awareness campaign, a media communication program, and a construction detour and signing plan developed for the periods of ramp closures during each construction stage. During the ramp construction and realignment period, the Construction Management Team will conduct neighborhood meetings, as appropriate, to present project status, discuss construction-related issues and schedule, and respond to neighborhood comments and concerns. Once ramp construction is initiated, advance notice of the construction activities will be published in local newspapers, broadcast on radio stations, and transmitted on Changeable Message Signs (CMS). The detailed construction staging traffic control, detour, and signing plans for the project will be developed as part of the plans, specifications, and estimates (PS&E) phase.

2.8.4.2 Long-Term Measures

Alternatives 2, 3, and 4 will not result in adverse long-term adverse traffic impacts. No mitigation is needed.

2.9 Visual and Aesthetics

A *Visual Impact Assessment* (VIA) (LSA Associates, Inc., November 2006) was prepared to assess the potential visual impacts of the proposed SR-60/Lemon Avenue interchange project and identify measures to minimize adverse visual impacts on the surrounding visual environment. The findings of the VIA are summarized in this section. A copy of the VIA is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.9.1 Regulatory Setting

The National Environmental Policy Act of 1969, as amended (NEPA), establishes that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings [42 USC 4331(b)(2)]. To further emphasize this point, the FHWA, in its implementation of NEPA [23 USC 109(h)], directs that final decisions regarding projects be made in the best overall public interest, taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

CEQA establishes that it is the policy of the State to take all action necessary to provide the people of the State "with…enjoyment of *aesthetic*, natural, scenic and historic environmental qualities" [California Public Resources Code Section 21001(b)].

The VIA for the proposed SR-60/Lemon Avenue interchange project was prepared with consideration of the following guidelines:

- FHWA Technical Advisory T6640.8
- FHWA Guidance HI-88-054 (Visual Impact Assessment for Highway Projects)
- Title 23 USC 109(h)
- Caltrans guidance per the Standard Environmental Reference (SER) Web site
- FHWA Memorandum HEV-20 (August 18, 1986)
- FHWA DOT-FH-11-9694 (Visual Impact Assessment for Highway Projects, as published by the American Society of Landscape Architects)

2.9.2 Affected Environment

The visual study area refers to the proposed project's ultimate ROW and areas outside the ROW from where observers might see the project during and after construction.

The existing visual environment was characterized using field surveys of the project site and the immediately surrounding area. The field surveys were photodocumented to record the existing visual conditions. Land uses and topography were studied to help characterize the physical environment and establish the project viewsheds. A viewshed is the surface area that is visible from a variety of viewpoints. It extends to all areas that have a view of and from a project site and identifies potential views that a proposed project could affect.

The existing visual setting of the study area is characterized by SR-60, the Lemon Avenue UC, Golden Springs Drive, the Brea Canyon Road on- and off-ramps, embankments, and City and Caltrans ROW. The areas surrounding these public ROW are characterized by moderate- and high-density commercial and industrial uses, low- and medium-density residential uses, infrastructure, and urban landscaping. Roadside litter is commonly seen throughout the study area. The overall existing visual character of the study area is urban to semiurban.

Several existing walls between SR-60 and the adjacent land uses provide visual buffers in addition to sound attenuation. There are also walls between Golden Springs Drive and the residential areas to the south.

Vegetation in the study area is predominantly a mix of nonnative ruderal and ornamental vegetation. The study area is relatively flat, with no prominent geologic features in or adjacent to the project limits. The San Gabriel Mountains, located approximately 10 mi (16 km) to the north, are visible from the project area.

2.9.2.1 Viewer Groups

Any person with a view of the project site may be considered a sensitive viewer. For the proposed SR-60/Lemon Avenue interchange project, viewers range from those who use the roads and sidewalks in the project limits to those who see the project site from commercial, industrial, and residential uses outside the project limits. A viewer group is a group of persons that might be affected by the introduction of a project into a viewshed based on location, activity, and length of exposure to a view. Viewers can respond differently to the same visual changes based on their visual preferences. Viewer response to physical changes in the visual environment affects the perceived

level of change or visual impact. The viewer groups in the project area identified in the VIA are:

- **Commuters:** SR-60 is a major east-west transportation facility that connects eastern Los Angeles County to Riverside County, Arizona, and beyond. The project study area is visible to people traveling on SR-60, which includes local and regional daily commuters and travelers, and has a low sensitivity to visual change since its exposure to any specific view is brief in duration.
- **Pedestrians:** During the visual field studies that were conducted from morning to early afternoon on weekdays along the roads in the project limits, fewer than five pedestrians were observed at any one time. The businesses along the north side of Golden Springs Drive in the study area are generally accessed via automobile rather than by foot or bicycle. This viewer group would have a moderate sensitivity to visual changes.
- **Residents:** Two residential areas south of Golden Springs Drive are within view of the project site. One residential area is along an approximately 500 ft (152 m) long segment of Lemon Avenue from Golden Springs Drive to Willow Bud Drive. Golden Springs Drive and the Lemon Avenue UC can be seen from areas on this segment of Lemon Avenue. While Lemon Avenue and Golden Springs Drive are not aesthetic resources, the VIA considered the potential visual changes to these areas from the viewpoint of residents, who are considered to have a high sensitivity to visual change due to their permanent presence in the area.

2.9.3 Impacts

The proposed SR-60/Lemon Avenue interchange project would have a permanent adverse visual impact if the project:

- Blocked scenic views (e.g., mountains, ocean, rivers, or notable manmade structures)
- Altered the appearance of designated scenic resources along or near a State- or County-designated scenic highway or vista point
- Created substantial new light, glare, shade, or shadow to any surrounding areas
- Changed the quality and character of the existing landscape setting to an area with less appealing visual quality and character
- Is inconsistent with applicable local guidelines or regulations relating to visual resources

The degree of visual quality in a view was evaluated using the following FHWA descriptive terms:

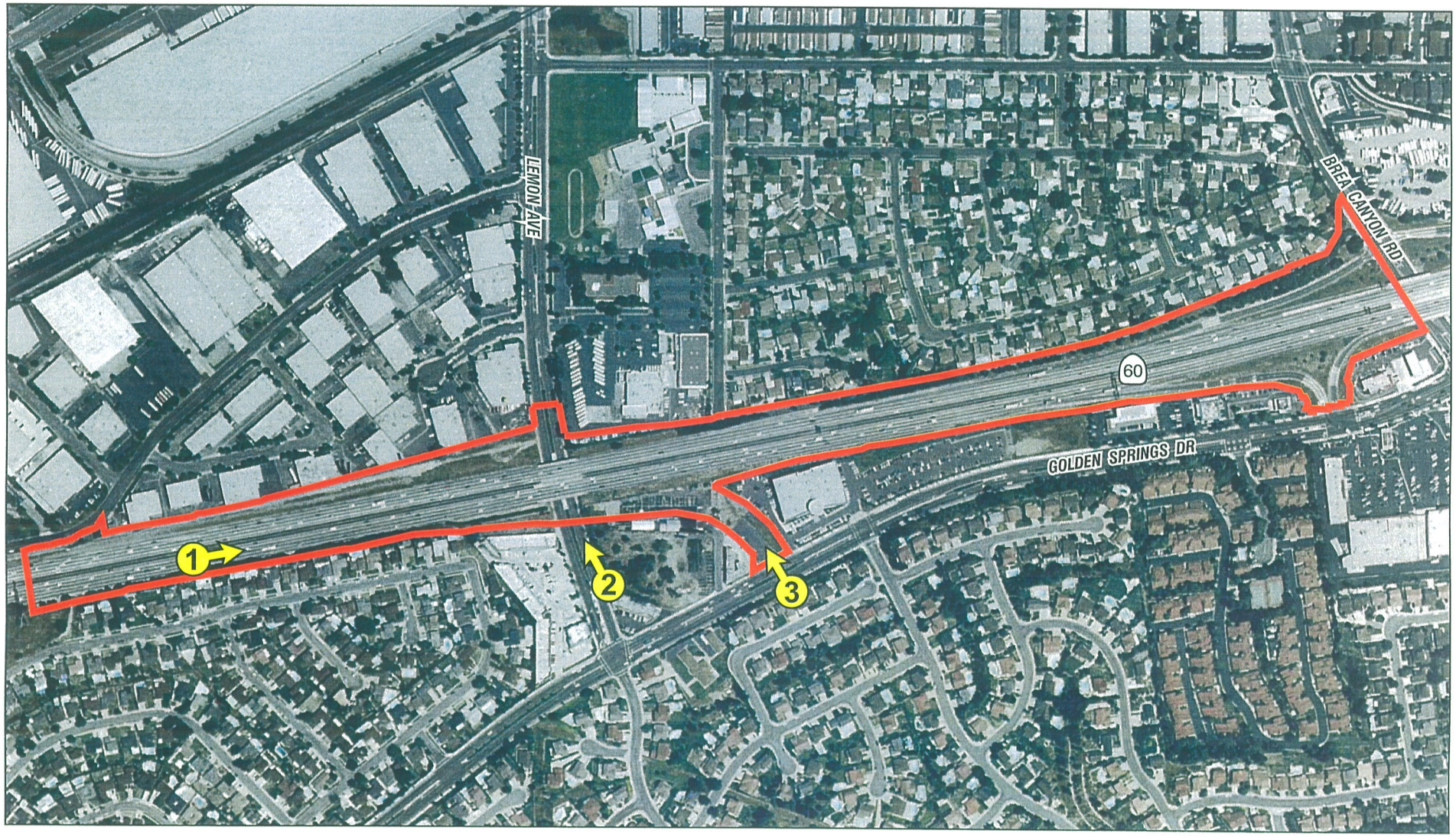
- **Vividness:** Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns (e.g., the vividness of Niagara Falls).
- **Intactness:** The visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes and natural settings (e.g., a two-lane road that meanders through the countryside).
- **Unity:** The visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape (e.g., an English or Japanese garden).

Visual impacts under the project alternatives were analyzed for three key views. A key view is a photographic representation of a typical existing viewshed within the study area that incorporates the best range of visual resources as seen by viewer groups. Because it is not feasible to analyze every view in the project study area, three key views were selected that most clearly display the anticipated visual effects of the proposed project. The key views represent the primary viewer groups (commuters, pedestrians, and residents) that would potentially be affected by the project. The key views represent the visual quality of typical existing viewsheds. The locations and directions of the key views are shown in Figure 2.9-1. Existing Key Views 1, 2, and 3 are shown on Figures 2.9-2, 2.9-3, and 2.9-4, respectively. Figures 2.9-2, 2.9-3, and 2.9-4 also include visual simulation representations of Alternatives 2, 3, and 4 as discussed below.

2.9.3.1 Permanent Impacts

Key View 1 (Alternatives 2, 3, and 4)

Key View 1 is from the point of view of the commuter group traveling east on SR-60 approximately 100 ft (30 m) west of Lemon Avenue, as depicted in Figure 2.9-2. The visual simulation shows the new EB Lemon Avenue off-ramp that would be constructed under Alternatives 3 and 4. The height of the wall on the right would be increased by 2–4 ft (0.6–1.2 m) for sound attenuation. The changes proposed under Alternative 2 would be similar to those in this visual simulation, only farther east on SR-60. The overall visual quality, character, and experience for commuters would change minimally under Alternatives 2, 3, or 4. The main physical change that would



LEGEND

(#) - View Location/Direction

- Project Site

N

0 250 500

FEET (APPROXIMATE)

SOURCE: Eagle Aerial, 2004

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FIGURE 2.9-1
Key View Locations

State Route 60/Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

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Existing View 1: Eastbound State Route 60

Visual Simulation for Alternatives 3 and 4

FIGURE 2.9-2
Key View 1

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.0/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: LSA Associates, Inc. (2006), SoftMirage (2007).

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Existing View 2: Northbound Lemon Avenue

Visual Simulation for Alternatives 3 and 4

FIGURE 2.9-3
Key View 2

State Route 60/Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: LSA Associates, Inc. (2006), SoftMirage (2007).

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Existing View 3: Golden Springs Drive

Visual Simulation for Alternative 2 showing eastbound SR-60 off-ramp.

FIGURE 2.9-4

State Route 60/Lemon Avenue Interchange Project
Key View 3
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 224100

SOURCE: LSA Associates, Inc. (2006), SoftMirage (2007).

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occur in this viewshed and similar views along SR-60 would be the addition of ground-level off- and on-ramps. There is no change in the visual quality with implementation of the proposed project. Therefore, adverse visual impacts to this viewshed and related viewsheds (e.g., WB SR-60 off-ramp at Lemon Avenue) throughout the study area are not anticipated under the proposed Build Alternatives.

Key View 2 (Alternatives 3 and 4)

Key View 2 is a north-facing view of Lemon Avenue showing the highway overhead crossing as depicted in Figure 2.9-3. The view simulation for Key View 2 represents the visual conditions of Alternatives 3 and 4, which both include on- and off-ramps that would connect Lemon Avenue to SR-60. The visual simulation shows the terminus of the EB off-ramp as it connects to Lemon Avenue before the overhead. Viewers of Key View 2 would notice an increase in traffic volume anticipated from the new interchange at Lemon Avenue. Therefore, the visual quality under Alternatives 3 and 4 would decrease slightly at Key View 2.

Key View 3 (Alternative 2)

Figure 2.9-4 shows the existing and visual simulation for Alternative 2 from Key View 3. Key View 3 is the point of view of a pedestrian from the south side of Golden Springs Drive facing northwest. The visual simulation shows a new EB off-ramp that terminates at Golden Springs Drive. The overall existing visual quality of Key View 3 is low due to several encroachments in the viewshed such as Golden Springs Drive, the parking lot and chain-link fence, and the utility poles and SR-60 in the background. The proposed view of Alternative 2 has more unity than the existing view due to the replacement of the parking lot with a new paved area. However, due to the anticipated increase in vehicular traffic from the off-ramp, the overall visual quality of Key View 3 would remain low, with no visual resources in the viewshed. The visual character would remain urban to semiurban.

Permanent Impacts by Alternative

Alternative 1 (No Build)

Alternative 1 does not involve construction of an interchange and would not change the existing setting. The existing visual quality and visual character would remain the same under Alternative 1. No viewer groups would be affected by Alternative 1. Alternative 1 would not result in short- or long-term visual impacts to the project area. Therefore, Alternative 1 would not result in adverse impacts to the existing visual setting.

Alternative 2

Under Alternative 2, the visual quality and visual character of the project study area would change for the pedestrian, commuter, and possibly the residential viewer groups because of the anticipated increased traffic volume on the project segment of Golden Springs Drive where it would connect to the new EB off-ramp.

Alternative 3

Under Alternative 3, the visual quality and visual character of the project study area would change for the pedestrian and commuter viewer groups because of the anticipated increased traffic volume on Lemon Avenue where the interchange would be constructed. The existing trees on this project segment of Lemon Avenue would remain in place under this Alternative.

Alternative 4

Under Alternative 4, the visual quality and visual character of the project study area would change for the pedestrian and commuter viewer groups because of the anticipated increased traffic volume on Lemon Avenue where the interchange would be constructed. The existing trees on this project segment of Lemon Avenue would remain in place under this Alternative.

Important Visual Resources

There are no important visual resources in the project area.

Light and Glare

The project site and surrounding area are semiurban to urban, with abundant existing light from several sources. Ambient light shines from SR-60 and the local roads in the study area, street lights, and commercial and residential uses. The proposed Build Alternatives would alter and add some sources of light, as described below.

Alternative 2 would add a new source of light to the project area from vehicles using the EB off-ramp to access Golden Springs Drive. At night, light from vehicles exiting this ramp would face south toward Golden Springs Drive and the residential area south of Golden Springs Drive. Two factors would limit the amount of light spilling over onto the residential area. An approximately 5.5 ft (1.7 m) high existing wall separates the residential area from Golden Springs Drive. Also, the residential area is approximately 10 ft (3 m) higher in elevation than Golden Springs Drive. Because of the existing wall and elevation of the residential area, light from vehicle headlights would not shine directly onto the residential area. However, vehicles exiting this ramp

could produce spillover light that could be noticed by these residents. Therefore, Alternative 2 could result in an adverse visual impact relating to light.

Alternatives 3 and 4 would modify and relocate some existing lighting along SR-60 in the project limits (e.g., lights on the new ramps connecting to Lemon Avenue). All lighting, new and relocated, would be shielded and focused within the project ROW. All light fixtures would be directed away from residential and commercial areas adjacent to the project site. Therefore, Alternatives 3 and 4 would not result in adverse impacts relating to light, and mitigation would not be required.

The proposed Build Alternatives would not add any structures or buildings with reflective material that could increase glare to sensitive viewers. Therefore, there would be no adverse visual impacts relating to glare under any of the proposed alternatives, and mitigation would not be required.

Shade and Shadow

Alternatives 2 and 3 would not add tall structures or buildings that could create adverse shade or shadow effects on sensitive land uses or existing buildings. Under Alternative 4 as included in the *Noise Impact Analysis* (LSA Associates, Inc. 2007) recommends construction of two sound barriers (SB) on the north side of SR-60. SB No. 5 would attenuate SR-60 noise, and SB No. 6 would attenuate sound from the proposed service road, also north of SR-60. The height and length proposed for SBNo. 6, nearest the residential uses, is between 6 and 14 ft (1.8 and 4.3 m) high and is 5,849 ft (1,783 m) respectively. This proposed wall could potentially shade a part of the backyards of the residences north of SR-60, depending on the final height and exact location of this wall. A final decision on the height of the sound barriers will be made after public review and during final design. Therefore, there would be no adverse visual impacts relating to shade and shadow under Alternatives 2 and 3, and mitigation would not be required. Alternative 4, depending on the height of SBNo. 6, could create adverse shade and shadow effects on some residential yards. This effect could be mitigated through landscaping and wall design.

Compatibility with Visual Resource Policies

The proposed Build Alternatives are consistent with the Cities of Diamond Bar and Industry planning policy documents. According to the Resource Management Element of the City of Diamond Bar *General Plan* (July 25, 1995), the City does not have any designated scenic resources in the SR-60/Lemon Avenue interchange project study area, and the project site does not have hillsides or open space areas that

are planned for recreational purposes. The City of Industry *General Plan* (May 1971) does not have specific scenic resource policies. Therefore, the proposed project Build Alternatives would not result in adverse visual impacts relating to planning policies, and mitigation would not be required.

2.9.3.2 Temporary Impacts

Temporary visual impacts during construction such as construction activity, staging sites, truck hauling, excavation activity, and detour signage are anticipated under all the Build Alternatives. Construction staging areas would be located within the project limits and the temporary construction easements (TCEs) within City of Diamond Bar and State ROW.

The No Build Alternative would not include any construction in the project area. Therefore, the No Build Alternative would not result in short-term adverse visual impacts in the project area.

2.9.4 Avoidance, Minimization, and Mitigation Measures

The measures below would substantially reduce the potential for adverse impacts related to visual and light impacts during construction and operation of the proposed SR-60/Lemon Avenue interchange project.

V-1 Project design features (PDFs) to avoid, minimize, or reduce visual impacts would be incorporated into the SR-60/Lemon Avenue interchange project to the extent feasible. Specific architectural treatments and details for retaining walls and structures will be developed during final design. During final design, the designer will coordinate with Caltrans and the City of Diamond Bar regarding the aesthetic treatments for all structures and walls. Highway appurtenances (lights, signs, traffic control devices, guardrails, and barriers) selection and design will meet criteria to achieve consistency as to color, scale, and placement in the corridor while meeting safety requirements.

The roadside within the project limits is not included in the Qualify for Landscaping Area. If the City of Diamond Bar chooses to landscape the area in the project limits and/or interchange, a revised Maintenance Agreement between the City and Caltrans is required to define maintenance responsibilities of the new landscaped area.

V-2 A Landscape Plan (Plan) is to be incorporated into the final design of the proposed SR-60/Lemon Avenue interchange project. This Plan will identify opportunities for revegetation within the project limits. The Plan would include landscaping for graded areas with plant species consistent with adjacent vegetation and enhancement of any new project structures such as ramps and walls, to the extent feasible. The Plan will incorporate all applicable procedures and requirements as detailed in the Caltrans *Highway Design Manual,* Section 902.1–Planting Guidelines (November 2001). The Plan will include performance criteria (i.e., plant coverage/density, plant types) that must be met to ensure that revegetation of affected areas will be consistent with the existing landscape.

V-3 A plan to implement visually pleasing walls, medians, and other hardscape will be incorporated into the final design of the proposed SR-60/Lemon Avenue interchange project.

2.10 Cultural Resources

This section is based on the *Historic Property Survey Report* (HPSR; LSA Associates, Inc., 2006) and the *Archaeological Survey Report* (ASR; LSA Associates, Inc., 2006). Copies of these documents are on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.10.1 Regulatory Setting

Cultural resources as used in this IS/EA refer to all historical and archaeological resources, regardless of significance.

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (National Register). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the ACHP, FHWA, the State Historic Preservation Officer (SHPO), and Caltrans went into effect for all Caltrans projects, both State and local, with FHWA involvement. The PA governs the implementation of the Federal-aid Highway Program in California (36 CFR 800.14(b)).

Historic properties may also be covered under Section 4(f) of the United States Department of Transportation Act, which regulates the use of land from historic properties. Refer to Appendix B for the Section 4(f) evaluation for the proposed SR-60/Lemon Avenue interchange project.

Historical resources are considered under CEQA and California PRC Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register listing criteria.

The HPSR was prepared in accordance with the ACHP regulations, revised January 11, 2001, for the identification of historic properties, 36 CFR 800.4, and with the requirements of NEPA and CEQA.

Because there are no documented historic or prehistoric resources within the Area of Potential Effects (APE) for the proposed project, as documented in the HPSR, no consultation with the SHPO was required.

2.10.2 Affected Environment

The APE for the proposed project shows that the project site is within the ethnographic territory of the Gabrielino. The Gabrielino were hunters and gatherers who used both inland and coastal food resources. They hunted and collected seasonally available food resources and led a semisedentary lifestyle, often living in permanent communities along inland watercourses and coastal estuaries. Commonly chosen habitation sites included rivers, streams, and inland watercourses, sheltered coastal bays and estuaries, and the transition zone between prairies and foothills. The most important factors in choosing a habitation site were the presence of water, a stable food supply, and some protection from flooding. Gabrielino in the interior regions maintained permanent geographical territories or use areas that may have averaged 30 sq mi (7,770 ha).

In addition to permanent settlements, the Gabrielino occupied temporary campsites used seasonally for hunting, fishing, and gathering plant foods and shellfish. Hunting was primarily for rabbit and deer. Collecting included acorns, buckwheat, chia, berries, and fruits. They also established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt waterfowl.

A records search of all previously recorded historic and prehistoric archaeological sites within a 1 mi (1.6 km) radius of the APE was conducted on May 16, 2006. The records search identified one previously recorded archaeological site within the 1 mi (1.6 km) radius of the APE. No archaeological resources were identified within or immediately adjacent to the APE for the proposed project.

Native American consultation, conducted on May 16, 2006, did not identify any Native American cultural resources in or near the APE for the proposed SR-60/ Lemon Avenue interchange project.

A field survey of the APE was conducted on May 18, 2006. No archaeological or historic resources were identified within or immediately adjacent to the APE for the proposed project. The area within the APE is a built environment that has been disturbed by the construction of existing roads and residential and commercial uses.

No intact native ground surface remains within the APE. Due to this disturbance, there is little potential for buried archaeological resources within the APE for the proposed project.

The existing Lemon Avenue UC, Bridge Number 53-1787, is within the APE. This bridge is listed on the California Historic Bridge Inventory of January 2006 as a Category 5 Bridge (i.e., found to be ineligible for listing on the National Register).

2.10.3 Impacts

Alternatives 2, 3, and 4 would result in construction within the APE. However, no historic resources would be affected by the proposed SR-60/Lemon Avenue interchange project because there are no historic resources within or immediately adjacent to the APE. No archaeological resources were identified within or immediately adjacent to the APE. Therefore, no known archaeological resources would be affected by Alternatives 2, 3, or 4.

It is possible that previously undocumented and unknown cultural materials could be uncovered during site clearing, grading, and excavation for Alternatives 2, 3, and 4. In the event that such resources are uncovered, there may be the potential for Alternatives 2, 3, and 4 to adversely impact cultural resources.

It is possible that human remains could be uncovered during site clearing, grading, and excavation for Alternatives 2, 3, and 4.

The No Build Alternative would not result in any ground disturbance or construction in the project area. Therefore, the No Build Alternative would not result in adverse impacts related to historic and/or archaeological resources, previously undocumented and unknown cultural materials, or discovery of human remains.

2.10.4 Avoidance, Minimization, and Mitigation Measures

The measures below would substantially reduce the potential for adverse impacts related to discovery of previously unknown cultural materials and human remains during construction of the proposed SR-60/Lemon Avenue interchange project.

If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered during construction, State Health and Safety Code Section 7050.5 states that further disturbance and activities shall cease in the area and nearby areas suspected to overlie remains, and the County Coroner contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), who will then notify the Most Likely Descendant (MLD). The person who discovered the remains will also contact the City of Diamond Bar Project Manager and the Caltrans District 7 Environmental Planning Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

No further avoidance, minimization, or mitigation measures related to cultural resources are required for the proposed SR-60/Lemon Avenue interchange project.

2.11 Hydrology and Floodplains

The analysis of the potential impacts of the proposed SR-60/Lemon Avenue interchange project is based on the *Storm Water Data Report* (SWDR; Jacobs Engineering, September 2006) and the Final Floodplain Evaluation Memorandum (LSA Associates, Inc., October 26, 2006). The SWDR and the Final Floodplain Evaluation Memorandum are on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.11.1 Regulatory Setting

EO 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance with EO 11988 are outlined in 23 CFR 650, Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project

The 100-year floodplain is defined as ". . . the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "...an action within the limits of the 100-year floodplain."

2.11.2 Affected Environment

The project area is in the San Gabriel River Watershed, which is bounded by the San Gabriel Mountains to the north, most of San Bernardino/Orange County to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. In the project area, San Jose Creek, a tributary of San Gabriel River, and Diamond Bar Creek, a tributary of San Jose Creek, are just north of and parallel to SR-60.

According to the SWDR, the project site is relatively flat without any steep grades. Storm water runoff is collected by existing inlets and spillways located along the edge of pavement. There is an existing riprap-lined storm water channel west of Lemon Avenue and north of SR-60. Drainage from the project site enters San Jose Creek approximately 0.3 mi (0.18 km) north of SR-60, which ultimately discharges into Reach 3 of the San Gabriel River.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) and the United States Army Corps of Engineers (ACOE) reservoir inundation maps, the project area is not within the 100-year floodplain or within the inundation zone of the Santa Fe and Whittier Narrows Dams.[1,2]

2.11.3 Impacts

Alternatives 2, 3, and 4 would not result in any modifications to or encroachments into a floodplain. The project does not propose any drainage system realignments; however, part of the existing riprap-lined channel will be replaced by a reinforced concrete pipe, and the existing inlets will be relocated to the new edge of pavement at the widened road sections. The increase in the velocity and volume of flow within the project limits due to the proposed project would be negligible and would not contribute to downstream flooding. Therefore, Alternatives 2, 3, and 4 are not anticipated to result in adverse impacts related to hydrology and floodplains.

Alternative 1, the No Build Alternative, would not result in the construction or operation of any modified transportation facilities in the project area. Therefore, the No Build Alternative would result in no changes in the existing volume or quality of runoff generated in the project area.

2.11.4 Avoidance, Minimization, and Mitigation Measures

Alternatives 2, 3, and 4 for the proposed Lemon Avenue/SR-60 interchange project would not result in adverse impacts related to hydrology and floodplains. No avoidance, minimization, or mitigation measures are required.

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1 FIRM Map No. 0650430980B, December 2, 1980, msc.fema.gov, accessed October 18, 2006.

2 United States Army Corps of Engineers, Los Angeles District, Reservoir Regulation Section, www.spl.usace.army.mil/resreg, accessed October 18, 2006.

2.12 Water Quality and Storm Water Runoff

The analysis of potential water quality and storm water impacts of the proposed SR-60/Lemon Avenue interchange project is based on the SWDR (Jacobs Civil, Inc., 2006) and the *Water Quality Assessment Report* (WQAR; LSA Associates, Inc., 2006) for the proposed project. The SWDR and WQAR are summarized in this section and are on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.12.1 Regulatory Setting

Section 401 of the Clean Water Act (CWA), the primary federal law regulating water quality, requires water quality certification from the State board or regional board when a project requires a federal license or permit (Section 404 is the most common federal permit for Caltrans projects) and will cause discharge into waters of the United States (WoUS). Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) permit system for the discharge of any pollutant (except dredge or fill material) into WoUS. To ensure compliance with Section 402, the State Water Resources Control Board (SWRCB) developed and issued a NPDES Statewide Storm Water Permit to regulate storm water discharges from all Caltrans ROW, properties, and facilities. That NPDES permit regulates both storm and nonstorm water discharges during and after construction.

In addition, the SWRCB issues Statewide permits for all Caltrans construction activities affecting areas of 1 ac (0.4 ha) or greater, for a number of smaller projects that are part of a common plan of development with the total area exceeding 1 ac (0.4 ha), and for projects that have the potential to substantially impair water quality. Caltrans projects subject to the Statewide Storm Water Permit require a Storm Water Pollution Prevention Plan (SWPPP), while other projects smaller than 1 ac (0.4 ha) require a Water Pollution Control Program (WPCP).

The California Environmental Protection Agency (CalEPA) delegated administration of the federal NPDES program to the SWRCB and nine regional boards. The project segment of SR-60 is in the jurisdiction of the SWRCB and the Los Angeles Regional Water Quality Control Board (RWQCB).

Subject to Caltrans review and approval, the contractor prepares the SWPPP. The SWPPP identifies construction activities that may cause pollutants in storm water and

measures to control these pollutants. Because the SWPPP required for the proposed SR-60/Lemon Avenue project is not prepared at this time, the following discussion focuses on anticipated pollution sources or activities that may cause pollutants in the storm water discharges.

Additional laws regulating water quality include the Porter-Cologne Water Quality Act, Safe Drinking Water Act, and Pollution Prevention Act. State water quality laws are codified in the California Water Code, Health and Safety Code, and Fish and Game Code Sections 5650 to 5656.

2.12.2 Affected Environment

2.12.2.1 Surface Water

The project site is in the San Gabriel River Watershed which flows from the San Gabriel Mountains, drains an area of approximately 640 sq mi (1,658 square kilometers [sq km]), and eventually discharges into the Pacific Ocean. Major tributaries to the San Gabriel River include Walnut Creek, San Jose Creek, Coyote Creek, and a number of storm drains. San Jose Creek and Diamond Bar Creek, a tributary of San Jose Creek, are just north of and parallel to the project segment of SR-60. Reaches 2 of San Jose and Diamond Bar Creeks come within 2,500 ft (762 m) and 500 ft (152.4 m), respectively, of the project area. In addition to Reaches 2 of San Jose and Diamond Bar Creeks, receiving waters to the project area include Reach 1 of San Jose Creek and Reach 3 of the San Gabriel River, approximately 8 mi (12.9 km) and 3 mi (1.8 km) downstream of the project area, respectively.

The 2002 Clean Water Section 303(d) List of Water Quality Limited Segments shows Reaches 1 and 2 of San Jose Creek as impaired for algae and high coliform count, and Reach 3 of the San Gabriel River as impaired for toxicity. The 2006 303(d) impaired waters list for California was approved by the SWRCB on October 25, 2006, and is currently awaiting approval by the United States Environmental Protection Agency (EPA) approval. The 2006 303(d) list shows Reaches 1 and 2 of San Jose Creek as impaired for coliform bacteria, Reach 1 of the San Gabriel River as impaired for coliform bacteria and pH, and Reach 2 of the San Gabriel River as impaired for coliform bacteria and lead.

Currently, the Los Angeles RWQCB and the EPA are developing a total maximum daily load (TMDL) to reduce metals in the San Gabriel River watershed. As part of the TMDL, the proposed water quality numeric target of 166 micrograms per liter

(µg/L) for total lead in Reach 2 of the San Gabriel River is based on the California Toxics Rule (CTR).

The following beneficial uses were identified in the Los Angeles River Basin Water Quality Control Plan (Basin Plan) for the San Gabriel River and San Jose Creek:

- Groundwater recharge
- Body-contact recreation (e.g., swimming and wading)
- Nonbody-contact recreation (e.g., boating and fishing)
- Warm water habitat for fish amenable to reproduction in warm water
- Habitat for wild plants and animals
- Municipal water supply

2.12.2.2 Groundwater

The SR-60/Lemon Avenue project site is in the San Gabriel Valley Groundwater Subbasin. This basin is bounded on the north by the Raymond Fault and the San Gabriel Mountains, on the south and west by the Repetto, Merced, and Puente Hills, and on the east by the Chino and San Jose Faults. Borings performed for the proposed SR-60/Lemon Avenue interchange project indicate groundwater levels in the project area range from 19.4–41.0 ft (5.9–12.5 m) below ground surface (bgs).

2.12.3 Impacts

2.12.3.1 Temporary Impacts

Pollutants of concern during construction of road projects include sediments, trash, oil and grease, fuel from equipment, and materials used for concrete and asphalt installation. Each of these pollutants, on its own or in combination with other pollutants, can have a detrimental effect on water quality and aquatic habitats. Construction of highway projects has the potential to introduce pollutants of concern into runoff via erosion of graded areas, inadequate storage or disposal of hazardous materials, and poor housekeeping practices. Under the General Construction Activity NPDES permit, the proposed SR-60/Lemon Avenue interchange project will be required to prepare an SWPPP and implement erosion and sediment control best management practices (BMPs) detailed in the SWPPP during construction activities. As specified in the SWDR, the project proposes the following temporary construction site BMPs:

- Street sweeping and vacuuming

- Wind erosion control
- Water conservation practices
- Paving and grinding operation
- Illicit connection/illegal discharge detection and reporting
- Vehicle and equipment cleaning, fueling, and maintenance
- Concrete curing and finishing
- Material waste management
- Sanitary waste management

If construction BMPs are properly designed, implemented, and maintained as described below in Mitigation Measure WQ-1, then no adverse water quality impacts would occur during construction of Alternatives 2, 3, and 4.

The No Build Alternative proposes no construction of transportation improvements in the project area. Therefore, the No Build Alternative would not result in short-term adverse impacts related to water quality.

2.12.3.2 Permanent Impacts

Typical pollutants in road runoff include oil, grease, heavy metals, nutrients, pesticides, pathogens, litter, and sediment. During operation of the proposed SR-60/Lemon Avenue interchange project, copper, lead, and zinc emitted from automobiles may also be of concern.

The proposed SR-60/Lemon Avenue interchange project would result in an increase in impervious area of 1.99 ac (0.81 ha), 2.02 ac (0.82 ha), and 3.45 ac (1.40 ha), for Alternatives 2, 3, and 4, respectively. This increase in impervious area will increase the volume of runoff from this area during storms, which will more effectively transport pollutants to receiving waters. To prevent soil erosion, slope grades would be limited and landscaping will be provided as part of the Build Alternatives, consistent with Caltrans requirements.

Two treatment devices, consisting of biofiltration swales or Delaware sand filters, will be incorporated into the proposed project. The first treatment device will be on the SR-60 WB on-ramp west of Lemon Avenue for Alternatives 2, 3, and 4. The second treatment device will be on the SR-60 EB off-ramp east of Lemon Avenue for Alternative 2 and the SR-60 EB on-ramp east of Lemon Avenue for Alternatives 3 and 4. These devices will be designed to treat a 25-year storm event and will treat runoff from 2.53 ac (1.02 ha) for Alternative 2 and 3.28 ac (1.33 ha) for Alternatives

3 and 4. Because runoff from part of the existing road will be treated, the area of pavement to be treated is equivalent to 127 percent, 162 percent, and 95 percent of the total new pavement area under Alternatives 2, 3, and 4, respectively.

Other treatment devices were eliminated from consideration because they are not feasible or available right-of-way is restricted.[1] Because the only feasible treatment devices are biofiltration swales or Delaware sand filters, implementation of these treatment BMPs would be to the MEP in compliance with the Caltrans NPDES permit.

A volume-based pollutant loading model was used to assess the potential storm water quality impacts associated with the proposed project. Modeling was performed on the following constituents:

- Total suspended solids (TSS) (sediment)
- Total phosphorus (TP) (nutrient)
- Nitrate (NO_3) (nutrient)
- Copper (Cu) (heavy metal)
- Lead (Pb) (heavy metal)
- Zinc (Zn) (heavy metal)

The WQAR describes the modeling approach in detail. The results of the modeling are shown in Table 2.12-1.

As shown, Alternatives 2 and 3 with bioswales implemented will decrease annual TSS loading. Although Alternative 4 will result in a small increase in annual TSS loading, the TSS concentration in storm water runoff under Alternative 4 is anticipated to be substantially lower than the existing condition. With sand filters implemented, Alternative 4 will result in a greater increase in TSS loading than Alternatives 2 and 3 because of the increased volume of runoff from the additional impervious surfaces. As with bioswales, sand filters are anticipated to result in a substantial decrease in TSS concentrations in storm water runoff under all three alternatives. Although TSS loading will increase, TSS concentrations in runoff will decrease. In addition, Alternatives 2, 3, and 4 will not result in a violation of any TSS water quality standards or waste discharge requirements or otherwise substantially degrade water quality. Therefore, no adverse impacts related to TSS in storm water runoff are anticipated under Alternatives 2, 3, and 4.

[1] Jacobs Civil, Inc. 2006. *Storm Water Data Report. SR-60/Lemon Avenue.*

Table 2.12-1 Anticipated Pollutant Concentrations and Change in Mean Pollutant Loading with BMP Implementation Compared to Existing Conditions

Constituent	Preconstruction Concentration (mg/L)	Post-BMP Concentration with Bioswale Implemented (mg/L)	Post-BMP Concentration with Sand Filter Implemented (mg/L)	Change in Post-Construction Loading with Bioswale Implemented[1] (pounds/year)			Change in Post-Construction Loading with Sand Filter Implemented[1] (pounds/year)		
	All Alternatives	All Alternatives	All Alternatives	Alt 2	Alt 3	Alt 4	Alt 2	Alt 3	Alt 4
Total Suspended Solids	165	22	67	-89	-294	152	279	183	605
Total Phosphorous	0.11	0.29	0.29	1.51	1.04	2.6	1.74	1.77	2.9
Nitrate	1.11	0.75	0.66	3.10	2.28	6.4	2.99	2.13	6.2
Copper	0.00912	0.01562	0.01411	0.051	0.0089	0.15	0.051	0.0094	0.15
Lead	0.0050	0.02635	0.00594	0.10	0.052	0.25	-0.035	-0.13	0.079
Zinc	0.0388	0.0533	0.04021	0.49	-0.25	0.54	-0.011	-0.33	0.46

Source: *Water Quality Assessment Report* (LSA Associates, Inc., 2006).
[1]Compared to Existing Conditions. Negative values are a result of the treatment BMPs removing pollutants from existing road runoff.
mg/L = milligrams per liter

Even with treatment devices, TP loading and concentrations are expected to increase with project implementation. This increase is due to the low phosphorus concentrations and high infiltration rates under existing conditions. There are no numeric objectives for TP in the RWQCB's Basin Plan; however, the narrative objective states "Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses." The low predicted TP concentrations with bioswales or sand filters implemented are not expected to promote aquatic growth. Therefore, no adverse impacts related to TP in storm water runoff are anticipated under Alternatives 2, 3, and 4.

NO_3 loading is expected to increase with project implementation, even with implementation of treatment devices. However, under all three alternatives, NO_3 concentrations are predicted to decrease with the implementation of bioswales or sand filters. Also, predicted NO_3 concentrations with implementation of treatment devices (0.75 mg/L for bioswales and 0.66 mg/L for sand filters) are substantially below the Basin Plan objective of 45 mg/L. Therefore, no adverse impacts related to NO_3 in storm water runoff are anticipated under Alternatives 2, 3, and 4.

Alternative 2 with sand filters implemented and Alternative 3 with sand filters or bioswales implemented are predicted to result in comparable or lower loading of total metals compared with existing conditions. Alternative 2 with bioswales implemented and Alternative 4 with sand filters or bioswales implemented are predicted to result in a small increase in total metal loading. In addition, bioswales are predicted to result in similar copper loading compared with sand filters. Even after implementation of the treatment devices, all alternatives are anticipated to increase concentrations of total metals in storm water runoff. However, as described below, this increase will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality.

Anticipated total metal concentrations under the proposed Build Alternatives are shown in Table 2.12-2 and are compared with the CTR acute water quality criteria. Acute criteria represent the concentration of pollutant that an organism can be exposed to for a short period of time without deleterious effects. Chronic criteria represent the concentration of pollutant to which an organism can be exposed for an extended period of time (4 days). Due to the intermittent nature of storm water runoff in Southern California, the acute criteria are more applicable than chronic criteria. In addition, the TMDL for lead in the San Gabriel River (0.116 mg/L) is based on acute criteria for wet weather runoff. Therefore, acute criteria were used for this analysis. As shown in Table 2.12-2, the implementation of bioswales or Delaware sand filters is anticipated to reduce metals concentrations in runoff to below the CTR criteria and below the proposed lead TMDL concentration of 0.116 mg/L. Therefore, no adverse impacts related to total metals in storm water runoff are anticipated under Alternatives 2, 3, and 4.

Table 2.12-2 Anticipated Total and Dissolved Metals Concentrations Compared with Water Quality Criteria

	Total Metals (mg/L)			Dissolved Metals (mg/L)		
Constituent	Mean Concentration from Caltrans Bioswales	Mean Concentration from Caltrans Sand Filters	CTR Acute Criteria[1,2]	Mean Concentration from Caltrans Bioswales	Mean Concentration from Caltrans Sand Filters	CTR Acute Criteria[1,2]
Copper	0.01562	0.01411	0.024	0.01128	0.0056	0.0228
Lead	0.02635	0.00594	0.166	0.00902	0.00105	0.118
Zinc	0.0533	0.04021	0.193	0.03280	0.0225	0.1883

Sources: EPA (2000) California Toxics Rule and California Department of Transportation BMP Retrofit Pilot Program (2001).

[1]The CTR criteria were calculated using a hardness of 175 mg/L, based on the mean hardness of the San Gabriel River (Los Angeles RWQCB. 2006, *Fact Sheet San Gabriel River Metals TMDL*).

[2]Acute concentration equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects. In deriving the acute criteria, organisms were exposed to pollutant concentrations for 24 to 48 hours.

Although the change in dissolved metals resulting under Alternatives 2, 3, and 4 when compared with existing conditions was not modeled, post-project concentrations can be approximated based on data collected from Caltrans facilities. Anticipated dissolved metal concentrations in runoff from roads and in effluent from treatment devices are shown in Table 2.12-2. As shown, the dissolved Cu, Pb, and Zn concentrations with bioswales or sand filters implemented are below the acute CTR criteria. Therefore, no adverse impacts related to dissolved metals in storm water runoff are anticipated under Alternatives 2, 3, and 4.

Although not modeled, bioswales and media filters are recommended treatment devices for litter (Table 2.12-2). Because there are no existing treatment devices, the build alternatives with implementation of treatment devices are not anticipated to increase litter loading.

There are no applicable treatment BMPs that specifically target oil and grease (Table 2.12-2); however, bioswales or media filters would most likely result in some removal of oil and grease. Because there are currently no treatment BMPs in the project area and the proposed project would include BMPs to treat both the existing and additional pavement, the proposed project implemented is not anticipated to adversely impact water quality due to oil and grease.

Although bioswales and media filters are not applicable treatment BMPs for total dissolved solids, pathogens, or biochemical oxygen demand, other treatment devices have been determined to not be feasible. Because the existing roadway within the project limits is currently untreated, the proposed project would include BMPs to treat both the existing and additional pavement; the proposed project would not be anticipated to increase pollutant loading of any constituents that are not specifically targeted by the bioswales or media filters. In addition, because the selected treatment BMPs target pollutants of concern with established TMDLs, the proposed project would not violate any TMDLs or other water quality objectives. Therefore, no adverse impacts to water quality are anticipated with implementation of either bioswales or Delaware sand filters.

Because Alternative 3 will be designed to treat the maximum amount of existing roadway, this alternative results in the lowest pollutant loading to surface waters. Alternative 4 will only treat 95 percent of the new roadway and will result in the greatest annual pollutant loading. Sand filters are more effective at removing lead, and bioswales are more effective at removing total suspended solids. However, none

of the build alternatives are anticipated to result in adverse impacts to water quality with the implementation of either bioswales or Delaware sand filters.

The No Build Alternative would not result in the construction or operation of any modified transportation facilities in the project area. Therefore, the No Build Alternative would not result in any changes in the existing volumes and quality of runoff generated in the project area.

2.12.4 Avoidance, Minimization, and Mitigation Measures

As part of the Caltrans Project Delivery Storm Water Management Program described in the SWMP, selected construction site, design pollution prevention, and treatment BMPs will be incorporated in the final design of the SR-60/Lemon Avenue interchange project. The SWMP will be implemented in accordance with the Statewide NPDES permit. These standard requirements to minimize short- and long-term water quality impacts are listed below.

WQ-1 The City of Diamond Bar will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation Order No. 99-06-DWQ, NPDES No. CAS000003, and any subsequent permit or individual permit if required by the RWQCB as they relate to construction activities for the project, including dewatering. This shall include a Notification of Construction to the Los Angeles RWQCB at least 30 days prior to the start of construction, preparation and implementation of a Storm Water Pollution Prevention Plan, and a Notice of Completion to the Los Angeles RWQCB on completion of construction and stabilization of the site.

WQ-2 The City of Diamond Bar will follow the procedures outlined in the Caltrans Storm Water Quality Handbooks, Project Planning and Design Guide for implementing Design Pollution Prevention and Treatment BMPs for the project. This will include coordination with the Los Angeles RWQCB with respect to feasibility, maintenance, and monitoring of Treatment BMPs as set forth in Caltrans Statewide Storm Water Management Plan.

2.13 Geology, Soils, Seismic, and Topography

This section is based on information provided by Leighton Consulting, Inc., including review of regional geologic maps and literature, the preliminary plans for the SR-60/ Lemon Avenue interchange project (Jacobs Engineering, Inc. 2006), and the Caltrans construction plans for the SR-60/SR-57 interchange improvements (Caltrans 2002), which are currently under construction.

2.13.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects ". . . outstanding examples of major geological features." Topographic and geologic features are also protected under CEQA.

This section discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Caltrans Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the size of the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.13.2 Affected Environment

2.13.2.1 Regional Geology

The project site is in the eastern part of the Los Angeles Basin of the Peninsular Range geomorphic province of California. The San Jose and Puente Hills, north and south of the project site, respectively, are predominantly underlain by bedrock of the Miocene-age Puente Formation and were created by fault movement and folding. The project site is underlain by sand, silt, clay, and gravel eroded from the adjacent hills and transported and deposited by San Jose Creek.

The geology of the area is complex, as the relatively northwestward moving Peninsular Range Province collides with the Transverse Ranges Province (San Gabriel Mountains) to the north. In the site vicinity, the compression resulting from

the collision is accommodated by the San Jose, Puente Hills Blind Thrust, and Whittier Faults.

2.13.2.2 Faulting and Seismicity

The two principal seismic considerations for most sites in Southern California are the potential for surface rupture along active fault traces and damage to structures due to seismically induced ground shaking. An active fault is one that has moved in the Holocene Epoch (within the last 11,000 years). The mapped active fault closest to the project site is the San Jose Fault, which is approximately 3.1 mi (5 km) north of the site. This fault is capable of producing an MCE site with a maximum moment magnitude (Mw) earthquake of 6.75 at the site. The Puente Hills Blind Thrust Fault, which is approximately 5 mi (8 km) south of the site, is capable of producing an MCE with a Mw earthquake of 7.2 at the site. Other known regional active faults that could affect the project site include the Whittier, Chino-Central Avenue, Sierra Madre, and Cucamonga Faults. The most extensive fault system in California, the San Andreas Fault system, is approximately 27 mi (44 km) northeast of the project site.

2.13.2.3 Subsurface Conditions

The geology in the vicinity of the project site is underlain by alluvial soil deposits composed of a mixture of clay, silt, and sand with occasional gravel (Dibblee, Jr. 2001; Durham and Yerkes 1964; and Caltrans 2002). The alluvial soil is underlain by Puente Formation bedrock composed of claystone, siltstone, and sandstone. The bedrock is expected to be composed of claystone, siltstone, and sandstone. Local well-cemented beds are common in the Puente Formation and were encountered during borings in the vicinity of the project site. Artificial fill, similar to that of alluvium and/or construction-related soils (base materials, etc.), is likely to be present in the project area due to previous and existing improvements.

Historically, high groundwater in the site vicinity ranged from 0 to 30 ft (0 to 9.1 m) bgs (California Geological Survey [CGS] 2005). In the late 1950s to the late 1970s, groundwater near the project site was 12 to 35 ft (3.7 to 107 m) bgs (California Department of Water Resources [CDWR], undated). A subsurface investigation to a depth of at least 50 ft (15.2 m) bgs will be conducted as part of the geotechnical investigation during final design of the proposed project to determine current groundwater levels under the project site.

2.13.3 Impacts

This section summarizes the principal geotechnical conditions in the project area. The potential impact that each condition may have on the proposed project is described. The CGS (formerly the California Division of Mines and Geology) has guidelines for geologic and seismic considerations in environmental analyses (CGS 1975) in order to identify potential geologic hazards and assist in recognizing data needed for design analysis and mitigation measures. These guidelines were used during preparation of this analysis.

2.13.3.1 Fault-Induced Ground Rupture

The project site is not within an Alquist-Priolo Earthquake Fault Zone (CGS 2000). Therefore, the potential for fault-induced ground rupture at the project site is considered unlikely. No special precautions or restrictions during project construction and operation related to fault-induced ground rupture are required.

2.13.3.2 Seismic Ground Shaking

The San Jose Fault (Mw=6.75) and Puente Hills Blind Thrust Fault (Mw=7.2) are known to be potentially capable of producing the most intense ground acceleration at the project site due to their locations, potential magnitudes, and styles of faulting. The peak horizontal ground acceleration at the project site during an MCE event is estimated to be 0.6g. Therefore, the project alternatives are potentially subject to adverse impacts related to seismic ground shaking.

2.13.3.3 Secondary Effects of Seismic Shaking

Secondary effects of seismic shaking are nontectonic processes that are directly related to strong seismic shaking. Ground deformation, including fissures, settlement, displacement, and loss of bearing strength, are common expressions of these processes and are among the leading causes of damage to structures during moderate to large earthquakes. Secondary effects leading to ground deformation include liquefaction, lateral spreading, settlement, and landsliding. Other hazards indirectly related to seismic shaking are inundation, tsunamis, and seiches. These potential secondary effects of seismic shaking on the proposed project are discussed in the following sections.

Liquefaction

Liquefaction occurs when loose, cohesionless, water-saturated soils (generally fine-grained sand and silt) are subjected to strong seismic ground motion of substantial duration. These soils behave essentially similar to liquids in that they lose bearing

strength. Structures built on these soils may tilt or settle when the soils liquefy. Liquefaction more often occurs in earthquake-prone areas underlain by young sandy alluvium where the groundwater table is less than 50 ft (15.2 m) bgs.

The project site has been identified as being in an area delineated as potentially susceptible to liquefaction (CGS 1998). In addition, regional groundwater maps and groundwater data indicate that historically shallow groundwater conditions exist locally. Therefore, the project site and the project alternatives are considered potentially susceptible to liquefaction.

Lateral Spreading

Lateral spreading occurs when large blocks of intact, nonliquefied soil move downslope on a liquefied substrate of relatively large extent. The mass moves toward an unconfined area such as a descending slope or stream-cut bluff. Lateral spreading can occur on slope gradients as gentle as 1 degree. Due to the lack of any unconfined areas on the project site, the potential for lateral spreading on site is considered unlikely. No special precautions or restrictions during project construction and operations are required.

Seismically Induced Settlement

Strong ground shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing pore space. Unconsolidated, loosely packed granular alluvial deposits are especially susceptible to seismically induced settlement. Poorly compacted artificial fills may also experience seismically induced settlement. If settlement occurs, it could result in damage to improvements. Because the project site is potentially subject to seismically induced settlement, the project alternatives could be adversely impacted by this secondary effect of seismic shaking.

Seismically Induced Landslides

Marginally stable slopes may be subject to landsliding caused by seismic shaking. In most cases, this is limited to relatively shallow soil failures on steeper natural slopes although deep-seated failures of oversteepened, engineered slopes are also possible. The project site is relatively flat and lacks natural slopes. Therefore, the project site will not be subject to impacts related to seismically induced landslides. No special precautions or restrictions during project construction and operations are required.

Seismically Induced Inundation

Strong seismic ground motion can cause dams and levees to fail, resulting in damage to structures and properties located downstream of those water retention facilities.

There are no dams or substantial bodies of water on, in the immediate vicinity of, or immediately upstream of the project site. The project site is not within the inundation zone of the Santa Fe and Whittier Narrows Dams. Therefore, the project alternatives are not anticipated to be adversely impacted by seismically induced inundation. No special precautions or restrictions during construction and operations are required.

Tsunamis and Seiches

A tsunami, or seismically generated sea wave, is generally created by a large, distant earthquake occurring near a deep ocean trough. A seiche is an earthquake-induced wave in a confined body of water such as a lake or reservoir. Damage from tsunamis is typically confined to coastal areas that are 20 ft (6.1 m) or less above sea level. The project site is not near the coast or any confined bodies of water. Therefore, the project alternatives are not at risk of inundation from a tsunami or seiche. No special precautions or restrictions during construction and operations are required.

2.13.3.4 Slope Stability

Stability of Natural Slopes

The project site is relatively flat and does not include substantial natural slopes. Therefore, the project alternatives will not be adversely impacted by instability associated with natural slopes. No special precautions or restrictions during construction and operations are required.

Stability of Proposed Slopes

If a Build Alternative is selected for implementation, the final design may include the construction of manufactured slopes. The final design will incorporate appropriate design features to address slope stability constraints in manufactured slopes, as necessary. Because Alternatives 2, 3, and 4 would include manufactured slopes, they are considered to be subject to potential adverse impacts related to the stability of those slopes.

Stability of Temporary Slopes

Slope or sidewall failure in temporary excavations for underground utilities or other structures during construction of the Build Alternatives could occur in unconsolidated soils. The risk of failure in temporary slopes is higher than with permanent manufactured slopes because they are generally cut at a much steeper gradient than permanent manufactured slopes. Therefore, construction of Alternatives 2, 3, and 4 could result in adverse impacts related to the stability of temporary slopes.

2.13.3.5 Subgrade Stability

Compressible Soils

When a load such as fill soils is placed, the underlying soil layers undergo a certain amount of compression due to the deformation and relocation of soil particles and the expulsion of water or air from the void spaces between the grains. Some settlement occurs immediately after a load is applied, while some settlement occurs over time after placement of the load. For engineering applications, it is important to estimate the total amount of settlement that will occur on placement of a given load and the rate of compression (consolidation).

The upper part of the surficial soils on the project site is expected to be slightly to moderately compressible. Potential organic material and uncompacted fills are also compressible and are unsuitable for foundation support. Therefore, Alternatives 2, 3, and 4 could be potentially adversely affected by the presence of compressible soils on site.

Expansive Soils

Untreated expansive soils underlying a foundation, slab, or road alignment can cause damage, including heaving, tilting, and cracking. The soils on the project site are expected to have low to medium potential for expansion. However, localized zones of highly expansive soil may be present on the project site. Therefore, Alternatives 2, 3, and 4 may be subject to adverse impacts associated with expansive soils.

Corrosive Soils

Corrosive soils contain constituents or physical characteristics that react with concrete (water-soluble sulfates) or ferrous metals (chlorides, low percentage of hydrogen [pH] levels, and low electrical resistivity). The soils on the project site may be corrosive. Therefore, underground improvements under Alternatives 2, 3, and 4 may be adversely impacted by corrosive soils.

Erosion

The native soils and the existing fill slopes on the project site constructed with native soils have a moderate to high susceptibility to erosion. These materials will be particularly prone to erosion during construction of Alternatives 2, 3, and 4, especially during heavy rains. Therefore, the construction of Alternatives 2, 3, and 4 could result in adverse impacts related to erosion.

Rippability and Oversized Rock

The alluvial soils on the project site are expected to be rippable with modern earthmoving equipment. Oversized materials (larger than 12 in [0.3 m] in diameter) are not expected to occur within the alluvial soils on the project site. However, if deep excavations are determined to be necessary during final design, cemented beds within the Puente Formation bedrock may be encountered locally. These layers are likely to be hard to rip or drill and may produce oversized materials. Such materials would require special handling and placement or off-site disposal during grading. Therefore, Alternatives 2, 3, and 4 may result in adverse impacts related to rippability and oversized rock disposal during construction.

Regional Subsidence

Regional ground subsidence generally occurs due to rapid and intensive removal of subterranean fluids, typically water or oil. It is generally attributed to the consolidation of sediments as the fluid in the sediments is removed. The total load of the soils in partially saturated or saturated deposits is borne by their granular structure and the fluid. When the fluid is removed, the load is borne by the sediment alone and it settles. No reports of regional subsidence have been reported in the vicinity of the project site, and the potential for ground subsidence is very low because substantial quantities of water or oil have not in the past and are not currently being removed in the site vicinity. Therefore, Alternatives 2, 3, and 4 would not result in adverse impacts related to regional subsidence. No special precautions or restrictions during construction and operation of Alternatives 2, 3, and 4 are required.

2.13.4 Avoidance, Minimization, and Mitigation Measures

The final design of the selected Build Alternative, if one is selected for implementation, would include detailed geotechnical investigation and identification of specific recommendations including PDFs to avoid or substantially reduce the potential for adverse impacts to Alternatives 2, 3, and 4, as described in the following sections. No further mitigation measures are required.

2.13.4.1 Seismic Ground Shaking

The potential hazards related to seismic shaking cannot be totally avoided. However, exposure to future ground shaking at the project site is no greater than at many other sites in Southern California. The effects of seismic shaking under Alternatives 2, 3, and 4 would be substantially reduced, based on conformance with the recommendations of the project geotechnical investigation, the Caltrans Seismic

Design Criteria, the California Building Code (CBC), and other local governing agencies' codes and requirements. PDFs identified during the geotechnical investigation and incorporated in the selected project during final design and construction would substantially reduce the risks of seismic ground shaking under Alternatives 2, 3, and 4.

2.13.4.2 Secondary Effects of Seismic Shaking

Liquefaction

The detailed geotechnical investigation prepared during final design of the selected alternative will address the potential for liquefaction on the project site. If it is determined that the site is susceptible to liquefaction, appropriate PDFs will be recommended and implemented during the design and construction phases of the project. The actual type of remediation will be dependent on the project design for the selected alternative.

Seismically Induced Settlement

If seismically induced settlement is determined to be outside tolerable limits, appropriate PDFs to avoid or substantially reduce the potential adverse project impacts related to seismically induced settlement under Alternatives 2, 3, and 4 will be recommended in the geotechnical investigation and implemented during construction of the proposed project.

2.13.4.3 Slope Stability

Stability of Proposed Slopes

The detailed geotechnical investigation prepared during final design will analyze the potential hazard associated with proposed slopes, based on the detailed grading and construction plans. The investigation will identify PDFs to protect any proposed slopes. Slopes will be constructed in accordance with the recommendations of the geotechnical investigation, the CBC, and applicable local jurisdiction guidelines.

Stability of Temporary Slopes

Where excavations are made for underground utilities, the excavation walls may be shored with shoring designed to withstand the additional loads, or the walls may be flattened or laid back to a shallower gradient. Excavation spoils will not be placed immediately adjacent to excavation walls unless the excavation is shored to support that added load. Other PDFs to reduce the potential for temporary slope failure during construction will include cutting and backfilling excavations in sections, and not leaving temporary excavations open for long periods. All regulations of the California

Office of Safety and Health Administration (Cal-OSHA) will be complied with for excavations.

2.13.4.4 Subgrade Stability

Compressible Soils

Overexcavation of potentially compressible soil will be required prior to the placement of any loads onto the existing ground surface. Undocumented fill on the project site is considered potentially compressible and should be removed to firm, competent native material. The depth and limits of the overexcavation will depend on the location and design of the improvements for the selected alternative and the findings of the geotechnical investigation. Removal and recompaction of near-surface soils during construction would mitigate the on-site soils prone to compression and would substantially reduce the potential impacts of Alternatives 2, 3, and 4 related to compressible soils.

Expansive Soils

Expansion Index and R-Value testing of the soils on the project site will be conducted during the geotechnical investigation to ascertain whether the soils on site are expansive. If expansive soils are encountered, the final design will include PDFs to address the construction of the proposed improvements under Alternatives 2, 3, and 4.

Corrosive Soils

Corrosivity testing will be conducted during the geotechnical investigation for the project. If corrosive soils are encountered, the use of special concrete (Type V) may be required, and metals in contact with corrosive soil will require protection in accordance with the recommendations of the manufacturer or a corrosion engineer.

Erosion

The potential for erosion in the long term, during operations, can typically be reduced by appropriate paving of exposed ground surfaces, landscaping, providing terraces on slopes, placing berms or V-ditches at the tops of slopes, and installing adequate storm drain systems. Graded slopes should be protected until healthy plant growth is established. Typically, protection can be provided by the use of sprayed polymers, straw waddles, jute mesh, or other measures. The final design of Alternatives 2, 3, and 4 will incorporate appropriate PDFs related to erosion control.

Temporary erosion control measures will be provided during construction. These measures typically include temporary catchment basins and/or sandbagging to control runoff and contain sediment transport on a project site.

Refer also to Section 2.12, Water Quality and Storm Water Runoff, for specific avoidance, minimization, and mitigation measures related to erosion control during construction and operation of Alternatives 2, 3, and 4. Implementation of the avoidance, minimization, and mitigation measures related to erosion control, provided in Section 2.12, would substantially reduce the potential for adverse erosion impacts during the construction and operation of Alternatives 2, 3, and 4.

Rippability and Oversized Rock

The geotechnical investigation will evaluate the need for excavation to depths greater than those required for the planned improvements. Potential cemented beds within the bedrock below the project site are typically between 1 and 3 ft (0.3 and 0.9 m) thick and are typically not continuous laterally. These beds are typically rippable with effort. If caissons are planned for the selected Build Alternative, drilling through these layers may result in slow drill rates and may require the use of special hard-rock drilling equipment. Rippability and oversized material typically do not pose a major constraint to project construction as long as these issues are appropriately documented in the construction specifications. The geotechnical investigation will evaluate this potential and document the potential presence of cemented beds at depths below the site. Implementation of the appropriate PDFs during construction of Alternatives 2, 3, and 4 would substantially reduce the potential for adverse impacts related to rippability and oversized rock.

2.14 Paleontology

2.14.1 Regulatory Setting

Paleontology is the study of life in past geologic time based on fossilized plants and animals. Although no federal law specifically protects natural or paleontological resources, several laws have been interpreted to do so. The primary law is the Antiquities Act of 1906, which protects historic or prehistoric ruins or monuments and objects of antiquity. This Act has been amended to specifically allow funding for paleontological mitigation.

Under California law, paleontological resources are protected by CEQA, the California Administrative Code, Title 14, Section 4306 et seq., and Public Resources Code (PRC) 5097.5. This analysis was conducted according to CEQA, PRC 21000 (Division 13), California Code of Regulations (CCR) 15000 (Title 14, Chapter 3), CEQA Appendix G, PRC 5097.5. This analysis documents the potential for paleontological resources older than 9,000 years to occur in the project area.

2.14.2 Affected Environment

The project site is in the City of Diamond Bar in eastern Los Angeles County, east of Fairway Drive and west of Brea Canyon Road. The project site is on the *San Dimas, California* and *Yorba Linda, California* (both photorevised 1981) United States Geological Survey (USGS) 7.5-minute topographic quadrangles, Section 17, Township 2 South, Range 9 West, San Bernardino Base Line and Meridian.

2.14.2.1 Paleontological Literature Review

The paleontological resources literature review was conducted using available references to identify sedimentary formations with paleontological resource sensitivity and fossil localities in the vicinity of the project site.

The project site is in the eastern part of the Los Angeles Basin of the Peninsular Range geomorphic province of California. The San Jose Hills and Puente Hills, to the north and south, respectively, are predominantly underlain by bedrock of the Miocene-aged Puente Formation, which is highly fossiliferous. David (1943) first described fossil fish from this area of the Puente Hills along Brea Canyon Road approximately 1 mi (1.6 km) south of the project area. Local well-cemented beds are

common within the Puente Formation and were encountered during borings in the vicinity of the site. The project site is shallowly underlain by recent alluvium of sand, silt, clay, and gravel eroded from the adjacent hills, transported and deposited by San Jose Creek (Dibblee, Jr. 2001; Durham and Yerkes 1964; Caltrans 2002). The Puente Formation ranges in thickness from 1,886 ft (575 m) in the central Santa Ana Mountains, near El Toro, to over 13,451 ft (4,100 m) in the Puente Hills (Yerkes et al. 1965; Schoellhamer et al. 1981). It is well exposed in the Santa Ana Mountains and Puente Hills and was deposited in a deep water basin (Lyons et al. 1990). The Puente Formation was named by Eldridge and Arnold (1907) from exposures in the Puente Hills.

Davies and Woodford (1949) divided the Puente Formation into four members: the La Vida Member (Tplv), predominantly siltstones; the Soquel Member (Tps), predominantly sandstones; the Yorba Member (Tpy), predominantly siltstones; and the Sycamore Canyon Member (Tpsc), predominantly sandstones. The siltstone units of the Puente Formation generally produce more fossils than the sandstone units, with the Yorba Member producing the most fossils of the four Members.

In the project area, the Soquel Member is primarily exposed; however, the La Vita, Yorba, and Sycamore Canyon Members are all exposed within 3 mi (4.8 km) of the project area (South Coast Geological Society 1973). The Soquel Member is derived from a deep marine (bathyal) environment. It contains medium- to coarse-grained gritty sandstone and is interbedded with siltstone. The upper part is a light gray to light yellowish brown medium to coarse sandstone with pebbles. Near the north edge of the Yorba Linda quadrangle, it is a light gray to light yellowish brown siltstone with boulders of granitoid rock. The siltstone units can be locally siliceous and may contain chert beds. The lower part of the unit is light gray to light yellowish brown thick-bedded to massive sandstone. The unit also contains zones of large concretions. Fossils are generally uncommon; however, fossils of red and brown algae, terrestrial vascular plants, invertebrates, and fish have been found in abundance in some areas (Sundberg 1991).

In the Puente Hills area, the Soquel Member is a pale yellow to yellow-brown silty sandstone and pebbly sandstone with interbeds of light to dark gray, and a pale yellow brown siltstone and occasional conglomerate and breccia. Sand grains are subangular to subrounded quartzo-feldspathic and are biotite rich. The conglomerate clasts are angular to subangular and are mainly derived from a plutonic source.

Sandstones are massive to thickly bedded, while siltstones are thinly bedded to platy. Dolomatic concretions occur near the base.

The thickness of the Soquel Member ranges from 2,000 to 2,800 ft (610 to 853 m). It has a gradational and locally unconformable contact with the underlying La Vida Member and a gradational contact with the overlying Yorba Member. This Member correlates with part of the Monterey Formation in Southern Orange County and part of the Modelo Formation in Los Angeles County. Lyons et al. (1990) has interpreted the Soquel Member in the Puente Hills to represent a series of coalescing depositional lobes deposited at the base of the continental slope. Sediments were derived from prograding fan deltas on the narrow continental shelf and transported to the base of the continental slope by gullies cut into the continental slope.

The literature review indicated that numerous paleontological resource localities, dating over 60 years, are known from this area (David 1943; Cooper 1973).

Sediments within the anticipated project disturbance limits that might have high potential to contain significant, nonrenewable paleontological resources were not visible during a field visit in 2006 due to previous road and interchange construction and existing vegetation. The paleontological resources records search indicated that resource sites are known to occur in sediments in the vicinity of the project site.

2.14.3 Impacts

Based on previously recorded paleontological localities, excavations in the project area into the Soquel Member of the Puente Formation have a high potential for encountering significant paleontological resources. The literature review indicated that numerous paleontological resource localities are known from this part of the eastern Los Angeles Basin (Jefferson 1991). The documented localities of paleontological resources in this area suggest high potential for significant vertebrate fossils to be encountered during construction and excavation of the proposed project.

Based on the sensitivity of the area for paleontological resources, excavation for the proposed SR-60/Lemon Avenue interchange project could result in adverse impacts on paleontological resources.

The No Build Alternative would not include any excavation in the project area. Therefore, the No Build Alternative would result in no adverse impacts related to paleontological resources.

2.14.4 Avoidance, Minimization, and Mitigation Measures

Because there is potential for encountering paleontological resources during construction of Alternatives 2, 3, and 4, a Paleontological Resource Impact Mitigation Program (PRIMP) is proposed that would reduce impacts through on-site monitoring in fossiliferous sediments.

PAL-1 Under the direction of the City of Diamond Bar, a qualified paleontologist will develop and implement a Paleontological Resource Impact Mitigation Program (PRIMP) for the excavation phase of the project. This program will be designed to conform to the guidelines of Los Angeles County and the Society of Vertebrate Paleontology and will include, at a minimum, the following:

- A trained paleontological monitor will be present during ground-disturbing activities within the project disturbance limits in excavations of the in-situ Soquel Member of the Puente Formation. These sediments are likely to contain paleontological resources. The monitoring for paleontological resources will be conducted on a full-time basis at elevations where excavation is in previously undisturbed parts of the Formation. The monitor will be empowered to temporarily halt or redirect construction activities to ensure avoidance of adverse impacts to paleontological resources. The monitor will be equipped to rapidly remove any large fossil specimens encountered during excavation. During monitoring, samples will be collected and processed to recover microvertebrate fossils. Processing will include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.
- On encountering a large deposit of bone, the monitor will salvage all bone in the area, using additional field staff, in accordance with modern paleontological techniques.
- All fossils collected will be prepared to a reasonable point of identification. Excess sediment or matrix will be removed from the specimens to reduce the bulk of the material and the storage cost. Itemized catalogs of all material collected and identified will be provided to the museum repository along with the specimens.
- A compliance report documenting the results of the monitoring and salvage activities and the significance of the fossils will be prepared.

- All fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.

2.15 Hazardous Wastes and Materials

This section is based on the *Initial Site Assessment Report* (ISA; Leighton Consulting, Inc., 2007). The ISA is on file and available for review at the Cities of Diamond Bar and Industry and at the Caltrans District 7 offices.

2.15.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many State and federal laws. These include specific statutes governing hazardous waste and a variety of laws regulating air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes and materials are the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). RCRA provides for cradle-to-grave regulation of hazardous wastes. The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so public health and welfare are not compromised. Other federal laws relevant to hazardous materials and hazardous wastes include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Safe Drinking Water Act
- Occupational Safety & Health Act
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, EO 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the RCRA and the California Health and Safety Code. Other California laws related to hazardous wastes are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of any hazardous material discovered during project construction is vital.

2.15.2 Affected Environment

The ISA was prepared to determine whether the proposed SR-60/Lemon Avenue interchange project could be affected by any recorded or visible hazardous waste problems. The ISA included a search of government records using the Environmental Data Resources, Inc. (EDR) environmental database report system to obtain a listing of properties or known incidents from State and federal databases for hazardous waste sites in the project area. The ISA also included a site survey, conducted from available public ROW, to identify any visible potential contamination.

2.15.2.1 Records Search

A records search was completed for a radius that meets the guidelines specified in American Society for Testing and Materials (ASTM) Standard E1527-00. The following regulatory databases were reviewed to determine the historic presence of hazardous materials on or within 1.0 mi (1.6 km) of the project site:

- RCRA Regulated Hazardous Waste Generator Notifiers List
- RCRA Corrective Action Sites List (CORRACTS)
- FIFRA/TSCA Tracking System (FTTS) Database
- Facility Index Systems (FINDS)
- SWRCB Waste Discharge System (WDS) List
- SWRCB Facility Inventory Database (CA FID)
- SWRCB Underground Storage Tank (UST) Inventory List
- SWRCB Spills, Leaks, Investigations, and Cleanups (SLIC) List
- SWRCB Aboveground Storage Tank (AST) Database
- SWRCB Leaking Underground Storage Tank (LUST) Inventory List
- Hazardous Substances Storage Container Database of Historical UST Sites (HIST UST)
- Statewide Environmental Evaluation and Planning System (SWEEPS)
- Los Angeles County Industrial Waste and Underground Storage Tank Sites (HMS)
- California Department of Toxic Substances Control (DTSC) Hazardous Waste Manifests Search

- Emission Inventory (EMI)Data
- EPA National Priorities List (NPL)
- EPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- CERCLIS No Further Remedial Action Planned (CERCLIS-NFRAP) List
- Emergency Response Notification System (ERNS)
- Hazardous Materials Incident Report System (HMIRS)
- Toxic Release Inventory System (TRIS)
- TSCA Chemical Substance Inventory List
- DTSC Annual Workplan (AWP)
- DTSC CALSITES
- Department of Consumer and Regulatory Affairs Solid Waste Landfill Facilities Database
- CORTESE Database
- SWRCY Database
- Dry Cleaners with EPA Identification (ID) Numbers List

2.15.2.2 On-Site Facilities

The project site was used for agriculture from approximately 1928 to 1968. SR-60 was under construction in this area in 1968.

The ISA revealed no evidence of recognized environmental conditions in connection with the project site except the following:

- The majority of the project site is currently part of the State-owned ROW for SR-60. There is potential for soil impacts from aerially deposited lead (ADL) on the project site.
- There are soil piles of unknown origin in the northwest quadrant of the intersection of SR-60 and Lemon Avenue.
- There are soil stockpiles under the collector road in the northeast quadrant of the intersection of SR-60 and Brea Canyon Road. These stockpiles appear to be associated with the improvements at the nearby railroad.
- There is currently a lease on State ROW, which is used for nursery operations. As a result, there is the potential for pesticides to have been used in this area.

2.15.2.3 Off-Site Facilities

The Walnut Valley Unified School District (District) Education Center is at 880 South Lemon Avenue. The EDR database identified 880 South Lemon Avenue as being listed on several databases. During the site reconnaissance, a fuel dispenser, four 55-gallon (gal) drums, a possible clarifier, and a hydraulic lift were observed at the District's maintenance and transportation facility north of the project site boundary.

This District facility is described as follows:

- **RCRA:** A generator of small quantity of regulated hazardous waste; however, no violations have been reported.
- **WDS:** An industrial facility considered a minor threat to water quality.
- **HIST, SWEEPS:** Facility has four underground storage tanks, three for fuel and one for waste oil.
- **EMI:** Facility released emissions in 1987, 1990, and 1995.

This District facility was listed in the following databases:

- **RCRA Regulated Hazardous Waste Generator Notifiers List:** Listed as a small-quantity generator. No violations or releases for the facility are reported.
- **FTTS Database:** Listed for a violation to legislation code TSCA during a January 15, 1987, inspection. A Section 6 asbestos Senior Environmental Employee (SEE) investigation was conducted.
- **FINDS:** Listed as a FINDS facility. Also listed on the Hazardous Waste Tracking System-Datamart, RCRA Information System, and the National Compliance System database. No violations or releases are reported.
- **WDS List:** Identified as an active industrial facility that is under Waste Discharge System Requirements. The facility is considered a minor threat to water quality and is a complexity category C, indicating facilities that have no waste treatment systems or those that must comply through BMPs, facilities with passive waste treatment and disposal systems such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.
- **CA FID List:** Identified as having an active UST location on the facility. No violations or releases are reported for the facility.
- **SWRCB UST Sites:** Listed as an active UST facility. No violations or releases are reported for the facility.

- **HIST UST Sites:** Listed as a HIST UST facility consisting of three tanks that were installed in 1983: a 10,000 gal UST containing regular gasoline, a 6,000 gal UST containing unleaded gasoline, and a 15,000 gal UST containing diesel fuel. No violations or releases are reported for the facility.
- **SWEEPS:** Listed as a SWEEPS UST facility consisting of active USTs. One listing indicates one waste oil UST. Another listing indicates four USTs. There is a total of five listings of SWEEPS USTs. No violations or releases are reported for the facility.
- **HMS Sites:** Listed twice on the database as an open and a permitted HMS facility. No violations or releases are reported for the facility.
- **HAZNET Site:** Listed three times as a HAZNET facility. This facility has disposed of wastes consisting of laboratory waste chemicals; off-specification, aged, or surplus organics; unspecified organic liquid mixture; polychlorinated biphenyls (PCBs) and materials containing PCBs; tank bottom waste; pesticides and other waste associated with pesticide production; photographic chemicals; photographic processing waste; tank treatment; liquids with halogenated organic compounds greater than 1,000 mg/L; alkaline solution with metals; unspecified solvent mixture waste; liquids with pH 2; asbestos-containing waste; liquids with mercury greater than 20 mg/L; latex waste; and waste oil and mixed oil. No violations or releases for the facility are reported.
- **EMI List:** Listed as an EMI facility. The listing indicates the facility released emissions in 1987, 1990, and 1995. In 1987, the facility released 1 ton of total organic hydrocarbon gases and 1 ton of reactive organic gases. In 1990 the facility released 1 ton of oxides of nitrogen. In 1995 the facility was listed as releasing emissions, but the emissions type was not identified.

There may be a current underground storage tank (UST) release at the District facility. This release is being confirmed, and it is not known at this time if the source is gasoline or diesel fuel or whether the release has impacted groundwater. If groundwater has been affected, there is the potential that this contamination could extend to groundwater under the project site.

The records search identified the following three off-site LUST facilities that have impacted area groundwater. All three are upgradient of the east part of the project site, near the intersection of Brea Canyon Road and SR-60:

- Chevron gasoline station, 21095 Golden Springs Drive

- Texaco Refining and Marketing (currently a Shell gasoline station), 21103 Golden Springs Drive
- Mobil gasoline station, 1024 Brea Canyon Road

These sites, as well as all other off-site locations identified during the records search, are described in detail in Appendix E.

2.15.3 Impacts

The No Build Alternative would not result in any construction and, therefore, would result in no adverse temporary impacts related to hazardous materials and wastes during construction.

Alternatives 2, 3, and 4 will result in construction in the project area. Two potential areas of concern, the District Education Center facility at 880 South Lemon Avenue and three gasoline stations, have been identified in the vicinity of the project limits. Only Alternative 4 will require ROW acquisition from the District Education Center. Because the fuel dispenser, four 55-gal drums, possible clarifier, and hydraulic lift on the District Education Center property are outside and downgradient of the project limits, it is unlikely that these facilities and activities associated with them will impact or be impacted by the construction and operation of the proposed project. However, due to the potential current release into groundwater, it is possible that contamination from that release extends into groundwater under the project site.

The off-site LUST facilities at the three gas stations do not appear to be an issue of concern during the construction of the proposed SR-60/Lemon Avenue interchange project because groundwater is not anticipated to be encountered during project construction. In addition, no ROW acquisition from the gas station properties will be required for construction of Alternatives 2, 3, and 4.

New uses of asbestos-containing materials (ACM) were banned by the EPA in 1989. Revisions to regulations issued by the Occupational Safety and Health Administration (OSHA; June 30, 1995) require that all thermal system insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be presumed asbestos-containing (PAC) materials and treated accordingly. ACM have also been documented in the rail shim sheet packing, bearing pads, support piers, expansion joint material of bridges, asphalt, and concrete. To rebut the designation as PAC, OSHA requires that these materials be surveyed, sampled, and assessed in accordance

with 40 CFR 763 (Asbestos Hazard Engineering Response Act [AHERA]). Alternatives 2, 3, and 4 would not require the acquisition of any existing structures. Therefore, it is unlikely that ACM or PAC materials would be disturbed during construction of the proposed SR-60/Lemon Avenue interchange project. However, it is possible that the existing road surfaces (asphalt and concrete) may contain ACM because the original SR-60 was constructed in 1968.

The construction of Alternatives 2, 3, and 4 would result in the disturbance of soil adjacent to existing SR-60 and Lemon Avenue. As a result, ADL may be released into the atmosphere during project grading and excavation activities.

Implementation of Alternatives 2, 3, and 4 may require the removal and disposal of yellow traffic stripe and pavement marking materials (paint, thermoplastic, permanent tape, and temporary tape). Yellow paints made prior to 1995 may exceed hazardous waste criteria under Title 22, California Code of Regulations, and require disposal in a Class I disposal site.

2.15.4 Avoidance, Minimization, and Mitigation Measures

The measures below would substantially reduce potential adverse impacts related to hazardous materials and hazardous wastes encountered during construction of the proposed SR-60/Lemon Avenue interchange project.

HW-1 For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, conduct a file review for 880 South Lemon Avenue to review the FINDS and FTTS documents associated with the project site and evaluate whether the soils associated with the project site have been impacted (applies to Alternative 4 only).

HW-2 For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, if soil sampling for ADL contamination has not been conducted during prior investigations, it will be conducted in unpaved locations where excavation will occur along roads. If ADL contamination is detected, the results/conclusions will be included in the Standard Special Provisions (SSP) and the Resident Engineer's (RE's) file. The SSP will be incorporated in the project plans, specifications, and estimates (PS&E). The analytical results of the soil sampling will

determine the appropriate handling of the soil and disposal of surplus materials.

HW-3 For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, sampling of the soil piles of unknown origin will be conducted to ascertain whether these soils are contaminated. If contamination is detected in the soil piles and/or the nursery site, the results/conclusions will be included in the SSP and the RE's file. The SSP will be incorporated in the Project PS&E. The analytical results of the soil sampling at the soil piles and the nursery will determine the appropriate handling of the soil and disposal of surplus materials.

Sampling of soil on the site currently leased for the nursery operations will be conducted to ascertain whether these soils are contaminated with pesticides or metals.

HW-4 During grading and excavation, the contractor will make observations for areas of possible contamination such as, but not limited to, the presence of underground facilities, buried debris, waste drums, tanks, stained soil, or odorous soils. Should such materials be encountered during project grading and excavation, the contractor will immediately notify the RE. Specific investigation and analysis may be necessary at that time to assess the potential hazard and to identify appropriate methods for removing and disposing of the hazard.

HW-5 For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, testing will be conducted and removal requirements identified for yellow traffic striping in accordance with Rule 7-106B, Removal of Yellow Traffic Stripe and Pavement Markings, as described in Chapter 7 of the Caltrans Construction Manual, Environmental Rules and Requirements.

HW-6 For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, conduct a file review for 880 South Lemon Avenue to review the FINDS and FTTS documents associated with the project site and evaluate whether the groundwater at the project site may have been impacted by a current UST release at 880 South Lemon Avenue. Groundwater testing will be conducted to identify the potential for petroleum hydrocarbons, volatile organic compounds

(VOCs), and fuel oxygenates in the event that project construction will encounter groundwater and/or require dewatering. In that event, appropriate treatment of the affected groundwater will be incorporated into the construction specifications.

2.16 Air Quality

The analysis of the potential air quality impacts of the proposed SR-60/ Lemon Avenue interchange project is based on the *Air Quality Analysis* (LSA Associates, Inc. 2007). The *Air Quality Analysis* is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.16.1 Regulatory Setting

The Clean Air Act (CAA) as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. The federal standards are called National Ambient Air Quality Standards (NAAQS). NAAQS have been established for the following six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Under the 1990 CAA Amendments, the United States Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan (SIP) for achieving the goals of the CAA requirements. Conformity with the CAA takes place at the regional and project levels. The proposed project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards for CO, NO_2, O_3, and PM. California is in attainment for the other criteria pollutants (i.e., Pb and SO_2). At the regional level, RTPs are developed that include all the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization (e.g., SCAG) and the appropriate federal agencies (e.g., FHWA) make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of a proposed transportation project are the same as

described in the RTP, then the proposed project is deemed to meet the regional conformity requirements for purposes of project-level analysis.

Conformity at the project level also requires a hot spot analysis if an area is nonattainment or maintenance for CO and/or PM. A region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called maintenance areas. The hot spot analysis for conformity is essentially the same, for technical purposes, as CO or PM analysis performed for NEPA and CEQA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in nonattainment areas the project must not cause any increase in the number and severity of violations. If a known CO or PM violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.16.2 Affected Environment

2.16.2.1 Climate

The project site is in the South Coast Air Basin (Basin), which includes Orange County and the nondesert parts of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District (SCAQMD). The Basin climate is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary of the Basin, and high mountains surround the rest of the Basin. The region lies in the semipermanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur.

The annual average temperature, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F), varies little throughout the Basin. With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the

site that monitors temperature is the Pomona Fairplex Station.[1] The annual average maximum temperature recorded at this station is 77.4 °F (25.2 degrees Centigrade [°C]), and the annual average minimum is 47.9°F (8.8°C). January is typically the coldest month in this area of the Basin.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed from mid- to late-afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern part of the Basin along the coastal side of the mountains. Average rainfall measured at the Pomona Fairplex Station varied from 3.64 in (9.25 centimeters [cm]) in January to 0.71 in (1.80 cm) or less between May and October, with an average annual total of 17.17 in (43.61 cm). Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

Winds in the project area blow predominantly from the east southeast, with relatively low velocities. Wind speeds in the project area average about 4 mph (6.4 kph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds together with a persistent temperature inversion limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, northerly or northeasterly Santa Ana winds occur during the fall and winter months, dispersing air contaminants. Santa Ana conditions tend to last for several days at a time.

[1] Western Regional Climatic Center, 2006, www.wrcc.dri.edu, accessed October 24, 2006.

2.16.2.2 Regional Air Quality Conformity

The proposed SR-60/Lemon Avenue interchange project is in the 2004 RTP, which was found to be conforming by the FHWA/FTA on June 7, 2004. The project is also in the 2006 RTIP, which was found to be conforming by the FHWA/FTA on October 2, 2006 (Project ID: LA0D399; Model No. L467; Description: Construction of new partial diamond interchange for State Route 60 at Lemon Avenue). Regional PM_{10} SIP budget compliance was accounted for during the current approved RTP and RTIP conformity determination. Therefore, the proposed project is in conformance with the SIP. The proposed project will also comply with all SCAQMD requirements.

2.16.2.3 Local Air Quality

The site is located within SCAQMD jurisdiction. The SCAQMD maintains ambient air quality monitoring stations throughout the Basin. The Pomona Air Quality Monitoring Station monitors three of the five criteria pollutants: ozone, NO_2, and CO (see Table 2.16-1). The next closest monitoring station that monitors $PM_{2.5}$ and PM_{10} data is the Azusa station. Air quality trends identified from data collected at both air quality monitoring stations between 2002 and 2006 are listed in Table 2.16-1 and are discussed below.

From the ambient air quality data listed, it can be seen that CO levels have not exceeded State and federal standards in the past five years. One-hour ozone levels exceeded the State standard in each of the past five years. Ozone exceeded the state one-hour standard from 26 to 39 times per year during the last five years. Eight-hour ozone levels exceeded the federal standard in each of the past five years. Ozone exceeded the federal eight-hour standard from 11 to 24 times per year during the last five years. The PM_{10} level in the proposed project area exceeded the State standards from 7 to 22 days in the past five years but did not exceed the federal PM_{10} standard in the past five years. The $PM_{2.5}$ levels exceeded the federal standard from 0 to 3 days in the past five years. The NO_2 level in the proposed project area did not exceed the State or federal PM_{10} standard in the past five years.

The attainment status in the entire Basin is summarized in Table 2.16-2.

Table 2.16-1 Ambient Air Quality Standards at the Pomona and Azusa Air Monitoring Stations

Pollutant	Standard	2006	2005	2004	2003	2002
Carbon Monoxide						
Max 1-hr concentration (ppm)		3.3	4.2	4.3	5.8	6.0
No. days exceeded: State Federal	> 20 ppm/1-hr > 35 ppm/1-hr	0 0	0 0	0 0	0 0	0 0
Max 8-hr concentration (ppm)		2.2	2.5	3.1	4.4	3.1
No. days exceeded: State Federal	.. 9.1 ppm/8-hr .. 9.5 ppm/8-hr	0 0	0 0	0 0	0 0	0 0
Ozone						
Max 1-hr concentration (ppm)		0.151	0.140	0.131	0.161	0.150
No. days exceeded: State	> 0.09 ppm/1-hr	34	26	31	39	28
Ozone						
Max 8-hr concentration (ppm)		0.127	0.112	0.100	0.121	0.111
No. days exceeded: Federal	> 0.08 ppm/8-hr	16	11	13	24	14
Particulates (PM_{10})[1]						
Max 24-hr concentration (ppm)		81	76	83	119	91
No. days exceeded: State Federal	> 50 µg/m^3 > 150 µg/m^3	7 0	10 0	7 0	20 0	22 0
Particulates ($PM_{2.5}$)[1, 2]						
Max 24-hr concentration (ppm)		52.7	132.6	75.6	121.2	72.4
No. days exceeded: Federal	> 65 µg/m^3	0	1	1	3	1
Nitrogen Dioxide						
Max 1-hr concentration (ppm): State	> 0.25 ppm/1-hr	0.095	0.083	0.106	0.113	0.115
No. days exceeded		0	0	0	0	0
Annual avg. concentration: Federal	0.053 ppm annual avg.	0.031	0.031	0.031	0.035	0.036
No. days exceeded		0	0	0	0	0

Source: EPA and ARB 2002 to 2006.

[1] Data is from the Azusa station.

[2] The exceedances of the federal 24-hour $PM_{2.5}$ standard are based on the old 65 µg/m^3 standard. In 2006, the EPA revised the standard to 35 µg/m^3.

Table 2.16-2 Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1-hour	Nonattainment	Revoked June 2005
O_3 8-hour	Not Applicable (No state standard)	Severe 17 Nonattainment

Pollutant	State	Federal
PM_{10}	Nonattainment	Serious Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board (ARB) (www.arb.ca.gov/desig/desig.htm, accessed 2006).

2.16.2.4 Climate Change

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas[1] (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill (AB) 1493, California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the State level. AB 1493 requires the ARB to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below the 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that the ARB create a plan that includes market mechanisms and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-17-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Climate change and GHG emissions reduction are also concerns at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reduction and climate change.

According to the IPCC report, *Climate Change 2007: The Physical Science Basis: Summary for Policymakers* (February 2007), there is no doubt that the climate system

[1] Greenhouse gases related to human activity include: carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23, HFC-134a, and HFC-152a.

is warming. Global average air and ocean temperatures, as well as the global average sea level, are rising. Of the last 12 years, 11 years have ranked as among the warmest on record since 1850. While some of the increase is explained by natural occurrences, the 2007 report asserts that the increase in temperatures is very likely (> 90 percent) due to human activity, most notably the burning of fossil fuels.

For California, similar effects are described in the California Climate Change Center report, *Our Changing Climate: Assessing the Risks to California* (July 2006). Based on projections using state-of-the-art climate modeling, the temperatures in California are expected to rise between 3°F to 10.5°F by the end of the century, depending on how much California is able to reduce its GHG emissions. The report states that these temperature increases will negatively impact public health, water supply, agriculture, plant and animal species, and the coastline.

2.16.3 Impacts

2.16.3.1 Permanent Impacts

Long-term emissions would improve as a result of the enhanced traffic flow due to the proposed interchange improvements. The objective of the proposed project is to lessen traffic congestion and improve public safety. The proposed interchange improvement is not expected to generate any additional traffic. The number of regional traffic trips would remain similar under the No Build and the Build Alternatives. Therefore, no new long-term regional emissions would result from implementation of the proposed SR-60/Lemon Avenue interchange project. The proposed project will improve traffic movement in the project vicinity, thereby lowering the total pollutants emitted by motor vehicles.

The project is located in an attainment/maintenance area for federal CO standards. Using the Caltrans Transportation Project-Level Carbon Monoxide Protocol, a screening and a CO hot-spot analysis were conducted to determine whether the proposed project would result in any CO hot spots. It was determined that the proposed project would not result in any exceedances of the one-hour or eight-hour CO standards.

The proposed project is within a nonattainment area for federal $PM_{2.5}$ and PM_{10} standards. Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses, qualitative or quantitative, for projects that are not listed in Section 93.123(b)(1) as an air quality

concern. It was determined through interagency coordination that the proposed project will not contribute to a hot spot of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) or particulate matter less than 10 microns in diameter (PM_{10}) that will cause or contribute to a violation of the federal $PM_{2.5}$ or PM_{10} standards.

The project is in the 2004 RTP, which was found to be conforming by the FHWA/FTA on June 7, 2004. The project is also in the 2006 RTIP, which was found to be conforming by the FHWA/FTA on October 2, 2006 (Project ID: LA0D399; Model No. L467; Page 3 of the Los Angeles County State Projects. Description: Construction ojf a new partial diamond interchange for State Route 60 at Lemon Avenue). Regional PM_{10} SIP budget compliance was accounted for during the current approval RTP and RTIP conformity determination. The proposed project is consistent with the scope of design concept of the RTIP. Therefore, the proposed project is in conformance with the SIP. The project will also comply with all SCAQMD requirements.

2.16.3.2 Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are federal AAQS, the United States Environmental Protection Agency (EPA) also regulates air toxics. Most air toxics originate from human-made sources, including nonroad mobile sources, nonroad mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

MSATs are a subset of the 188 air toxics defined by the CAA. MSATs are compounds emitted from highway vehicles and nonroad equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through an engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 Federal Register 17229 [March 29, 2001]). This Rule was issued under the authority in Section 202 of the CAA. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low-emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its

proposed heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements.

In February 2006, the FHWA issued guidance[1] to advise FHWA Division offices as to when and how to analyze MSATs in the NEPA process for highways. The guidance is described as interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance. This analysis follows the FHWA guidance.

Between 2000 and 2020, the FHWA projects that even with a 64 percent increase in vehicle miles traveled (VMT), these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent. As a result, the EPA concluded that no further motor vehicle emissions or fuel standards were necessary to further control MSATs.

This report includes a basic analysis of the likely MSAT emission impacts of the proposed project. However, available technical tools do not provide for predicting project-specific health impacts of the emission changes associated with the alternatives considered in this report. Due to these limitations, the following discussion is included in accordance with the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] 1502.22[b]) regarding incomplete or unavailable information.

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and a final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevent a more complete determination of the MSAT health impacts of the proposed project, as described below.

Emissions

The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects.

[1] www.fhwa.dot.gov/environment/airtoxic/020306guidmem.htm.

While MOBILE 6.2 and EMFAC2002 are used to predict emissions at a regional level, they have limited applicability at the project level. MOBILE 6.2 is a trip-based model with emission factors projected based on a typical trip of 12.1 kilometers (7.5 miles) and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects and cannot adequately capture emissions effects of smaller projects. For PM, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emission rates used in MOBILE 6.2 for both PM and MSATs are based on a limited number of tests of mostly older-technology vehicles. Last, in its discussions of PM under the conformity rule, the EPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis. Similar limitations apply to EMFAC2002.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emission trends and performing relative analyses between alternatives for very large projects, but it is not sufficiently sensitive to capture the effects of travel changes due to smaller projects or to predict emissions near specific roadside locations.

Dispersion

The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE4 (a Caltrans model used inside California only) and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of CO to determine compliance with the federal AAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Highway Cooperative Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, the FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

Exposure Levels and Health Effects

Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis limit the ability to reach meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roads and to determine the time of year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emission rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emission levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the EPA conducted the National Air Toxics Assessment (NATA 1996) to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment (www.epa.gov/iris). The following toxicity information for the six

prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries. This information, from the EPA's IRIS database, represents the EPA's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.
- Acetaldehyde is a probable human carcinogen, based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- Diesel exhaust (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. DE is the combination of diesel PM and diesel exhaust organic gases.
- DE also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposure to DE may impair pulmonary function and could produce symptoms such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a nonprofit organization funded by the EPA, the FHWA, and the industry, has undertaken a major series of studies to research near-road MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roads is related to adverse health outcomes, particularly respiratory problems.[1] Much of this research is not specific to

[1] South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); Highway Health Hazards, The Sierra Club (2004), summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005), with health studies cited therein.

MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, these studies do not provide information that would be useful to alleviate the uncertainties listed above and allow for a more comprehensive evaluation of the health impacts specific to the proposed project.

Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow reasonable prediction of relative emission changes between alternatives for larger projects, the amount of MSAT emissions from the project alternatives and MSAT concentrations or exposures created by each project alternative cannot be predicted with sufficient accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emission analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have significant adverse impacts on the human environment.

For each project alternative, the amount of MSATs emitted would be proportional to the VMT assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative because the interchange attracts trips that were not occurring at this location before (see Table G). This increase in VMT means MSATs under the Build Alternatives would probably be higher than those for the No Build Alternative in the study area. There could also be localized differences in MSATs from indirect effects of the project such as associated access traffic, emissions of evaporative MSATs (e.g., benzene) from parked cars, and emissions of diesel PM from delivery trucks, depending on the type and extent of development. On a regional scale, this emissions increase would be offset somewhat by reduced travel to other destinations.

For all of the future alternatives (no build and build), emissions are projected to be lower than present levels in the design year as a result of the EPA's national control programs, which are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for

VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

The new ramps contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby residences, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs would be higher under certain Alternatives than others. However, as discussed above, the magnitude and duration of these potential increases cannot be accurately quantified because of limitations on modeling techniques. Furthermore, under all alternatives, overall future MSATs are expected to be substantially lower than they are today due to implementation of the EPA's vehicle and fuel regulations.

In summary, under all Build Alternatives in the design year it is expected that there would be higher MSAT emissions in the study area relative to the No Build Alternative due to increased VMT. There could be slightly elevated but unquantifiable changes in MSATs affecting residents and others in a few localized areas where the VMT increases, which may be important particularly to any members of sensitive populations. However, on a regional basis, the EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time result in substantial reductions that will, in almost all cases, cause region-wide MSAT levels to be substantially lower than they are today.

2.16.3.3 Greenhouse Gases

According to a recent white paper by the Association of Environmental Professionals,[1] an individual project does not generate enough GHG emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHG.

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emissions reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and that 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the *Climate Action Program at Caltrans* (December 2006).

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[1] Hendrix, Michael, and Cori Wilson. *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas*

Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions levels, including carbon dioxide, at the project level is not currently possible. No federal, state, or regional regulatory agency has provided methodology or criteria for GHG emissions and climate change impact analysis. Therefore, Caltrans is unable to provide a scientific or regulatory-based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB works to implement AB 1493 and AB 32. As part of the *Climate Action Program at Caltrans* (December 2006), Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light and heavy-duty trucks. However, it is important to note that the control of the fuel economy standards is held by the EPA and ARB. Last, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California, Davis.

One of the main strategies to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0–25 mph) and speeds over 55 mph. Relieving congestion by enhancing operations and improving travel times in high-congestion travel corridors will lead to an overall reduction in GHG emissions. The purpose of the project is to alleviate existing and future traffic congestion along SR-91 during peak hours. Therefore, the project would reduce the number of vehicle hours traveled (VHT) within the project area. Although the project may result in a net increase in VMT, the carbon dioxide emissions would be reduced due to the reduction in VHT and the improved traffic flow.

2.16.3.4 Temporary Impacts

Air pollutant emissions associated with the proposed project such as fugitive dust from grading/site preparation and equipment exhaust would occur over the short-term

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Emissions and Global Climate Change in CEQA Documents (March 5, 2007), p.2.

during construction of Alternatives 2, 3, and 4. Construction activities produce combustion emissions from various sources such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew. Exhaust emissions during project construction will vary daily as construction activity levels change. The use of construction equipment on site will result in localized exhaust emissions. The Caltrans *Standard Construction Specifications* (Sections 10 and 18 for dust control and Section 39-3.06 for asphalt concrete plant) will be adhered to during the construction of the proposed project in order to reduce emissions as a result of construction equipment.

Fugitive Dust

The SCAQMD established Rule 403 for reducing fugitive dust (PM_{10}) emissions. The best available control measures (BACM), as specified in SCAQMD Rule 403, will be incorporated into the project construction specifications for Alternatives 2, 3, and 4. With implementation of standard measures (providing 50 percent effectiveness) such as frequent watering (minimum twice per day), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

Naturally Occurring Asbestos

The project is in Los Angeles County, which is among the counties listed as containing serpentine and ultramafic rock. However, the proposed project is not in the area of the County containing known deposits of serpentine or ultramafic rocks. Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none.

2.16.4 Avoidance, Minimization, and Mitigation Measures

The following standard conditions identified by the SCAQMD and Caltrans would be implemented during construction of Alternatives 2, 3, and 4 and would reduce or minimize air pollutant emissions associated with construction activities.

2.16.4.1 SCAQMD Standard Conditions

SC-1 The construction contractor will adhere to the requirements of SCAQMD rules and regulations on cutback and emulsified asphalt paving materials.

SC-2 To reduce fugitive dust emissions, the construction contractor will adhere to the requirements of SCAQMD Rule 403. The Best Available Control

Measures (BACMs) specified in SCAQMD's Rule 403 will be incorporated into the project construction. The BACMs are listed in Table J in the *Air Quality Analysis*.

2.16.4.2 Caltrans Standard Construction Specifications

A. All disturbed areas, including storage piles, not being actively utilized for construction purposes will be effectively stabilized for dust emissions using water, chemical stabilizers/suppressants, or vegetative ground cover.

B. All on-site unpaved roads and off-site unpaved access roads will be effectively stabilized for dust emissions using water or chemical stabilizers/suppressants.

C. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities will be effectively controlled for fugitive dust emissions by utilizing applications of water or by presoaking.

D. When materials are transported off site, all material will be covered or effectively wetted to limit visible dust emissions, or at least 6 in (15.2 cm) of freeboard space from the top of the container will be maintained.

E. All operations will limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is expressly forbidden.

F. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles will be effectively stabilized for fugitive dust emissions utilizing sufficient water or chemical stabilizers/suppressants.

G. Traffic speeds on unpaved roads will be limited to 15 mph (24 kph).

H. Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent.

I. Wheel washers for all exiting trucks will be installed, or all trucks and equipment will be washed off before leaving the site.

J. Wind breaks will be installed at windward side(s) of construction areas.

K. Excavation and grading activity will be suspended when winds exceed 20 mph (32 kph).

L. Areas subject to excavation, grading, and other construction activity will be limited at any one time.

2.17 Noise

The analysis of the potential noise impacts of the proposed SR-60/Lemon Avenue interchange project is based on the *Noise Impact Analysis* (LSA Associates, Inc. 2007). The *Noise Impact Analysis* is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.17.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide a broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. Those regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.17-1 lists the NAC for use in the NEPA-23 CFR 772 analysis Table 2.17-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

Table 2.17-1 Noise Abatement Criteria

Activity Category	NAC: Hourly A-Weighted Noise Level, dBA L_{eq} (h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	—	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA 23 CFR 772.
dBA L_{eq} = continuous equivalent sound leve in A-weighted decibels

In accordance with the Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in the noise level, (defined as a 12 dBA or more increase), or when the future noise level with the project will approach or exceed the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that a project will result in adverse noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated in the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The *Traffic Noise Analysis Protocol* sets forth criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance of the noise abatement measure, the absolute noise level, build versus noise, environmental impacts abatement, public and local agencies' input, newly constructed development versus development predating 1978, and the cost per benefited residence.

2.17.2 Affected Environment

This section is based on the Noise Impact Analysis prepared for the project, dated December 2007.

2.17.2.1 Surrounding Land Use

Land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, potential noise-sensitive receptors were identified. Land uses in the project vicinity include single-family residential, multifamily residential, and commercial uses. The generalized land use data and the locations of potential noise-sensitive receptors were the basis for the selection of the noise monitoring and analysis sites. A total of 91 receptor locations were modeled at residential areas to represent noise-sensitive land uses in the project vicinity. These monitoring and modeled receptor locations are immediately adjacent to SR-60 and Golden Springs Drive. No monitoring and modeling receptor locations were analyzed near the future interchange of SR-60 and Lemon Avenue because there are no noise-sensitive land uses in this area. Also, no receptors were modeled to represent commercial uses in the project area because these land uses do not have associated outdoor active use areas. Figure 2.17-1 shows the monitoring and modeled receptor locations.

2.17.2.2 Existing Noise Environment

The primary source of noise in the project area is traffic on SR-60, Golden Springs Drive, Lemon Avenue, and Brea Canyon Road. Ambient (20-minute) noise measurements were conducted to document existing noise levels at 11 representative sensitive receptor locations along the project alignment (see Figure 2.17-1). The noise level measurements were performed using a Larson Davis Model 824 Type 1 sound level meter. Table 2.17-2 provides the results of these measurements. Table 2.17-3 describes the physical locations of the noise monitoring. These noise measurements were used to calibrate the noise model and to predict the noise levels at all 91 modeled sensitive receptors in the project area. Table 2.17-4 provides the background noise level measurements along with a description of their location. These measurements were conducted during the peak traffic noise hour.

Long-term noise monitoring was conducted using a Larson Davis Model 820 Type 1 sound level meter (serial number 1584). The long-term noise measurements were performed at 20846 Moonlake Street in the City of Diamond Bar from 11:55 a.m. on Tuesday, November 13, 2007, to 12:31 p.m. on Wednesday, November 14, 2007.

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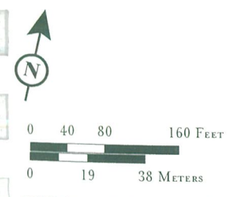
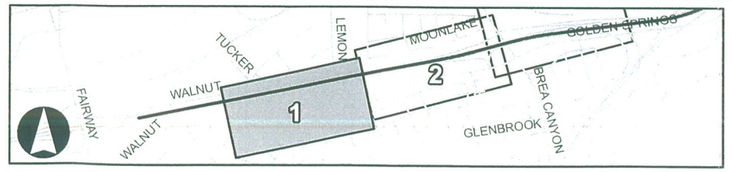


24-hour monitor
Monitor Locations
Receptor Locations
Existing Walls

Land Use
Commercial
Future Planned Commercial
Industrial
Residential
Vacant



SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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FIGURE 2.17-1
Sheet 1 of 2

SR-60 / Lemon Avenue Interchange Project

Noise Impact Analysis
Monitoring and Modeled Receptor Locations

07 - LA - 60 K.P. R34.6 / R37.0 (P.M. 21.5 / 23.0)
EA# 07-224100

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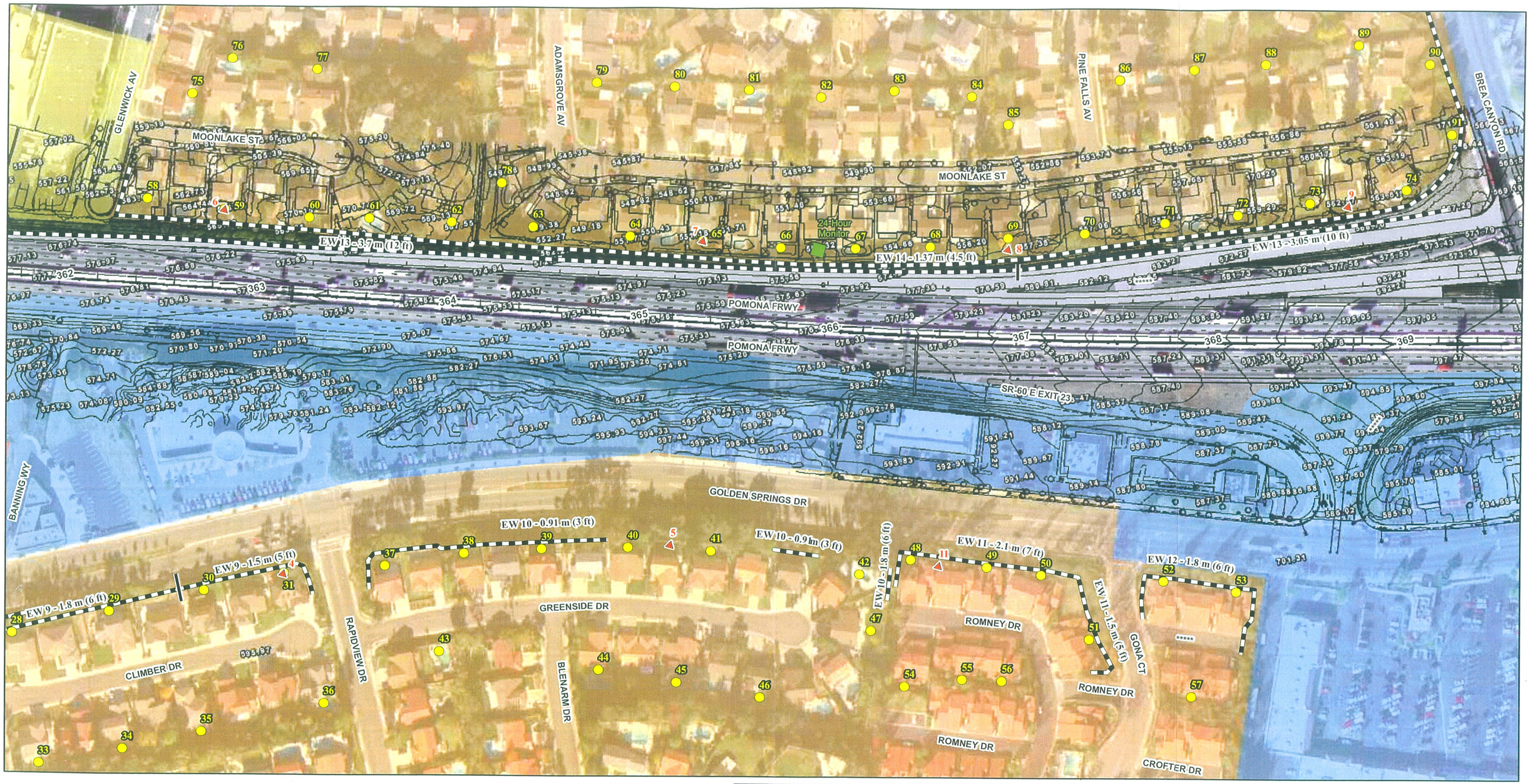

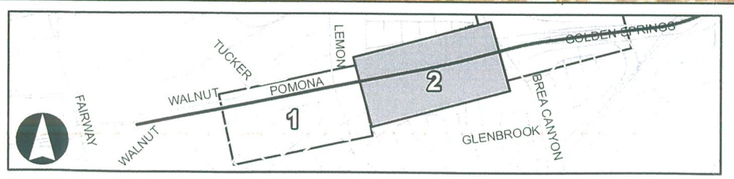

24-hour monitor
Monitor Locations
Receptor Locations
Existing Walls

Land Use
Commercial
Future Planned Commercial
Industrial
Residential
Vacant

0 40 80 160 Feet
0 19 38 Meters

SOURCE: Jacobs Engineering (2006); TerraServer (2004).
I:\JCV530\GIS\F2_NoiseImpact_S1.mxd (12/5/2007, 2007

FIGURE 2.17-1
Sheet 2 of 2

SR-60 / Lemon Avenue Interchange Project
Noise Impact Analysis
Monitoring and Modeled Receptor Locations

07 - LA - 60 K.P. R34.6 / R37.0 (P.M. 21.5 / 23.0)
EA# 07-224100

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Table 2.17-2 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}
M-1	9/28/2006	9:00 a.m.	20 minutes	66.0
M-2	9/28/2006	9:57 a.m.	20 minutes	65.2
M-3	9/28/2006	10:25 a.m.	20 minutes	64.4
M-4	10/4/2006	1:59 p.m.	20 minutes	62.1
M-5	9/28/2006	11:19 a.m.	20 minutes	66.2
M-6	9/28/2006	2:26 p.m.	20 minutes	64.5
M-7	9/28/2006	3:00 p.m.	20 minutes	64.1
M-8	9/28/2006	3:31 p.m.	20 minutes	60.6
M-9	10/4/2006	2:46 p.m.	20 minutes	59.7
M-10	10/4/2006	10:53 a.m.	20 minutes	57.9
M-11	9/28/2006	1:45 p.m.	20 minutes	63.6

Source: LSA Associates, Inc., December 2007.
dBA L_{eq} = A-weighted noise level

Table 2.17-3 Physical Location of Noise Level Measurements

Monitor No.	Location Description	Noise Sources
M-1	20325 Flintgate Drive; in the backyard	Traffic on SR-60, helicopter flyby, and faint noise of train horn in the background
M-2	20437 Flintgate Drive; in the backyard	Traffic on SR-60
M-3	20509 Flintgate Drive; in the backyard	Traffic on SR-60
M-4	20665 Climber Drive; in the backyard	Traffic on Golden Springs Drive and some on SR-60, and helicopter flyby
M-5	20751 Flintgate Drive; in the backyard	Traffic on Golden Springs Drive, faint traffic from SR-60, and an emergency vehicle with the siren on passing by
M-6	20710 Moonlake Street; in the backyard	Traffic on SR-60, faint water noise, faint train horn noise, faint noise from swimming pool, and helicopter noise
M-7	20820 Moonlake Street; in the backyard	Traffic on SR-60
M-8	20892 Moonlake Street; in the backyard	Traffic on SR-60, bird noises, and faint noise from air conditioner
M-9	20940 Moonlake Street; in the backyard	Traffic on SR-60
M-10	20521 Clearspring Court; in the backyard	Traffic on Golden Springs Drive and some on the SR-60
M-11	1012 South Romney Drive; in the back patio	Traffic on Golden Springs Drive and some traffic on SR-60

Source: LSA Associates, Inc., December 2007.

Table 2.17-4 Short-Term Background Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description
BG-1	11/15/2007	7:00 a.m.	20 minutes	61.6	20344 Damietta Drive; southwest intersection of SR-60 and Lemona Avenue
BG-2	11/15/2007	7:32 a.m.	20 minutes	52.0	1334 Red Bluff Lane; southwest intersection of Golden Springs Drive and Rapidview Drive
BG-3	11/15/2007	7:33 a.m.	20 minutes	56.3	1387 Rangeton Drive; southeast intersection of Golden Springs Drive and Rapidview Drive
BG-4	11/15/2007	7:00 a.m.	20 minutes	55.9	842 Darius Avenue; northeast intersection of SR-60 and Lemon Avenue

Source: LSA Associates, Inc., December 2007.
dBA L_{eq} = A-weighted noise level

Table 2.17-5 24-Hour Ambient Noise Monitoring Results

Time	Date	Noise Level (dBA L_{eq})
11:55 AM	11/13/07	58
12:00 PM	11/13/07	61
1:00 PM	11/13/07	62
2:00 PM	11/13/07	62
3:00 PM	11/13/07	61
4:00 PM	11/13/07	62
5:00 PM	11/13/07	62
6:00 PM	11/13/07	62
7:00 PM	11/13/07	61
8:00 PM	11/13/07	61
9:00 PM	11/13/07	61
10:00 PM	11/13/07	61
11:00 PM	11/13/07	61
12:00 AM	11/14/07	61
1:00 AM	11/14/07	59
2:00 AM	11/14/07	59
3:00 AM	11/14/07	58
4:00 AM	11/14/07	59
5:00 AM	11/14/07	62
6:00 AM	11/14/07	62
7:00 AM	11/14/07	**63**[1]
8:00 AM	11/14/07	61
9:00 AM	11/14/07	61
10:00 AM	11/14/07	58
11:00 AM	11/14/07	60
12:00 PM	11/14/07	61

Source: LSA Associates, Inc. December 2007.
[1] Bold denotes peak traffic noise hour.
dBA L_{eq} = A-weighted noise level

Table 2.17-5 summarizes the results of the long-term monitoring. The location of the long-term noise monitoring is shown on Figure 2.17-1, sheet 2.

As shown in Table 2.17-5, the traffic noise in the project area peaks during the 7:00 a.m.–8:00 a.m. hour. To determine existing peak traffic noise levels in the project area, the difference between the hour in which the short-term ambient noise measurements were conducted and the peak traffic noise hour was added to the monitored noise levels. For example, monitoring at M-1 was conducted during the 9:00 a.m. hour. Table 2.17-5 shows that the noise level during this hour is generally 2 dB lower than the level during the peak traffic noise hour. Therefore, 2 dBA is added to the monitored noise level to determine the existing peak noise level. For receptor locations where ambient noise monitoring was not conducted, existing noise levels were calculated using TNM 2.5 and volumes counted during the noise monitoring. Correction factors (the difference between the modeled and measured noise levels) were applied to each of the modeled receptor locations so that the monitored and modeled noise levels were the same. A higher correction factor was applied for areas with long distances from the sensitive receptor to the noise source and areas with complex noise environments. The locations, M-4, M-5, and M-9 are shown on Table 2.17-3.

Adjustment factors to the peak traffic noise hour were then applied to each monitoring location, based on the 24-hour monitoring conducted at 20846 Moonlake Street in the City of Diamond Bar from 11:55 a.m. on Tuesday, November 13, 2007, to 12:31 p.m. on Wednesday, November 14, 2007.

In addition, a second correction factor was then used to adjust the modeled noise levels for existing, future no build, and future build conditions. This was obtained by comparing the measured peak traffic noise hour level with the modeled existing noise level and applied to each of the modeled receptor locations. As shown on Table 2.17-6, of the 91 modeled receptor locations, 33 receptors currently approach or exceed the NAC.

Table 2.17-6 Existing Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Type of Development	No. of Units Represented	Noise Abatement Category	Measured Noise Level	Modeled Existing Noise Level	Adjusted Modeled Existing Noise Level
R-1	Flintgate Drive	Residential	2	B (67)	N/A	65	**66**[1]
R-2/M-1[2]	Flintgate Drive	Residential	2	B (67)	**66/68**[3]	**67**	**68**
R-3	Flintgate Drive	Residential	2	B (67)	N/A[4]	**67**	**68**
R-4	Flintgate Drive	Residential	2	B (67)	N/A	65	**71**
R-5/M-2	Flintgate Drive	Residential	2	B (67)	65/70	64	**70**
R-6	Flintgate Drive	Residential	2	B (67)	N/A	64	**70**
R-7	Flintgate Drive	Residential	2	B (67)	N/A	63	**69**
R-8	Flintgate Drive	Residential	2	B (67)	N/A	**68**	**74**
R-9	Flintgate Drive	Residential	2	B (67)	N/A	**67**	**70**
R-10	Flintgate Drive	Residential	2	B (67)	N/A	**67**	**70**
R-11/M-3	Flintgate Drive	Residential	2	B (67)	64/**69**	**66**	**69**
R-12	Flintgate Drive	Residential	2	B (67)	N/A	63	64
R-13	Flintgate Drive	Residential	2	B (67)	N/A	63	64
R-14	Flintgate Drive	Residential	2	B (67)	N/A	63	64
R-15	Flintgate Drive	Residential	2	B (67)	N/A	62	63
R-16	Flintgate Drive	Residential	2	B (67)	N/A	61	62
R-17	Clorinda Drive	Residential	1	B (67)	N/A	63	64
R-18	Clorinda Drive	Residential	2	B (67)	N/A	59	65
R-19	Belbury Drive	Residential	2	B (67)	N/A	53	59
R-20	Arkley Drive	Residential	2	B (67)	N/A	63	**66**
R-21	Arkley Drive	Residential	2	B (67)	N/A	62	65
R-22	Clear Spring Court	Residential	1	B (67)	N/A	59	58
R-23/M-10	Clear Spring Court	Residential	1	B (67)	58/59	60	59
R-24	South Lemon	Residential	1	B (67)	N/A	61	60

Table 2.17-6 Existing Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Type of Development	No. of Units Represented	Noise Abatement Category	Measured Noise Level	Modeled Existing Noise Level	Adjusted Modeled Existing Noise Level
	Avenue						
R-25	South Lemon Avenue	Residential	1	B (67)	N/A	62	61
R-26	South Lemon Avenue	Residential	1	B (67)	N/A	59	63
R-27	South Lemon Avenue	Residential	1	B (67)	N/A	59	63
R-28	Climber Lane	Residential	2	B (67)	N/A	57	61
R-29	Climber Lane	Residential	2	B (67)	N/A	55	59
R-30	Climber Lane	Residential	2	B (67)	N/A	61	65
R-31/M-4	Climber Lane	Residential	1	B (67)	62/65	61	65
R-32	South Lemon Avenue	Residential	1	B (67)	N/A	57	61
R-33	Climber Lane	Residential	2	B (67)	N/A	56	60
R-34	Climber Lane	Residential	2	B (67)	N/A	54	58
R-35	Climber Lane	Residential	2	B (67)	N/A	56	60
R-36	Climber Lane	Residential	2	B (67)	N/A	56	60
R-37	Greenside Drive	Residential	2	B (67)	N/A	61	62
R-38	Greenside Drive	Residential	2	B (67)	N/A	65	**66**
R-39	Greenside Drive	Residential	2	B (67)	N/A	65	**66**
R-40/M-5	Greenside Drive	Residential	2	B (67)	**66/67**	**66**	**67**
R-41	Greenside Drive	Residential	2	B (67)	N/A	65	**66**
R-42	Greenside Drive	Residential	2	B (67)	N/A	64	65
R-43	Rapidview Drive	Residential	2	B (67)	N/A	62	63
R-44	Greenside Drive	Residential	2	B (67)	N/A	59	60
R-45	Greenside Drive	Residential	2	B (67)	N/A	59	60
R-46	Greenside Drive	Residential	2	B (67)	N/A	60	61

Table 2.17-6 Existing Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Type of Development	No. of Units Represented	Noise Abatement Category	Measured Noise Level	Modeled Existing Noise Level	Adjusted Modeled Existing Noise Level
R-47	Greenside Drive	Residential	1	B (67)	N/A	**66**	**67**
R-48/M-11	Romney Drive	Residential	3	B (67)	64/**67**	62	**67**
R-49	Romney Drive	Residential	3	B (67)	N/A	60	65
R-50	Romney Drive	Residential	3	B (67)	N/A	**67**	**72**
R-51	Romney Drive	Residential	3	B (67)	N/A	63	**68**
R-52	Gona Court	Residential	3	B (67)	N/A	64	**69**
R-53	Gona Court	Residential	3	B (67)	N/A	64	**69**
R-54	Romney Drive	Residential	2	B (67)	N/A	58	63
R-55	Romney Drive	Residential	3	B (67)	N/A	58	63
R-56	Romney Drive	Residential	2	B (67)	N/A	57	62
R-57	Gona Court	Residential	4	B (67)	N/A	62	**67**
R-58	Moonlake Street	Residential	2	B (67)	N/A	64	65
R-59/M-6	Moonlake Street	Residential	2	B (67)	65/**66**	65	**66**
R-60	Moonlake Street	Residential	1	B (67)	N/A	**66**	**67**
R-61	Moonlake Street	Residential	1	B (67)	N/A	**66**	**67**
R-62	Moonlake Street	Residential	1	B (67)	N/A	**66**	**67**
R-63	Moonlake Street	Residential	2	B (67)	N/A	64	**66**
R-64	Moonlake Street	Residential	2	B (67)	N/A	64	**66**
R-65/M-7	Moonlake Street	Residential	2	B (67)	64/**66**	64	**66**
R-66	Moonlake Street	Residential	2	B (67)	N/A	64	**66**
R-67	Moonlake Street	Residential	2	B (67)	N/A	64	**66**
R-68	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-69/M-8	Moonlake Street	Residential	2	B (67)	61/63	61	63
R-70	Moonlake Street	Residential	2	B (67)	N/A	61	63

Table 2.17-6 Existing Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Type of Development	No. of Units Represented	Noise Abatement Category	Measured Noise Level	Modeled Existing Noise Level	Adjusted Modeled Existing Noise Level
R-71	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-72	Moonlake Street	Residential	2	B (67)	N/A	59	61
R-73/M-9	Moonlake Street	Residential	2	B (67)	60/61	59	61
R-74	Moonlake Street	Residential	1	B (67)	N/A	61	63
R-75	Glenwick Avenue	Residential	1	B (67)	N/A	60	63
R-76	Moonlake Street	Residential	2	B (67)	N/A	59	62
R-77	Moonlake Street	Residential	2	B (67)	N/A	59	62
R-78	Moonlake Street	Residential	1	B (67)	N/A	64	**66**
R-79	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-80	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-81	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-82	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-83	Moonlake Street	Residential	2	B (67)	N/A	59	61
R-84	Moonlake Street	Residential	1	B (67)	N/A	59	61
R-85	Pine Falls Avenue	Residential	1	B (67)	N/A	60	62
R-86	Moonlake Street	Residential	2	B (67)	N/A	59	61
R-87	Moonlake Street	Residential	2	B (67)	N/A	58	60
R-88	Moonlake Street	Residential	2	B (67)	N/A	58	60
R-89	Moonlake Street	Residential	2	B (67)	N/A	61	63
R-90	Moonlake Street	Residential	1	B (67)	N/A	60	62
R-91	Moonlake Street	Residential	1	B (67)	N/A	61	63

Source: LSA Associates, Inc., December 2007.

[1] Numbers in bold represent noise levels that approach or exceed the NAC.

[2] Receptor location/monitor location.

[3] Measured noise level/adjusted measured noise level to peak traffic noise hour.

[4] N/A: Not Applicable. Ambient noise monitoring was not conducted at this receptor location.

2.17.2.3 Impacts

Permanent Impacts

Potential long-term noise impacts associated with project operations are solely from traffic noise. Traffic noise was evaluated for the worst-case traffic condition. According to the *Noise Impact Analysis*, and shown in Table 2.17-7 of the 91 receptor locations modeled, 1 receptor under Alternative 2, 2 receptors under Alternative 3, and 10 receptors under Alternative 4 would have a substantial noise increase of 12 dBA or more over the corresponding adjusted model existing noise level under the future worst-case conditions. Noise abatement measures were considered for these modeled receptor locations that would experience a substantial noise increase. Therefore, since noise abatement measures were considered, noise impacts at these modeled receptor locations would be considered less than substantial. It should be noted that the future with project noise levels at some receptor locations are lower than the existing or future no build noise levels. The construction of the new highway interchange ramps and roadway facilities would alter the shielding effects at these receptor locations, resulting in minor changes to the future noise levels.

Future traffic noise levels contributed by the proposed project were determined at the representative receptor location along the project corridor without sound barriers. The modeled future traffic noise levels (Alternatives 2, 3, and 4) contributed from the proposed project were compared to the NAC to determine whether a traffic noise impact would occur. Of the 91 receptor locations modeled, shown on Tables, 2.17-8, 2.17-9 and 2.17-10, 36 receptors under Alternative 2, 39 receptors under Alternative 3, and 57 receptors under Alternative 4 would or would continue to approach or exceed the NAC under the future traffic conditions contributed by the proposed project.

Temporary Impacts

Two types of short-term noise impacts would occur during construction of the proposed SR-60/Lemon Avenue interchange project. The first would be from construction crew commutes and the transport of construction equipment and materials to and from the project site, which would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities will be moved on site, will remain for the duration of each construction phase, and will not add to the daily traffic volume in the project vicinity. There will be a high single-event noise exposure potential at a maximum sound level (L_{max}) of 87 dBA from trucks passing at 50 ft (15 m). However, the projected construction traffic will be minimal compared to the existing traffic volumes on

Table 2.17.7 Projected Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Adjusted Modeled Existing Noise Level	Future No Build	Alternative 2 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 3 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 4 (Worst-case)	Change from Adjusted Modeled Existing Level
R-1	Flintgate Drive	**66**[1]	**66**	**66**	1	**66**	1	**66**	1
R-2	Flintgate Drive	**68**	**68**	**68**	1	**68**	1	**68**	1
R-3	Flintgate Drive	**68**	**68**	**68**	1	**68**	1	**68**	1
R-4	Flintgate Drive	**71**	**71**	**71**	6	**71**	6	**71**	6
R-5	Flintgate Drive	**70**	**70**	**70**	6	**70**	6	**70**	6
R-6	Flintgate Drive	**70**	**70**	**70**	6	**71**	7	**71**	7
R-7	Flintgate Drive	**69**	**69**	**69**	6	**71**	8	**71**	8
R-8	Flintgate Drive	**74**	**74**	**76**	8	**77**	9	**77**	9
R-9	Flintgate Drive	**70**	**70**	**79**	12[2]	**76**	9	**76**	9
R-10	Flintgate Drive	**70**	**70**	**76**	9	**82**	15[2]	**82**	15[2]
R-11	Flintgate Drive	**69**	**69**	**73**	7	**79**	13[2]	**79**	13[2]
R-12	Flintgate Drive	64	64	64	1	64	1	64	1
R-13	Flintgate Drive	64	64	64	1	64	1	64	1
R-14	Flintgate Drive	64	64	64	1	64	1	64	1
R-15	Flintgate Drive	63	63	63	1	63	1	63	1
R-16	Flintgate Drive	62	62	62	1	62	1	62	1
R-17	Clorinda Drive	64	64	64	1	64	1	64	1
R-18	Clorinda Drive	65	65	65	6	**66**	7	**66**	7
R-19	Belbury Drive	59	59	59	6	59	6	59	6
R-20	Arkley Drive	**66**	65	**71**	8	**72**	9	**72**	9
R-21	Arkley Drive	65	64	**71**	9	**73**	11	**73**	11
R-22	Clear Spring Court	58	59	59	0	60	1	60	1
R-23	Clear Spring Court	59	60	59	-1	60	0	60	0
R-24	South Lemon Avenue	60	61	61	0	62	1	61	0
R-25	South Lemon	61	62	61	-1	62	0	62	0

Table 2.17.7 Projected Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Adjusted Modeled Existing Noise Level	Future No Build	Alternative 2 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 3 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 4 (Worst-case)	Change from Adjusted Modeled Existing Level
	Avenue								
R-26	South Lemon Avenue	63	64	63	4	64	5	64	5
R-27	South Lemon Avenue	63	64	63	4	64	5	64	5
R-28	Climber Lane	61	62	62	5	63	6	63	6
R-29	Climber Lane	59	60	60	5	60	5	60	5
R-30	Climber Lane	65	66	65	4	**66**	5	**66**	5
R-31	Climber Lane	65	**66**	**66**	5	**67**	6	**67**	6
R-32	South Lemon Avenue	61	62	61	4	62	5	62	5
R-33	Climber Lane	60	60	59	3	60	4	60	4
R-34	Climber Lane	58	58	57	3	58	4	58	4
R-35	Climber Lane	60	58	57	1	58	2	58	2
R-36	Climber Lane	60	58	58	2	59	3	59	3
R-37	Greenside Drive	62	63	63	2	63	2	63	2
R-38	Greenside Drive	**66**	**67**	**67**	2	**67**	2	**67**	2
R-39	Greenside Drive	**66**	**67**	**67**	2	**67**	2	**67**	2
R-40	Greenside Drive	**67**	**67**	**67**	1	**67**	1	**67**	1
R-41	Greenside Drive	**66**	**67**	**67**	2	**67**	2	**67**	2
R-42	Greenside Drive	65	65	65	1	**66**	2	65	1
R-43	Rapidview Drive	63	64	64	2	64	2	64	2
R-44	Greenside Drive	60	60	60	1	60	1	60	1
R-45	Greenside Drive	60	60	60	1	60	1	60	1
R-46	Greenside Drive	61	61	61	1	61	1	61	1
R-47	Greenside Drive	**67**	**68**	**68**	2	**68**	2	**68**	2

Table 2.17.7 Projected Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Adjusted Modeled Existing Noise Level	Future No Build	Alternative 2 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 3 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 4 (Worst-case)	Change from Adjusted Modeled Existing Level
R-48	Romney Drive	**67**	**68**	**68**	6	**68**	6	**68**	6
R-49	Romney Drive	65	**66**	**66**	6	**66**	6	**66**	6
R-50	Romney Drive	**72**	**72**	**72**	5	**72**	5	**72**	5
R-51	Romney Drive	**68**	**69**	**69**	6	**69**	6	**69**	6
R-52	Gona Court	**69**	**70**	**69**	5	**69**	5	**69**	5
R-53	Gona Court	**69**	**70**	**70**	6	**70**	6	**70**	6
R-54	Romney Drive	63	63	63	5	63	5	63	5
R-55	Romney Drive	63	63	63	5	64	6	64	6
R-56	Romney Drive	62	63	63	6	63	6	63	6
R-57	Gona Court	**67**	**67**	**67**	5	**67**	5	**67**	5
R-58	Moonlake Street	65	65	65	1	65	1	75	11
R-59	Moonlake Street	**66**	**66**	**66**	1	**66**	1	**75**	10
R-60	Moonlake Street	**67**	**67**	**67**	1	**67**	1	**79**	13[2]
R-61	Moonlake Street	**67**	**67**	**67**	1	**67**	1	**80**	14[2]
R-62	Moonlake Street	**67**	**67**	**67**	1	**67**	1	**78**	12[2]
R-63	Moonlake Street	**66**	**66**	**66**	2	**66**	2	**74**	10
R-64	Moonlake Street	**66**	**66**	**66**	2	**67**	3	**76**	12[2]
R-65	Moonlake Street	**66**	**66**	**66**	2	**66**	2	**76**	12[2]
R-66	Moonlake Street	**66**	**66**	**66**	2	**66**	2	**76**	12[2]
R-67	Moonlake Street	**66**	**67**	**67**	3	**67**	3	**77**	13[2]
R-68	Moonlake Street	63	63	63	2	64	3	**73**	12[2]
R-69	Moonlake Street	63	63	63	2	63	2	**72**	11
R-70	Moonlake Street	63	63	63	2	63	2	**71**	10
R-71	Moonlake Street	63	63	63	2	63	2	**69**	8
R-72	Moonlake Street	61	61	61	2	61	2	**66**	7
R-73	Moonlake Street	61	62	62	3	62	3	**66**	7

Table 2.17.7 Projected Traffic Noise Levels, dBA L_{eq}

Rec No.	Location	Adjusted Modeled Existing Noise Level	Future No Build	Alternative 2 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 3 (Worst-case)	Change from Adjusted Modeled Existing Level	Alternative 4 (Worst-case)	Change from Adjusted Modeled Existing Level
R-74	Moonlake Street	63	64	64	3	64	3	**67**	6
R-75	Glenwick Avenue	63	63	63	3	63	3	**71**	11
R-76	Moonlake Street	62	62	62	3	62	3	**66**	7
R-77	Moonlake Street	62	62	62	3	62	3	**67**	8
R-78	Moonlake Street	**66**	**66**	**66**	2	**66**	2	**74**	10
R-79	Moonlake Street	63	63	63	2	63	2	**68**	7
R-80	Moonlake Street	63	63	63	2	63	2	**68**	7
R-81	Moonlake Street	63	63	63	2	63	2	**68**	7
R-82	Moonlake Street	63	63	63	2	63	2	**68**	7
R-83	Moonlake Street	61	61	61	2	61	2	**66**	7
R-84	Moonlake Street	61	61	61	2	61	2	65	6
R-85	Pine Falls Avenue	62	62	62	2	62	2	**68**	8
R-86	Moonlake Street	61	61	61	2	61	2	64	5
R-87	Moonlake Street	60	60	60	2	60	2	62	4
R-88	Moonlake Street	60	60	60	2	60	2	62	4
R-89	Moonlake Street	63	64	64	3	64	3	**65**	4
R-90	Moonlake Street	62	63	63	3	63	3	**67**	7
R-91	Moonlake Street	63	64	64	3	64	3	**68**	7

Source: LSA Associates, Inc., December 2007.
Numbers in bold represent noise levels that approach or exceed the NAC.
Receptors would experience a substantial noise increase due to the project alternative.

Table 2.17.8 Sound Barrier Modeling for Alternative 2, dBA L_{eq}

SB No.	Rec No.	Alternative 2 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-1	**66**[2]	**66**	0	**66**	0	**66**	0	65	1	65	1	64	2
1	R-2	**68**	**68**	0	**68**	0	**68**	0	**67**	1	**67**	1	**66**	2
	R-3	**68**	**68**	0	**68**	0	**68**	0	**68**	0	**68**	0	**68**	0
	R-4	**71**	**71**	0	**71**	0	**71**	0	**70**	1	**69**	2	**68**	3
	R-5	**70**	**70**	0	**70**	0	**69**	1	**67**	3	**67**	3	**67**	3
	R-6	**70**	**70**	0	**70**	0	**69**	1	**69**	1	**68**	2	**67**	3
	R-7	**69**	**69**	0	**69**	0	**67**	2	**67**	2	**67**	2	**67**	2
2	R-8	**76**	**74**	2	**71**	5	**71**	5	**69**	7	**69**[3]	7	NP[4]	NP
	R-9	**79**	**73**	6	**71**	8	**71**	8	**70**	9	**69**	10	NP	NP
	R-10	**76**	**75**	1	**72**	4	**71**	5	**70**	6	**69**	7	NP	NP
	R-11	**73**	**71**	2	**69**	4	**68**	5	**67**	6	**67**	6	NP	NP
	R-12	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-13	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-14	64	63	1	63	1	63	1	63	1	63	1	63	1
1	R-15	63	63	0	63	0	63	0	63	0	63	0	62	1
	R-16	62	62	0	62	0	62	0	62	0	62	0	61	1
	R-17	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-18	65	65	0	65	0	65	0	63	2	63	2	63	2
	R-19	58	58	0	55	3	55	3	55	3	55	3	55	3
2	R-20	**71**	**70**	1	**69**	2	**68**	3	**67**	4	**66**	5	NP	NP
	R-21	**71**	**71**	0	**66**	5	65	6	64	7	64	7	NP	NP
	R-22	56	--[5]	--	--	--	--	--	--	--	--	--	--	--
	R-23	56	--	--	--	--	--	--	--	--	--	--	--	--
	R-24	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-25	59	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.17.8 Sound Barrier Modeling for Alternative 2, dBA L_{eq}

SB No.	Rec No.	Alternative 2 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-26	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-27	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-28	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-29	56	--	--	--	--	--	--	--	--	--	--	--	--
	R-30	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-31	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-32	59	--	--	--	--	--	--	--	--	--	--	--	--
	R-33	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-34	56	--	--	--	--	--	--	--	--	--	--	--	--
	R-35	56	--	--	--	--	--	--	--	--	--	--	--	--
	R-36	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-37	62	60	2	59	3	59	3	58	4	58	4	58	4
	R-38	**66**	60	6	59	7	58	8	58	8	58	8	57	9
	R-39	**67**	61	6	59	8	58	9	58	9	58	9	57	10
	R-40	**66**	60	6	59	7	58	8	58	8	58	8	57	9
	R-41	**66**	60	6	59	7	58	8	58	8	58	8	57	9
3	R-42	65	62	3	62	3	61	4	61	4	61	4	61	4
	R-43	63	63	0	63	0	63	0	63	0	63	0	63	0
	R-44	60	60	0	60	0	60	0	60	0	60	0	60	0
	R-45	59	59	0	59	0	59	0	59	0	59	0	59	0
	R-46	61	61	0	61	0	61	0	61	0	61	0	61	0
	R-47	**67**	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0
	R-48	**66**	**66**	0	65	1	65	1	63	3	61	5	60	6
4	R-49	64	63	1	63	1	63	1	61	3	60	4	60	4
	R-50	**72**	**72**	0	**66**	6	**66**	6	63	9	62	10	60	12
	R-51	**68**	**68**	0	**66**	2	**66**	2	64	4	63	5	63	5

Table 2.17.8 Sound Barrier Modeling for Alternative 2, dBA L_{eq}

SB No.	Rec No.	Alternative 2 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
5	R-52	**68**	**66**	2	65	3	63	5	61	7	60	8	60	8
	R-53	**69**	**66**	3	65	4	63	6	62	7	61	8	60	9
	R-54	62	62	0	62	0	62	0	62	0	62	0	62	0
4	R-55	63	63	0	63	0	63	0	62	1	62	1	62	1
	R-56	62	62	0	62	0	62	0	62	0	61	1	61	1
5	R-57	**66**	**66**	0	63	3	63	3	63	3	63	3	63	3
6	R-58	65	65	0	65	0	65	0	65	0	65	0	NP	NP
	R-59	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
	R-60	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
	R-61	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
	R-62	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
	R-63	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
6	R-64	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
	R-65	**66**	**66**	0	**66**	0	64	2	63	3	63	3	NP	NP
	R-66	**66**	**66**	0	63	3	61	5	61	5	61	5	NP	NP
	R-67	**67**	65	2	63	4	61	6	61	6	61	6	NP	NP
	R-68	63	61	2	61	2	60	3	60	3	60	3	NP	NP
	R-69	63	63	0	62	1	62	1	62	1	62	1	NP	NP
	R-70	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-71	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-72	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-73	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-74	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-75	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-76	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-77	62	62	0	62	0	62	0	62	0	62	0	NP	NP

Table 2.17.8 Sound Barrier Modeling for Alternative 2, dBA L_{eq}

SB No.	Rec No.	Alternative 2 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-78	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
	R-79	63	63	0	63	0	63	0	63	0	63	0	NP	NP
6	R-80	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-81	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-82	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-83	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-84	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-85	62	62	0	62	0	62	0	62	0	62	0	NP	NP
	R-86	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-87	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-88	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-89	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-90	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-91	63	--	--	--	--	--	--	--	--	--	--	--	--

Source: LSA Associates, Inc., December 2007.

[1] I.L.: Insertion Loss.

[2] Numbers in bold represent noise levels that approach or exceed the NAC.

[3] Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

[4] NP = Not Permitted. Sound barriers within 4.5 m (15 ft) of the nearest travel lane are not permitted to exceed 4.3 m (14 ft) in height.

[5] No barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

ft = feet

m = meters

Table 2.17-9 Sound Barrier Modeling for Alternative 3, dBA Leq

SB No.	Rec No.	Alternative 3 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-1	**66**[2]	**66**	0	**66**	0	**66**	0	65	1	65	1	64	2
1	R-2	**68**	**68**	0	**68**	0	**68**	0	**67**	1	**67**	1	**66**	2
	R-3	**68**	**68**	0	**68**	0	**68**	0	**68**	0	**67**	1	**66**	2
	R-4	**71**	**71**	0	**71**	0	**71**	0	**70**	1	**69**	2	**68**	3
	R-5	**70**	**69**	1	**69**	1	**69**	1	**68**	2	**68**	2	**67**	3
	R-6	**71**	**70**	1	**70**	1	**70**	1	**70**	1	**69**	2	**68**	3
	R-7	**71**	**70**	1	**69**	2	**69**	2	**68**	3	**68**	3	**68**	3
	R-8	**77**	**77**	0	**76**	1	**73**	4	**73**	4	**72**[3]	5	NP[4]	NP
2	R-9	**76**	**75**	1	**73**	3	**72**	4	**71**	5	**71**	5	NP	NP
	R-10	**82**	**75**	7	**72**	10	**71**	11	**70**	12	**69**	13	NP	NP
	R-11	**79**	**78**	1	**73**	6	**71**	8	**70**	9	**69**	10	NP	NP
	R-12	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-13	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-14	64	64	0	64	0	64	0	64	0	64	0	64	0
1	R-15	63	63	0	63	0	63	0	63	0	63	0	63	0
	R-16	62	62	0	62	0	62	0	62	0	62	0	61	1
	R-17	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-18	**66**	65	1	65	1	65	1	64	2	64	2	63	3
	R-19	58	58	0	58	0	58	0	58	0	58	0	58	0
2	R-20	**72**	**71**	1	**71**	1	**71**	1	**69**	3	**68**	4	NP	NP
	R-21	**73**	**71**	2	**71**	2	**71**	2	**69**	4	**68**	5	NP	NP
	R-22	58	--[5]	--	--	--	--	--	--	--	--	--	--	--
	R-23	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-24	59	--	--	--	--	--	--	--	--	--	--	--	--
	R-25	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-26	62	--	--	--	--	--	--	--	--	--	--	--	--
	R-27	63	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.17-9 Sound Barrier Modeling for Alternative 3, dBA Leq

SB No.	Rec No.	Alternative 3 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-28	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-29	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-30	64	--	--	--	--	--	--	--	--	--	--	--	--
	R-31	65	--	--	--	--	--	--	--	--	--	--	--	--
	R-32	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-33	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-34	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-35	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-36	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-37	63	60	3	59	4	59	4	58	5	58	5	58	5
	R-38	**66**	61	5	59	7	58	8	58	8	58	8	57	9
	R-39	**67**	61	6	59	8	59	8	58	9	58	9	57	10
	R-40	**66**	60	6	59	7	58	8	58	8	58	8	57	9
	R-41	**66**	61	5	59	7	59	7	58	8	58	8	57	9
3	R-42	65	62	3	62	3	61	4	61	4	61	4	61	4
	R-43	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-44	60	60	0	60	0	60	0	60	0	60	0	60	0
	R-45	60	60	0	60	0	60	0	60	0	60	0	60	0
	R-46	61	61	0	61	0	61	0	61	0	61	0	61	0
	R-47	**67**	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0
	R-48	**66**	**66**	0	**66**	0	63	3	63	3	61	5	60	6
4	R-49	65	64	1	63	2	62	3	61	4	60	5	60	5
	R-50	**72**	**72**	0	**66**	6	64	8	63	9	62	10	61	11
	R-51	**68**	**68**	0	**66**	2	65	3	64	4	63	5	63	5
5	R-52	**68**	**66**	2	65	3	62	6	61	7	60	8	60	8
	R-53	**69**	**66**	3	65	4	63	6	62	7	61	8	60	9
	R-54	62	62	0	62	0	62	0	62	0	62	0	62	0

Table 2.17-9 Sound Barrier Modeling for Alternative 3, dBA Leq

SB No.	Rec No.	Alternative 3 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
4	R-55	63	63	0	63	0	63	0	62	1	62	1	62	1
	R-56	62	62	0	62	0	62	0	62	0	62	0	61	1
5	R-57	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0
	R-58	65	65	0	65	0	65	0	65	0	65	0	NP	NP
	R-59	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
	R-60	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
	R-61	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
	R-62	**67**	**67**	0	**67**	0	**67**	0	**66**	1	**66**	1	NP	NP
6	R-63	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	NP	NP
	R-64	**67**	**66**	1	**66**	1	**66**	1	**66**	1	**66**	1	NP	NP
	R-65	**66**	**66**	0	65	1	65	1	64	2	64	2	NP	NP
	R-66	**66**	64	2	62	4	61	5	61	5	61	5	NP	NP
	R-67	**67**	63	4	62	5	61	6	61	6	61	6	NP	NP
	R-68	63	61	2	60	3	60	3	60	3	60	3	NP	NP
	R-69	63	63	0	62	1	62	1	62	1	62	1	NP	NP
	R-70	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-71	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-72	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-73	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-74	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-75	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-76	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-77	62	62	0	62	0	62	0	62	0	62	0	NP	NP
	R-78	66	66	0	66	0	66	0	66	0	66	0	NP	NP
	R-79	63	63	0	63	0	63	0	63	0	63	0	NP	NP
6	R-80	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-81	63	63	0	63	0	63	0	63	0	63	0	NP	NP

Table 2.17-9 Sound Barrier Modeling for Alternative 3, dBA Leq

SB No.	Rec No.	Alternative 3 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-82	63	63	0	63	0	63	0	63	0	63	0	NP	NP
	R-83	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-84	61	61	0	61	0	61	0	61	0	61	0	NP	NP
	R-85	62	62	0	62	0	62	0	62	0	62	0	NP	NP
	R-86	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-87	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-88	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-89	63	--	--	--	--	--	--	--	--	--	--	--	--
	R-90	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-91	63	--	--	--	--	--	--	--	--	--	--	--	--

Source: LSA Associates, Inc., December 2007.
I.L.: Insertion Loss.
Numbers in bold represent noise levels that approach or exceed the NAC.
Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).
NP = Not Permitted. Sound barriers within 4.5 m (15 ft) of the nearest travel lane are not permitted to exceed 4.3 m (14 ft) in height.
No barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.
ft = feet
m = meters

Table 2.17-10 Sound Barrier Modeling for Alternative 4, dBA L_{eq}

SB No.	Rec No.	Alternative 4 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-1	**66**[2]	**66**	0	**66**	0	**66**	0	64	2	64	2	64	2
1	R-2	**68**	**68**	0	**68**	0	**68**	0	**66**	2	**66**	2	**66**	2
	R-3	**68**	**68**	0	**68**	0	**68**	0	**66**	2	**66**	2	**66**	2
	R-4	**71**	**71**	0	**71**	0	**71**	0	**68**	3	**68**	3	**68**	3
	R-5	**70**	**70**	0	**70**	0	**66**	4	**66**	4	**66**	4	**66**	4
	R-6	**71**	**70**	1	**70**	1	**70**	1	**70**	1	**68**	3	**68**	3
	R-7	**71**	**70**	1	**69**	2	**69**	2	**68**	3	**68**	3	**68**	3
	R-8	**77**	**77**	0	**76**	1	**73**	4	**73**	4	**72**[3]	5	NP[4]	NP
2	R-9	**76**	**76**	0	**73**	3	**72**	4	**71**	5	**71**	5	NP	NP
	R-10	**82**	**75**	7	**72**	10	**71**	11	**70**	12	**69**	13	NP	NP
	R-11	**79**	**78**	1	**73**	6	**71**	8	**70**	9	**69**	10	NP	NP
	R-12	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-13	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-14	64	64	0	64	0	64	0	63	1	63	1	63	1
1	R-15	63	63	0	63	0	63	0	62	1	62	1	62	1
	R-16	62	62	0	62	0	62	0	61	1	61	1	61	1
	R-17	64	64	0	64	0	64	0	64	0	64	0	64	0
	R-18	**66**	65	1	65	1	65	1	64	2	63	3	63	3
	R-19	58	58	0	58	0	58	0	58	0	58	0	58	0
2	R-20	**72**	**71**	1	**71**	1	**71**	1	**69**	3	**68**	4	NP	NP
	R-21	**73**	**71**	2	**71**	2	**71**	2	**69**	4	**68**	5	NP	NP
	R-22	58	--[5]	--	--	--	--	--	--	--	--	--	--	--
	R-23	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-24	58	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.17-10 Sound Barrier Modeling for Alternative 4, dBA L_{eq}

SB No.	Rec No.	Alternative 4 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-25	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-26	62	--	--	--	--	--	--	--	--	--	--	--	--
	R-27	62	--	--	--	--	--	--	--	--	--	--	--	--
	R-28	60	--	--	--	--	--	--	--	--	--	--	--	--
	R-29	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-30	64	--	--	--	--	--	--	--	--	--	--	--	--
	R-31	64	--	--	--	--	--	--	--	--	--	--	--	--
	R-32	61	--	--	--	--	--	--	--	--	--	--	--	--
	R-33	59	--	--	--	--	--	--	--	--	--	--	--	--
	R-34	58	--	--	--	--	--	--	--	--	--	--	--	--
	R-35	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-36	57	--	--	--	--	--	--	--	--	--	--	--	--
	R-37	63	60	3	59	4	59	4	58	5	58	5	58	5
	R-38	**66**	61	5	59	7	58	8	58	8	58	8	57	9
	R-39	**67**	61	6	59	8	59	8	58	9	58	9	57	10
	R-40	**66**	60	6	59	7	58	8	58	8	58	8	57	9
	R-41	**66**	60	6	59	7	59	7	58	8	58	8	57	9
3	R-42	65	62	3	62	3	61	4	61	4	61	4	61	4
	R-43	63	63	0	63	0	63	0	63	0	63	0	63	0
	R-44	60	60	0	60	0	60	0	60	0	60	0	60	0
	R-45	60	60	0	60	0	60	0	60	0	60	0	60	0
	R-46	61	61	0	61	0	61	0	61	0	61	0	61	0
	R-47	**67**	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0	**67**	0
4	R-48	**66**	**66**	0	65	1	63	3	63	3	61	5	60	6
	R-49	64	64	0	63	1	62	2	61	3	60	4	60	4
	R-50	**72**	**72**	0	**66**	6	63	9	63	9	62	10	60	12

Table 2.17-10 Sound Barrier Modeling for Alternative 4, dBA L_{eq}

SB No.	Rec No.	Alternative 4 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-51	**68**	**67**	1	**66**	2	65	3	64	4	63	5	63	5
5	R-52	**68**	65	3	64	4	62	6	61	7	60	8	60	8
	R-53	**69**	**66**	3	65	4	62	7	62	7	61	8	60	9
	R-54	62	62	0	62	0	62	0	62	0	62	0	62	0
4	R-55	63	63	0	63	0	63	0	62	1	62	1	62	1
	R-56	62	62	0	62	0	62	0	62	0	61	1	61	1
5	R-57	**66**	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0	**66**	0
	R-58	**75**	**69**	6	**67**	8	**66**	9	65	10	63	12	NP	NP
	R-59	**75**	**70**	5	**68**	7	**66**	9	63	12	62	13	NP	NP
	R-60	**79**	**73**	6	**70**	9	**67**	12	65	14	63	16	NP	NP
	R-61	**80**	**72**	8	**70**	10	**67**	13	65	15	64	16	NP	NP
	R-62	**78**	**72**	6	**70**	8	**69**	9	**67**	11	**66**	12	NP	NP
	R-63	**74**	**70**	4	**69**	5	**68**	6	**66**	8	65	9	NP	NP
6	R-64	**76**	**69**	7	**67**	9	65	11	64	12	62	14	NP	NP
and	R-65	**76**	**67**	9	65	11	64	12	62	14	62	14	NP	NP
7	R-66	**76**	**66**	10	64	12	63	13	62	14	62	14	NP	NP
	R-67	**77**	**69**	8	**66**	11	64	13	63	14	62	15	NP	NP
	R-68	**73**	**65**	8	63	10	62	11	61	12	60	13	NP	NP
	R-69	**72**	**67**	5	**66**	6	63	9	62	10	61	11	NP	NP
	R-70	**71**	**66**	5	65	6	62	9	62	9	60	11	NP	NP
	R-71	**69**	**66**	3	64	5	62	7	61	8	60	9	NP	NP
	R-72	**66**	64	2	62	4	61	5	60	6	59	7	NP	NP
	R-73	**66**	64	2	63	3	61	5	60	6	59	7	NP	NP
	R-74	**67**	**66**	1	64	3	63	4	61	6	60	7	NP	NP
	R-75	**71**	**68**	3	**67**	4	**66**	5	64	7	63	8	NP	NP
	R-76	**66**	**66**	0	65	1	63	3	63	3	62	4	NP	NP

Table 2.17-10 Sound Barrier Modeling for Alternative 4, dBA L_{eq}

SB No.	Rec No.	Alternative 4 (w/o Barrier)	With Barrier H = 1.8 m (6 ft)		With Barrier H = 2.4 m (8 ft)		With Barrier H = 3.05 m (10 ft)		With Barrier H = 3.7 m (12 ft)		With Barrier H = 4.3 m (14 ft)		With Barrier H = 4.9 m (16 ft)	
			L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	R-77	**67**	**66**	1	**66**	1	65	2	64	3	63	4	NP	NP
	R-78	**74**	**69**	5	**68**	6	**67**	7	**66**	8	**66**	8	NP	NP
	R-79	**68**	**66**	2	**66**	2	65	3	64	4	63	5	NP	NP
	R-80	**68**	**66**	2	**66**	2	65	3	64	4	63	5	NP	NP
6	R-81	**68**	**66**	2	**66**	2	65	3	64	4	63	5	NP	NP
and	R-82	**68**	**66**	2	**66**	2	65	3	64	4	63	5	NP	NP
7	R-83	65	64	1	64	1	62	3	61	4	61	4	NP	NP
	R-84	65	64	1	64	1	62	3	61	4	61	4	NP	NP
	R-85	**68**	**66**	2	**66**	2	64	4	63	5	62	6	NP	NP
	R-86	64	64	0	63	1	62	2	61	3	61	3	NP	NP
	R-87	62	61	1	61	1	60	2	60	2	59	3	NP	NP
	R-88	62	61	1	61	1	60	2	59	3	59	3	NP	NP
	R-89	64	63	1	62	2	61	3	60	4	60	4	NP	NP
	R-90	62	61	1	60	2	60	2	59	3	59	3	NP	NP
	R-91	64	62	2	61	3	61	3	60	4	59	5	NP	NP

Source: LSA Associates, Inc., December 2007.

1 I.L.: Insertion Loss.

2 Numbers in bold represent noise levels that approach or exceed the NAC.

3 Underlined numbers have been attenuated by at least 5 dBA (i.e., feasible wall height).

4 NP = Not Permitted. Sound barriers within 4.5 m (15 ft) of the nearest travel lane are not permitted to exceed 4.3 m (14 ft) in height.

5 No barrier was analyzed at this location because the modeled receptor would not approach or exceed the NAC.

ft = feet

m = meters

SR-60, Golden Springs Drive, Lemon Avenue, Brea Canyon Road, and other area streets, and its associated noise level change will not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would be less than substantial during construction of Alternatives 2, 3, and 4.

The second short-term noise impact is related to noise generated during excavation, grading, and road and bridge construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, therefore, the noise levels along the project alignment as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2.17-11 lists typical maximum construction equipment noise levels recommended for noise impact assessments based on a distance of 50 ft (15 m) between the equipment and a noise receptor.

Table 2.17-11 Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels Measured (dBA at 50 ft [15 m])	Suggested Maximum Sound Levels for Analysis (dBA at 50 ft [15 m])
Pile drivers, 12,000 to 18,000 ft-lb/blow	81 to 96	93
Rock drills	83 to 99	96
Jackhammers	75 to 85	82
Pneumatic tools	78 to 88	85
Pumps	68 to 80	77
Bulldozers	85 to 90	88
Scrapers	83 to 91	87
Haul trucks	83 to 94	88
Cranes	79 to 86	82
Portable generators	71 to 87	80
Rollers	75 to 82	80
Tractors	77 to 82	80
Front-end loaders	86 to 90	88
Hydraulic backhoe	81 to 90	86
Hydraulic excavators	81 to 90	86
Graders	79 to 89	86
Air compressors	76 to 86	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek & Newman 1987).

As shown, typical noise levels at 50 ft (15 m) from active construction areas range up to 94 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is used for earthmoving. Such equipment includes

excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders.

Construction of Alternatives 2, 3, and 4 is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise levels associated with the use of construction equipment is estimated between 79 and 89 dBA L_{max} at a distance of 50 ft (15 m) from the active construction area for the grading phase. As seen in Table 2.17-4, the maximum noise level generated by each earthmover is assumed to be approximately 87 dBA L_{max} at 50 ft (15 m) from the scraper in operation. Each bulldozer would also generate approximately 85 dBA L_{max} at 50 ft (15 m). The maximum noise level generated by water trucks and pickup trucks is approximately 86 dBA L_{max} at 50 ft (15 m) from these vehicles. Each doubling of sound sources with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 91 dBA L_{max} at a distance of 50 ft (15 m) from an active construction area.

In addition to standard construction equipment, the proposed SR-60/Lemon Avenue interchange project may also require the use of pile drivers. As shown in Table 2.17-4, pile driving generates noise levels of approximately 93 dBA L_{max} at 50 ft (15 m). If the pile driving is conducted concurrently with the site preparation, the construction site could potentially generate noise levels of 95 dBA L_{max} at a distance of 50 ft (15 m).

The closest sensitive receptor locations are 15 m (50 ft) from the project construction areas. Therefore, these receptor locations may be subject to short-term noise reaching 95 dBA L_{max} generated by construction activities along the project alignment. Because construction-related noise has the potential to adversely impact sensitive receptors, construction noise abatement will be required.

The No Build Alternative would not result in any construction in the project area and, therefore, would not result in adverse construction-related noise impacts.

2.17.3 Avoidance, Minimization, and Mitigation Measures

2.17.3.1 Mitigation Measures for Permanent Impacts

Noise barriers were considered to protect the properties along SR-60, Golden Springs Drive, and the proposed service road, where sensitive receptors exist and would be

exposed to traffic noise levels approaching or exceeding the NAC or that would experience a substantial noise increase over their corresponding modeled existing noise level.

The *Noise Impact Analysis* describes in detail the sound barriers that were evaluated for Alternatives 2, 3, and 4. Feasible sound barriers were determined by adding the background noise levels to the future noise levels with and without sound barriers for Alternatives 2, 3, and 4. As shown on Table 2.17-8, SB No. 1 under all alternatives, and SB No. 6 under Alternatives 2 and 3 were unable to achieve the 5 dBA noise reduction required to be considered feasible because a 3.7 m (12 ft) high wall exists at the same location as SB No. 1, and a 3.7 m (12 ft) high wall exists at the same location as SB No. 6. Therefore, providing additional height to these sound barriers would not reduce noise levels by 5 dBA or more.

Of the five feasible sound barriers under Alternatives 2 and 3, identified in Table 2.17-12, four sound barriers were determined to be reasonable. Of the six feasible sound barriers under Alternative 4, also shown on Table 2.17-12, six sound barriers were determined to be reasonable. Sound Barrier No. 6 under Alternatives 2 and 3 and Sound Barrier No. 4 under Alternative 4 were determined to be not reasonable because the estimated sound barrier construction cost exceed the total reasonable allowance. ..

These sound barriers are shown in Figures 2.17-2, 2.17-3, and 2.17-4 for Alternatives 2, 3, and 4, respectively.

Based on the studies completed so far, the barriers identified in Table 2.17-12 have been determined to be both reasonable and feasible. The sound barrier heights, approximate lengths, locations, number of benefited residences, and estimated sound barrier costs are also shown in Table 2-17-12. If, during final design, conditions have changed substantially, the noise barrier may not be provided. The final decision on noise barriers will be made upon completion of the project design and public involvement processes. The public involvement process will include a public hearing or community meeting. For sound barriers that are within the State right-of-way, barriers will not be provided if more than 50 percent of the affected property owners do not favor the barriers. In addition, if sound barriers are outside the State right-of-way (along property lines), barriers will not be provided unless 100 percent of the property owners favor the barrier.

Table 2.17-12 Preliminary Reasonable and Feasible Sound Barriers

Alternative	Sound Barrier No.	Height m (ft)	Approximate Length m (ft)	Location	Number of Benefited Residences[1]	Estimated Sound Barrier Cost
2	2	2.4 (8)	214 (701)	Right-of-way	6	$153,841
		3.05 (10)	214 (701)		10	$195,506
		3.7 (12)	214 (701)		10	$237,171
		4.3 (14)	214 (701)		12	$275,631
	3	1.8 (6)	305 (1,002)	Right-of-way/ Residential Property Line	8	$164,923
		2.4 (8)	305 (1,002)		8	$219,898
		3.05 (10)	305 (1,002)		8	$279,453
	4	4.3 (14)	173 (567)	Right-of-way/ Residential Property Line	9	$222,943
		4.9 (16)	173 (567)		9	$254,051
		3.05 (10)	90 (295)		6	$82,274
	5	3.7 (12)	90 (295)	Right-of-way/ Residential Property Line	6	$99,808
		4.3 (14)	90 (295)		6	$115,993
		4.9 (16)	90 (295)		6	$132,178
3	2	2.4 (8)	234 (767)	Right-of-way	4	$168,325
		3.05 (10)	234 (767)		4	$213,913
		3.7 (12)	234 (767)		6	$259,501
		4.3 (14)	234 (767)		10	$301,582
	3	1.8 (6)	305 (1,002)	Right-of-way/ Residential Property Line	8	$164,923
		2.4 (8)	305 (1,002)		8	$219,898
		3.05 (10)	305 (1,002)		8	$279,453
		3.7 (12)	305 (1,002)		10	$339,009
	4	4.3 (14)	173 (567)	Right-of-way/ Residential Property Line	9	$222,943
		4.9 (16)	173 (567)		9	$254,051
	5	3.05 (10)	90 (295)	Right-of-way/ Residential Property Line	6	$82,274
		3.7 (12)	90 (295)		6	$99,808
		4.3 (14)	90 (295)		6	$115,993
		4.9 (16)	90 (295)		6	$132,178
4	2	2.4 (8)	234 (767)	Right-of-way	4	$168,325
		3.05 (10)	234 (767)		4	$213,913
		3.7 (12)	234 (767)		6	$259,501
		4.3 (14)	234 (767)		10	$301,582
		1.8 (6)	305 (1,002)		8	$164,923
	3	2.4 (8)	305 (1,002)	Right-of-way/ Residential Property Line	8	$219,898
		3.05 (10)	305 (1,002)		8	$279,453
		3.7 (12)	305 (1,002)		10	$339,009
	4	4.3 (14)	173 (568)	Right-of-way/ Residential Property Line	9	$222,943
		4.9 (16)	173 (568)		9	$254,051
	5	3.05 (10)	90 (295)	Right-of-way/ Residential Property Line	6	$82,274
		3.7 (12)	90 (295)		6	$99,808
		4.3 (14)	90 (295)		6	$115,993
		4.9 (16)	90 (295)		6	$132,178
		~~1.8 (6)~~	~~1,783~~		~~22~~	~~$962,710~~

Alternative	Sound Barrier No.	Height m (ft)	Approximate Length m (ft)	Location	Number of Benefited Residences[1]	Estimated Sound Barrier Cost
			(5,849)			
		2.4 (8)	1,783 (5,849)		26	$1,283,614
	6 and 7	3.05 (10)	1,783 (5,849)	Edge of Shoulder	31	$1,631,259
		3.7 (12)	1,783 (5,849)		33	$1,978,905
		4.3 (14)	1,783 (5,849)		42	$2,299,808

Source: LSA Associates, Inc., January 2008.
[1] Number of residences that are attenuated by 5 dBA or more by the modeled barrier.
ft = feet
m = meters

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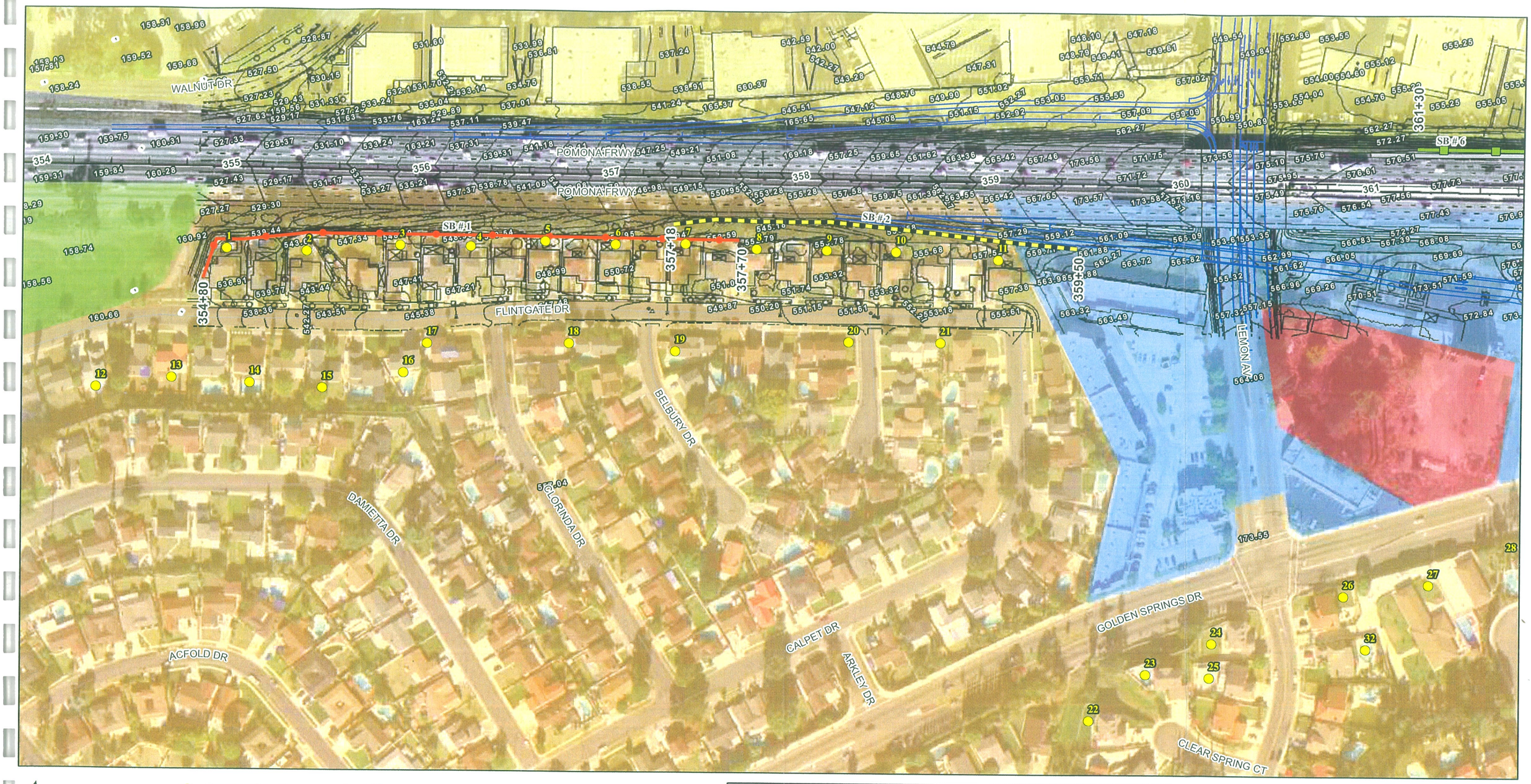


N

0 40 80 160 Feet

0 19 38 Meters

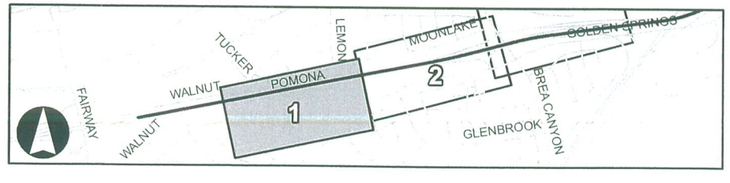
Receptor Locations

Modeled Sound Barriers

- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 2 Alignment

Land Use

- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant



SOURCE: Jacobs Engineering (2006); TerraServer (2004).

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FIGURE 2.17-2
Sheet 1 of 2
Sound Barrier and Modeled Receptor Locations
Alternative 2

SR-60 / Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 07-224100

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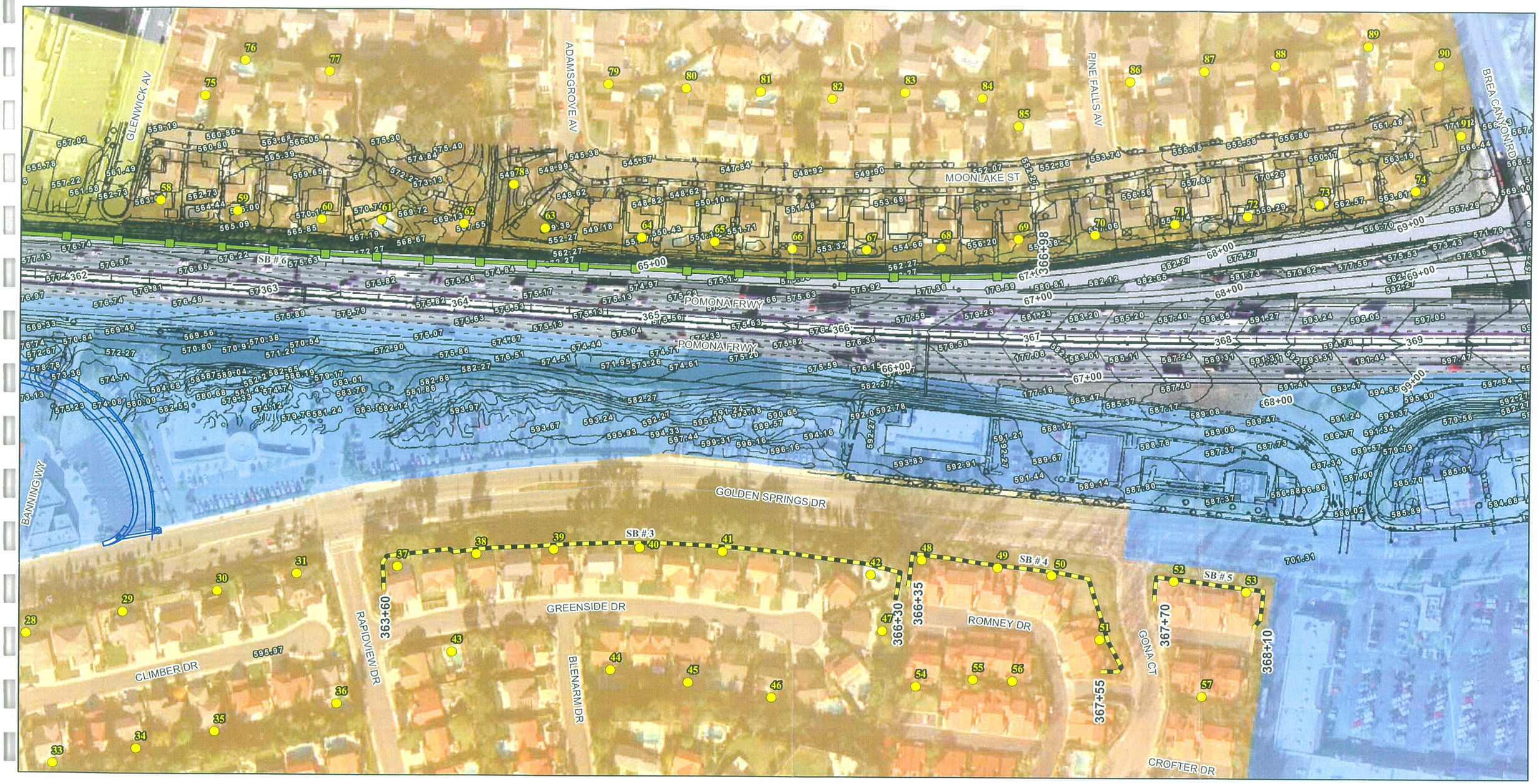

Receptor Locations

Modeled Sound Barriers

- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 2 Alignment

Land Use

- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

0 40 80 160 Feet

0 19 38 Meters

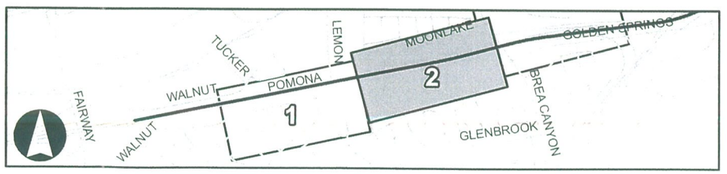

FIGURE 2.17-2
Sheet 2 of 2
Sound Barrier and Modeled Receptor Locations
Alternative 2

SR-60 / Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 07-224100

SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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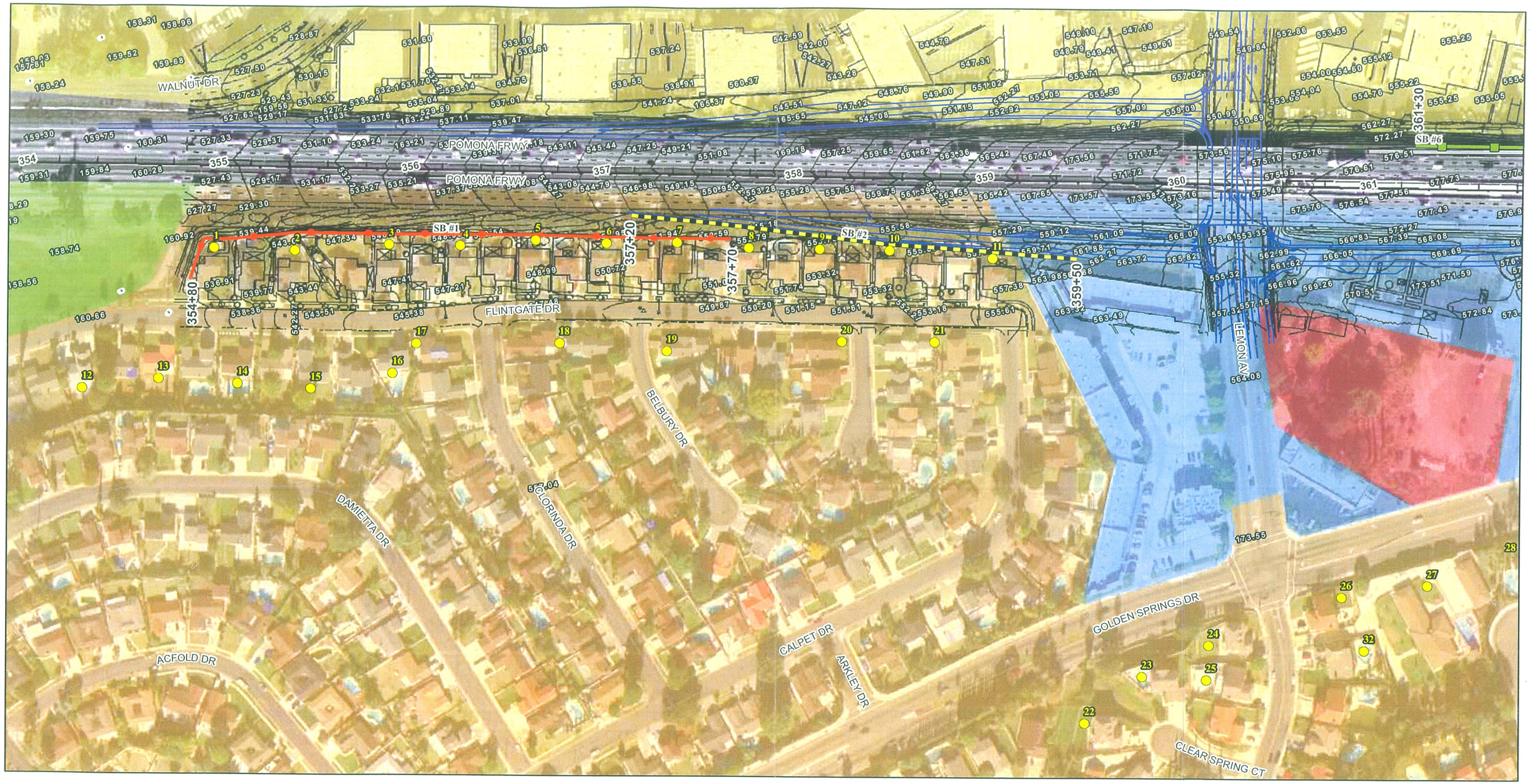


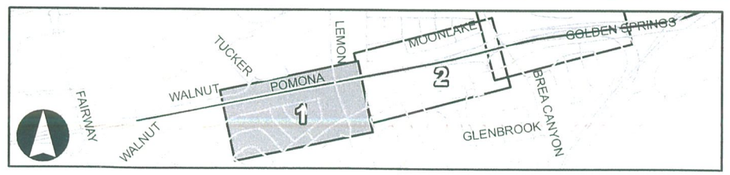
Receptor Locations

Modeled Sound Barriers
- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 3 Alignment

Land Use
- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

Ramps to be Removed

0 40 80 160 Feet
0 19 38 Meters



SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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FIGURE 2.17-3
Sheet 1 of 2
Sound Barrier and Modeled Receptor Locations
Alternative 3

SR-60 / Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.637.0)
EA# 07-224100

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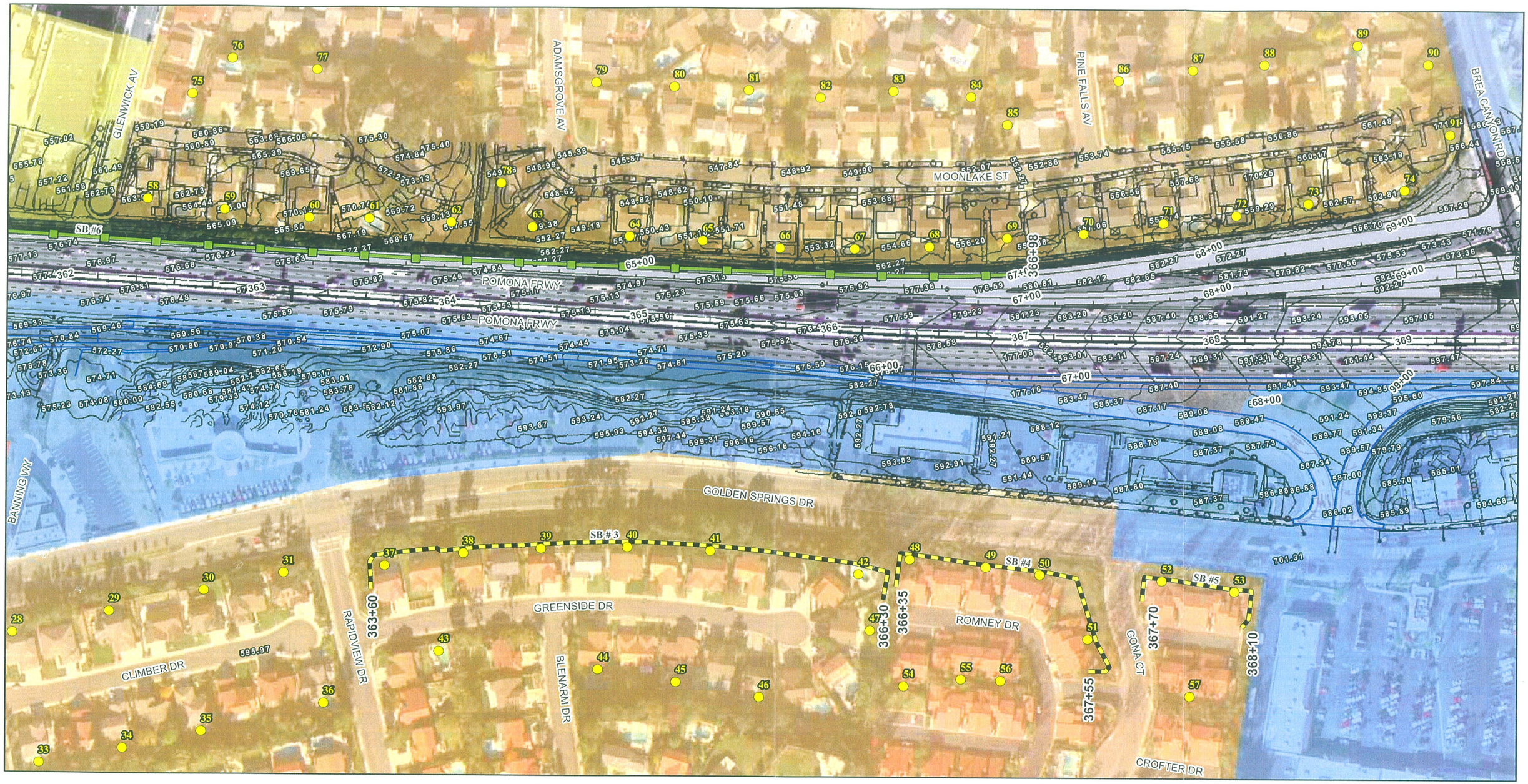


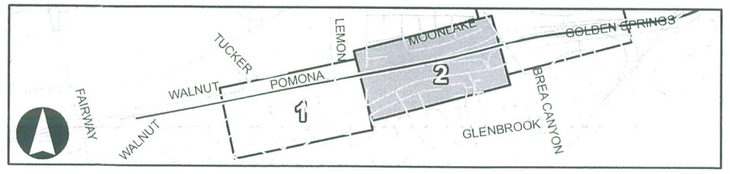
Receptor Locations

Modeled Sound Barriers
- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 3 Alignment

Land Use
- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

Ramps to be Removed

0 40 80 160 Feet
0 19 38 Meters



SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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FIGURE 2.17-3
Sheet 2 of 2
Sound Barrier and Modeled Receptor Locations
Alternative 3

SR-60 / Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
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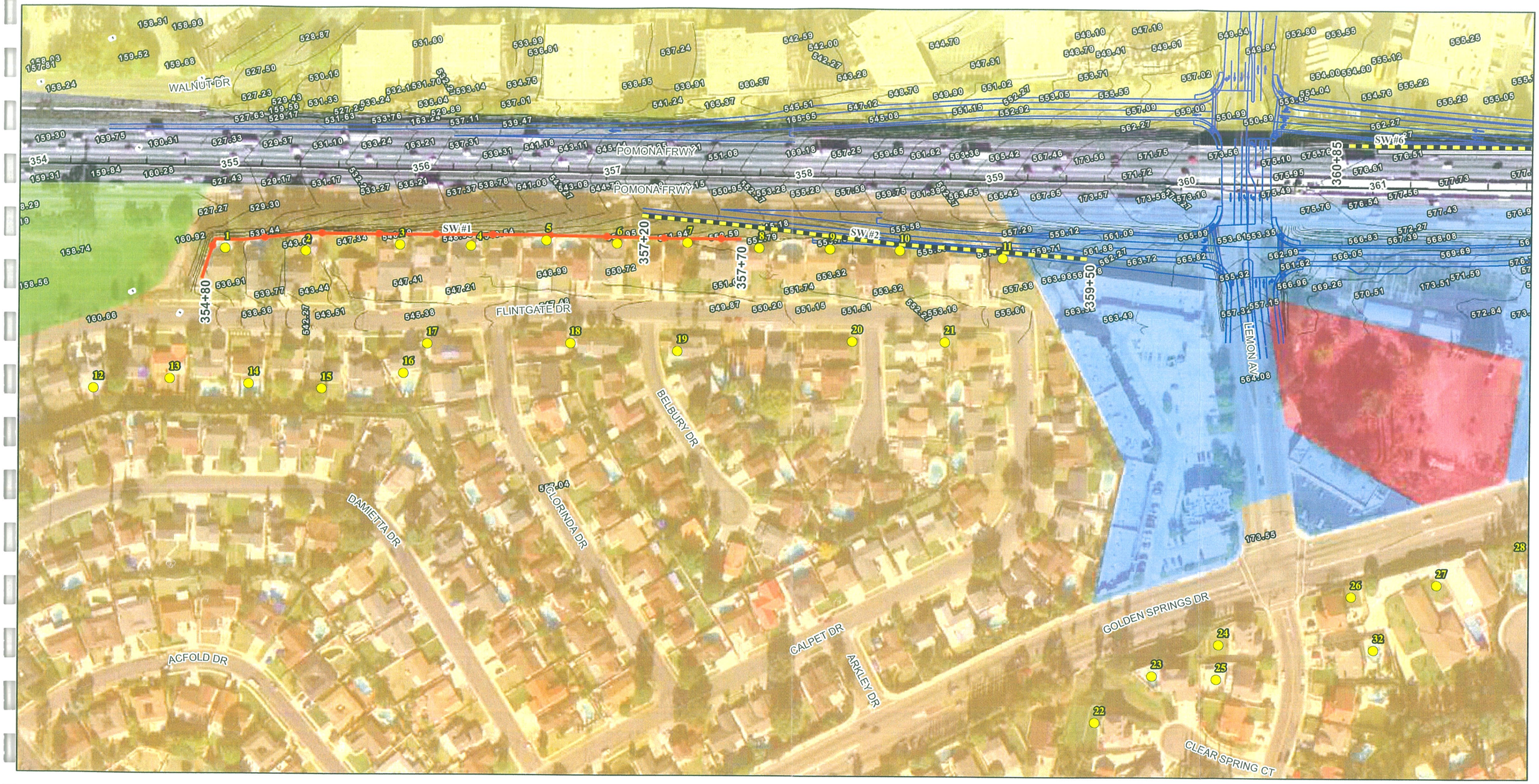


Receptor Locations

Modeled Sound Barriers
- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 4 Alignment

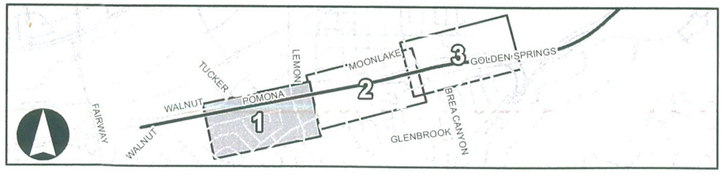
Land Use
- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

Ramps to be Removed

N

0 40 80 160 Feet

0 19 38 Meters



SOURCE: Jacobs Engineering (2006); TerraServer (2004).

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FIGURE 2.17-4
Sheet 1 of 3
Sound Barrier and Modeled Receptor Locations
Alternative 4

SR-60 / Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
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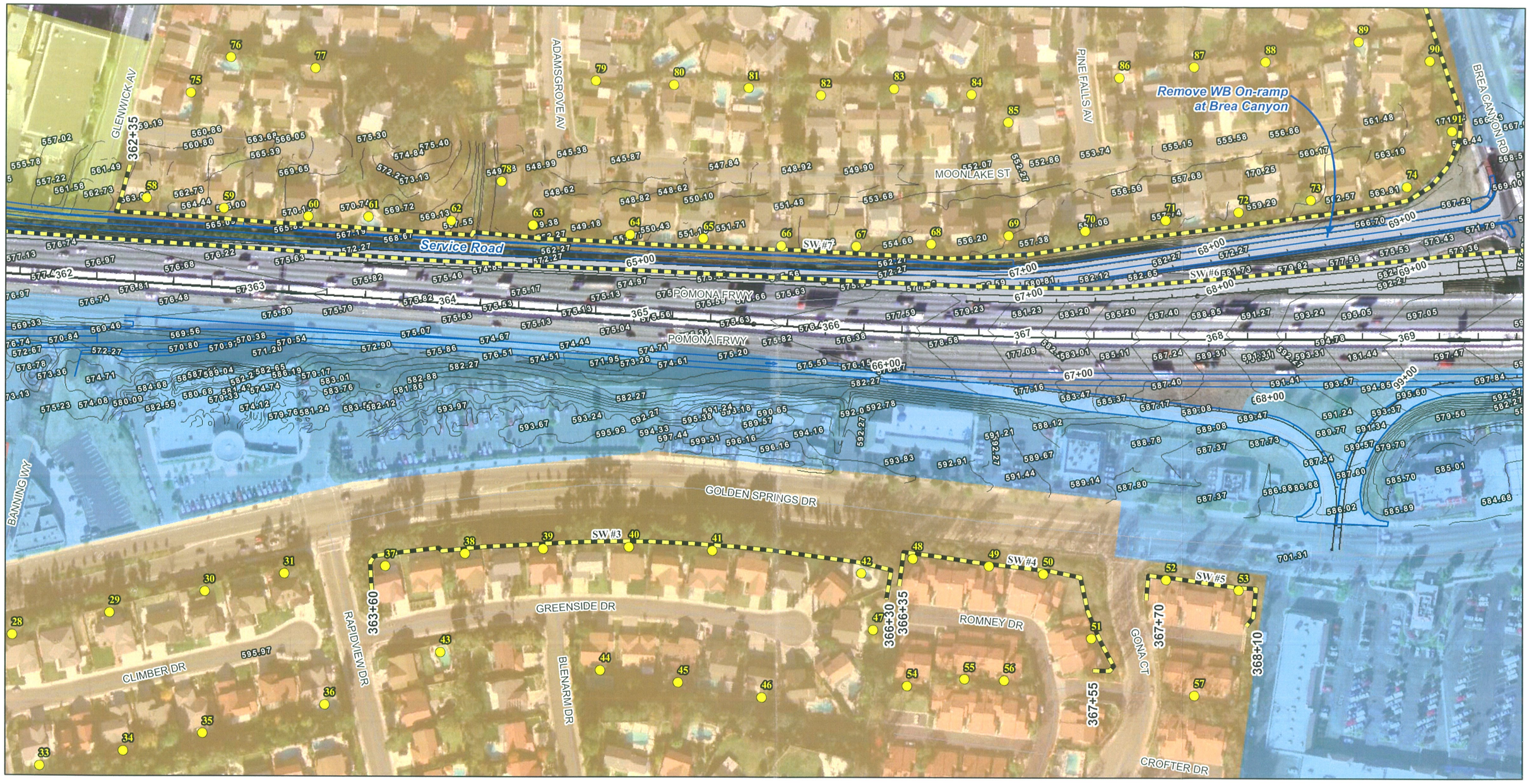

N

0 40 80 160 Feet
0 19 38 Meters

Receptor Locations

Modeled Sound Barriers
- Reasonable and Feasible
- Not Feasible
- Alternative 4 Alignment
- Ramps to be Removed

Land Use
- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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FIGURE 2.17-4
Sheet 2 of 3
Sound Barrier and Modeled Receptor Locations
Alternative 4

SR-60 / Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
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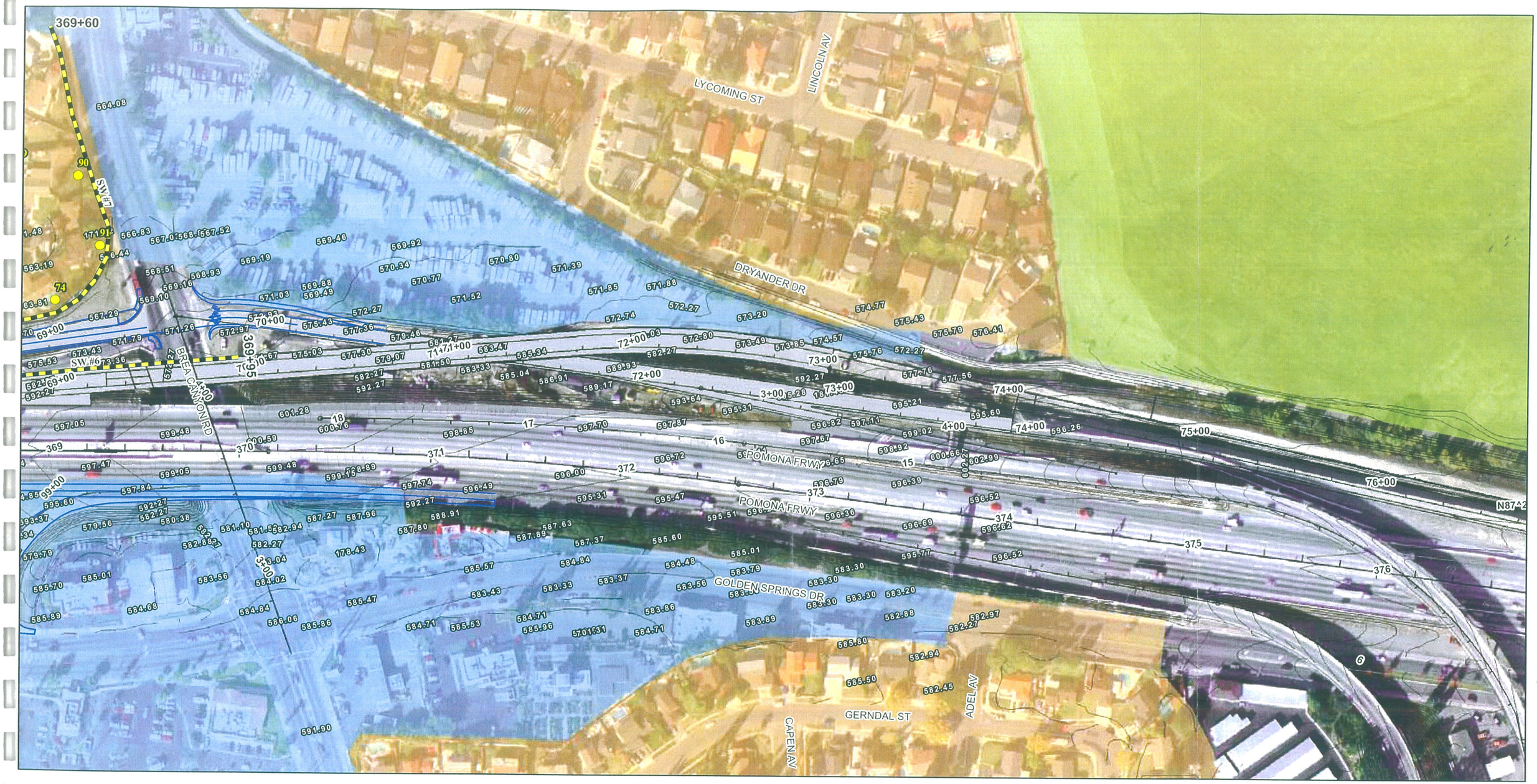

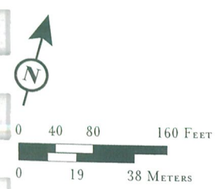

Receptor Locations

Modeled Sound Barriers
- Reasonable and Feasible
- Not Feasible
- Not Reasonable
- Alternative 4 Alignment

Land Use
- Commercial
- Future Planned Commercial
- Industrial
- Residential
- Vacant

Ramps to be Removed

SOURCE: Jacobs Engineering (2006); TerraServer (2004).
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FIGURE 2.17-4
SHEET 3 OF 3
Sound Barrier and Modeled Receptor Locations
Alternative 4

SR-60 / Lemon Avenue Interchange Project
07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)
EA# 07-224100

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2.17.3.2 Minimization Measures for Short-Term Impacts

To minimize the construction noise impact for sensitive land uses adjacent to the project site, construction noise will be regulated consistent with the Caltrans *Standard Construction Specifications,* Section 5-1, Sound Control Requirements, in the Standard Special Provisions as follows:

> "Sound control shall conform to the provisions in Section 7-1.01I (Sound Control Requirements) of the Standard Specifications and these special provisions. The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBA at a distance of 50 ft (15 m). This requirement in no way relieves the contractor from responsibility for complying with local ordinances regulating noise levels. The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers, or transient equipment that may or may not be owned by the contractor. The use of loud signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel. Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved, and no additional will be allowed therefore."

These standard provisions would apply during the construction of Alternatives 2, 3, and 4.

2.18 Natural Communities

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project on natural communities is based on the *Natural Environment Study-Minimal Impacts* (NES-MI; LSA Associates, Inc., 2006). The NES-MI is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

This section discusses natural communities of concern. The focus of this section is on biological communities and not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for daily or seasonal migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

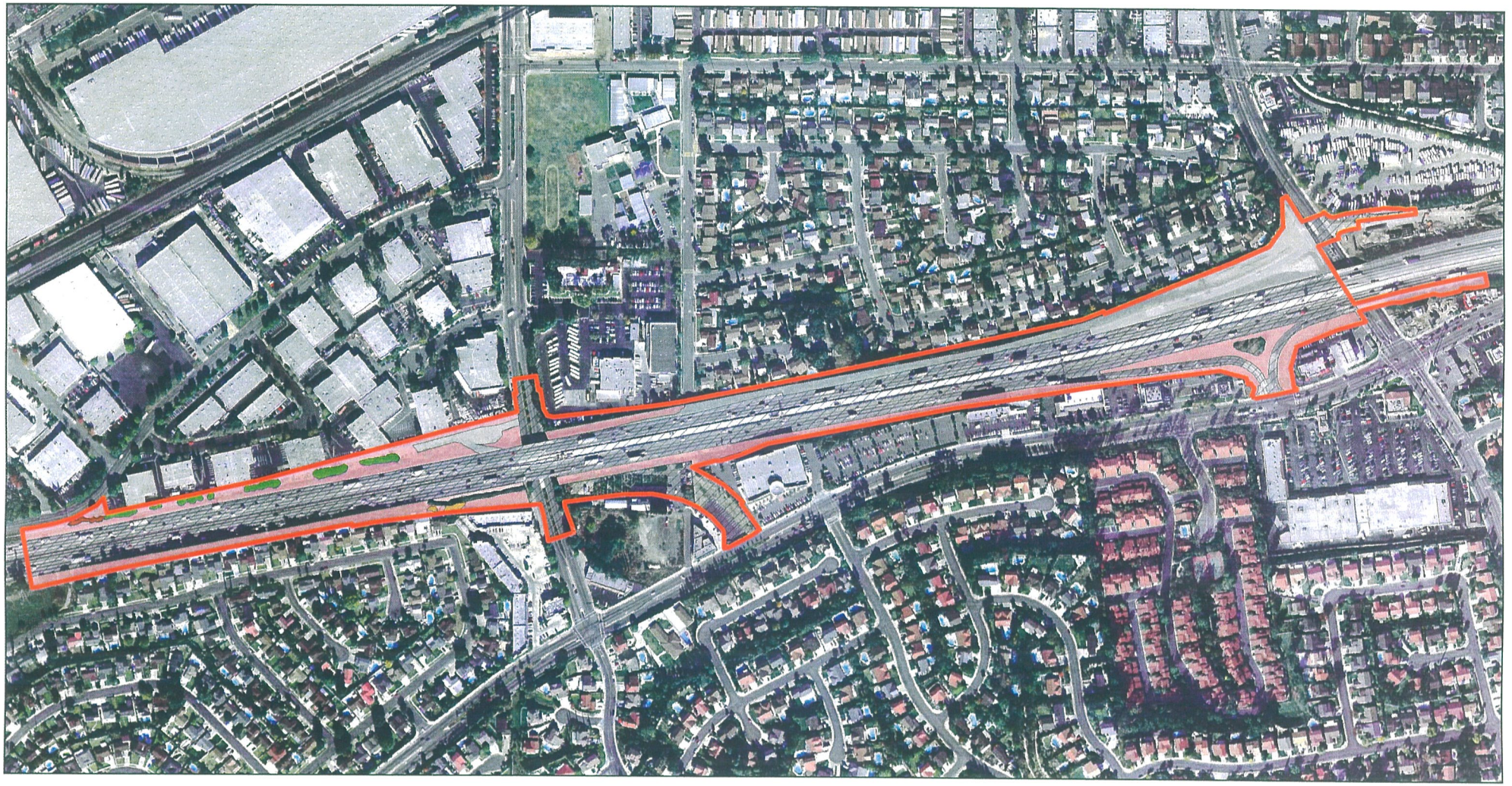
A reconnaissance-level survey of the project site was conducted on June 12, 2006. The purpose of the survey was to evaluate the site based on existing conditions, with particular focus on the native vegetation and sensitive species in the biological study area (BSA). The BSA includes the entire ground disturbance area associated with Alternatives 2, 3, 4, including the grading limits and staging areas.

2.18.1 Regulatory Setting

This section discusses natural communities and habitat not listed as critical habitat under the Federal Endangered Species Act (FESA) discussed later in Section 2.22, Threatened and Endangered Species, and not discussed later in Section 2.19, Wetlands and Other Waters. There is no specific regulatory setting for natural communities, but it is an important component of understanding the context of the biological setting for the proposed project.

2.18.2 Affected Environment

The alignments of existing SR-60 and Lemon Avenue are relatively flat, ranging from approximately 510–700 ft (155–213 m) in elevation. Much of the vegetation adjacent to the existing SR-60 and Lemon Avenue road surfaces consists of ruderal and ornamental vegetation with scattered occurrences of willow riparian scrub, mulefat scrub, and coyote bush scrub. The location of each habitat in the BSA is shown in Figure 2.18-1. These habitat types are described in detail below. The dominant habitat



LEGEND

- Biological Study Area

Vegetation

- Cleared
- Coyote Bush Scrub
- Developed/Ornamental
- Mulefat Scrub
- Ruderal
- Willow Riparian Woodland

N

0 175 350

FEET

SOURCE: TerraServer (2004); TBM (2006).

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FIGURE 2.18-1
Vegetation Communities

SR-60/Lemon Avenue Interchange Project

07-LA-60 P.M. R21.5/R23.0 (K.P. 34.6/37.0)

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types in the BSA consist of nonnative ruderal vegetation and developed areas dominated by ornamental vegetation (Developed/Ornamental). The other plant communities present in the BSA are willow riparian woodland, mulefat scrub, and coyote bush scrub.

2.18.2.1 Developed/Ornamental

Much of the BSA is developed and dominated by ornamental plantings consisting of introduced plant species for landscaping. Species in this habitat type include Bermuda grass *(Cynodon dactylon),* jacaranda *(Jacaranda mimosifolia),* ornamental pine (*Pinus* sp.), gum tree (*Eucalyptus* sp.), and English ivy *(Hedera helix).*

2.18.2.2 Ruderal Vegetation

The majority of the BSA consists of predominantly nonnative ruderal vegetation. Species in this habitat type consist of castor bean *(Ricinis communis),* shortpod mustard *(Hirschfeldia incana),* Russian-thistle *(Salsola tragus),* cheeseweed *(Malva parviflora),* ripgut grass *(Bromus diandrus),* lamb's quarters *(Chenopodium album),* common cocklebur *(Xanthium strumarium),* perennial sow-thistle *(Sonchus arvensis),* Bermuda grass, and annual bluegrass *(Poa annua).*

2.18.2.3 Willow Riparian Woodland

There is a narrow, interrupted strip of arroyo willow-dominated habitat along the drainage north of SR-60, west of Lemon Avenue. Species in this habitat include arroyo willow *(salix lasio lepis),* castor bean, common cocklebur, and wild radish *(Raphanus sativus).*

2.18.2.4 Mulefat Scrub

There are two small patches of mulefat scrub south of SR-60, west of Lemon Avenue. These patches do not appear to be connected with any jurisdictional areas and are likely fed by runoff from the adjacent residential and business uses. The dominant plant species in this habitat type is mulefat *(Baccharis salicifolia).* Because mulefat grows in dense thickets and often precludes other plant species from colonizing, there are few other associated species in this community.

2.18.2.5 Coyote Bush Scrub

There is a small patch of coyote bush scrub on the westernmost end of the BSA, north of SR-60 and east of Walnut Drive. This patch consists of several individual coyote bushes *(Baccharis pilularis).* Other species include scarlet pimpernel *(Anagallis arvensis),* puncture vine *(Tribulus terrestris),* and bicolored cudweed *(Gnaphalium bicolor).*

2.18.2.6 Wildlife and Wildlife Corridors

The BSA is characterized predominantly by ruderal and ornamental vegetation. Wildlife species occurring in the BSA are characteristic of those found in developed and disturbed habitats. The site does not appear to function as a wildlife movement corridor because there are no adjacent habitat areas.

2.18.3 Impacts

Table 2.18-1 shows the impact each Build Alternative would have on the vegetation communities in the BSA. Alternative 1 would not involve any construction and would not impact any vegetation or natural communities in the BSA.

Table 2.18-1 Impacts to Vegetation Communities

Vegetation Community	Acres (Hectares) of Impact		
	Alternative 2	Alternative 3	Alternative 4
Developed/Ornamental	3.30 (1.34)	4.19 (1.51)	1.70 (5.55)
Ruderal Vegetation	2.07 (0.84)	4.80 (1.94)	5.22 (2.11)
Willow Riparian Woodland	0.24 (0.10)	0.24 (0.10)	0.24 (0.10)
Mulefat Scrub	0.05 (0.02)	0.05 (0.02)	0.05 (0.02)
Coyote Bush Scrub	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)

Source: NES-MI (LSA Associates, Inc., October 2006).

2.18.4 Avoidance, Minimization, and Mitigation Measures

Mitigation for impacts to willow riparian woodlands is provided later in Section 2.19, Wetlands and Other Waters. Refer to Mitigation Measures BIO-2 and BIO-5 and the discussion of additional measures that may be imposed subject to the concurrence of the resource agencies as described in Section 2.19.4, Avoidance, Minimization, and Mitigation Measures. The project impacts to other vegetation communities do not require mitigation.

2.19 Wetlands and Other Waters

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project on wetlands and other waters is based on the NES-MI (LSA Associates, Inc., 2006) and the Jurisdictional Delineation (JD; LSA Associates, Inc., 2006). The NES and JD are on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.19.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the CWA, 33 USC 1344, is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into WoUS, including wetlands. WoUS include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation) is used. All three parameters must be present under normal circumstances for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters will be significantly degraded. The Section 404 permit program is run by the ACOE with oversight by the EPA.

EO 11990 for the Protection of Wetlands also regulates the activities of federal agencies with regard to wetlands. This EO states that a federal agency such as FHWA cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that there is no practicable alternative to the construction and the proposed project includes all practicable measures to minimize harm.

At the State level, wetlands and waters are regulated primarily by the California Department of Fish and Game (CDFG) and the RWQCB. Sections 1600 to 1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or

bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under ACOE jurisdiction may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the CWA. Refer also to Section 2.12, Water Quality and Storm Water Runoff, for additional discussion regarding water quality.

2.19.2 Affected Environment

There is a manmade drainage in the BSA, west of Lemon Avenue, and north of SR-60. The entire length of this drainage is approximately 1,265 ft (386 m). Water enters this drainage from an inlet on its east end and another inlet located in the middle. The drainage then flows west to an outlet and eventually into Diamond Bar Creek. This manmade ephemeral earthen channel is lined with rock riprap, deeply excavated, and conveys runoff during heavy storm events.

The drainage in the BSA contains approximately 0.18 ac (0.073 ha) of ACOE nonwetland WoUS. The drainage does not appear to remain inundated or saturated near the surface long enough to meet the ACOE wetland criteria. There are no areas in the BSA where potential ACOE jurisdictional wetlands (i.e., areas that satisfy all three criteria for ACOE jurisdictional wetlands) occur. The areas satisfying the ACOE jurisdictional criteria for WoUS are also subject to CDFG jurisdiction. The total acreage of CDFG jurisdiction in the BSA is 0.58 ac (0.23 ha), which consists of 0.21 ac (0.085 ha) of streambed and 0.37 ac (0.15 ha) of riparian habitat.

2.19.3 Impacts

Construction of Alternatives 2, 3, and 4 will result in 0.13 ac (0.05 ha) of impacts to ACOE nonwetlands WoUS. Alternatives 2, 3, and 4 will also impact 0.16 ac (0.06 ha) of CDFG jurisdictional streambeds and 0.24 ac (0.10 ha) of CDFG jurisdictional riparian habitat. The total impact to CDFG jurisdictional areas is 0.40 ac (0.16 ha) for the three Build Alternatives.

Alternative 1, the No Build Alternative, would not result in the construction or operation of any modified transportation facilities in the project area. Therefore, the No Build Alternative would not result in impacts to ACOE nonwetlands WoUS or CDFG jurisdictional areas.

2.19.4 Avoidance, Minimization, and Mitigation Measures

In addition to the avoidance, minimization, and mitigation measures described earlier in Section 2.12, Water Quality and Stormwater Runoff, the following measures will substantially reduce impacts of the proposed project to jurisdictional waters.

BIO-1 Prior to initiation of construction, permanent impacts to WoUS will be offset through replacement at a minimum ratio of 1:1, or enhancement through the purchase of mitigation from an off-site mitigation bank or participation in an in-lieu fee program.

BIO-2 If determined to be required by ACOE and CDFG, a Habitat Mitigation Monitoring Plan (HMMP) will be prepared and approved by ACOE and CDFG. At a minimum, the HMMP will meet the following criteria:

- The habitat will be replaced and/or enhanced at a minimum 1:1 ratio.
- The HMMP will identify a success criterion of at least 80 percent cover of native riparian vegetation for replaced habitat.
- Further criteria specified in the HMMP will include a 5-year establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan.

BIO-3 To the extent feasible, construction activities will occur outside the rainy season (October to May) to ensure that erosion caused by construction activities does not occur and that sedimentation is not deposited within the storm drain system or any adjacent drainages. If construction occurs during the rainy season, appropriate erosion and storm water control devices will be in place and maintained throughout the rainy season.

BIO-4 A Nationwide Permit will be obtained through the ACOE prior to obtaining grading permits, pursuant to Section 404 of the Clean Water Act.

BIO-5 A Streambed Alteration Notification will be submitted and authorization from the CDFG will be obtained prior to obtaining grading permits.

BIO-6 A certification or waiver from the Region 4 RWQCB will be obtained prior to the initiation of construction.

Additional measures may be imposed subject to the concurrence of the resource agencies (including ACOE, CDFG, and RWQCB) and may entail one or more of the following options in order of preference: (1) on-site creation or enhancement of riparian habitat; (2) off-site creation or enhancement of riparian habitat; (3) participation in an established off-site mitigation bank program; and/or (4) preservation of undeveloped riparian woodland as permanent open space. The appropriate mitigation ratio will be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be affected.

2.20 Plant Species

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project on plant species is based on the NES-MI (LSA Associates, Inc. 2006). The NES-MI is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices. Potential impacts on threatened and endangered (T&E) plant species are discussed later in Section 2.22, Threatened and Endangered Species.

2.20.1 Regulatory Setting

The United States Fish and Wildlife Service (USFWS) and CDFG share regulatory responsibility for the protection of special-status plant species. Special-status species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to T&E species; these are species that are formally listed or proposed for listing as endangered or threatened under FESA and/or the California Endangered Species Act (CESA). Section 2.22, Threatened and Endangered Species, provides detailed information regarding these species.

This section discusses potential impacts of the proposed project on other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and nonlisted California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA are at 16 USC, Section 1531, et seq. (refer also to 50 CFR Part 402). The regulatory requirements for CESA are at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act at Fish and Game Code, Sections 1900 to 1913, and CEQA, Sections 2100 to 21177.

2.20.2 Affected Environment

Much of the vegetation adjacent to the existing SR-60 and Lemon Avenue road surfaces consists of ruderal and ornamental vegetation, with scattered occurrences of willow riparian scrub, mulefat scrub, and coyote bush scrub, as described earlier in Section 2.18, Natural Communities.

A literature review resulted in a list of eight special interest plant species that have a potential to occur in or within the vicinity of the BSA as determined by federal, State, or CNPS data. The special interest plant species identified as potentially occurring in the BSA are:

- Chaparral sand-verbena *(Abronia villosa* var. *aurita)*
- Plummer's mariposa lily *(Calochortus plummerae)*
- Intermediate mariposa lily *(Calochortus weedii* var. *intermedius)*
- Southern tarplant *(Centromadia parryi* ssp. *australis)*
- Many-stemmed dudleya *(Dudleya multicaulis)*
- Mesa horkelia *(Horkelia cueata* ssp. *puberula)*
- Coulter's goldfields *(Lasthenia glabrata* ssp. *coulteri)*
- San Bernardino aster *(Symphyotrichum defoliatum)*

No special interest plant species were observed or otherwise detected in the BSA at the time of the site visit in 2006. Therefore, these species are considered absent from the BSA.

2.20.3 Impacts

No adverse impacts to special interest plant species will occur as a result of implementation of Alternatives 2, 3, and 4.

2.20.4 Avoidance, Minimization, and Mitigation Measures

The proposed SR-60/Lemon Avenue interchange project will not result in adverse impacts related to special interest plant species. No avoidance, minimization, or mitigation measures are required.

2.21 Animal Species

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project on animal species is based on the NES-MI (LSA Associates, Inc., 2006). The NES-MI is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices. Potential impacts on T&E animal species are discussed later in Section 2.22, Threatened and Endangered Species.

2.21.1 Regulatory Setting

Many State and federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service (NMFS), and CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the State or federal Environmentally Sensitive Areas (ESAs). Wildlife species listed or proposed for listing as threatened or endangered are discussed later in Section 2.22, Threatened and Endangered Species. Other special status animal species, including CDFG fully protected species and species of special concern, and USFWS and NMFS candidate species are discussed here.

Federal laws and regulations pertaining to wildlife include NEPA, the Migratory Bird Treaty Act (MBTA), and the Fish and Wildlife Coordination Act.

State laws and regulations pertaining to wildlife include CEQA, and Sections 1601 to 1603 and Sections 4150 and 4152 of the Fish and Game Code.

2.21.2 Affected Environment

A literature review identified 10 special interest animal species that have a potential to occur in or within the vicinity of the BSA for the proposed project:

- Cooper's hawk *(Accipiter cooperii)*
- Tricolored blackbird *(Agelaius tricolor)*
- Southern California rufous-crowned sparrow *(Aimophila ruficeps canescens)*
- Long-eared owl *(Asio otus)*
- Coastal western whiptail *(Aspidoscelis tigris stejnegeri)*
- Northern red-diamond rattlesnake *(Crotalus ruber ruber)*

- Western yellow bat *(Lasiurus xanthinus)*
- San Diego black-tailed jackrabbit *(Lepus californicus bennettii)*
- Coast horned lizard *(Phrynosoma coronatum)*
- Coast patch-nosed snake *(Salvadora hexalepis virgultea)*

No special interest animal species or their habitats were observed or otherwise detected in the BSA at the time of the site visit in 2006. Therefore, due to the lack of suitable habitat, special interest animal species are considered absent from the BSA.

2.21.3 Impacts

No adverse impacts to sensitive wildlife species are expected due to the low potential for occurrence on site. Although no adverse project impacts are anticipated, preconstruction surveys will be conducted no more than 14 days prior to the start of work to protect native nesting birds, which are protected by the federal MBTA.

2.21.4 Avoidance, Minimization, and Mitigation Measures

The following avoidance, minimization, and mitigation measure will be implemented to protect nesting birds during project construction:

BIO-7 Vegetation clearing will be restricted to outside the active breeding season (February 15 through August 15) for birds. If vegetation clearing is scheduled during breeding season, a qualified biologist will conduct clearance surveys for active bird nesting immediately prior to any clearing of vegetation. During the clearance surveys, the location of any active bird nests will be mapped by the biologist, and an appropriate buffer (e.g., 500 ft [150 m] buffer for raptors) where work will not take place will be established and monitored. The buffer will be delineated by roping or flagging the boundaries and will remain in place until the nest is either abandoned or the young have fledged.

2.22 Threatened and Endangered Species

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project on the T&E species is based on the NES-MI (LSA Associates, Inc., 2006). The NES-MI is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.22.1 Regulatory Setting

The primary federal law protecting T&E species is the FESA (16 USC, Section 1531, et seq.); refer also to 50 CFR Part 402. FESA and subsequent amendments provide for the conservation of T&E species and the ecosystems on which they depend. Under Section 7 of FESA, federal agencies such as FHWA are required to consult with the USFWS and NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. The outcome of consultation under Section 7 is a Biological Opinion (BO) or an incidental take permit. Section 3 of FESA defines take as "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the State level, CESA, California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. CDFG is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits take of any species determined to be T&E species. Take is defined in Section 86 of the Fish and Game Code as ". . . hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by CDFG. For projects requiring a BO under Section 7 of FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

2.22.2 Affected Environment

The literature review indicated the potential occurrence in the BSA of one plant and two animal species that are State and/or federally listed as threatened or endangered. These T&E species are:

- Santa Ana River woollystar *(Eriastrum densifolium* ssp. *sanctorum)*
- Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*
- Least Bell's vireo (LBV) *(Vireo bellii pusillus)*

No T&E animal or plant species were observed or otherwise detected in the BSA at the time of the site visit in 2006.

The riparian vegetation consisting primarily of arroyo willows *(Salix lasiolepis)* along the manmade drainage west of Lemon Avenue is potential habitat for LBV. A habitat suitability assessment (LSA Associates, Inc., 2006) was conducted that concluded that the habitat in this area within the BSA is unsuitable for breeding LBV due to the current site conditions and location. Therefore, due to the lack of suitable habitat, T&E animal species are considered absent from the BSA.

2.22.3 Impacts

No adverse impacts to T&E plant or animal species will occur as a result of implementation of Alternatives 2, 3, and 4.

2.22.4 Avoidance, Minimization, and Mitigation Measures

The proposed SR-60/Lemon Avenue interchange project will not result in adverse impacts related to T&E plant or animal species. No avoidance, minimization, or mitigation measures are required.

2.23 Invasive Species

The analysis of potential impacts of the SR-60/Lemon Avenue interchange project related to invasive species is based on the NES-MI (LSA Associates, Inc., 2006). The NES-MI is on file and available for review at the Cities of Diamond Bar and Industry and the Caltrans District 7 offices.

2.23.1 Regulatory Setting

On February 3, 1999, President Clinton signed EO 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "...any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." FHWA guidance issued August 10, 1999, directs the use of the state's noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

Section 6006, Environmental Restoration and Pollution Abatement; Control of Noxious Weeds and Aquatic Noxious Weeds and Establishment of Native Species, was added to Title 23, USC Section 329, on August 10, 2005, when the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law by the President. Section 6006 makes certain activities related to the control of noxious weeds and the establishment of native species eligible for federal aid funds.

2.23.2 Affected Environment

As discussed earlier in Section 2.18, Natural Communities, the dominant habitat types in the BSA consist of nonnative ruderal vegetation and developed areas dominated by ornamental vegetation (Developed/Ornamental).

During the 2006 reconnaissance surveys, 16 exotic plants on the California Invasive Plant Council's (Cal-IPC) Invasive Plant Inventory were identified in the BSA. Each plant in the inventory is given an overall rating of high, moderate, limited, or unknown. Plants with a rating of high have severe ecological impacts. Plants with a rating of moderate have a substantial and apparent but not severe ecological impact.

Plants with a limited rating are invasive, but their ecological impacts are minor on a Statewide level. The invasive species identified in the BSA and the applicable Cal-IPC rating are provided in Table 2.23-1.

Table 2.23-1 Invasive Plants Located within the BSA

Common Name	Scientific Name	Cal-IPC Rating
English ivy	*Hedera helix*	High
Tocalote	*Centaurea melitensis*	Moderate
Yellow star-thistle	*Centaurea solstitialis*	High
Bull thistle	*Cirsium vulgare*	Moderate
Milk thistle	*Silybum marianum*	Limited
Shortpod mustard	*Hirschfeldia incana*	Moderate
Wild radish	*Raphanus sativus*	Limited
Russian-thistle	*Salsola tragus*	Limited
Castor bean	*Ricinis communis*	Limited
Gum tree	*Eucalyptus* sp.	Limited or moderate, depending on species
Tree tobacco	*Nicotiana glauca*	Moderate
Mexican fan palm	*Washingtonia robusta*	Moderate
Wild oat	*Avena* sp.	Moderate
Ripgut grass	*Bromus diandrus*	Moderate
Bermuda grass	*Cynodon dactylon*	Moderate
Italian ryegrass	*Lolium multiflorum*	Moderate

Source: Cal-IPC Invasive Plant Inventory (portal.cal-ipc.org/weedlist, accessed 2006) and LSA Associates, Inc. (2006).

2.23.3 Impacts

The construction of Alternatives 2, 3 and 4 has the potential to spread invasive species by the entering and exiting of construction equipment contaminated by invasives, the inclusion of invasive species in seed mixtures and mulch, and the improper removal and disposal of invasive species so that seed of invasive species is spread along the highway.

The No Build Alternative does not propose any construction and, therefore, will result in no adverse, direct, temporary impacts related to invasive plant species.

2.23.4 Avoidance, Minimization, and Mitigation Measures

The following measures will avoid, minimize, or mitigate the potential project impacts related to invasive species.

BIO-8 Bare soil will be landscaped with Caltrans-recommended seed mix from locally adapted species to preclude the invasion of noxious weeds. The use

of site-specific materials adapted to local conditions increases the likelihood that revegetation will be successful and maintains the genetic integrity of the local ecosystem. Arrangements will be made well in advance of planting (9 months, if possible) to ensure that plant materials are located and available for the scheduled planting time. Sufficient time will be allocated for a professional seed company to visit the project site during the appropriate season and collect the native plant seed. If local propagules are not available or cannot be collected in sufficient quantities, materials collected or grown from other sources within Southern California will be substituted. For widespread native herbaceous species more likely to be genetically homogeneous, site specificity is a less important consideration, and seed from commercial sources may be used.

BIO-9 Seed purity will be certified by planting seed labeled under the California Food and Agricultural Code or that has been tested within a year by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists.

BIO-10 Construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds (before mobilizing to arrive at the site and before leaving the site).

BIO-11 Trucks with loads carrying vegetation will be covered, and vegetative materials removed from the site will be disposed of in accordance with all applicable laws and regulations.

2.24 Cumulative Impacts

2.24.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project such as changes in community character, traffic patterns, housing availability, and employment.

Section 15130 of the CEQA Guidelines describes circumstances under which a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA is found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.24.2 Approach to Cumulative Analysis for Caltrans Projects

The Caltrans SER Guidance on cumulative impacts analysis (www.dot.ca.gov/ser/guidance.htm#cumulative, accessed on December 6, 2005) states:

> The following eight steps serve as guidelines for identifying and assessing cumulative impacts:
>
> 1. Identify the resources to consider in the cumulative impact analysis by gathering input from knowledgeable individuals and reliable information

sources. This process is initiated during project scoping and continues throughout the NEPA/CEQA analysis.

2. Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
3. Describe the current health and the historical context of each resource.
4. Identify the direct and indirect impacts of the proposed project that might contribute to a cumulative impact on the identified resources.
5. Identify the set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impact analysis
6. Assess the potential cumulative impacts.
7. Report the results of the cumulative impact analysis.
8. Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

These steps provide a framework for practitioners rather than a formula. The level of detail required at each step will vary based on the type of the project.

The cumulative analysis in this IS/EA does not follow the approach in the SER because the alternatives under consideration do not contribute cumulatively considerable impacts to any environmental parameters assessed in this analysis, and the project is not a regional but a local project benefiting the Cities of Diamond Bar and Industry at or near the location of the proposed SR-60/Lemon Avenue interchange.

2.24.3 Cumulative Environmental Setting

2.24.3.1 Cumulative Study Area

The cumulative project area includes the Cities of Diamond Bar and Industry. The study area is limited to the Cities of Diamond Bar and Industry because the interchange does not affect an area large enough to be considered regional. Therefore, the study area was defined as this more limited local area.

2.24.3.2 Other Projects

Alternatives 2, 3, and 4 would improve an existing transportation facility to meet anticipated growth, safety concerns, and LOS. The proposed project is designed to accommodate the traffic projected to be generated by planned growth. Other planned, proposed, or completed residential and commercial development projects in the

project area have gone through or are going through the planning process, as summarized in Table 2.24-1, and each of these projects is subject to its own environmental review and mitigation in accordance with State and federal law.

Table 2.24-1 Proposed Development in the Project Vicinity

Location	Project	Status (as of August 2007)
20657 Golden Springs Drive, Diamond Bar	Banning Way: Mixed Use Development, 202 ac (82 ha)	Under construction
South of Larkstone Drive and Diamond Crest Lane; east of Morning Sun Avenue	99 Unit Condominiums (J.C.C Homes) Tentative Tract, 31.3 ac (13 ha)	Draft EIR in circulation

2.24.4 Findings

As described in detail throughout Chapter 2.0, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and Mitigation Measures, the proposed SR-60/Lemon Avenue interchange project will either not result in adverse impacts or will include measures to substantially reduce or avoid adverse project impacts. Therefore, Alternatives 2, 3, and 4 will not contribute to cumulative adverse impacts in the project area.

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, the scoping workshop held on April 20, 2006; the Initiation of Studies Letters distributed to agencies and others; and City coordination with potentially affected property owners. The public and agency coordination activities are summarized in the *Scoping Summary Report* (LSA Associates, Inc., 2006) which is on file and available for review at the Cities of Diamond Bar and Industry and at the Caltrans District 7 offices.

Agency personnel involved with the proposed project are listed below.

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Gary Iverson, Environmental

Tami Sagahafi, Environmental

City of Diamond Bar

Fred Alamolnoda, Senior Engineer

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This IS/EA was prepared by LSA Associates, Inc. for the Cities of Diamond Bar and Industry and Caltrans District 7. In addition, Jacobs Engineering, the prime contractor for this project, and other subconsultants to Jacobs, assisted in the preparation of this IS/EA. The following staff prepared this IS/EA and supporting technical studies.

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Andrea Zullo	Environmental Planner	Geography	8	Visual Analyses
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Chapter 5 Distribution List

The IS/EA will be distributed to the State, regional, and local agencies listed on the following pages. In addition, all property owners and occupants within a 1,000-foot radius of the project limits will be provided notice of the availability of the IS/EA.

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DIAMOND BAR CA 91789

Resident
APN: 8760018026
20737 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018010
20804 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018012
20758 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018019
20710 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018027
20743 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760017023
20823 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760016006
885 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017028
845 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760017027
851 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760017026
857 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760018017
20722 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018025
20729 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018023
20717 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760022016
20717 NORTHAMPTON ST
CITY OF INDUSTRY 91789

Resident
APN: 8760018032
20813 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018031
20805 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760017043
834 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017033
841 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760018006
20830 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018008
20818 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760014015
835 S LEMON AVE
WALNUT CA 91789

Resident
APN: 8760015011
20530 EARLGATE ST BLDG
DIAMOND BAR CA 91789

Resident
APN: 8760017030
835 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760017029
839 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760016015
904 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016028
20737 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760016020
20733 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017014
846 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017010
20745 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760014010
20465 E WALNUT N DR
CITY OF INDUSTRY CA 91789

Resident
APN: 8760018011
20762 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760015903
841 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017036
840 CAMBON AVE
DIAMOND BAR CA 91789

Resident
APN: 8760021003
20739 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760019047
834 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760017031
834 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017032
840 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760018016
20728 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018021
20703 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018022
20711 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760017013
847 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760018015
20736 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018018
20716 LYCOMING ST
DIAMOND BAR CA 91789

Resident
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20742 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760016002
20806 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760015001
20450 E WALNUT DR N
DIAMOND BAR CA 91789

Resident
APN: 8760018029
20755 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018009
20812 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760017008
20733 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760016025
20710 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760015010
20510 EARLGATE ST
ROWLAND HEIGHTS CA 91789

Resident
APN: 8760017012
855 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017042
835 CAMBON AVE
DIAMOND BAR CA 91789

Resident
APN: 8760018034
20825 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760022021
20733 EARLGATE ST
CITY OF INDUSTRY CA 91789

Resident
APN: 8760018024
20723 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
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20750 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760018030
20763 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
APN: 8760018007
20824 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760018035
20831 NORTHAMPTON ST
DIAMOND BAR CA 91789

Resident
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20651 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760014001
20651 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760016010
20738 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017037
844 CAMBON AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016019
20725 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017016
860 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760015024
20490 YELLOW BRICK RD A
DIAMOND BAR CA 91789

Resident
APN: 8760017011
861 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016023
20722 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017040
845 CAMBON AVE
DIAMOND BAR CA 91789

Resident
APN: 8760015018
20460 YELLOW BRICK RD
DIAMOND BAR CA 91789

Resident
APN: 8760015022
20350 YELLOWBRICK RD
DIAMOND BAR CA 91789

Resident
APN: 8760014800
20490 YELLOW BRICK RD A
DIAMOND BAR CA 91789

Resident
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20736 MOONLAKE ST
DIAMOND BAR CA 91789

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20725 EARLGATE ST
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880 ADAMSGROVE AVE
DIAMOND BAR CA 91789

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854 ADAMSGROVE AVE
DIAMOND BAR CA 91789

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APN: 8760016003
20800 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760014011
20445 E WALNUT DR N
CITY OF INDUSTRY CA 91789

Resident
APN: 8760015003
20520 E WALNUT N DR
DIAMOND BAR CA 91789

Resident
APN: 8760016013
20718 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017004
864 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760015902
20540 E WALNUT N DR
DIAMOND BAR CA 91789

Resident
APN: 8760017041
841 CAMBON AVE
DIAMOND BAR CA 91789

Resident
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20732 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8762034002
20515 FLINTGATE DR
DIAMOND BAR CA 91789

Resident
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851 CAMBON AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016009
20744 EARLGATE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017005
872 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760017001
846 GLENWICK AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016005
891 ADAMSGROVE AVE
DIAMOND BAR CA 91789

Resident
APN: 8760016018
20717 MOONLAKE ST
DIAMOND BAR CA 91789

Resident
APN: 8760017025
861 DARIUS DR
DIAMOND BAR CA 91789

Resident
APN: 8760015004
20540 E WALNUT N DR
DIAMOND BAR CA 91789

Resident
APN: 8760017017
866 ADAMSGROVE AVE
DIAMOND BAR CA 91789

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APN: 8760016011
20732 EARLGATE ST
DIAMOND BAR CA 91789

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APN: 8760021002
20651 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760022801
20651 LYCOMING ST
DIAMOND BAR CA 91789

Resident
APN: 8760017035
834 CAMBON AVE
DIAMOND BAR CA 91789

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APN: 8760017035
834 CAMBON AVE
DIAMOND BAR CA 91789

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Appendix A CEQA Checklist

ENVIRONMENTAL SIGNIFICANCE CHECKLIST FOR THE PROPOSED STATE ROUTE 60/LEMON AVENUE INTERCHANGE PROJECT

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed State Route 60 (SR-60)/Lemon Avenue interchange project. In many cases, background studies performed in connection with the proposed project indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included in Section VI following the checklist. The words "significant" and "significance" used throughout the following checklist are related to California Environmental Quality Act (CEQA), not National Environmental Policy Act (NEPA), impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:	☐	☐	☒	☐
a) Have a substantial adverse effect on a scenic vista?				
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE RESOURCES -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☒	☐	☐
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or United States Fish and Wildlife Service (USFWS)?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	X	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	X
f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state HCP?	☐	☐	☐	X
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☐	X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	X	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	X	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	X	☐	☐
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	X	☐
ii) Strong seismic ground shaking?	☐	☐	X	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☐	X	☐	☐
iv) Landslides?	☐	☐	☐	X
b) Result in substantial soil erosion or the loss of topsoil?	☐	X	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	X	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	X	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	X
VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	X	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	X	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
VIII. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	X
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	X
IX. LAND USE AND PLANNING -- Would the project:				
a) Physically divide an established community?	☐	☐	☐	X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	X
c) Conflict with any applicable HCP or NCCP?	☐	☐	☐	X
X. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	X
XI. NOISE -- Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	X	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	X	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	X	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	X	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X
XII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
XIII. PUBLIC SERVICES --				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	X	☐	☐
Police protection?	☐	X	☐	☐
Schools?	☐	☐	X	☐
Parks?	☐	☐	X	☐
Other public facilities?	☐	☐	X	☐

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XV. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☒	☐	☐
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒
XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider who serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
XVII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

I. AESTHETICS

The potential for the proposed SR-60/Lemon Avenue interchange project to result in adverse impacts related to aesthetics was assessed in the *Visual Impact Assessment* (VIA) (LSA Associates, Inc., 2006) and as summarized in Section 2.9, Visual and Aesthetics, in the IS/EA.

a) **Less Than Significant Impact.** Permanent visual impacts on a scenic vista are not anticipated as a result of the operation of the proposed SR-60/Lemon Avenue interchange project alternatives. Temporary visual impacts would occur during construction. No mitigation is required.

b) **No Impact.** Lemon Avenue and SR-60 are not State-designated Scenic Highways, and there are no scenic resources in the project area. Therefore, the proposed SR-60/Lemon Avenue interchange project alternatives would not result in adverse impacts to scenic highways and resources. No mitigation is required.

c) **Less Than Significant with Mitigation Incorporated.** The proposed SR-60/Lemon Avenue interchange project alternatives would generally be constructed within existing publicly owned right-of-way with limited acquisition of privately owned property. The proposed ramps would not result in substantially different views than those currently experienced. No substantive adverse impacts to the existing visual quality of the site are anticipated to result from the proposed project. However, Mitigation Measures VIS-1 to VIS-3 would ensure that the project alternatives would not result in adverse visual impacts. No further mitigation is required.

d) **Less Than Significant Impact.** The project area is urban/semiurban, and there is abundant existing street and other lighting in the area. The proposed SR-60/ Lemon Avenue interchange project would add new lighting, specifically along the new ramp facilities. The new lighting would not result in a significant adverse new source of light due to the limited nature of that required lighting and the amount of existing lighting in the area. The project lighting will be shielded and focused within the project right-of-way. No new light and glare impacts are anticipated to result from the proposed project. No mitigation is required.

II. AGRICULTURAL RESOURCES

The potential for the proposed SR-60/Lemon Avenue interchange project to result in adverse impacts related to agricultural resources was assessed based on the discussion

in Section 2.3, Farmlands and Timberlands, in the Initial Study/Environmental Assessment (IS/EA).

a), b), and c) No Impact. There are no farmlands or agricultural resources within or immediately adjacent to the disturbance limits for the proposed project. Areas adjacent to the proposed SR-60/Lemon Avenue interchange are not zoned for agricultural uses, and there are no Williamson Act contracts in effect adjacent to the project disturbance limits. Therefore, the proposed project would not result in adverse impacts related to the direct or indirect conversion of farmlands to nonagricultural uses or conflicts with agricultural land use designations or Williamson Act contracts. No mitigation is necessary.

III. AIR QUALITY

The potential for the construction and operation of the proposed SR-60/Lemon Avenue interchange to result in adverse air quality impacts was assessed in the *Air Quality Analysis* (LSA Associates, Inc., 2006) and was summarized in Section 2.16, Air Quality, in the IS/EA.

a) No Impact. The proposed SR-60/Lemon Avenue interchange project will not conflict with or obstruct implementation of any applicable air quality plan. No mitigation is required.

b) No Impact. The site for the proposed SR-60/Lemon Avenue interchange project is in a nonattainment area for the federal standards for carbon monoxide (CO) and particulate matter greater than 10 microns in diameter (PM_{10}). As described in the *Air Quality Analysis* (LSA Associates, Inc., 2006), the proposed SR-60/Lemon Avenue interchange project would not result in any exceedances of the 1- and 8-hour CO standards. The proposed project would not contribute to a PM_{10} hot spot that would cause or contribute to a violation of the federal PM_{10} standard. No mitigation is required.

c) No Impact. As previously described, the proposed SR-60/Lemon Avenue interchange project would not result in any exceedances of the 1- and 8-hour CO standards or contribute to a PM_{10} hot spot that will cause or contribute to a violation of the federal PM_{10} standard. No mitigation is required.

d) Less Than Significant with Mitigation Incorporated. The proposed SR-60/Lemon Avenue interchange project may result in temporary, short-term construction-related increases in pollutant concentrations, specifically associated with fugitive dust

and construction equipment emissions. The implementation of South Coast Air Quality Management District (SCAQMD) Standard Conditions and Caltrans Standard Construction Specifications, provided in Section 2.16, would reduce potential short-term adverse project air quality impacts to sensitive receptors to below a level of significance. No further mitigation is required.

e) **Less Than Significant with Mitigation Incorporated.** The proposed project may result in temporary, short-term construction-related increases in objectionable odors. Implementation of the SCAQMD Standard Conditions and Caltrans Standard Construction Specifications, as described in Section 2.16, would reduce this potential short-term adverse impact to below a level of significance. No further mitigation is required.

IV. BIOLOGICAL RESOURCES

The discussion in this section is based on Sections 2.18, Natural Communities; 2.19, Wetlands and Other Waters; 2.20, Plant Species; 2.21, Animal Species; and 2.22, Threatened and Endangered Species in the IS/EA.

a) **No Impact.** The project area is a previously disturbed urban area, and the project limits generally occur within existing State right-of-way and previously developed areas. The proposed SR-60/Lemon Avenue interchange project would not have a substantial adverse effect on sensitive species or their habitats as designated in local or regional plans. No mitigation is required.

b) **Less than Significant with Mitigation Incorporated.** Construction of Alternatives 2, 3, and 4 will result in impacts to 0.24 acre (ac) (0.010 hectare [ha]) of CDFG jurisdictional riparian habitat. If required by the United States Army Corp of Engineers (ACOE) and CDFG, a Habitat Mitigation Monitoring Plan will be prepared, as discussed in Mitigation Measure BIO-2 in Section 2.19, Wetlands and Other Waters, in the IS/EA. Additional mitigation measures may be imposed subject to the concurrence of the resource agencies (including CDFG) and would entail one or more of the following options in order of preference: (1) on-site creation or enhancement of riparian habitat; (2) off-site creation or enhancement of riparian habitat; (3) participation in an established off-site mitigation bank program; and/or (4) preservation of undeveloped riparian woodland as permanent open space. The appropriate mitigation ratio will be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be affected. No further mitigation is required.

c) No Impact. There are no federally listed protected wetlands on or in the immediate vicinity of the project site. No mitigation is required.

d) Less Than Significant with Mitigation Incorporated. As discussed in Section 2.21 in the IS/EA, no impacts to sensitive wildlife species are anticipated as a result of the proposed project. However, to avoid adverse impacts to nesting birds, vegetation clearing will be removed outside the active breeding season (February 15 through August 15) or a biologist will conduct clearance surveys prior to any clearing of vegetation as described in Mitigation Measure BIO-7 in Section 2.21 of the IS/EA. No further mitigation is required.

e) No Impact. There are no local policies or ordinances relevant to the project area. No mitigation is required.

f) No Impact. The site for the proposed SR-60/Lemon Avenue interchange project is not located in any approved HCP or NCCP. Therefore, the proposed project would not result in adverse impacts to any HCP or NCCP. No mitigation is required.

V. CULTURAL RESOURCES

The potential for the proposed SR-60/Lemon Avenue interchange project to result in adverse impacts related to cultural resources was assessed based on the discussion in Sections 2.10, Cultural Resources, and 2.14, Paleontology, in the IS/EA.

a) No Impact. There are no historic resources, historic districts, historic landscapes, or State or locally designated historic landmarks within or immediately adjacent to the Area of Potential Effects (APE) for the proposed SR-60/Lemon Avenue interchange project. Therefore, the proposed project would not result in adverse impacts to historic resources. No mitigation is required.

b) Less Than Significant with Mitigation Incorporated. No archaeological resources were identified within or immediately adjacent to the APE for the proposed SR-60/Lemon Avenue interchange project. However, there is potential that previously unknown and undocumented resources could be found during construction of the proposed project. This potential impact would be mitigated to below a level of significance based on the standard measures for cultural resources, provided in Section 2.10 in the IS/EA. No further mitigation is required.

c) Less Than Significant with Mitigation Incorporated. The paleontological literature review indicates that the sediments within project disturbance limits may

have a high potential to contain significant paleontological resources. Mitigation Measure PAL-1, provided in Section 2.14, would prevent potential adverse impacts to paleontological resources during construction of the proposed project. No further mitigation is required.

d) Less Than Significant Impact with Mitigation Incorporated. No human remains are known to exist within the project APE. If buried cultural materials are exposed during construction, it is California Department of Transportation (Caltrans) policy that work in the area must halt until a qualified archaeologist can evaluate the nature and significance of the find (Caltrans Environmental Handbook, Volume 2, Chapter 1, 1991). If human remains are exposed during construction, State Health Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. The District 7 Environmental Planning Branch will be immediately notified, as noted in the standard measures for cultural resources, provided in Section 2.10, in the IS/EA. No further mitigation is required.

VI. GEOLOGY AND SOILS

The potential for the proposed SR-60/Lemon Avenue interchange project to result in adverse impacts related to geology and soils was assessed in Section 2.13, Geology, Soils, Seismic, and Topography, in the IS/EA. The discussions below are based on the assessment in the IS/EA.

a) i) Less than Significant Impact. As described in Section 2.13, Geology, Soils, Seismic, and Topography, of the IS/EA, the closest mapped active fault to the project site is the San Jose Fault, which is approximately 3.1 miles (mi) (5 kilometers [km]) north of the site. This fault is capable of producing a Maximum Credible Earthquake (MCE) of magnitude 6.75 at the project site. The Puente Hills Blind Thrust Fault, which is approximately 5 mi (8 km) south of the project site, is capable of producing a MCE of magnitude 7.2 at the project site. Other known regional active faults that could affect the project site include the Whittier, Chino-Central Avenue, Sierra Madre, and Cucamonga Faults. However, the project site is not located within an Alquist-Priolo Earthquake Fault Zone; therefore, the potential for fault-induced ground rupture is unlikely. Conformance with Caltrans Seismic Design Criteria and the California Building Code would prevent any adverse impacts. No mitigation is required.

ii) **Less Than Significant Impact.** The project site is within a seismically active region and can be expected to be subjected to ground shaking during a seismic event. The proposed interchange would be designed in accordance with the requirements of Caltrans Seismic Design Criteria and the California Building Code, which would reduce impacts from seismic ground shaking to below a level of significance. No mitigation is required.

iii) **Less than Significant with Mitigation Incorporated.** The project site has been identified as an area potentially susceptible to liquefaction. Caltrans Standard Conditions require the preparation of a detailed geotechnical investigation during final design of the selected alternative that will address the potential for liquefaction on the project site. If it is determined that the site is susceptible to liquefaction, appropriate project design features (PDFs)will be recommended and implemented during the design and construction phases of the project. The actual type of remediation will be dependent on the design for the selected alternative. If the site is determined to be liquefiable, remediation of the liquefiable soils in accordance with the project geotechnical engineer will reduce the hazard such that it is considered less than significant. No further mitigation is required.

iv) **No Impact.** The project site is relatively flat and lacks natural slopes. Therefore, the proposed SR-60/Lemon Avenue interchange project would not result in adverse impacts related to landslides. No mitigation is required.

b) **Less Than Significant with Mitigation Incorporated.** The native soils on the project site and the existing fill slopes on the site constructed with native soils have a moderate to high susceptibility to erosion. These materials will be particularly prone to erosion during construction of Alternatives 2, 3, and 4. Caltrans Standard Conditions require the preparation of a detailed geotechnical investigation during final design of the selected alternative that will address the potential for erosion on the project site. The final design of Alternatives 2, 3, and 4 will incorporate appropriate PDFs related to erosion control. In addition, implementation of Mitigation Measures WQ-1 and WQ-2, described in Section 2.12, Water Quality and Storm Water Runoff, would prevent adverse impacts related to erosion. No additional mitigation is required.

c) **Less Than Significant with Mitigation Incorporated.** Refer to responses VI.a.i, a.ii, a.iii, and a.iv above.

d) Less Than Significant with Mitigation Incorporated. The soils on the project site are expected to have low to medium potential for expansion. However, localized zones of highly expansive soil may be present on the project site. Caltrans Standard Conditions require the preparation of a detailed geotechnical investigation during final design of the selected alternative that will address the potential for soil expansion on the project site. Expansive Index and R-Value testing of the soils on the project site will be conducted during the geotechnical investigation during final design to ascertain if the soils on site are expansive. If expansive soils are encountered, the final design will include PDFs to address the construction of the proposed improvements under Alternatives 2, 3, and 4. No additional mitigation is required.

e) No Impact. No septic or alternative waste treatment systems would be required for the proposed project because it is a transportation facility and it would not generate sewer demand. Therefore, no impacts are anticipated. No mitigation is required.

VII. HAZARDS AND HAZARDOUS MATERIALS

The following discussions are based on Section 2.15, Hazardous Wastes and Materials, and Section 2.8, Traffic and Transportation/Pedestrian and Bicycle Facilities, in the IS/EA.

a) Less Than Significant with Mitigation Incorporated. During construction, there is the potential to encounter hazardous materials in the existing road surfaces and materials. Hazardous waste would be transported to an approved disposal facility. In addition, routine hazardous materials, such as paint, solvents, and fuel would be used, handled, stored, disposed of, and transported during construction of the proposed SR-60/Lemon Avenue interchange project in accordance with applicable local, State, and federal regulations. As discussed in Mitigation Measure HW-5 in Section 2.15 of the IS/EA, testing will be conducted and removal requirements will be identified for yellow traffic striping during the preliminary site investigation for hazardous waste. As specified in Mitigation Measures HW-1, HW-2, and HW-3 in Section 2.15 of the IS/EA, soil testing will be performed during the preliminary site investigation during final design. The results of the soil sampling will determine the appropriate handling and disposal of soils. No additional mitigation is required.

b) No Impact. The proposed project would not create a significant hazard to the public or the environment through any reasonably foreseeable upset or accident

conditions involving the release of hazardous materials. Refer also to response VII.a above. No further mitigation is required.

c) **No Impact.** Walnut Valley Elementary School is within 0.25 mi (0.4 km) of the project site. However, the project does not involve the release of hazardous emissions or the handling of acutely hazardous materials. Refer also to responses VII.a and VII.b above. Therefore, the proposed SR-60/Lemon Avenue interchange project would not result in adverse impacts to schools related to hazardous materials. No mitigation is required.

d) **Less Than Significant with Mitigation Incorporated.** There are documented hazardous releases on the project site. The project could result in the exposure of aerially deposited lead and other hazardous substances as a result of demolition of existing road structures during construction. Implementation of Mitigation Measures HW-1 to HW-6, provided in Section 2.15 of the IS/EA, would reduce these potential adverse project impacts to below a level of significance. No further mitigation is required.

e) and f) **No Impact.** The project site is not located within 2 mi (3.2 km) of a public airport, public use airport, or private airstrip. Therefore, the proposed SR-60/ Lemon Avenue interchange project would not be exposed to hazards associated with aviation. No mitigation is required.

g) **Less Than Significant with Mitigation Incorporated.** During construction, traffic will be temporarily rerouted and/or delayed, potentially resulting in temporary delays in emergency response times in the immediate project area. Implementation of a Transportation Management Plan (TMP), as outlined in Mitigation Measure TRA-1, provided in Section 2.8 in the IS/EA, would alleviate these short-term adverse project impacts during construction. No further mitigation is required.

h) **No Impact.** The project site is in an urbanized area surrounded by existing commercial, industrial, and residential development. There are no wildlands or fire hazard areas located in the vicinity of the project site, and no impacts are anticipated. No mitigation is required.

VIII. HYDROLOGY AND WATER QUALITY

The discussion below is based on Sections 2.12, Water Quality and Storm Water Runoff, and 2.11, Hydrology and Floodplains in the IS/EA.

a) Less Than Significant with Mitigation Incorporated. During construction, there is the potential for soil erosion and discharge of pollutants into drainages or storm drains. The new interchange may contribute greater concentrations of typical road pollutants. Compliance with the Caltrans National Pollutant Discharge Elimination System (NPDES) permits for construction and operation will minimize potential water quality impacts. Mitigation Measures WQ-1 and WQ-2, provided in Section 2.12, would reduce these potential project impacts to below a level of significance. No further mitigation is required.

b) Less Than Significant Impact. The project proposes the construction of a new interchange. If groundwater levels are high, limited groundwater dewatering may be required during construction. The project will not use groundwater during operations, and no significant adverse groundwater supply impacts are anticipated. No mitigation is required.

c) Less Than Significant Impact. The area drainage patterns are anticipated to be similar to the existing condition with minor modifications to accommodate the new interchange facilities. The project will be constructed in a previously disturbed area with existing drainage facilities. The project modifications to the existing drainage facilities will not result in a substantial increase in drainage from the site and will not adversely affect the downstream drainage faculties. No mitigation is required.

d) Less Than Significant Impact. Refer to Response IX.c. No stream courses or points of discharge will be substantively altered as a result of the proposed SR-60/ Lemon Avenue interchange project. No mitigation is required.

e) Less Than Significant with Mitigation Incorporated. The project involves modification of an existing transportation facility. It is not anticipated to increase peak storm flows such that they would impact downstream drainage facilities. Compliance with Caltrans NPDES permit requirements, as noted in Mitigation Measure WQ-1, provided in Section 2.12, would minimize any incremental pollutant loading associated with the increased surface area of the proposed project. No further mitigation is required.

f) Less Than Significant Impact. Refer to Responses VIII.a and VIII.e, above.

g) No Impact. The project does not propose the construction of housing in a 100-year flood hazard area. No mitigation is required.

h) **No Impact.** The project site is not located within the 100-year floodplain. Therefore, no impacts related to the 100-year floodplain are anticipated. No mitigation is required.

i) **No Impact.** The proposed project involves construction of a new interchange. The proposed SR-60/Lemon Avenue interchange project would not expose people or structures to a significant risk of flooding. No mitigation is required.

j) **No Impact.** Due to the distance of the project site from the ocean, there is no foreseeable risk of tsunami inundation. There is no risk from seiches (oscillations in enclosed bodies of water caused by seismic waves) or mudflows at the project site. No mitigation is required.

IX. LAND USE AND PLANNING

The discussion in this section is based on Sections 2.1, Land Use; 2.4, Community Impacts; and 2.5, Relocations, in the IS/EA.

a) **No Impact.** As discussed in Sections 2.4 and 2.5, Alternative 2 would not require the acquisition of any right-of-way. Alternatives 3 and 4 will require only partial acquisition of parcels in private ownership as summarized in Table 2.5-1 in the IS/EA. The proposed project would not displace or alter existing uses as it will only impact the edges of the parcels. The proposed acquisitions would not physically divide an established community, and no significant adverse impacts are anticipated. No mitigation is required.

b) **No Impact.** The project is consistent with the Cities of Diamond Bar and Industry General Plan Circulation Elements and does not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. No mitigation is required

c) **No Impact.** There is no HCP or NCCP applicable to the project site. Therefore, the proposed project would not conflict with any adopted HCP or NCCP. No mitigation is required.

X. MINERAL RESOURCES

The discussion in this section is based on the General Plan for the City of Diamond Bar.

a) **No Impact.** The City of Diamond Bar does not contain any identified significant mineral resources. Therefore, the proposed SR-60/Lemon Avenue

interchange project would not result in the loss of availability of known mineral resources. No mitigation is required.

b) No Impact. The City of Diamond Bar does not contain any identified significant mineral resources. Therefore, the proposed SR-60/Lemon Avenue interchange project is not anticipated to result in the loss of any known locally important mineral resources. No mitigation is required.

XI. NOISE

The potential for construction and operation of the proposed SR-60/Lemon Avenue interchange project to result in adverse noise impacts is assessed in the *Noise Report* (LSA Associates, Inc. 2000) and is summarized in Section 2.17, Noise, in the IS/EA.

a) Less Than Significant Impact with Mitigation Incorporated. Noise levels during operation and construction of the proposed project may impact sensitive receptors. Implementation of Caltrans Construction-Related Noise Specifications, Section 5-1, Sound Control Requirements, would reduce impacts to below a level of significance. Table 2.17-5 in the IS/EA lists the sound barriers that were determined to be reasonable and feasible in mitigating long-term noise impacts associated with Alternatives 2, 3, and 4. The project is consistent with the City of Diamond Bar General Plan. No other mitigation is necessary.

b) Less Than Significant Impact with Mitigation Incorporated. The proposed project will potentially expose persons to or result in the generation of groundborne vibration or groundborne noise from pile driving activities and during construction. However, pile driving would be very limited and would be conducted consistent with Caltrans Standard Specifications, Section 5-1, Sound Control Requirements, in the Standard Special Provisions. These specific provisions are provided in Section 2.17. No further mitigation is required.

c) Less Than Significant Impact with Mitigation Incorporated. The proposed project may result in temporary, short-term construction-related increases in ambient noise levels. Implementation of Caltrans Standard Conditions would reduce impacts to below a level of significance. Table 2.17-5 in the IS/EA lists the sound barriers that were determined to be reasonable and feasible in mitigating long-term noise impacts associated with Alternatives 2, 3, and 4. The project is consistent with the City of Diamond Bar General Plan. No further mitigation is required.

d) Less Than Significant Impact. Refer to Responses XI.a, XI.b, and XI.c, above.

e) and f) No Impact. The proposed project is not within 2 mi (3.2 km) of a public or private airport. Therefore, the project site will not be exposed to adverse noise impacts associated with aviation operations. No mitigation is necessary.

XII. POPULATION AND HOUSING

The discussion in the following section is based on Sections 2.2, Growth, and 2.5, Relocations, in the IS/EA.

a) No Impact. The project is consistent with the Cities of Industry and Diamond Bar General Plan Circulation and Housing Elements. Construction of the new interchange would not create more capacity in the circulation system beyond that which was already considered in local and regional transportation and land use plans. Therefore, the proposed SR-60/Lemon Avenue interchange project would not result in the inducement of population growth in the area. No mitigation is required.

b) and c) No Impact. As discussed in Section 2.5, the proposed SR-60/Lemon Avenue interchange project would require only the partial acquisition (edges) of existing developed parcels. No residential structures would be acquired and no residents would be displaced by the proposed project. Therefore, the proposed SR-60/Lemon Avenue interchange project would not displace residents or residences. No mitigation is required.

XIII. PUBLIC SERVICES

The discussion in the following section is based on Section 2.7, Utilities and Emergency Services, and Section 2.8, Transportation and Traffic/Pedestrian and Bicycle Facilities, in the IS/EA.

a) Less Than Significant with Mitigation Incorporated. The proposed SR-60/ Lemon Avenue interchange project involves modification to an existing transportation facility. It would not directly or indirectly affect the provision of police or emergency services or public facilities such as schools and parks in the project area. The proposed project would not result in substantial adverse physical impacts to government facilities in the study area. The proposed project does not include the construction of housing or other uses that would necessitate the construction of additional public facilities in the study area.

During construction, traffic would be temporarily detoured and/or delayed, which could potentially result in a temporary increase in emergency response times in the project study area. Emergency response times are expected to improve after project completion. Mitigation Measure TRA-1, provided in Section 2.8, in the IS/EA, would reduce this potentially significant adverse impact during construction to below a level of significance. No further mitigation is necessary.

XIV. RECREATION

a) No Impact. The proposed SR-60/Lemon Avenue interchange project involves modifications to an existing freeway and the local circulation system. It would not result in the construction of residential or other land uses that could increase the use of existing neighborhood and regional parks or other recreational facilities that would substantially accelerate deterioration of any such facilities. Therefore, the proposed project will not adversely affect existing or planned recreation resources. No mitigation is required.

b) No Impact. The proposed SR-60/Lemon Avenue interchange project does not include the construction of recreational facilities or residential or other development that would result in the need to construct recreational facilities in the project area. No mitigation is required.

XV. TRANSPORTATION AND TRAFFIC

The potential for the construction and operation of the proposed SR-60/Lemon Avenue interchange project to result in adverse traffic impacts is assessed in the *Draft Traffic Study* (Katz, Okitsu & Associates 2006) and is summarized in Sections 2.7, Utilities and Emergency Services, and 2.8, Traffic and Transportation/Pedestrian and Bicycle Facilities, in the IS/EA.

a) Less Than Significant Impact. As discussed in Section 2.8 in the IS/EA, the proposed project would reduce congestion and improve the level of service (LOS) on SR-60 and the arterials in the study area. No mitigation is required.

Short-term adverse traffic impacts associated with construction would be reduced based on implementation of the Traffic Management Plan (TMP), as discussed in Section 2.8.

b) Less Than Significant Impact. Refer to Response XV.a. The proposed project is not anticipated to exceed a LOS standard established by the County Congestion Management Plan (CMP).

c) **No Impact.** The proposed project would not result in the construction of any features that would affect air traffic patterns and would not result in any operational effect that would result in a change in air traffic patterns in the vicinity of the project site. No mitigation is required.

d) **No Impact.** The proposed project would be constructed in compliance with Caltrans Standard Construction Specifications. The proposed improvements do not include any hazardous design features or incompatible uses. No mitigation is required.

e) **Less Than Significant with Mitigation Incorporated.** During construction, traffic would be temporarily delayed and/or rerouted, resulting in a temporary increase in emergency response times in the project area. As discussed in Sections 2.7 and 2.8 and described in Mitigation Measure TRA-1 in the IS/EA, the implementation of a TMP during construction would reduce adverse impacts to emergency access. No further mitigation is required.

f) **No Impact.** The proposed project would not affect existing parking facilities and would not generate demand for parking facilities. No mitigation is required.

g) **No Impact.** The proposed project would not conflict with any adopted policies, plans, or programs supporting alternative transportation in the City of Diamond Bar and is consistent with the City's General Plan. No mitigation is required.

XVI. UTILITIES AND SERVICE SYSTEMS

The analysis in this section is based on Section 2.7, Utilities and Emergency Services, in the IS/EA.

a) **No Impact.** The proposed SR-60/Lemon Avenue interchange project would not exceed wastewater treatment requirements that would require the construction of new wastewater treatment facilities. The project would comply with the requirements of the Santa Ana Regional Water Quality Control Board (RWQCB). No mitigation is required.

b) **No Impact.** The proposed project involves improvements to existing transportation facilities. It would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. No mitigation is required.

c) **Less Than Significant Impact.** The proposed project involves improvements to existing transportation facilities. It would not require or result in the construction of new storm water drainage facilities or expansion of the capacity of existing facilities. However, the existing drainage facilities would be realigned and modified consistent with the new interchange facilities during construction of the proposed project. No mitigation is required.

d) **No Impact.** The proposed project involves improvements to existing transportation facilities. Therefore, it is not expected that new or expanded water entitlements would be needed as a result of the proposed project. No mitigation is required.

e) **No Impact.** Refer to Responses XVI.a. and XVI.b above.

f) **Less Than Significant Impact.** The solid waste disposal requirements of the project would be minor, temporary, and limited to the construction phase of the project. The amount of waste material generated during construction would be limited and would be properly disposed of and/or recycled, as appropriate. No mitigation is required.

g) **Less Than Significant Impact.** Construction waste would be disposed of in accordance with federal, State, and local regulations related to recycling, which would minimize the amount of waste material entering local landfills. No mitigation is required.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE

a) **Less Than Significant with Mitigation Incorporated.** The proposed SR-60/ Lemon Avenue interchange project involves constructing and operating improvements to existing transportation facilities in an urban area that is previously disturbed. No sensitive species or habitats were observed on the project site. Additionally, no important examples of the major periods of California history or prehistory were observed within the project vicinity. Compliance with Caltrans guidelines and the State Health and Safety Code Section 7050.5, related to cultural resources encountered during construction, would minimize potential impacts.

b) **No Impact.** The proposed SR-60/Lemon Avenue interchange project involves modifications to existing transportation facilities, consistent with the Circulation Element of the City of Diamond Bar General Plan and regional transportation plans. It would provide improved access to and from SR-60 at Lemon Avenue, but would

not induce growth beyond that projected in the adopted Cities of Diamond Bar and Industry General Plans.

c) **Less Than Significant with Mitigation Incorporated.** The proposed SR-60/ Lemon Avenue interchange project would not result in substantial adverse effects on human beings. Construction-related activities are anticipated to result in minor temporary impacts that would be mitigated under a TMP. The project will not result in the displacement of any residences or nonresidential uses. The partial property acquisitions required for the project will not result in environmental justice impacts, as described in Section 2.6 in the IS/EA. Impacts associated with the partial property acquisitions will be mitigated under the Caltrans Relocation Assistance Program (RAP) detailed in Appendix D.

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Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 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."

Section 4(f) 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.

Section 4(f) further requires consultation with the United States Department of the Interior and, as appropriate, the involved offices of the United States Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer is also needed.

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or adjacent to the project area that do not trigger Section 4(f) protection either because: (1) they are not publicly owned, (2) they are not open to the public, (3) they are not eligible historic properties, (4) the project does not permanently use the property and does not hinder the preservation of the property, or (5) the proximity impacts do not result in constructive use.

The *Historic Property Survey Report* (LSA Associates, Inc., October 30, 2006) concluded there are no cultural resources or historic properties within the area of potential effects (APE) for the proposed State Route 60 (SR-60)/Lemon Avenue interchange project. Therefore, no properties listed on or eligible for listing on the National Register of Historic Places will be affected by the proposed SR-60/Lemon Avenue interchange project. Therefore, the provisions of Section 4(f) are not triggered.

There are no existing or planned publicly owned parks, recreation areas, wildlife, or waterfowl refuges within or immediately adjacent to the project disturbance limits and right-of-way that will be affected by the proposed SR-60/Lemon Avenue interchange project. Therefore, the provisions of Section 4(f) are not triggered.

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

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Flex your power!
Be energy efficient!

January 14, 2005

TITLE VI
POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

WILL KEMPTON
Director

"Caltrans improves mobility across California"

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Appendix D Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

Relocation Assistance Advisory Services

The California Department of Transportation (Caltrans) will provide relocation advisory assistance to any person, business, farm or non-profit organization displaced as a result of the Caltrans acquisition of real property for public use. Caltrans will assist residential displacees in obtaining comparable decent, safe and sanitary replacement housing by providing current and continuing information on sales price and rental rates of available housing. Non-residential displacees will receive information on comparable properties for lease or purchase.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, displacees will be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include supplying information concerning federal and State assisted housing programs, and any other known services being offered by public and private agencies in the area.

Residential Relocation Payments Program

The Relocation Payment program will assist eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for, or incidental to, purchasing or renting a replacement dwelling, and actual reasonable expenses incurred in moving to a new location within 80 kilometers (km) (50 miles [mi]) of the displacees' property. Any actual moving costs in excess of 80 km (50 mi) are the responsibility of the displacee. The Residential Relocation Program can be summarized as follows:

Moving Costs

Any displaced person who was "lawfully" in occupancy of the acquired property regardless of the length of occupancy in the property acquired will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 80 km (50 mi), a moving service authorization, or a fixed payment based on a fixed moving cost schedule which is determined by the number of furnished or unfurnished rooms of the displacement dwelling.

Purchase Supplement

In addition to moving and related expenses payments, fully eligible homeowners may be entitled to payments for increased costs of purchasing replacement housing.

Homeowners who have owned and occupied their property for 180 days prior to the date of the first written offer to purchase the property, may qualify to receive a price differential payment equal to the difference between Caltrans offer to purchase their property and the price of a comparable replacement dwelling, and may qualify to receive reimbursement for

certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based on the replacement property interest rate. The interest differential must be based on the "lesser of" either the loan on the displacement property or the loan on the replacement property. The maximum combination of these three supplemental payments that the owner-occupants can receive is $22,500. If the calculated total entitlement (without the moving payments) is in excess of $22,500, the displacee may qualify for the Last Resort Housing described below.

Rental Supplement

Tenants who have occupied the property to be acquired by Caltrans for 90 days or more and owner-occupants who have occupied the property 90 to 180 days prior to the date of the first written offer to purchase may qualify to receive a rental differential payment. This payment is made when Caltrans determines that the cost to rent a comparable and "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displaced dwelling. As an alternative, the eligible occupant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitation noted below under the "Down Payment" section (see below). The maximum amount of payment to any tenant of 90 days or more and any owner-occupant of 90 to 179 days, in addition to moving expenses, will be $5,250. If the calculated total entitlement for rental supplement exceeds $5,250, the displacee may qualify for the Last Resort Housing Program described below.

The rental supplement of $5,250 or less will be paid in a lump sum, unless the displacee requests that it be paid in installments. The displaced person must rent and occupy a "decent, safe and sanitary" replacement dwelling within one year from the date Caltrans takes legal possession of the property, or from the date the displacee vacates the Caltrans-acquired property, whichever is later.

Down Payment

Displacees eligible to receive a rental differential payment may elect to apply it to a down payment for the purchase of a comparable replacement dwelling. The down payment and incidental expenses cannot exceed the maximum payment of $5,250, unless the Last Resort Housing Program is indicated. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 Code of Federal Requirements [CFR] 24.404) contain the policy and procedure for implementing the Last Resort Housing Program on federal aid projects. To maintain uniformity in the program, Caltrans has also adopted these federal guidelines on non-federal-aid projects. Except for the amounts of payments and the methods in making them, Last Resort Housing benefits are the same as those benefits for standard relocation as explained above. Last Resort Housing has been designed primarily to cover situations where available comparable replacement housing, or when their anticipated replacement housing payments, exceed the $2,520 and $22,500 limits of the standard relocation procedures. In certain exceptional situations, last resort housing may also be used for tenants of less than 90 days.

After the first written offer to acquire the property has been made, Caltrans will, within a reasonable length of time, personally contact the displacees to gather important information relating to:

- Preferences in area of relocation.
- Number of people to be displaced and the distribution of adults and children according to age and sex.
- Locations of school and employment.
- Special arrangements to accommodate any handicapped member of the family.
- Financial ability to relocate into comparable replacement dwelling, which will house all members of the family decently.

The above explanation is general in nature and is not intended to be a complete explanation of relocation regulations. Any questions concerning relocation should be addressed to Caltrans. Any persons to be displaced will be assigned a relocation advisor who will work closely with each displacee to see that all payments and benefits are fully utilized, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

The Business and Farm Relocation Assistance Program

The Business and Farm Relocation Assistance Program provides aid in locating suitable replacement property for the displacee's farm or business, including, when requested, a current list of properties offered for sale or rent. In addition, certain types of payments are available to businesses, farms, and non-profit organizations. These payments may be summarized as follows:

- Reimbursement for the actual direct loss of tangible personal property incurred as a result of moving or discontinuing the business in an amount not greater than the reasonable cost of relocating the property.
- Reimbursement up to $1,000 of actual reasonable expenses in searching for a new business site.
- Reimbursement up to $10,000 of actual reasonable expenses related to the reestablishment of the business at the new location.
- Reimbursement of the actual reasonable cost of moving inventory, machinery, office equipment and similar business-related personal property, including dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting personal property.

Payment "in lieu" of moving expense is available to businesses which are expected to suffer a substantial loss of existing patronage as a result of the displacement, or if certain other requirements such as inability to find a suitable relocation site are met. This payment is an amount equal to the average annual net earnings for the last two taxable years prior to relocation. Such payment may not be less than $1,000 and not more than $20,000.

No relocation payment received will be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable "decent, safe and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex or national origin, is available or has been made available to them by the State.

Any person, business, farm or non-profit organization, which has been refused a relocation payment by Caltrans, or believes that the payments are inadequate, may appeal for a hearing before a hearing officer or the Caltrans Relocation Assistance Appeals Board. No legal assistance is required; however, the displacee may choose to obtain legal council at his/her expense. Information about the appeal procedure is available from the Caltrans Relocation Advisors.

The information above is not intended to be a complete statement of all of the Caltrans laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the State's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of the Caltrans relocation programs.

Important Notice

To avoid loss of possible benefits, no individual, family, business, farm or non-profit organization should commit to purchase or rent a replacement property without first contacting a Caltrans Relocation Advisor at:

State of California
Department of Transportation, District 7
100 South Main Street, Suite 100
Los Angeles, CA 90012-3712

Appendix E Hazardous Sites

Site Name	Address	Database	Radius Searched	Additional Information
Walnut Valley Unified School District	880 South Lemon Avenue, Walnut, CA 91789	RCRA Regulated Hazardous Waste Generator Notifiers List, FTTS Database, Facility Index System (FINDS), WDS List, CA FID List, Underground Storage Tank (UST) Site, Hazardous Substance Storage Container Database of Historical UST Sites (HIST UST), Statewide Environmental Evaluation and Planning System (SWEEPS), HMS Site, HAZNET Site, Emission Inventory Database (EMI)	0.75 mi (1.2 km); 0.5 mi (0.8 km); 0.5 mi (0.8 km); 0.5 mi (0.8 km); 0.75 mi (1.2 km); 0.75 mi (1.2 km); 0.75 mi (1.2 km); 0.75 mi (1.2 km); 0.5 mi (0.8 km); 0.5 mi (0.8 km); 0.5 mi (0.8 km)	A small quantity generator. The facility is an active industrial facility that is under Waste Discharge Requirements and has an active UST on-site. Three underground storage tanks were installed in 1983. The 10,000-gallon (gal), 6,000 gal, and 5,000 gal USTs contain gasoline, unleaded gasoline, and diesel fuel, respectively. The facility has disposed of wastes consisting of laboratory waste chemicals; off-specification, aged, or surplus organics; unspecified organic liquid mixture; polychlorinated biphenyls (PCBs) and materials containing PCBs; tank bottom waste; pesticides and other waste associated with pesticide production; photographic chemicals; photographic processing waste; tank treatment; liquids with halogenated organic compounds exceeding 1,000 milligrams per liter (mg/L); alkaline solution with metals; unspecified solvent mixture waste; liquids with pH 2; asbestos-containing waste; liquids with mercury exceeding 20 mg/L; latex waste; and waste oil and mixed oil. The facility is considered a minor threat to water quality and is a complexity category C indicating that the facilities have no waste treatment systems or must comply through best management practices, facilities with passive waste treatment and disposal systems, or dischargers having waste storage systems with land disposal. Listed for a violation to legislation code TSCA (Toxic Substances Control Act) during an inspection on January 15, 1987. A Section 6 asbestos Seismic Environmental Employee (SEE) investigation was conducted. In 1987, the facility released 1 ton of total organic hydrocarbon gases and 1 ton of reactive organic gases. In 1990, the facility released 1 ton of oxides of nitrogen. In 1995, the facility released unidentified emissions.
Diamond Bar Shell (gasoline station)	21103 East Golden Springs Drive, Walnut, CA, 91789 (actually in Diamond Bar)	RCRA Regulated Hazardous Waste Generator Notifiers List; Orphan Sites in the EDR Report	Adjacent properties	Large-quantity generator and a Los Angeles County HMS facility south and upgradient of the project site. No reported violations. The facility is a gasoline and methyl tert-butyl ether (MTBE) leaking underground storage tank (LUST) impacting other groundwater identified as Texaco Refining and Marketing. The leak was discovered on February 18, 1988, and monitoring began on January 11, 1990. The facility is in the process of pollution characterization. Because the leak impacted groundwater and the facility is upgradient from the project site, there appears to be a

Site Name	Address	Database	Radius Searched	Additional Information
				potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) below ground surface (bgs) and is unlikely to be encountered during construction of the proposed project. Therefore, Alternatives 2, 3, and 4 are not anticipated to be impacted by or to impact the Diamond Bar Shell.
Chevron Station No 9-1175 (gasoline station)	21095 Golden Springs Drive, Walnut, CA 91789	RCRA Regulated Hazardous Waste Generator Notifiers List; State CORTESE Database; Leaking Underground Storage Tank (LUST) Database; Underground Storage Tank (UST) Database; Orphan Sites in the EDR Report	Adjacent properties: 1.6 km (1.0 mi); 1.6 km (1.0 mi); 1.2 km (0.75 mi)	Listed as a small-quantity generator, a LUST site, an UST facility, and a large-quantity generator. It is located south and upgradient of the project site. No reported violations. The facility is a gasoline and MTBE LUST impacting groundwater. The LUST was reported on November 6, 1991, during a tank closure. The release impacted other groundwater. The case was closed on October 2, 1996. Because the facility is upgradient of the project site and groundwater was impacted, there appears to be a potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and is unlikely to be encountered during construction of the proposed project. Therefore, Alternatives 2, 3, and 4 are not anticipated to be impacted by or to impact this Chevron Station.
Grier McGuire Inc., G-M Enterprises	20325 East Walnut Drive, Walnut, CA 91789	Facility Index System (FINDS); HAZNET Database; Emission Inventory Database (EMI)	Adjacent properties	Listed on FINDS and the National Emissions Inventory. A HAZNET facility and an EMI facility located north of and downgradient of the project site. This facility has disposed of wastes consisting of oxygenated solvents, organic liquids with metals, alkaline solution with metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc), unspecified solvent mixture waste, unspecified oil-containing waste, waste oil and mixed oil, liquids with halogenated organic compounds greater than 1,000 mg/L, asbestos-containing waste, aqueous solution with 10 percent or more total organic residues, and oil/water separation sludge. The listing indicates the several emissions releases. In 1990, the facility released 2 tons of total organic hydrocarbon gases. In 1993, the facility released 4 tons of total organic hydrocarbon gases and 2 tons of reactive organic gases (ROG). In 1995, the facility released 4 tons of total organic hydrocarbon gases and 2 tons of ROG. In 1996, the facility released 3 tons of total organic hydrocarbon gases. In

Site Name	Address	Database	Radius Searched	Additional Information
				1997, the facility released 5 tons of total organic hydrocarbon gases and 1 ton of ROG. In 1998, the facility released 5 tons of total organic hydrocarbon gases and 1 ton of ROG. In 1999, the facility released 5 tons of total organic hydrocarbon gases and 1 ton of ROG. In 2000, the facility released 5 tons of total organic hydrocarbon gases and 1 ton of ROG. In 2001, the facility released 5 tons of total organic hydrocarbon gases and 4 tons of ROG. No violations for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the site is low.
LA Sun West/ Virginia Industrial Properties	20445 Walnut Avenue, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST located north of and downgradient from the project site. On December 28, 1995, a LUST containing gasoline was discovered. The release impacted soils only and was closed on November 5, 1996. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site appears to be low.
Virgil's Mobil Mart No. 18-E67 (gasoline station)	1024 Brea Canyon Road, Walnut, CA 91789 (actually in Diamond Bar)	State CORTESE Database; LUST Database; UST Database; HIST UST Site	1.6 km (1.0 mi); 1.6 km (1.0 mi); 1.2 km (0.75 mi); 1.2 km (0.75 mi)	A LUST, UST, and HIST UST site consisting of four tanks installed in 1984, south of and upgradient from the project site. One tank is a 12,000 gal UST containing unleaded gasoline. The second is a 6,000 gal UST containing premium unleaded gasoline. The third is a 10,000 gal UST containing regular gasoline. The fourth is a 6,000 gal UST containing diesel fuel. On July 7, 1992, a LUST containing gasoline and MTBE was discovered. The release impacted other groundwater. Remedial action began on April 15, 2005, and the site is currently undergoing remediation and characterization. Because the facility listing is a groundwater impact, there is potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and therefore, it is unlikely groundwater would be encountered during construction of Alternatives 2, 3, and 4.
Texaco Refining and Marketing No. 106-0532 (also listed as Marc's Texaco)	21103 Golden Springs Drive, Walnut, CA 91789 (actually in Diamond Bar)	State CORTESE Database; LUST Database; UST Database; SWEEPS; Orphan Sites in the EDR Report	1.6 km (1.0 mi); 1.6 km (1.0 mi); 1.2 km (0.75 mi); 1.2 km (0.75 mi); adjacent properties	A CORTESE, UST, SWEEPS UST, and HMS facility located south of and upgradient from the project site. The facility produces waste aqueous solutions with less than 10 percent organic residue as well as empty hazardous materials containers less than 30 gal (114 liters). Listed twice as a Los Angeles County HMS facility. One listing identifies the facility as an open facility. The second identifies the facility as a closed permitted facility. The

Site Name	Address	Database	Radius Searched	Additional Information
				facility is the location of nine active USTs and a gasoline and MTBE LUST impacting groundwater. The leak was discovered on February 18, 1988, and monitoring began on January 11, 1990. The facility is in the process of pollution characterization. Because the leak impacted groundwater and the facility is upgradient from the project site, there appears to be a potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and is unlikely to be encountered during construction of Alternatives 2, 3, and 4.
Morrow Meadows Corporation	610 Reyes Drive, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A CORTESE site located north of and downgradient from the project site. The facility produces waste aqueous solutions with less than 10 percent organic residue, unspecified aqueous solutions, and other organic solids. The wastes are disposed of at a transfer station, recycler, or landfill. No releases or violations are reported for the facility. The facility is also the location of a gasoline and MTBE LUST impacting groundwater. The leak was discovered on April 23, 1998, during a tank closure. Remedial action began on January 12, 2001, and the facility was given a case closed status on May 11, 2001. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Southern California Pallet Company	20809 Currier Road, Walnut, CA 91789	State CORTESE Database; LUST Database; Facility Inventory Database (CA FID); UST Database; SWEEPS	1.6 km (1.0 mi); 1.6 km (1.0 mil); 1.2 km (0.75 mi); 1.2 km (0.75 mi); 1.2 km (0.75 mi)	A LUST, UST, and SWEEPS UST site located north of and downgradient from the project site. The facility has been active since October 22, 1993. Diesel fuel and MTBE were released from a LUST impacting other groundwater. Impacted soils were removed and disposed of at an approved disposal site. The facility was given a case closed status on April 23, 1998. Because the facility is downgradient from the project site, the potential for impacts to the project site under Alternatives 2, 3, and 4 is low.
Burgess Transportation Company	20825 Currier Road, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located north of and downgradient from the project site. Gasoline and MTBE were released from a LUST impacting other groundwater. The leak was discovered and stopped on December 14, 1995, during a tank closure. The facility currently has a remediation plan in place. Because the facility is downgradient from the project site, the potential for impacts to the project site under Alternatives 2, 3, and 4 is low.

Site Name	Address	Database	Radius Searched	Additional Information
Walnut Valley Unified School District, Del Paso High School	476 S Lemon Avenue, Walnut, CA 91789	State CORTESE Database; LUST Database; SWEEPS	1.6 km (1.0 mi); 1.6 km (1.0 mi); 1.2 km (0.75 mi)	A LUST and SWEEPS UST site consisting of one active UST located north of and downgradient of the project site. Gasoline was released from a LUST impacting soil only. The leak was reported on June 14, 1985, and the facility is in the process of pollution characterization. Because the release was a soil-only type and the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Bulk Transport	415 Lemon Avenue, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located north of and downgradient from the project site. Hydrocarbons were released from a LUST impacting soil-only. The leak was discovered during a tank closure on April 13, 1998. The release was remediated and the facility was given a case closed status. Because the release was a soil only type and the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Unocal No. 5525 (former gasoline station)	20373 Valley Boulevard, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located north of and downgradient from the project site. Gasoline and MTBE were released from a LUST impacting other groundwater. The leak was reported on September 18, 1987. Impacted soils were removed and disposed of and the facility is currently in the process of remediation. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Caltrans Diamond Bar Main	21420 Golden Springs Drive, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A CORTESE site located east of and crossgradient from the project site. The facility produces organic liquids with metals, alkaline solutions with metals, organic solids, and unspecified organic liquids. Wastes are disposed of at a transfer station. No violations or releases are reported for this facility. Because the facility is crossgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
La Royal Vista Golf Course	20055 Colima Road East, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located southwest and crossgradient from the project site. Hydrocarbons were released from a LUST impacting soil. The leak was discovered on March 19, 1997, and the facility is currently in the process of confirming the existence of the leak. Because the facility is crossgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 appears low.

Site Name	Address	Database	Radius Searched	Additional Information
Ronsin X-Ray Duplication	215 S Lemon Creek Road, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located north of and downgradient from the project site. Gasoline was released from a LUST impacting soil only. The leak was discovered on April 4, 1995, during a tank closure, and the facility has been given a case closed status. Because the facility is downgradient from the project site and the release impacted only soil, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 appears low.
GTE RC 4394-B-A08	20747 Valley Boulevard, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located north of and downgradient to the project site. An unreported material was released from a LUST impacting soil only. The leak was reported and the case was closed on April 15, 1996. Because the facility is downgradient from the project site and the release impacted soil only, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 appears low.
Road Maintenance No. 117	19865 Walnut Drive East, Walnut, CA 91789	State CORTESE Database; LUST Database	1.6 km (1.0 mi)	A LUST site located west-southwest of and crossgradient from the project site. Diesel fuel was released from a LUST impacting soil only. The leak was discovered on May 2, 1989, during a tank closure. The facility was given a case closed status on June 9, 1992. Because the facility is crossgradient from the project site and the release impacted soil only, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 appears low.
ARCO Products No. 05528	780 Brea Canyon Road, Diamond Bar, CA 91789	LUST Database; UST Database; SWEEPS	1.6 km (1.0 mi); 1.2 km (0.75 mi); 1.2 km (0.75 mi)	A LUST, UST, and SWEEPS UST facility located north of and downgradient from the project site. Gasoline was released from a LUST impacting other groundwater. The leak was discovered on October 28, 1999. The facility is in the process of pollution characterization. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Mold-Tech/Rawal	750 Penarth Avenue, Walnut, CA 91789	CA FID; SWEEPS	1.2 km (0.75 mi)	Located north of and downgradient from the project site. The facility has been an active UST facility since October 22, 1993. The tank has been used to store hazardous materials. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.

Site Name	Address	Database	Radius Searched	Additional Information
Walnut RMC Plant (owned by CEMEX)	20903 East Currier Road, Walnut, CA 91789	CA FID; Aboveground Storage Tank Database (AST); SWEEPS	1.2 km (0.75 mi)	An AST, SWEEPS UST, and UST facility located north of and downgradient from the project site. The facility has been an active UST facility since June 30, 1989. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Expert Cleaner (former)	20627 Golden Springs Drive, Diamond Bar, CA 91789	Spills, Leaks, Investigations, and Cleanups (SLIC) Sites	0.8 km (0.5 mi)	South of and upgradient from the project site. The facility was the site of a release of volatile organic compounds (VOCs) and has been closed. Because the facility has been closed, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Sysco Food Services of LA Inc.	20701 Currier Road, Walnut, CA 91789	UST Database	1.2 km (0.75 mi)	An UST facility located north of and downgradient from the project site. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Consolidated Freightways	20935 Currier Road, Walnut, CA 91789 (also listed as located in the City of Industry)	UST Database; SWEEPS	1.2 km (0.75 mi)	An UST and SWEEPS UST facility located north of and downgradient from the project site. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Not reported	21095 East Colima Road, Walnut, CA 91789	HIST UST List	1.2 km (0.75 mi)	A HIST UST facility of four tanks installed in 1979 located south of and upgradient of the project site. The owner of the tanks was Chevron USA. The facility consisted of three 10,000 gal USTs and one 6,000 gal UST. The facility is also a LUST identified as Chevron USA SS 091175 at 21095 Golden Springs Drive. Gasoline and MTBE were released from the LUST. The LUST was reported on November 6, 1991, during a tank closure. The release impacted other groundwater. The case was closed on October 2, 1996. Because the facility listing is located upgradient of the project site and groundwater was impacted, there appears to be a potential for environmental impacts to the site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and is unlikely to be encountered during construction of Alternatives 2, 3, and 4.
Not Reported	1024 Brea Canyon Road, Walnut, CA 91789	HIST UST List	1.2 km (0.75 mi)	A HIST UST facility of four tanks installed in 1971 and one tank installed in 1983, located south of and upgradient of the project site. The tanks are a 6,000 gal UST containing

Site Name	Address	Database	Radius Searched	Additional Information
				diesel fuel, a 9,980 gal UST containing unleaded gasoline, an 8,000 gal UST containing regular gasoline, a 6,000 gal UST containing premium unleaded gasoline, and a 280 gal UST that contains waste oil. The facility is also a LUST identified as Mobil No. 18-E67. On July 7, 1992, a LUST containing gasoline and MTBE was discovered. The leak impacted other groundwater. Remedial action began on April 15, 2005, and the site is currently undergoing remediation and characterization. Because the facility listing is a groundwater impact, there is a potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and is unlikely to be encountered during construction of Alternatives 2, 3, and 4.
City Concrete, Chambers Group	20903 Currier Road, Walnut, CA 91789	HIST UST List	1.2 km (0.75 mi)	A HIST UST facility consisting of one tank located north of and downgradient of the project site. The one 1,000 gal UST contains diesel fuel. Because the facility is downgradient from the project site, the potential for impacts to the project site under Alternatives 2, 3, and 4 is low.
CFS Continental	20701 Currier Road, Walnut, CA 91789	SWEEPS	1.2 km (0.75 mi)	A SWEEPS UST facility consisting of five active USTs located north of and downgradient of the project site. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Jack-in-the-Box No. 03245 (restaurant)	20965 East Golden Springs Drive, Diamond Bar, CA	HMS Database	Adjacent properties	A permitted HMS facility located south of and upgradient from the project site. No violations or releases are reported for this facility. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Walnut Valley Trailers	850 S Brea Canyon Road, Diamond Bar, CA	HMS Database	Adjacent properties	An open HMS facility located north of and downgradient from the project site. No violations or releases are reported for this facility. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Continental Burger (restaurant)	21025 East Golden Springs Drive, Diamond Bar, CA	HMS Database	Adjacent properties	A removed HMS facility located south of and upgradient from the project site. No violations or releases were reported for this facility. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives

Site Name	Address	Database	Radius Searched	Additional Information
				2, 3, and 4 is low.
Niron Inc.	20541 Earlgate Street, Walnut, CA 91789	HAZNET Database	Adjacent properties	A HAZNET facility located north of and downgradient from the project site. This facility has disposed of wastes consisting of an unspecified organic liquid mixture. No violations or releases for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Beamans Radiographic Labs, Inc.	20915 Golden Springs Drive, Walnut, CA 91787	HAZNET Database	Adjacent properties	A HAZNET facility located south of and upgradient from the project site. This facility has disposed of wastes consisting of photo chemicals and processing waste. No violations or releases for the facility are reported. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Brea Canyon Animal Hospital	20935 Golden Springs Drive, Walnut, CA 91789	HAZNET Database	Adjacent properties	A HAZNET facility located south of and upgradient from the project site. This facility has disposed of wastes consisting of photo chemicals and processing waste. No violations or releases for the facility are reported. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Dover Elevator Company	20510 Earlgate Street, Walnut, CA 91789	HAZNET Database	Adjacent properties	Listed twice as a HAZNET facility located north of and downgradient from the project site. This facility has disposed of wastes consisting of unspecified organic liquid mixture, other organic solids, oil/water separation sludge, waste oil and mixed oil, and unspecified oil-containing waste. No violations or releases for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Harmon Contract	20501 Earlgate Street, Walnut, CA 91789	HAZNET Database	Adjacent properties	A HAZNET facility located north of and downgradient from the project site. This facility has disposed of wastes consisting of other inorganic solid waste, unspecified aqueous solution, and oxygenated solvents. No violations or releases for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Munco Inc.	20325 Walnut Drive, Walnut, CA 91789	HAZNET Database	Adjacent properties	A HAZNET facility located north of and downgradient from the project site. This facility has disposed of wastes

Site Name	Address	Database	Radius Searched	Additional Information
				consisting of unspecified organic liquid mixture and asbestos-containing waste. No violations or releases for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
At Systems	20325 East Walnut Drive North, Walnut, CA 91789	HAZNET Database	Adjacent properties	A HAZNET facility located north of and downgradient from the project site. This facility has disposed of wastes consisting of aqueous solution with less than 10 percent total organic residues and an unspecified organic liquid mixture. No violations or releases for the facility are reported. Because the facility is downgradient from the project site, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Thermo-Steam Boiler, Inc.	20521 Earlgate Street, Walnut, CA 91789	EMI	Adjacent properties	An EMI facility located north of and downgradient from the project site. The listing indicates that the facility released emissions in 1990, but the emission type is not identified.
Coco's No. 1146 (restaurant)	20955 Colima Road, Walnut, CA 91789	EMI	Adjacent properties	An EMI facility located south of and upgradient from the project site. The listing indicates that the facility released emissions in 1990, but the emission type is not identified.
Sun State Industries	20504 Earlgate Street, Walnut, CA 91789	EMI	Adjacent properties	An EMI facility located north of and downgradient from the project site. The listing indicates that in 1990 the facility released 5 tons of total organic hydrocarbon gases, 1 ton of ROG, 2 tons of carbon monoxide, and 1 ton of oxides of nitrogen.
Coco's Restaurant No. 1146 (restaurant)	20955 East Golden Springs Drive, Diamond Bar, CA	Orphan Sites in the EDR Report	Adjacent properties	Listed twice as a Los Angeles County HMS facility and located south of and upgradient from the project site. One listing identifies the facility as an open facility. The second listing identifies the facility as a removed permitted facility. No violations or releases are reported for this facility. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
CHB Partnership BDA McDonalds (restaurant)	21095 East Golden Springs Drive, Diamond Bar, CA	Orphan Sites in the EDR Report	Adjacent properties	A Los Angeles County HMS facility located south of and upgradient from the project site. The listing is identified as a permitted facility. The facility is part of two LUSTs identified as Chevron Service Station No. 9/1175. The LUST listing indicates there was a release of MTBE from the facility that was discovered on September 24, 1999, during a tank closure. The status of the listing is that the leak was being confirmed. There is a previous LUST listing

Site Name	Address	Database	Radius Searched	Additional Information
				for the facility. Gasoline and MTBE were released from the LUST. The LUST was reported on November 6, 1991, during a tank closure. The release impacted other groundwater. The case was closed on October 2, 1996. Because the facility listing is located upgradient of the project site and groundwater was impacted, there appears to be a potential for environmental impacts to the project site. However, groundwater at the project site is approximately 36 ft (11 m) bgs and is unlikely to be encountered under Alternatives 2, 3, and 4.
Catalina Company	20955 East Golden Springs Drive, Diamond Bar, CA	Orphan Sites in the EDR Report	Adjacent properties	A Los Angeles County HMS facility located south of and upgradient from the project site. The listing is identified as a permitted facility. The facility is also listed as Coco's Restaurant No. 1146. No violations or releases are reported for this facility; therefore, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.
Quizno's Sub (restaurant)	20855 East Golden Springs Drive No. 108, Diamond Bar, CA	Orphan Sites in the EDR Report	Adjacent properties	A Los Angeles County HMS facility located south of and upgradient from the project site. The listing is identified as a permitted facility. No violations or releases are reported for this facility. Because there are no violations or releases reported for the facility, the potential for environmental impacts to the project site under Alternatives 2, 3, and 4 is low.

Source: *Draft Initial Site Assessment Report* (Leighton Associates, Inc., June 20, 2006).

Appendix F List of Technical Studies

The following technical studies were used in the preparation of the Initial Study/ Environmental Assessment (IS/EA) for the proposed State Route 60/Lemon Avenue interchange project. These reports are summarized as appropriate in the IS/EA and are available for review at the Cities of Diamond Bar and Industry Public Works Departments and the California Department of Transportation District 7.

Air Quality Analysis (2007)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Draft Project Report (2007)
Prepared by Jacobs Engineering, Inc.
3850 Vine Street, Suite 120
Riverside, CA 92507

Draft Relocation Impact Statement
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Floodplain Evaluation Memorandum (2006)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Hazardous Waste Initial Site Assessment (2006)
Prepared by Leighton Associates
10532 Acacia Street, Suite B-6
Rancho Cucamonga, CA 91730

Historic Property Survey Report (October 30, 2006)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Natural Environment Study (2006)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Noise Impact Analysis (2007)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Roadside Business Analysis (2006)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Storm Water Data Report (2006)
Prepared by Jacobs Engineering, Inc.
3850 Vine Street, Suite 120
Riverside, CA 92507

Traffic Study (2007)
Prepared by Katz, Okitsu & Associates
1055 Corporate Center Drive, Suite 300
Monterey Park, CA 91754

Visual Impact Assessment (2007)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Water Quality Assessment Report (2007)
Prepared by LSA Associates, Inc.
20 Executive Park, Suite 200
Irvine, CA 92614

Appendix G Acronyms and Abbreviated Terms

A

AADT	annual average daily traffic
AASHTO	American Association of State Highway and Transportation Officials
ac	acre(s)
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ACOE	United States Army Corps of Engineers
ADA	Americans with Disabilities Act
ADL	aerially deposited lead
ADT	average daily traffic
AHERA	Asbestos Hazard Engineering Response Act
APE	Area of Potential Effects
APN	Assessor's parcel number
ARB	California Air Resources Board
ASR	Archaeological Survey Report
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
avg.	average
AWP	Annual Work Plan

B

Basin	South Coast Air Basin
Basin Plan	Los Angeles River Basin Water Quality Control Plan
BACM(s)	Best Available Control Measure(s)
bgs	below ground surface
BMP(s)	best management practice(s)
BO	Biological Opinion
BSA	Biological Study Area

C

C	Centigrade
CA	California
CA FID	SWRCB Facility Inventory Database
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
Cal-OSHA	California Office of Safety and Health Administration
Caltrans	California Department of Transportation
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDWR	California Department of Water Resources
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Compensation and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLIS-NFRAP	CERCLIS No Further Remedial Action Planned
CERFA	Community Environmental Response Facilitation Act

CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHP	California Highway Patrol
cm	centimeter(s)
CMP	Congestion Management Plan
CMS	Changeable Message Sign(s)
CNPS	California Native Plant Society
CO	carbon monoxide
CORRACTS	RCRA Corrective Action Sites List
County	Los Angeles County
COZEEP	Construction Zone Enhanced Enforcement Program
CPA	Certified Public Accountant
CTP	Comprehensive Transportation Plan
CTR	California Toxics Rule
Cu	copper
CVNPAT	Commercial vehicle no parking any time
CWA	Clean Water Act
cy	cubic yards

D

dBA	A-weighted decibels
dBA L_{eq}	continuous equivalent noise level in A-weighted decibels
del/veh	delay per vehicle
DHHS	United States Department of Health and Human Services
District	Walnut Valley Unified School District
DOF	California Department of Finance
DTSC	California Department of Toxic Substances Control

E

EA	Environmental Assessment
EB	eastbound
ECR	Environmental Commitments Record
ED	Environmental Documentation
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EMI	Emission Inventory Data
EO	Executive Order
EPA	United States Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA(s)	Environmentally Sensitive Area(s)

F

F	Fahrenheit
F&E	Freeway and Expressway
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FINDS	Facility Index Systems
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FT	Foothill transit
ft	foot/feet
FTA	Federal Transit Administration
FTTS	FIFRA/TSCA Tracking System

G

gal	gallon(s)

H

ha	hectare(s)
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HDM	Highway Design Manual
HIST UST	Hazardous Substances Storage Container Database of Historical UST Sites
HMIRS	Hazardous Materials Incident Report System
HMMP	Habitat Mitigation Monitoring Plan
HMS	Los Angeles County Industrial Waste and Underground Storage Tank Site
HOV	high occupancy vehicle(s)
HPSR	Historic Property Survey Report

I

I-605	Interstate 605
I/C	interchange
ICU	intersection capacity utilization
ID	identification
in	inch(es)
IS	Initial Study
ISA	Initial Site Assessment
IS/EA	Initial Study/Environmental Assessment

J

JD	Jurisdictional Delineation

K

km	kilometer(s)
KP	kilometer post
kph	kilometers per hour

L

L	liter
LAX	Los Angeles International Airport
lb(s)	pound(s)
LBV	least Bell's vireo
L_{eq}	equivalent sound levels
L_{max}	maximum sound level
ln	lane
LOS	level(s) of service
LUST	leaking underground storage tank

M

µg/L	micrograms per liter
μ/m^3	micrograms per cubic meter
m	meter(s)
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
mg	milligram
mg/L	milligrams per liter
mi	mile(s)
MLD	Most Likely Descendent

mm	millimeter(s)
MND	Mitigated Negative Declaration
mph	miles per hour
MS	mail stop
MSAT	Mobile Source Air Toxics
MTA	Los Angeles County Metropolitan Transportation Authority
MTBE	methyl tertiary-butyl ether
Mw	maximum moment magnitude

N

N/A, n/a	not applicable *OR* not available
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NB	northbound
NCCP	Natural Communities Conservation Plan
NCVP	no commercial vehicle parking
NEPA	National Environmental Policy Act
NES-MI	Natural Environment Study-Minimal Impacts
NFRAP	No Further Remedial Action Planned
NHPA	National Historic Preservation Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NO_2	nitrous dioxide
NO_3	nitrate
NOP	Notice of Preparation
NPAT	no parking any time
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NR	no restriction on parking
NWP	Nationwide Permit

O

O_3	ozone
OSHA	Occupational Safety & Health Administration

P

PA	Programmatic Agreement
PAC	presumed asbestos-containing materials OR Public Awareness Campaign
PA/ED	Project Approval/Environmental Document
Pb	lead
pc	passenger car
PCB(s)	polychlorinated biphenyls
pc/km/ln	passenger car per kilometer per lane
PDF(s)	Project Design Feature(s)
PDS	Project Development Support
PDT	Project Development Team
pH	percentage of hydrogen
PM	post mile *OR* particulate matter
PM_{10}	particulate matter that is between 2.5 and 10 microns in diameter
$PM_{2.5}$	particulate matter that is 2.5 microns or smaller in diameter
POAQC	Project of Air Quality Concern
ppm	parts per million
PR	Project Report
PRC	Public Resources Code

PRIMP	Paleontological Resource Impact Mitigation Program
PS&E	Plans, Specifications, and Estimates
PSR	Project Study Report

Q

Quad	quadrangle

R

RAP	Relocation Assistance Program
RCB	reinforced concrete box
RCRA	Resource Conservation and Recovery Act of 1976
RE	Resident Engineer
ROG	reactive organic gases
ROW	right(s)-of-way
RSA	Resource Study Area
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Santa Ana Regional Water Quality Control Board

S

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users
SB	southbound
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCH	State Clearinghouse
SCRRA	Southern California Regional Rail Authority
SEE	Senior Environmental Employee
SER	Standard Environmental Reference
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLIC	SWRCB Spills, Leaks, Investigations, and Cleanups
SO_2	sulfur dioxide
SOI	sphere of influence
SO_X	oxides of sulfur
sq mi	square mile(s)
SR-57	State Route 57
SR-60	State Route 60
SSP	Standard Special Provisions
SWDR	Storm Water Data Report
SWEEPS	Statewide Environmental Evaluation and Planning System
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TASAS	Traffic Accident Surveillance and Analysis System
TCE(s)	temporary construction easement(s)
TCR	Transportation Concept Report
TDD	Telecommunications Device for the Deaf
T&E	threatened and endangered
TIA	Transportation Impact Analysis
TMDL	Total Maximum Daily Load
TMP	Transportation Management Plan
TP	total phosphorus

TRB	Transportation Research Board
TRIS	Toxic Release Inventory System
TSCA	Toxic Substances Control Act
TSM	Transportation Systems Management
TSS	total suspended solids

U

UBC	Uniform Building Code
UC	undercrossing
Uniform Act	Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
UPRR	Union Pacific Railroad
USC	United States Code
USD	Unified School District
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST(s)	underground storage tank(s)
UTC	Ultimate Transportation Corridor

V

Valley	San Gabriel Valley
v/c	volume-to-capacity
VIA	Visual Impact Assessment
vpd	vehicles per day
vph	vehicles per hour

W

WB	westbound
WDS	Water Discharge System
WoUS	waters of the United States
WPCP	Water Pollution Control Program
WQAR	Water Quality Assessment Report

Z

Zn	zinc

Appendix H Final Adopted 2004 Regional RTP and Adopted 2006 RTIP

2004 RTP - Arterial Projects

CO	Route/Corridor	From	To	Description	Public Funding (02$)	Private/Other Funding (02$)	Potential Completion Year	City/Agency	RTP ID
LA	SR-14	Ave P		Interchange improvements	$1,000,000		2010	Palmdale	1M0445*
LA	Navy Way connector ramp to Seaside (SR-47)	Seaside	Reeves	Provide a 2 lane connector ramp for NB Navy Way to WB Seaside Ave	$16,000,000		2005	Port of Los Angeles	1M0430*
LA	Pier B St/Terminal Island Fwy			Interchange improvement - new NB on-ramp to SR-103	$1,000,000		2005	Port of Long Beach	1M0132*
LA	SR-103	Anaheim St		Interchange/Ramps	$5,000,000		2010	City of Los Angeles	1M0133
LA	SR-118	Zelzah St (PM 6.2)	White Oak Ave (PM 6.8)	Interchange/Ramps	$5,000,000		2010	City of Los Angeles	1M0134
LA	SR-134	Brand Blvd (PM 7.1)		Interchange/Ramps	$1,000,000		2010	Glendale	1M0135
LA	SR-134	Glendale Blvd (PM 7.9)		Interchange/Ramps	$1,000,000		2010	Glendale	1M0136
LA	SR-134	Pacific Ave (PM 6.6)		Interchange/Ramps	$1,000,000		2010	Glendale	1M0137
LA	SR-14	Ave G		Interchange/Ramps	$6,000,000		2005	Lancaster	1M0138*
LA	SR-14	Ave J		Interchange/Ramps	$11,000,000		2009	Lancaster	1M0139*
LA	SR-14	Ave K		Interchange/Ramps	$8,000,000		2011	Lancaster	1M0140*
LA	SR-60	Lemon Ave		Construct on/off ramps	$25,000,000		TBD	Diamond Bar	1M0460
LA	SR-91	Wilmington		Interchange/Ramps	$5,000,000		2015	Compton	1M0450*
LA	SR-91	Central		Interchange/Ramps	$5,000,000		2015	Compton	1M0451*
LA	US-101	Reyes Adobe		Interchange/Ramps	$5,000,000		2020	Westlake Village	1M0456*
LA	US-101	Lindero Cyn		Interchange/Ramps	$5,000,000		2020	Agoura Hills	1M0458*
LA	US-101	Lost Hills Rd		Interchange/Ramps	$5,000,000		2020	Calabasas	1M0459*
LA	US-101	Alameda St		Interchange/Ramps	$2,000,000		2020	City of Los Angeles	1M0105*
LA	US-101	Canoga Ave (PM 24.9)		New EB off-ramp at Canoga and add 2 lanes to De Soto and Canoga underpasses	$15,000,000		2003	City of Los Angeles	1M0107*
LA	US-101	Fallbrook Ave (PM 26.3)		Interchange/Ramps	$5,000,000		2010	City of Los Angeles	1M0143
LA	US-101	Topanga Canyon Blvd (PM 25.3)		Interchange/Ramps	$5,000,000		2010	City of Los Angeles	1M0144
LA	US-101	Universal Center Drive		Interchange/Ramps (SB on- and off-ramps)	$5,000,000		2010	City of Los Angeles	1M0146*
LA	I-710 Corridor between Alameda/Wilmington and Lakewood Blvd	Ports of Los Angeles and Long Beach	SR-60	Widen various arterials to 6 lanes	$825,000,000		2016	Gateway Cities COG	1A04C710
LA	US-101 MIS Corridor Arterial Improvement Recommendations			Arterial	$318,000,000			Various	1A01C101
LA	Atlantic Blvd	Ocean Blvd	I-10	Arterial	$93,000,000			Various	1A98R01*
LA	Long Beach Blvd/Pacific Ave	Ocean Blvd	Vernon Ave/Santa Fe	Arterial	$67,000,000			Various	1A98R04
LA	Firestone Blvd	Alameda Blvd	I-5	Arterial (TSM)	$1,000,000			Various	1A98R05*

ADOPTED 2006 REGIONAL TRANSPORTATION PROGRAM (RTIP) STATE HIGHWAY PROJECTS

Los Angeles County

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	PROG CODE	RTE	POST BEG	MI END	DESCRIPTION	FUND	YEAR	ENG	ROW	CONS	TOTAL	PRIOR	2006/07	2007/08	2008/09	2009/10-2011/12	PROJECT TOTAL	CONF CAT	ELMT
CALTRANS	0309S	SCAB		NCR42	10	33.4	37.5	BALDWIN PARK AND WEST COVINA - PUENTE AVE TO CITRUS STREET SOUNDWALL PROJECT (95 STIP-IIP) (EA# 111720, PPNO# 0309S)	STCASHGPRIOR		1228	0	0	1228	1370	162	0	0	9333	10865	EXEMPT	3
									STCASHIPRIOR		0	142	0	142								
									STCASHI06/07		0	162	0	162								
									STCASHG09/10		1073	0	0	1073								
									STCASHI09/10		0	0	4618	4618								
									STCASHR09/10		0	0	3642	3642								
CALTRANS	LA000548	SCAB	L465	CAN69	10	33.4	37.5	FROM PUENTE TO CITRUS HOV LANES FROM 8 TO 10 LANES (C-ISTEA 77720) (EA# 117080, PPNO# 0309N)	TCRF	06/07	167	0	0	167	0	167	0	0	2155	2322	TCM	2
									PC25	09/10	2155	0	0	2155								
CALTRANS	LA0B075	SCAB	L466	PLN40	10	37.5	42.4	HOV LANES FROM CITRUS TO ROUTE 57/210 (EA# 11934, PPNO# 0310B)	TCRF	06/07	166	0	0	166	0	166	0	0	1720	1886	NON-EXEMPT	3
									PC25	09/10	1720	0	0	1720								
LANCASTER	LA0C8102	SCAB	L266	CARH3	14	68.9	.0	SR-14 FREEWAY/AVENUE I INTERCHANGE IMPROVEMENTS-WIDENING AVE I FROM 2 TO 3 LANES IN EACH DIRECTION, ADDING DUAL LEFT TURN LANES, AND WIDENING A BRIDGE STRUCTURE. PPNO 3123.	LTF	PRIOR	220	0	0	220	1070	7336	0	0	0	8406	NON-EXEMPT	3
									TDA	PRIOR	650	0	0	650								
									CITY	PRIOR	200	0	0	200								
									CITY	06/07	482	0	1503	1985								
									PC25	06/07	0	0	5351	5351								
ALAMEDA TRANSPORTATION CORRIDOR AGENCY	LA0D45	SCAB	L260	CAY69	47	3.5	5.8	SR-47 EXPRESSWAY; REPLACEMENT OF COMMODORE HEIM BRIDGE & ELEVATED 4-LANE EXPRESSWAY BETWEEN COMMODORE HEIM BRIDGE & ALAMEDA ST (SR-47). SAFETEA-LU # 712 & # 3797	AGENCY	PRIOR	3500	0	0	3500	3500	21100	208982	282109	0	515691	TCM	2
									AGENCY	06/07	0	15100	0	15100								
									DEMOSTL	06/07	6000	0	0	6000								
									AGENCY	07/08	16045	15100	175837	206982								
									DEMOSTL	07/08	2000	0	0	2000								
									DEMOSTL	08/09	2000	0	0	2000								
									HBRR-S	08/09	0	0	280109	280109								
INDUSTRY	LA0D399	SCAB	L467	CARH3	60	.0	.0	CONSTRUCTION OF NEW PARTIAL DIAMOND INTERCHANGE FOR STATE ROUTE 60 (SR-60) AT LEMON AVE (SAFETEA-LU # 587).	AGENCY	PRIOR	1500	0	0	1500	1500	0	2000	10000	0	13500	NON-EXEMPT	2
									CITY	07/08	0	400	0	400								
									DEMOSTL	07/08	0	1600	0	1600								
									CITY	08/09	0	0	2000	2000								
									DEMOSTL	08/09	0	0	8000	8000								
CALTRANS	LA996137	SCAB	1103	CAR62	60	11.7	23.0	RTE. 60 HOV LNS. FROM RTE. 605 TO BREA CANYON RD. -- CONSTRUCT ONE HOV LANE IN EACH DIRECTION) (CFP: 350, 4262, 6137=67,150+IIP: 5,100) (EA#129410, 129421, PPNO 0482R,0482RA)	NH-RIP	PRIOR	6100	0	0	6100	73821	20300	43289	2200	200	139810	TCM	3
									NHH-RIP	PRIOR	5500	500	29905	35905								
									PC25	PRIOR	6277	1050	24489	31816								
									PC25	06/07	0	0	20300	20300								
									CMAQ	07/08	0	0	23289	23289								
									PC25	07/08	0	0	20000	20000								
									PC25	08/09	0	0	2200	2200								
									PC25	09/10	0	0	200	200								
LOS ANGELES COUNTY MTA	LA0B412	SCAB		PLN40	60	23.5	.0	ROUTE 57/60 INTERCHANGE MIS (E/P, PS/E ONLY)	PC25	PRIOR	126	0	0	126	126	974	0	0	0	1100	EXEMPT	3
									STPL-R	06/07	974	0	0	974								
CALTRANS	LA0B951	SCAB	L277	CAR62	71	.5	4.5	ROUTE 10 TO ROUTE 60 - EXPRESSWAY TO FREEWAY CONVERSION - ADD 1 HOV LANE AND 1 MIXED FLOW LANE . (2001 CFP 8349, TCRP #50) (EA# 210600, PPNO 2741) SAFETEA-LU # 3771 (TCRP #50)	TCRF	PRIOR	4405	0	0	4405	5997	0	0	3000	25595	34592	TCM	4
									NH-RIP	PRIOR	1592	0	0	1592								
									DEMOSTL	08/09	0	0	3000	3000								
									TCRF	10/11	7395	17000	1200	25595								
CALTRANS	LA0D31	SCAB	L278	NCR88	101	15.3	16.1	CONSTRUCT ONE ADDITIONAL LANE FOR BOTH NORTH AND SOUTH BOUND OFF-RAMPS AT VAN NUYS BLVD. (RIP 1 M, IIP 8 M) (EA # 199630) (PPNO 2789) (DEMO= NAT. CORRIDOR PLANNING AND BORDER DEV.)	NH-IIP	PRIOR	1485	118	0	1603	1603	0	0	0	878	2481	NON-EXEMPT	2
									DEMOT2	09/10	878	0	0	878								
CALTRANS	17850	SCAB	L274	NCR88	105	.7	1.0	LOS ANGELES - SEPULVEDA BLVD TO NASH STREET - WIDEN N/B OFF-RAMP @ SEPULVEDA DL FROM W/B RTE 105. FROM 1 LANE TO 2 LANES. (PPNO# 2119, EA# 17850K) (IIP $7,394)	CITY	PRIOR	0	2500	0	2500	5798	1335	12974	0	0	20107	NON-EXEMPT	3
									STCASHI	PRIOR	2281	1017	0	3298								
									STCASHI	06/07	52	483	0	535								
									STCASHR	06/07	0	800	0	800								
									CITY	07/08	0	0	3850	3850								
									LTF	07/08	0	0	2340	2340								
									STCASHI	07/08	1406	0	5378	6784								

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Appendix I Environmental Commitments Record

The California Environmental Quality Act (CEQA), Public Resources Code Section 21081, and Sections 15091 and 15097 of the CEQA Guidelines require that a Mitigation Monitoring and Reporting Program be adopted when the Lead Agency (in this case the California Department of Transportation [Caltrans] District 7) adopts an environmental document. The purpose of the Environmental Commitments Record (ECR) is to fulfill this requirement under CEQA and to assign responsibility for the implementation, monitoring, and timing of each avoidance, minimization, and mitigation measure that has been identified to reduce an identified environmental impact to a less than significant level. The Lead Agency is required to ensure compliance with each measure in the ECR because additional significant environmental impacts could result from the project if the measures are not properly implemented. Because the City of Diamond Bar will administer the design, right-of-way acquisition, and construction of the project, the implementation of these measures will largely be the responsibility of the City to implement.

The attached table lists each of the project's avoidance, minimization, and mitigation measures required to reduce or eliminate the project's significant environmental impacts, where possible. The three columns on the right side of the table list the timing of each measure and the agency/party responsible for ensuring that the measure is implemented. The far-right column is left blank to allow staff to add the verification date of each measure. This column should be used as a reference for verifying that each measure is implemented and that ongoing measures are regularly checked. Once the project is constructed, a report should be submitted to Caltrans on the project's compliance with the mitigation measures.

Environmental Commitments Record for the SR-60/Lemon Avenue Interchange Project

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
LAND USE					
--	Alternatives 2, 3, and 4 would not result in adverse impacts related to land use; consistency with state, regional and local plans; and parks and recreation resources. Therefore, no avoidance, minimization or mitigation measures are required.	--	--	--	--
GROWTH					
--	Alternatives 2, 3, and 4 would not result in growth-inducing impacts. Therefore, no avoidance, minimization, or mitigation measures are required.	--	--	--	--
FARMLANDS AND TIMBERLANDS					
--	Alternatives 2, 3, and 4 would not result in adverse impacts related to farmlands and timberlands. Therefore, no avoidance, minimization, or mitigation measures are required.	--	--	--	--
COMMUNITY IMPACTS					
--	Alternatives 2, 3, and 4 would not result in permanent adverse impacts related to community impacts. Temporary traffic impacts would be mitigated based on implementation of a Traffic Management Plan (TMP) as described below in Mitigation Measure TRA-1.	--	--		
RELOCATIONS					
--	Alternative 2 would not result in adverse impacts related to relocation because no property would be acquired under this Alternative.	City of Diamond Bar	During property acquisition		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	Alternatives 3 and 4 would require the partial acquisition of privately owned property. Compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act) of 1970 (Public Law 91-646, 84 Statutes 1894) would minimize the adverse impacts of Alternatives 3 and 4 related to acquisition of partial parcels. The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by its projects. Alternatives 3 and 4 would not result in the relocation of any land uses, residents or businesses. The Act provides for uniform and equitable treatment by federal or federally assisted programs of persons displaced from their homes, businesses, or farms, and establishes uniform and equitable land acquisition policies.				
ENVIRONMENTAL JUSTICE					
--	Alternatives 2, 3, and 4 would not result in adverse impacts related to environmental justice populations. Therefore, no avoidance, minimization, or mitigation measures are required.	--	--	--	--
UTILITIES AND EMERGENCY SERVICES					
--	Alternatives 2, 3, and 4 may result in temporary delays to emergency services providers during construction. These temporary traffic impacts would be mitigated based on implementation of a TMP as described below in Mitigation Measure TRA-1.	--	--	--	--
--	Alternatives 2, 3, and 4 may result in the need to relocate, remove and/or protect in place existing utilities facilities during construction.	City of Diamond Bar and the construction contractor	During final design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	The relocation, removal and/or protection in place for each utility facility will be shown on the final design plans, including contact information for each affected utility. Early and continuing coordination with utilities providers will be conducted during final design and project construction.				
--	Alternatives 2, 3, and 4 would not result in permanent adverse impacts related to utilities and emergency services. Therefore, no avoidance, minimization, or mitigation measures are required.	--	--	--	--
TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES					
TRA-1	During final design, a detailed TMP will be developed for implementation during project construction. The TMP will be a specialized program tailored to accommodate major traffic movements during construction and mitigate construction impacts by applying a variety of traffic management techniques. These techniques are anticipated to include, but not be limited to, traffic controls, traffic diversions to alternate routes, transportation demand management, public awareness measures (including signing, mailers, brochures, newspaper articles, the Internet), and a Construction Zone Enhanced Enforcement Program (COZEEP). The objective of the TMP is to maintain the safe movement of vehicles through the construction zone as well as the highest level of traffic circulation and access during the project construction period. The TMP will include a public awareness campaign, media communication program, and a construction detour and signing plan developed for the periods of ramp closures	City of Diamond Bar and the construction contractor	During final design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	during each construction stage. During the ramp construction and realignment period, the Construction Management Team will conduct neighborhood meetings, as appropriate, to present project status, discuss construction-related issues and schedule, and respond to neighborhood comments and concerns. Once ramp construction is initiated, advance notice of the construction activities will be published in local newspapers, broadcast on radio stations, and transmitted on Changeable Message Signs (CMS). The detailed construction staging traffic control, detour, and signing plans for the project will be developed as part of the plans, specifications, and estimates (PS&E) phase.				
VISUAL AND AESTHETICS					
V-1	Project design features (PDFs) to avoid, minimize, or reduce visual impacts would be incorporated into the SR-60/Lemon Avenue interchange project to the extent feasible. Specific architectural treatments and details for retaining walls and structures will be developed during final design. During final design, the designer will coordinate with Caltrans and the City of Diamond Bar regarding the aesthetic treatments for all structures and walls. Highway appurtenances (lights, signs, traffic control devices, guardrails, and barriers) selection and design will meet criteria to achieve consistency as to color, scale, and placement in the corridor while meeting safety requirements.	City of Diamond Bar	During final design and construction		
V-2	A Landscape Plan (Plan) is to be incorporated into the final design of the proposed SR-60/Lemon Avenue interchange project. This	City of Diamond Bar	During final design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	Plan will identify opportunities for revegetation within the project limits. The Plan would include landscaping for graded areas with plant species consistent with adjacent vegetation and enhancement of any new project structures such as ramps and walls, to the extent feasible. The Plan will incorporate all applicable procedures and requirements as detailed in the Caltrans Highway Design Manual, Section 902.1–Planting Guidelines (November 2001). The Plan will include performance criteria (i.e., plant coverage/density, plant types) that must be met to ensure that revegetation of affected areas will be consistent with the existing landscape.				
V-3	A plan to implement visually pleasing walls, medians, and other hardscape will be incorporated into the final design of the proposed SR-60/Lemon Avenue Interchange project.	City of Diamond Bar	During final design and construction		
CULTURAL RESOURCES					
--	If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	Construction contractor and City of Diamond Bar	Immediately upon discovery of cultural materials		
--	If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission	Construction contractor, City of Diamond Bar, and Caltrans	Immediately upon discovery of human remains		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	(NAHC) who will then notify the Most Likely Descendent (MLD). The person who discovered the remains will also contact the City of Diamond Bar Project Manager and the Caltrans District 7 Environmental Planning Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.				
HYDROLOGY AND FLOODPLAINS					
--	Alternatives 2, 3, and 4 would not result in adverse impacts related to hydrology and floodplains. Therefore, no avoidance, minimization, or mitigation measures are required.	--	--	--	--
WATER QUALITY AND STORMWATER RUNOFF					
WQ-1	The City of Diamond Bar will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation Order No. 99-06-DWQ, NPDES No. CAS000003, and any subsequent permit or individual permit if required by the RWQCB as they relate to construction activities for the project, including dewatering. This shall include a Notification of Construction to the Los Angeles RWQCB at least 30 days prior to the start of construction, preparation and implementation of a Storm Water Pollution Prevention Plan, and a Notice of Completion to the Los Angeles RWQCB on completion of construction and stabilization of the site.	City of Diamond Bar and the construction contractor	During final design and construction		
WQ-2	The City of Diamond Bar will follow the procedures outlined in the Caltrans Storm	City of Diamond Bar and the construction	During final design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	Water Quality Handbooks, Project Planning and Design Guide for implementing Design Pollution Prevention and Treatment BMPs for the project. This will include coordination with the Los Angeles RWQCB with respect to feasibility, maintenance, and monitoring of Treatment BMPs as set forth in Caltrans Statewide Storm Water Management Plan.	contractor			
GEOLOGY, SOILS, SEISMIC, AND TOPOGRAPHY					
--	The final design of Alternatives 2, 3, and 4 will include the preparation of a detailed geotechnical investigation and identification of specific recommendations including project design features (PDFs) to avoid or substantially reduce the potential for adverse impacts related to geology, soils, and seismicity under these Alternatives	City of Diamond Bar	During design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
PALEONTOLOGY					
PAL-1	Under the direction of the City of Diamond Bar, a qualified paleontologist will develop and implement a Paleontological Resource Impact Mitigation Program (PRIMP) for the excavation phase of the project. This program will be designed to conform to the guidelines of Los Angeles County and the Society of Vertebrate Paleontology and will include, at a minimum, the following: • A trained paleontological monitor will be present during ground-disturbing activities within the project disturbance limits in excavations of the in-situ Soquel Member of the Puente Formation. These sediments are likely to contain paleontological resources. The monitoring for paleontological resources will be conducted on a full-time basis at elevations where excavation is in previously undisturbed parts of the Formation. The monitor will be empowered to temporarily halt or redirect construction activities to ensure avoidance of adverse impacts to paleontological resources. The monitor will be equipped to rapidly remove any large fossil specimens encountered during excavation. During monitoring, samples will be collected and processed to recover microvertebrate fossils. Processing will include wet screen washing and microscopic examination of the residual materials to identify small vertebrate remains.	City of Diamond Bar	During and after construction	--	--

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	• On encountering a large deposit of bone, the monitor will salvage all bone in the area, using additional field staff, in accordance with modern paleontological techniques. • All fossils collected will be prepared to a reasonable point of identification. Excess sediment or matrix will be removed from the specimens to reduce the bulk of the material and the storage cost. Itemized catalogs of all material collected and identified will be provided to the museum repository along with the specimens. • A compliance report documenting the results of the monitoring and salvage activities and the significance of the fossils will be prepared. • All fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.				
HAZARDOUS WASTES AND MATERIALS					
HW-1	For the WBS 165.10.50 (Perform Preliminary Site Investigation [PSI] for Hazardous Waste) project phase, conduct a file review for 880 South Lemon Avenue to review the FINDS and FTTS documents associated with the project site and evaluate whether the soils associated with the project site have been impacted (applies to Alternative 4 only).	City of Diamond Bar	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project phase		
HW-2	For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, if soil sampling for aerially deposited lead (ADL) contamination has not	City of Diamond Bar	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	been conducted during prior investigations, it will be conducted in unpaved locations where excavation will occur along roads. If ADL contamination is detected, the results/conclusions will be included in the Standard Special Provisions (SSP) and the Resident Engineer's (RE's) file. The SSP will be incorporated in the project PS&E. The analytical results of the soil sampling will determine the appropriate handling of the soil and disposal of surplus materials.		phase		
HW-3	For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, sampling of the soil piles of unknown origin will be conducted to ascertain whether these soils are contaminated. If contamination is detected, the results/conclusions will be included in the SSP and the RE's file. The SSP will be incorporated in the Project PS&E. The analytical results of the soil sampling will determine the appropriate handling of the soil and disposal of surplus materials.	City of Diamond Bar	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project phase		
HW-4	During grading and excavation, the contractor will make observations for areas of possible contamination such as, but not limited to, the presence of underground facilities, buried debris, waste drums, tanks, stained soil, or odorous soils. Should such materials be encountered during project grading and excavation, the contractor will immediately notify the RE. Specific investigation and analysis may be necessary at that time to assess the potential hazard and to identify appropriate methods for removing and disposing of the hazard.	Construction contractor	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project phase		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
HW-5	For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, testing will be conducted and removal requirements identified for yellow traffic striping in accordance with Rule 7-106B, Removal of Yellow Traffic Stripe and Pavement Markings, as described in Chapter 7 of the Caltrans Construction Manual, Environmental Rules and Requirements.	City of Diamond Bar	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project phase		
HW-6	For the WBS 165.10.50 (Perform Preliminary Site Investigation for Hazardous Waste) project phase, conduct a file review for 880 South Lemon Avenue to review the FINDS and FTTS documents associated with the project site and evaluate whether the groundwater at the project site may have been impacted by a current UST release at 880 South Lemon Avenue. Groundwater testing will be conducted to identify the potential for petroleum hydrocarbons, volatile organic compounds (VOCs), and fuel oxygenates in the event that project construction will encounter groundwater and/or require dewatering. In that event, appropriate treatment of the affected groundwater will be incorporated into the construction specifications.	City of Diamond Bar	During the WBS 165.10.50 (Perform PSI for Hazardous Waste) project phase		
AIR QUALITY					
SC-1	The construction contractor will adhere to the requirements of the South Coast Air Quality Management District (SCAQMD) rules and regulations on cutback and emulsified asphalt paving materials.	Construction contractor	During construction		
SC-2	To reduce fugitive dust emissions, the construction contractor will adhere to the requirements of SCAQMD Rule 403. The Best	Construction contractor	During construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	Available Control Measures (BACMs) specified in SCAQMD's *Rule 403 Implementation Handbook* will be incorporated into the project construction. The BACMs and RACMs are listed in Table J in the *Air Quality Analysis*.				
	Caltrans Standard Construction Specifications will be adhered to during construction of Alternatives 2, 3, and 4, to reduce fugitive dust emissions. A. All disturbed area, including storage piles, not being actively utilized for construction purposes will be effectively stabilized for dust emissions using water, chemical stabilizers/suppressants, or vegetative ground cover. B. All on-site unpaved roads and off-site unpaved access roads will be effectively stabilized for dust emissions using water or chemical stabilizers/suppressants. C. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities will be effectively controlled for fugitive dust emissions by utilizing applications of water or by presoaking. D. When materials are transported off site, all material will be covered or effectively wetted to limit visible dust emissions, or at least 6 inches (15.2 centimeters) of freeboard space from the top of the container will be maintained. E. All operations will limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are				

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. The use of blower devices is expressly forbidden. F. Following the addition of materials to or the removal of materials from the surface of outdoor storage piles, said piles will be effectively stabilized for fugitive dust emissions utilizing sufficient water or chemical stabilizers/suppressants. G. Traffic speeds on unpaved roads will be limited to 15 miles per hour (mph) (24 kilometers per hour [kph]). H. Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways from sites with a slope greater than 1 percent. I. Wheel washers for all exiting trucks will be installed, or all trucks and equipment will be washed off before leaving the site. J. Wind breaks will be installed at windward side(s) of construction areas. K. Excavation and grading activity will be suspended when winds exceed 20 mph (32 kph). L. Areas subject to excavation, grading, and other construction activity will be limited at any one time.				
NOISE					
--	According to the *Noise Impact Analysis*, the sound barriers identified in Table 2.17-5 in the Initial Study/Environmental Assessment (IS/EA) are both reasonable and feasible. The sound barrier heights, approximate lengths,	City of Diamond Bar	During final design and construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	locations, number of benefited residences, and estimated sound barrier costs are also shown in Table 2.17-5. These sound barriers are shown in Figures 2.17-2, 2.17-3, and 2.17-4 in the IS/EA, for Alternatives 2, 3, and 4, respectively. If, during final design, conditions have changed substantially, the noise barrier may not be provided. The final decision on noise barriers will be made on completion of the project design and public involvement processes. The public involvement process will include a public hearing or community meeting. If residents of 50 percent or more of the affected residences do not favor the barrier, it will not be provided.				
--	To minimize the construction noise impact for sensitive land uses adjacent to the project site, construction noise is regulated consistent with the Caltrans Standard Specifications, Section 5-1, "Sound Control Requirements," in the Standard Special Provisions, as follows: "Sound control shall conform to the provisions in Section 7-1.01I, (Sound Control Requirements) of the Standard Specifications and these special provisions. The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 dBA at a distance of 15 m (50 ft). This requirement in no way relieves the contractor from responsibility for complying with local ordinances regulating noise level. The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixer	Construction contractor	During construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	or transient equipment that may or may not be owned by the contractor. The use of loud signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel."				
NATURAL COMMUNITIES					
--	Refer to Mitigation Measures BIO-2 and BIO-5, provided below, for mitigation to address project impacts on willow riparian woodlands.	--	--	--	--
WETLANDS AND OTHER WATERS OF THE UNITED STATES					
BIO-1	Prior to initiation of construction, permanent impacts to waters of the United States (WoUS) will be offset through replacement at a minimum ratio of 1:1, or enhancement through the purchase of mitigation from an off-site mitigation bank or participation in an in-lieu fee program.	City of Diamond Bar	Prior to construction		
BIO-2	If determined to be required by the United States Army Corps of Engineers (ACOE) and the California Department of Fish and Game (CDFG), a Habitat Mitigation Monitoring Plan (HMMP) will be prepared and approved by ACOE and CDFG. At a minimum, the HMMP will meet the following criteria: • The habitat will be replaced and/or enhanced at a minimum 1:1 ratio. • The HMMP will identify a success criterion of at least 80 percent cover of native riparian vegetation for replaced habitat. • Further criteria specified in the HMMP will include a 5-year establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the mitigation plan.	City of Diamond Bar	Prior to construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
BIO-3	To the extent feasible, construction activities will occur outside the rainy season (October to May) to ensure that erosion caused by construction activities does not occur and that sedimentation is not deposited within the storm drain system or any adjacent drainages. If construction occurs during the rainy season, appropriate erosion and storm water control devices will be in place and maintained throughout the rainy season.	Construction contractor	During construction		
BIO-4	A Nationwide Permit will be obtained through the ACOE prior to obtaining grading permits, pursuant to Section 404 of the Clean Water Act.	City of Diamond Bar	Prior to construction		
BIO-5	A Streambed Alteration Notification will be submitted and authorization from the CDFG will be obtained prior to obtaining grading permits.	City of Diamond Bar	Prior to construction		
BIO-6	A certification or waiver from the Region 4 Regional Water Quality Control Board (RWQCB) will be obtained prior to the initiation of construction.	City of Diamond Bar	Prior to construction		
--	Additional measures may be imposed subject to the concurrence of the resource agencies (including ACOE, CDFG, and RWQCB) and may entail one or more of the following options in order of preference: (1) on-site creation or enhancement of riparian habitat; (2) off-site creation or enhancement of riparian habitat; (3) participation in an established off-site mitigation bank program; and/or (4) preservation of undeveloped riparian woodland as permanent open space. The appropriate mitigation ratio will be determined in coordination with the resource agencies based on the quality of jurisdictional resources to be	City of Diamond Bar	Prior to construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	affected.				
PLANT SPECIES					
--	Alternatives 2, 3, and 4 would not result in adverse impacts to special interest plant species. No avoidance, minimization, or mitigation measures are required.	--	--	--	--
ANIMAL SPECIES					
BIO-7	Vegetation clearing will be restricted to outside the active breeding season (February 15 through August 15) for birds. If vegetation clearing is scheduled during breeding season, a qualified biologist will conduct clearance surveys for active bird nesting immediately prior to any clearing of vegetation. During the clearance surveys, the location of any active bird nests will be mapped by the biologist, and an appropriate buffer (e.g. 500 ft [150 m] buffer for raptors) where work will not take place will be established and monitored. The buffer will be delineated by roping or flagging the boundaries and will remain in place until the nest is either abandoned or the young have fledged.	Construction contractor	During construction		
THREATENED AND ENDANGERED SPECIES					
--	Alternatives 2, 3, and 4 would not result in adverse impacts to threatened and endangered species. No avoidance, minimization, or mitigation measures are required.	--	--	--	--
INVASIVE PLANT SPECIES					
BIO-8	Bare soil will be landscaped with Caltrans-recommended seed mix from locally adapted species to preclude the invasion of noxious weeds. The use of site-specific materials adapted to local conditions increases the likelihood that revegetation will be successful	Construction contractor	During construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
	and maintains the genetic integrity of the local ecosystem. Arrangements will be made well in advance of planting (9 months, if possible) to ensure that plant materials are located and available for the scheduled planting time. Sufficient time will be allocated for a professional seed company to visit the project site during the appropriate season and collect the native plant seed. If local propagules are not available or cannot be collected in sufficient quantities, materials collected or grown from other sources within Southern California shall be substituted. For widespread native herbaceous species more likely to be genetically homogeneous, site specificity is a less important consideration, and seed from commercial sources may be used.				
BIO-9	Seed purity will be certified by planting seed labeled under the California Food and Agricultural Code or that has been tested within a year by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists.	City of Diamond Bar	Prior to landscaping		
BIO-10	Construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and inspected to reduce the potential of spreading noxious weeds (before mobilizing to arrive at the site and before leaving the site).	Construction contractor	During construction		
BIO-11	Trucks with loads carrying vegetation will be covered, and vegetative materials removed from the site will be disposed of in accordance with all applicable laws and regulations.	Construction contractor	During construction		

No.	Avoidance, Minimization, and Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and Mitigation Measures	Date
CUMULATIVE IMPACTS					
--	Alternatives 2, 3, and 4 would not result in adverse impacts to cumulative impacts. No avoidance, minimization, or mitigation measures are required.	--	--	--	--
OTHER CONDITIONS					
--	Curb ramps would be provided at all the intersections of Lemon Avenue and the SR-60 ramps under Alternatives 2, 3, and 4. All pedestrian facilities, including sidewalks, access ramps, and crosswalks will be designed consistent with the ADA.	City of Diamond Bar	During final design and construction		
--	Alternatives 2, 3, and 4 would require an encroachment permit from Caltrans for construction in State owned right-of-way.	City of Diamond Bar	During final design		
--	Alternatives 3 and 4 would require amendment of the existing Freeway Agreement.	City of Diamond Bar	During final design		

Attachment A Concept Plans

This attachment contains the following figures which provided detailed information for the proposed SR-60/Lemon Avenue interchange Alternatives.

Attachment Number and Name	Information Provided on Figure
Attachment C: Alternative 2 Layout (Sheets 1 to 3)	Layout Plan for Alternative 2
Attachment C: Alternative 3 Layout (Sheets 1 to 5)	Layout Plan for Alternative 3
Attachment C: Alternative 4 Layout (Sheets 1 to 5)	Layout Plan for Alternative 4
Attachment B: Typical Cross Section (Sheets 1 to 3)	Typical cross sections for the Lemon Avenue westbound (WB) on-ramp, the WB service road, the eastbound (EB) on- and off-ramps, and the EB hook off-ramp

Source: LSA Associates, Inc. (2006).

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

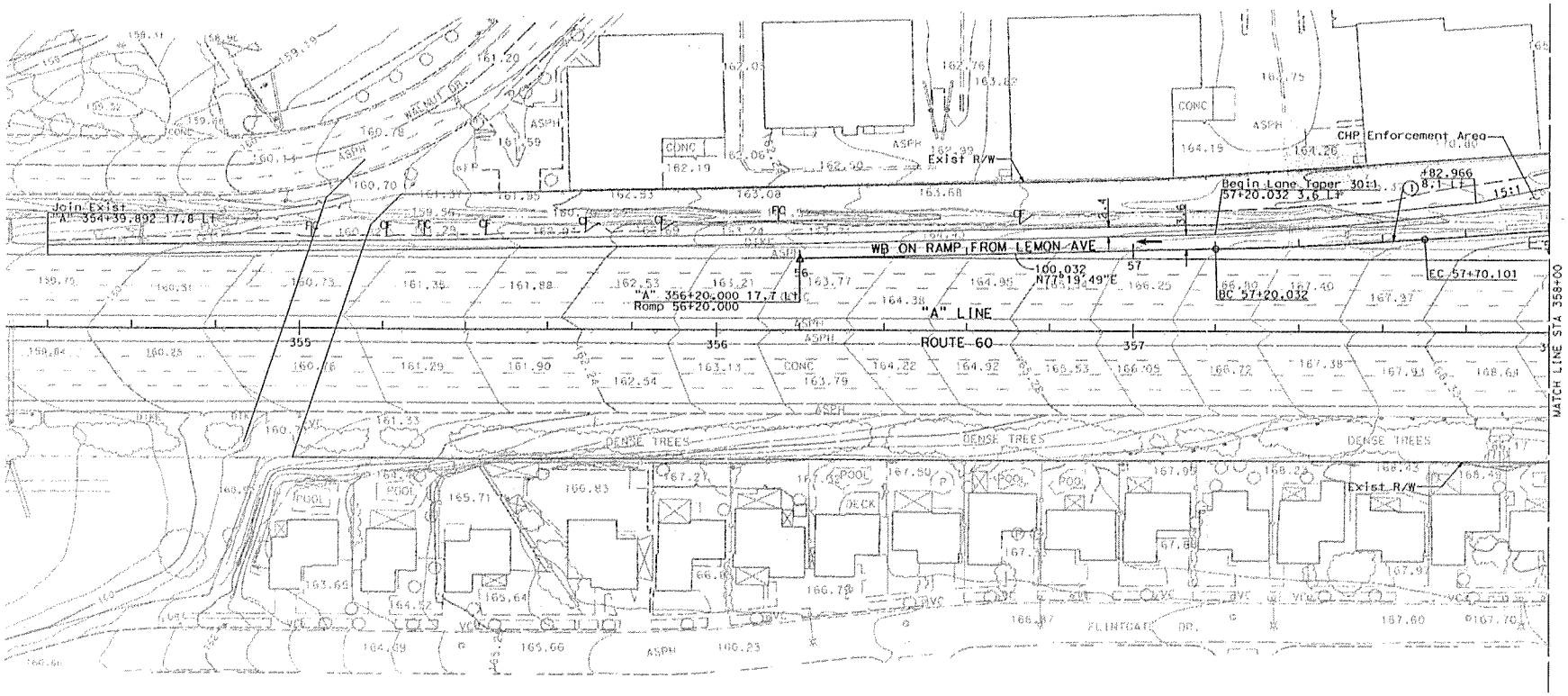
REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

To get to the Caltrans web site, go to: http://www.dot.ca.gov

Caltrans Metric

CURVE TABLE

No.	R	Δ	T	L
(1)	1000.0	02°52'07"	25.040	50.069



ATTACHMENT C
LAYOUT
ALTERNATIVE 2
SHEET 1 OF 3

SCALE 1:1000

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jefferg
DGN FILE => ...\sheets\AttchC_2_L-1.dgn

CU 00000 | EA 000000

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY | CHECKED BY | DATE REVISED BY | DATE REVISED

LAST REVISION 00-00-00 | DATE PLOTTED => 10/13/2006 | TIME PLOTTED => 02:49:25 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — CIVIL — STATE OF CALIFORNIA

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Caltrans Metric

DATE	REVISED BY	DATE REVISED

CALCULATED/ DESIGNED BY

CHECKED BY

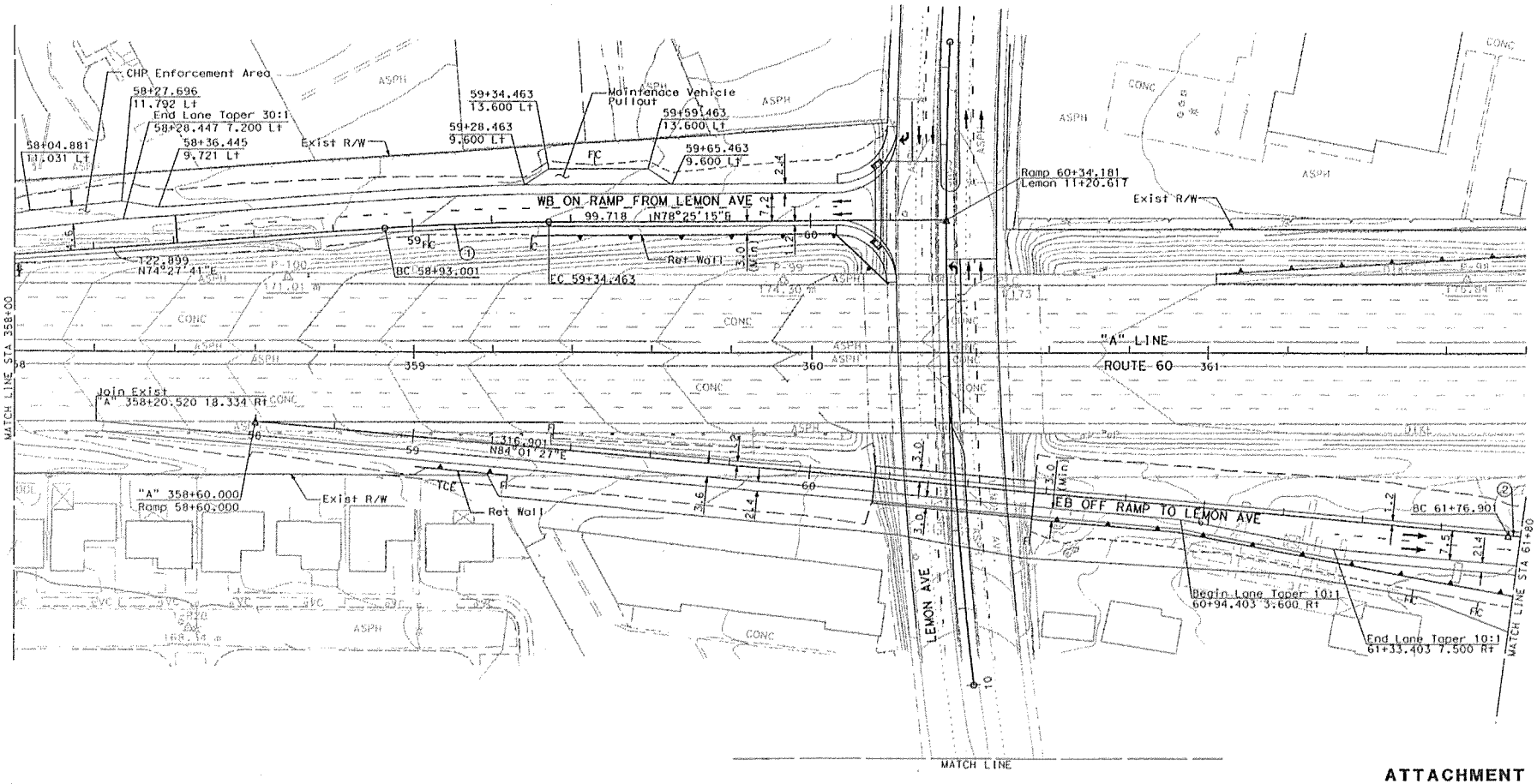
PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

CURVE TABLE

No.	R	Δ	T	L
(1)	600.0	03°57'34"	20.739	41.462
(2)	83.0	81°18'19"	71.272	117.781



SCALE 1:1000

ATTACHMENT C
LAYOUT
ALTERNATIVE 2
SHEET 2 OF 3

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

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CU 00000 EA 000000

LAST REVISION 00-00-00 PLOTTED => 10/13/2006 TIME PLOTTED => 03:03:33 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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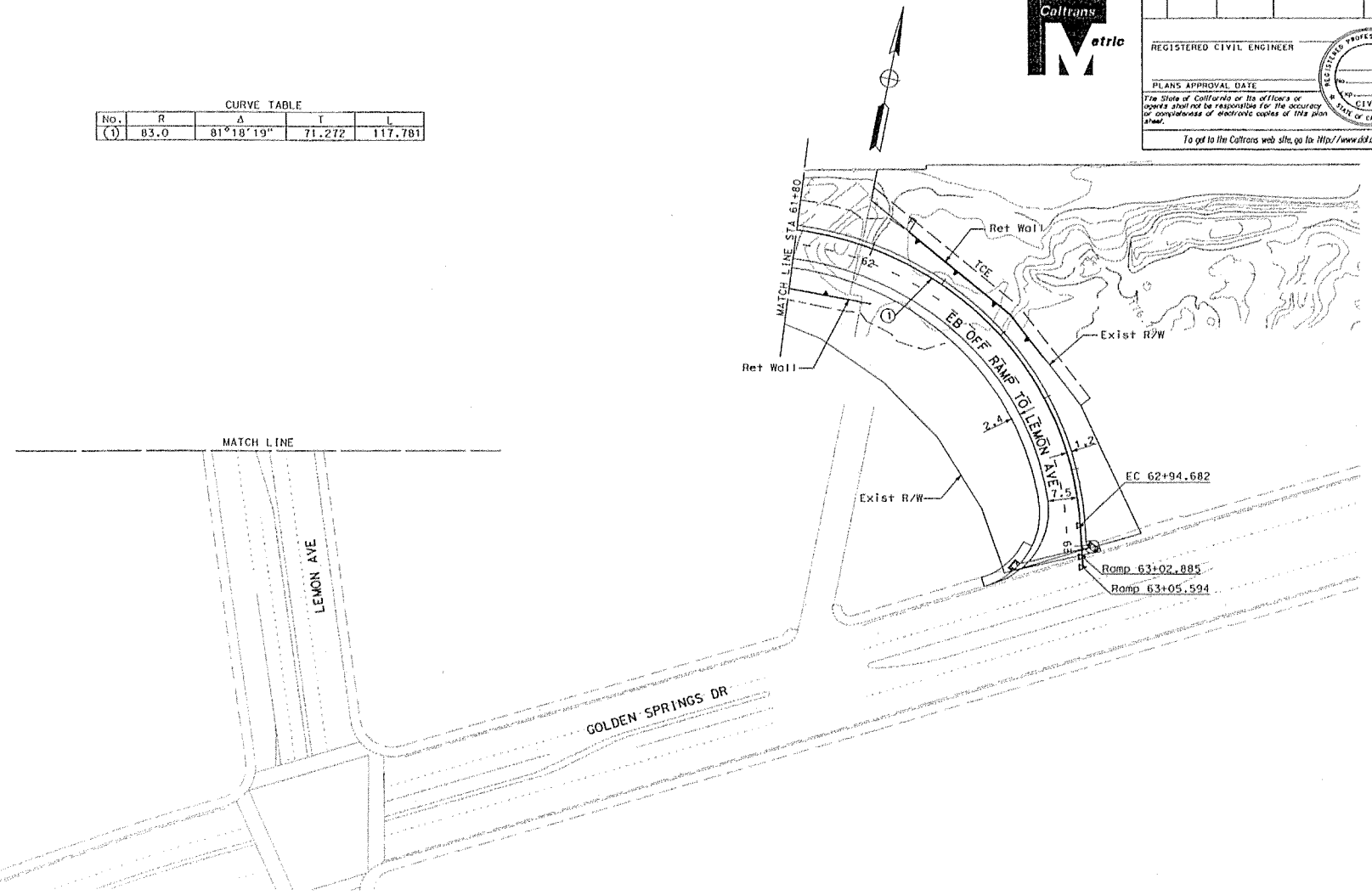
Caltrans Metric

CURVE TABLE

No.	R	Δ	T	L
(1)	83.0	81°18'19"	71.272	117.781



ATTACHMENT C
LAYOUT
ALTERNATIVE 2
SHEET 3 OF 3

SCALE 1:1000

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY

CHECKED BY

DATE REVISED BY

DATE REVISED

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jefferg
DGN FILE => ...\Sheets\AttchC_2_L-3.dgn

CU 00000

EA 000000

LAST REVISION 00-00-00

DATE PLOTTED => 10/13/2006
TIME PLOTTED => 02:51:48 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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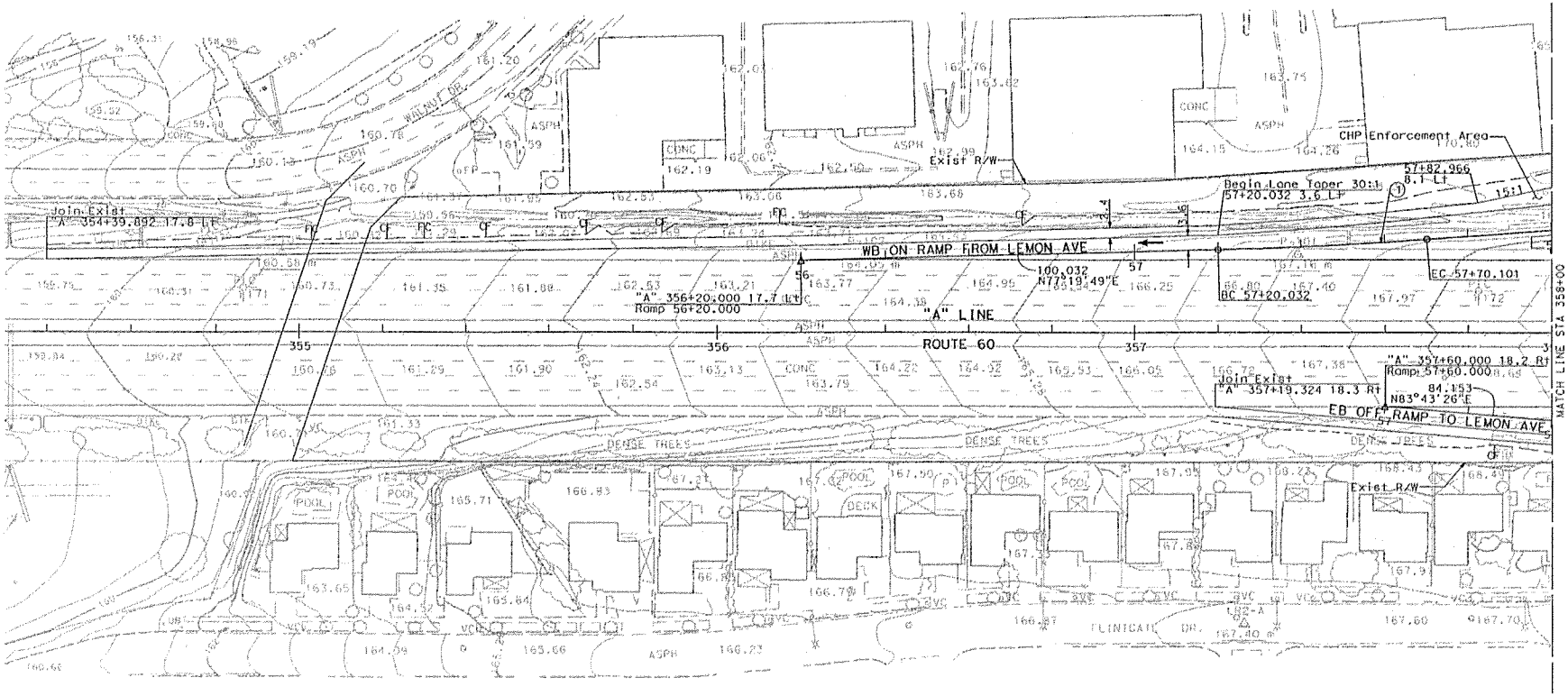
CURVE TABLE

No.	R	A	T	L
(1)	1000.0	02°52'07"	25.040	50.069



SCALE 1:1000

ATTACHMENT C
LAYOUT
ALTERNATIVE 3
SHEET 1 OF 5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
PROJECT ENGINEER
CALCULATED/DESIGNED BY
CHECKED BY
DATE REVISED BY
DATE REVISED

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

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DGN FILE => ...\sheets\attenC 3_1-1.dgn

CU 00000 EA 000000

DATE PLOTTED => 10/13/2006
TIME PLOTTED => 08:44:27

CURVE TABLE

No.	R	Δ	T	L
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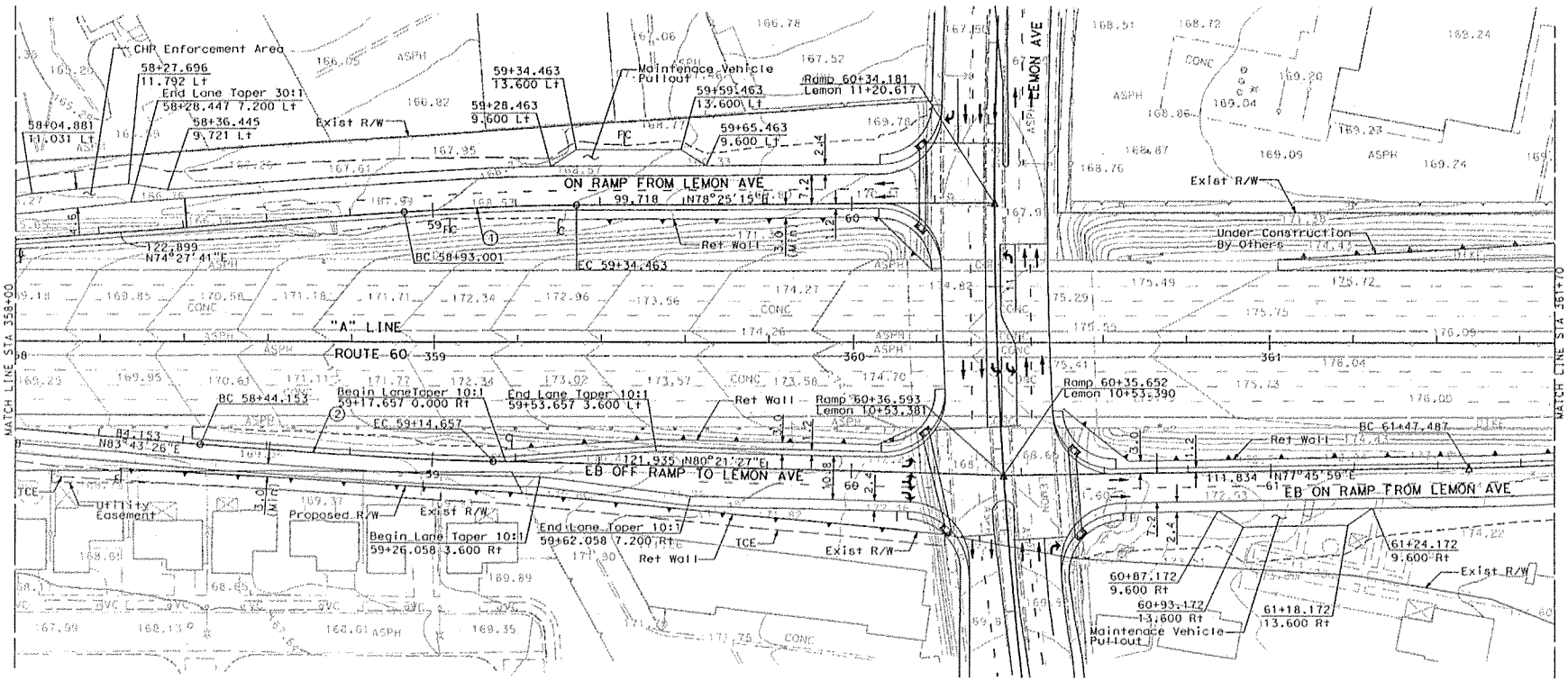
(2)	1200.0	03°21'59"	35.263	70.505



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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CHECKED BY

PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

ATTACHMENT C
LAYOUT
ALTERNATIVE 3
SHEET 2 OF 5

SCALE 1:1000

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jeffcg
DGN FILE => ...\sheets\attcnc_3_L-2.dgn

CU 00000

EA 000000

LAST REVISION 00-00-00 DATE PLOTTED => 12/13/2006 TIME PLOTTED => 08:41:27 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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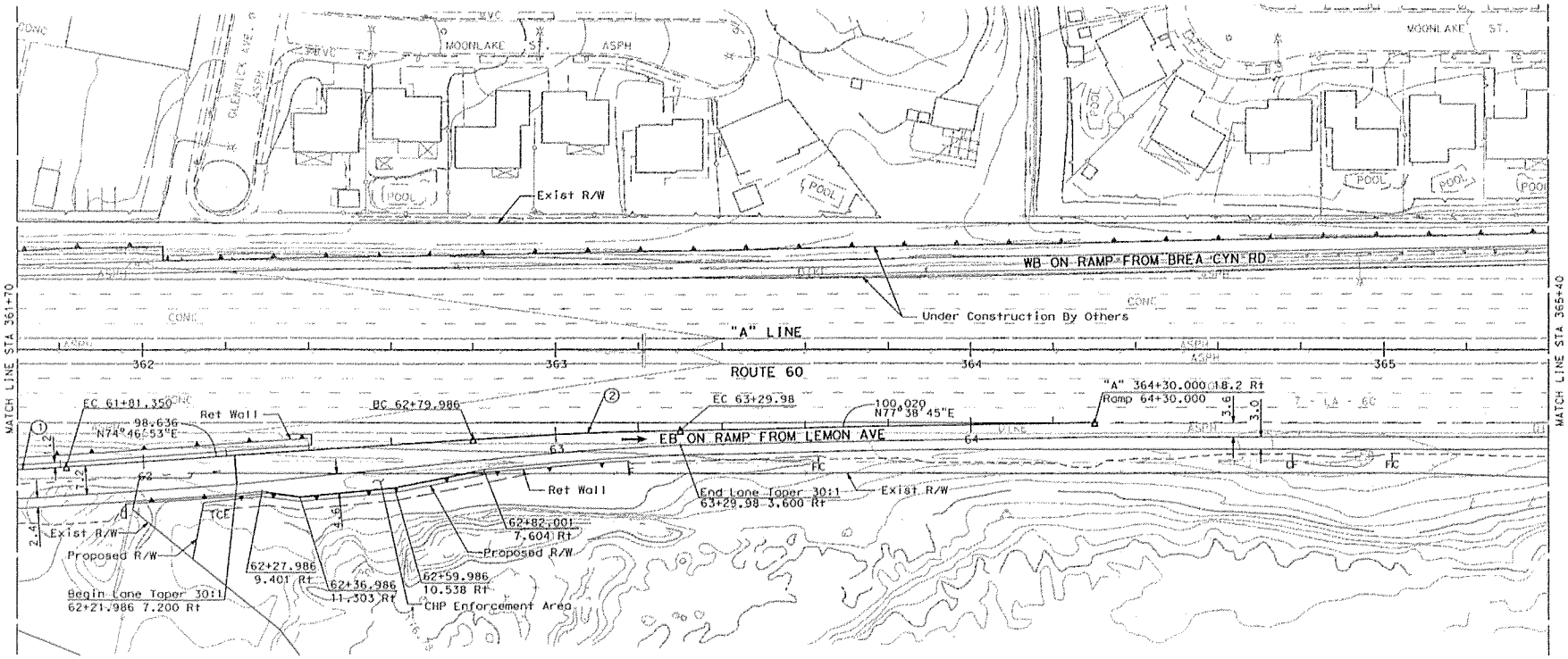
To get to the Caltrans web site, go to: http://www.dot.ca.gov

CURVE TABLE

No.	R	Δ	T	L
(1)	650.0	02°59'06"	16.936	33.864
(2)	1000.0	02°51'52"	25.002	49.994



ATTACHMENT C
LAYOUT
ALTERNATIVE 3
SHEET 3 OF 5

SCALE 1:1000

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jafferg
DGN FILE => ...\Sheets\AttachC_3_L-3.dgn

CU 00000 EA 000000

LAST REVISION 00-00-00 DATE PLOTTED => 10/13/2006 TIME PLOTTED => 03:58:02 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
PROJECT ENGINEER
CALCULATED/DESIGNED BY
CHECKED BY
DATE REVISED BY

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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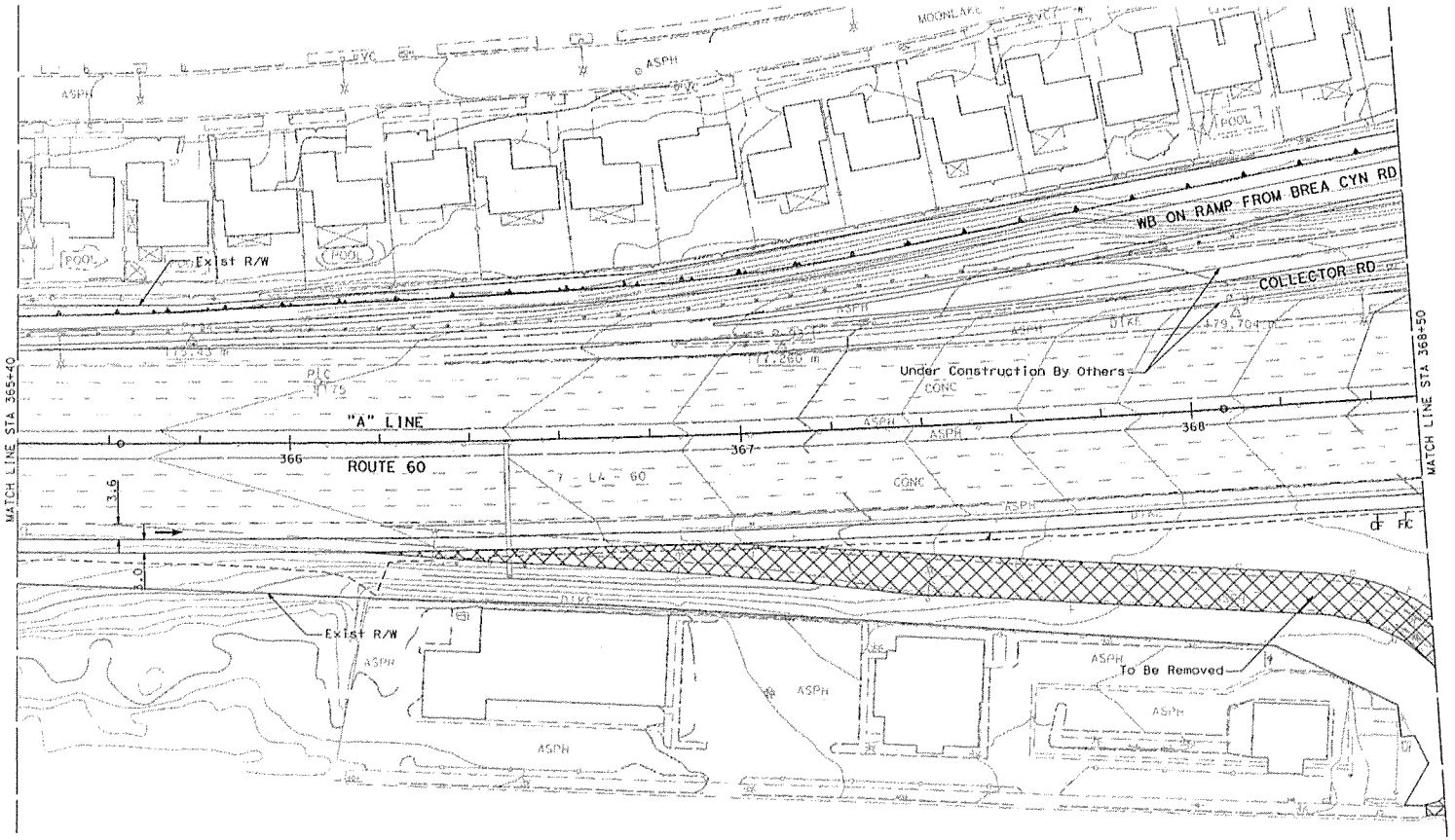
REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA — CIVIL — NO. — EXP.

To get to the Caltrans web site, go to: http://www.dot.ca.gov

Caltrans Metric

CURVE TABLE

No.	R	Δ	T	L
(1)	300.0	10°48'03"	28.361	56.554



SCALE 1:1000

ATTACHMENT C
LAYOUT
ALTERNATIVE 3
SHEET 4 OF 5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY

CHECKED BY

DATE	REVISED BY	DATE REVISED

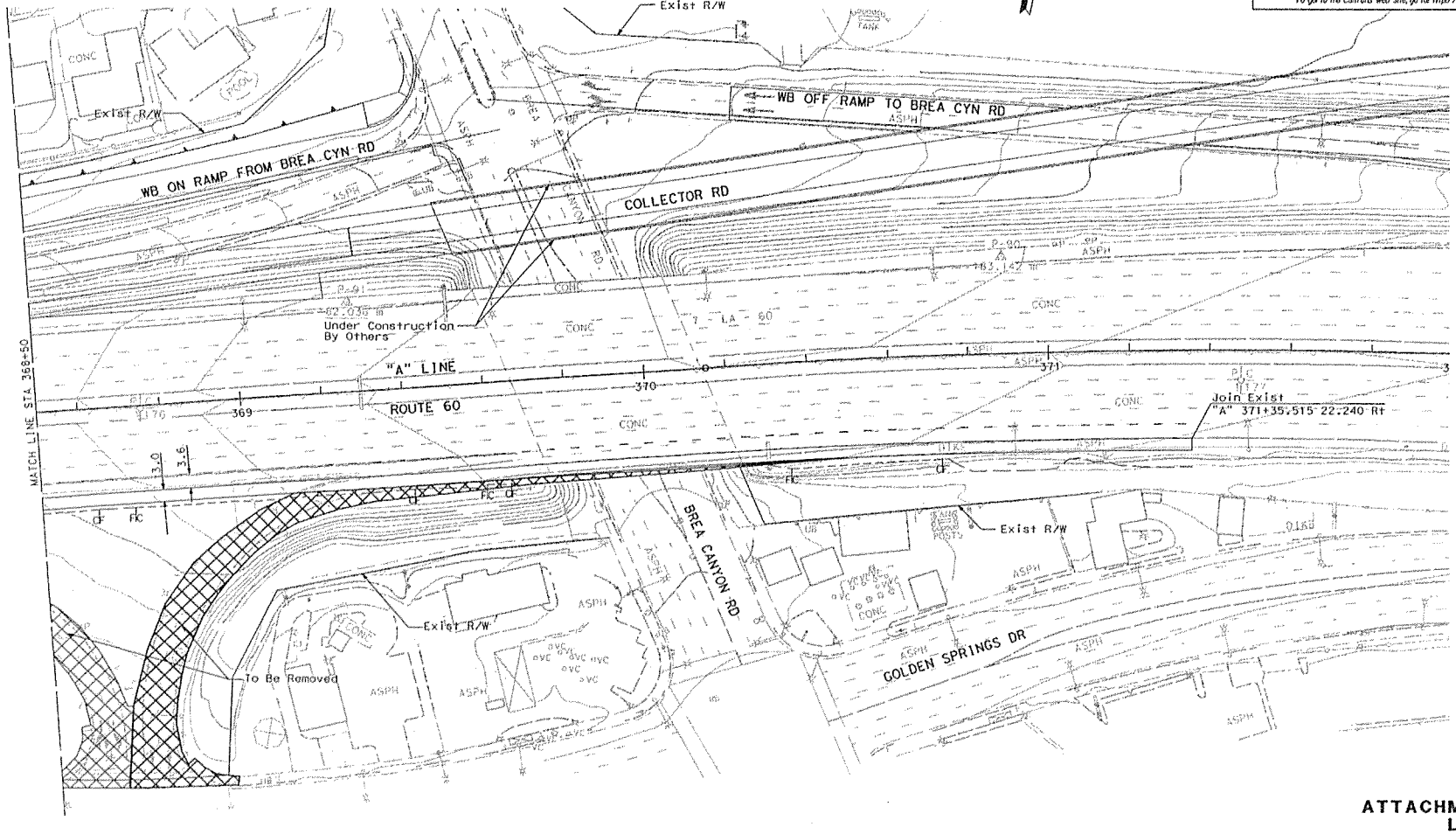
RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jeffery
DGN FILE => ...\sheets\attchC_3_L-4.dgn

CU 00000 EA 000000

LAST REVISION 00-00-00 DATE PLOTTED => 10/13/2006 TIME PLOTTED => 08:54:55 PM

CURVE TABLE				
No.	R	Δ	T	L
(1)	100.0	15°42'33"	13.795	27.417



SCALE 1:1000

ATTACHMENT C
LAYOUT
ALTERNATIVE 3
SHEET 5 OF 5

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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DATE	REVISED BY	DATE REVISED

CALCULATED/ DESIGNED BY

CHECKED BY

PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => Jeffery
DGN FILE => ...\Sheets\Attach C 3 L-5.dgn

CU 00000

EA 000000

LAST REVISION 00-00-00 DATE PLOTTED => 10/17/2006
TIME PLOTTED => 09:11:31

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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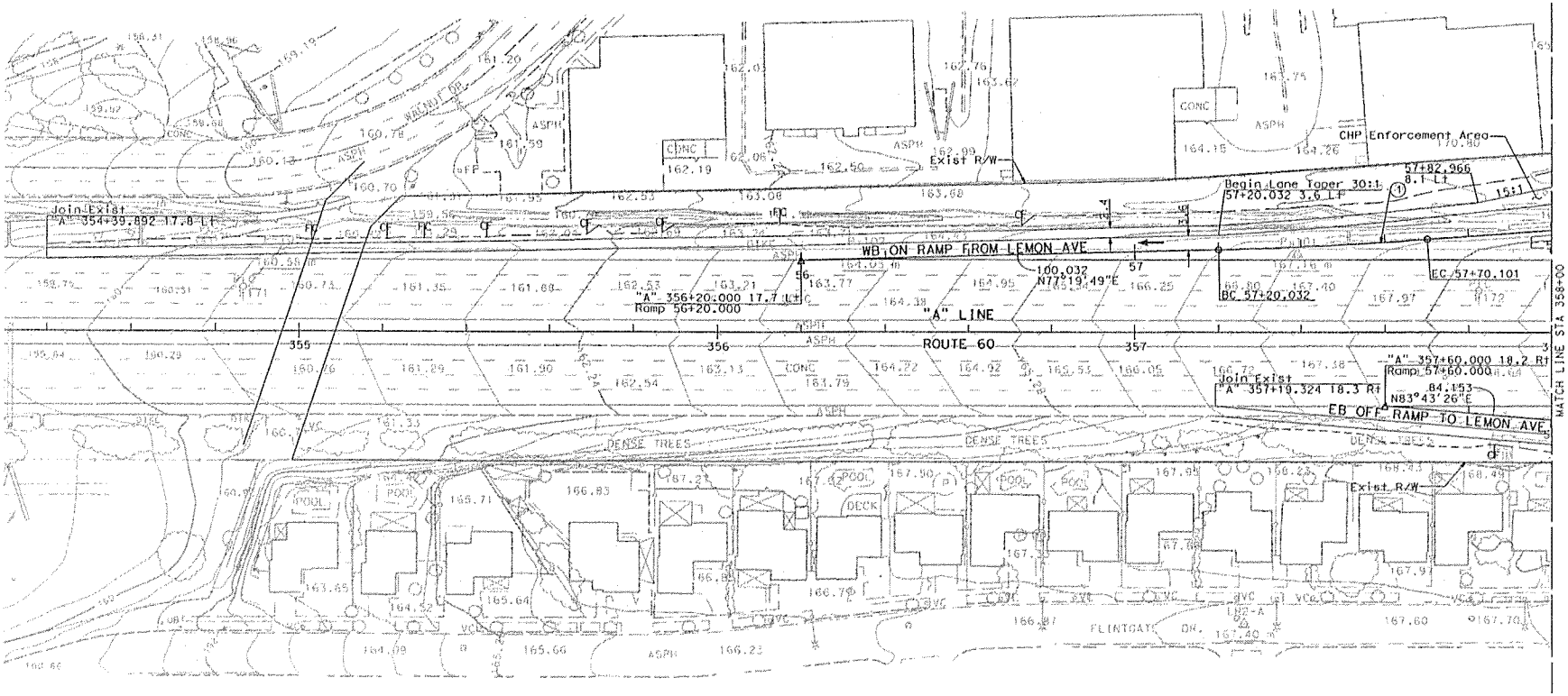
CURVE TABLE

No.	R	Δ	T	L
(1)	1000.0	02°52'07"	25.040	50.069



ATTACHMENT C
LAYOUT
ALTERNATIVE 4
SHEET 1 OF 5

SCALE 1:1000

DATE	REVISED BY	DATE REVISED

CALCULATED/ DESIGNED BY

CHECKED BY

PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => Jefferg
DGN FILE => ...\Graphs\Attchc_4_L-1.dgn

CU 00000

EA 000000

LAST REVISION 00-00-00

DATE PLOTTED => 10/12/2006
TIME PLOTTED => 07:41:32 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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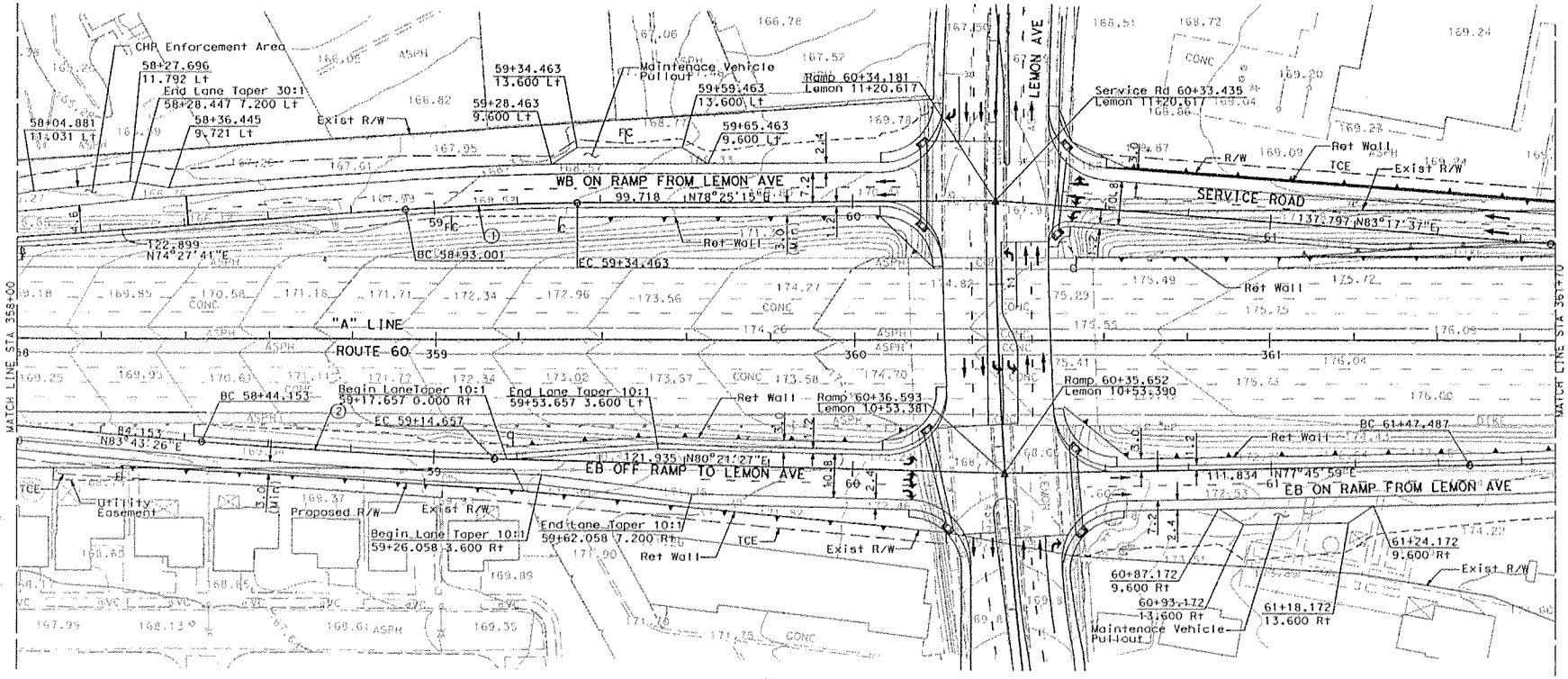
CURVE TABLE

No.	R	Δ	T	L
(1)	600.0	03°57'34"	20.739	41.462
(2)	1200.0	03°21'59"	35.263	70.505



ATTACHMENT C
LAYOUT
ALTERNATIVE 4
SHEET 2 OF 5

SCALE 1:1000

DATE REVISED BY | DATE REVISED
CALCULATED/DESIGNED BY | CHECKED BY
PROJECT ENGINEER
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => Jarferg
DGN FILE => ...\Sheets\AttchC_4_L-2.dgn

CU 00000 | EA 000000

LAST REVISION 00-00-00 | DATE PLOTTED => 10/13/2006 | TIME PLOTTED => 05:12:51 PM

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REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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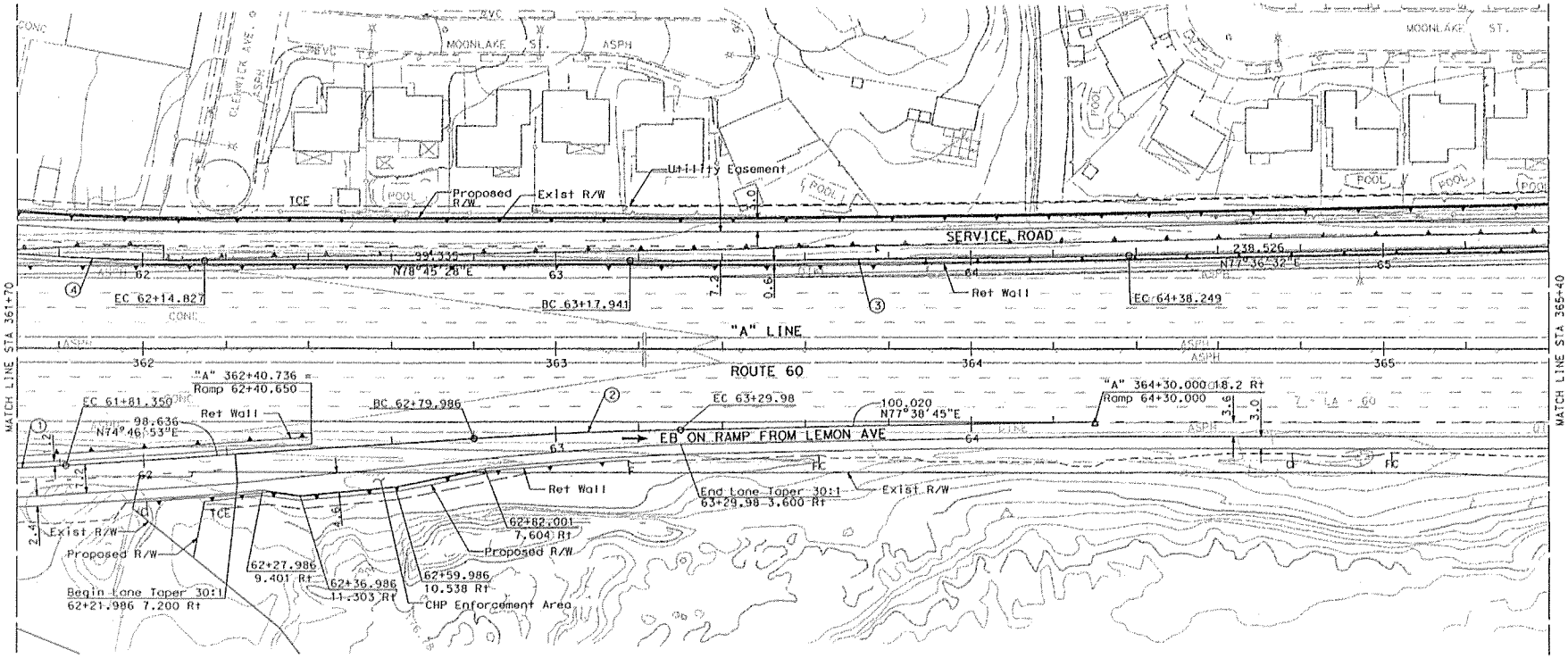
Caltrans Metric

CURVE TABLE

No.	R	Δ	T	L
(1)	650.0	02°59'06"	16.936	33.864
(2)	1000.0	02°51'52"	25.002	49.994
(3)	6000.0	01°08'56"	60.156	120.308
(4)	600.0	04°32'09"	23.762	47.500



ATTACHMENT C
LAYOUT
ALTERNATIVE 4
SHEET 3 OF 5

SCALE 1:1000

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jefferg
DGN FILE => ...\Sheets\AttchC_4_L-3.dgn

CU 00000 | EA 000000

LAST REVISION 00-00-00 | DATE PLOTTED => 10/13/2006 TIME PLOTTED => 03:09:34 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY | CHECKED BY | DATE REVISED BY | DATE REVISED

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

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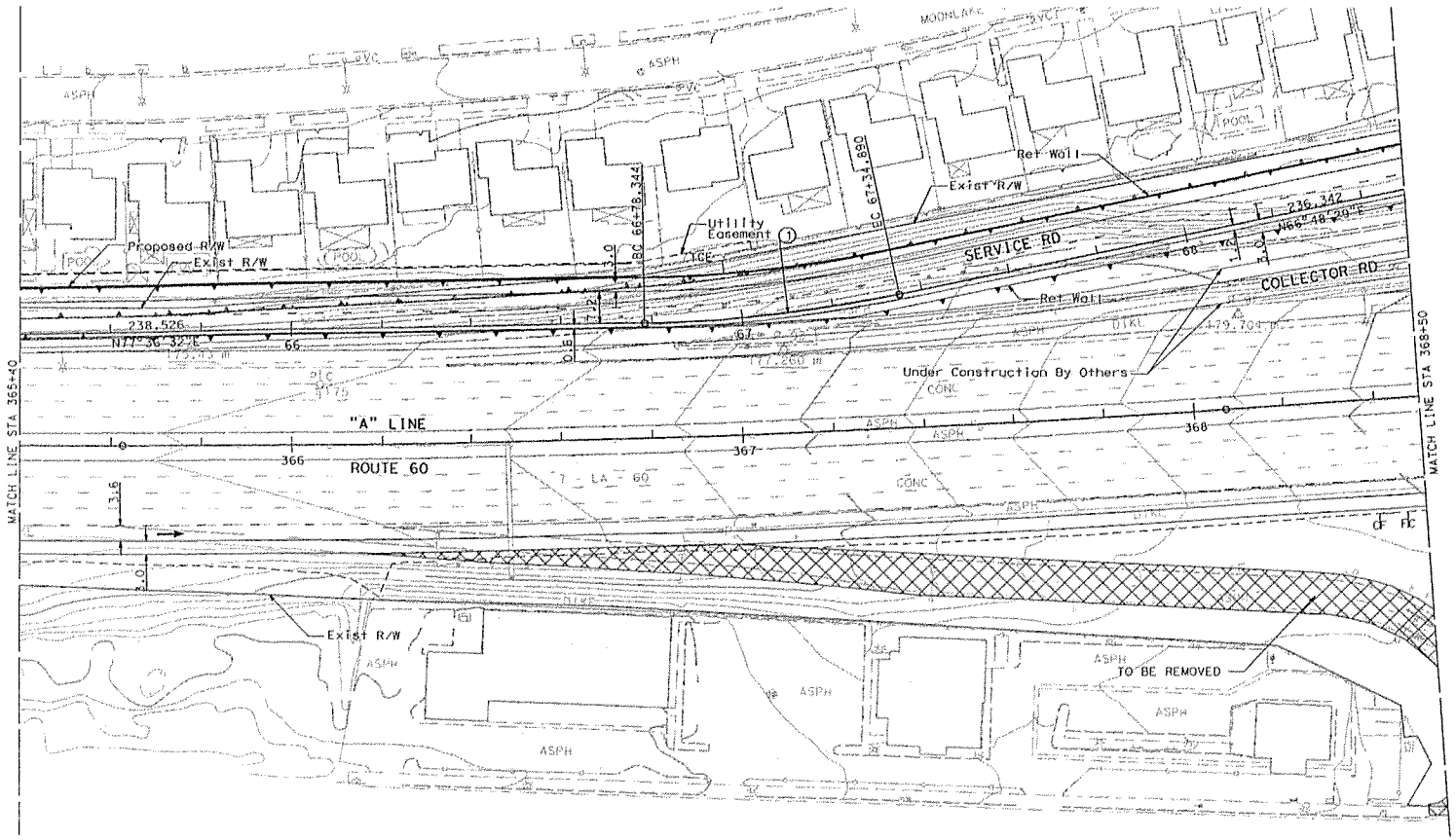
Caltrans Metric

CURVE TABLE

No.	R	Δ	T	L
(1)	300.0	10°48'03"	28.361	56.554



ATTACHMENT C
LAYOUT
ALTERNATIVE 4
SHEET 4 OF 5

SCALE 1:1000

DATE	REVISED BY	DATE REVISED

CALCULATED/ DESIGNED BY	CHECKED BY

PROJECT ENGINEER

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

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CU 00000

EA 000000

LAST REVISION 00-00-00 DATE PLOTTED => 10/13/2006 TIME PLOTTED => 03:30:45 PM

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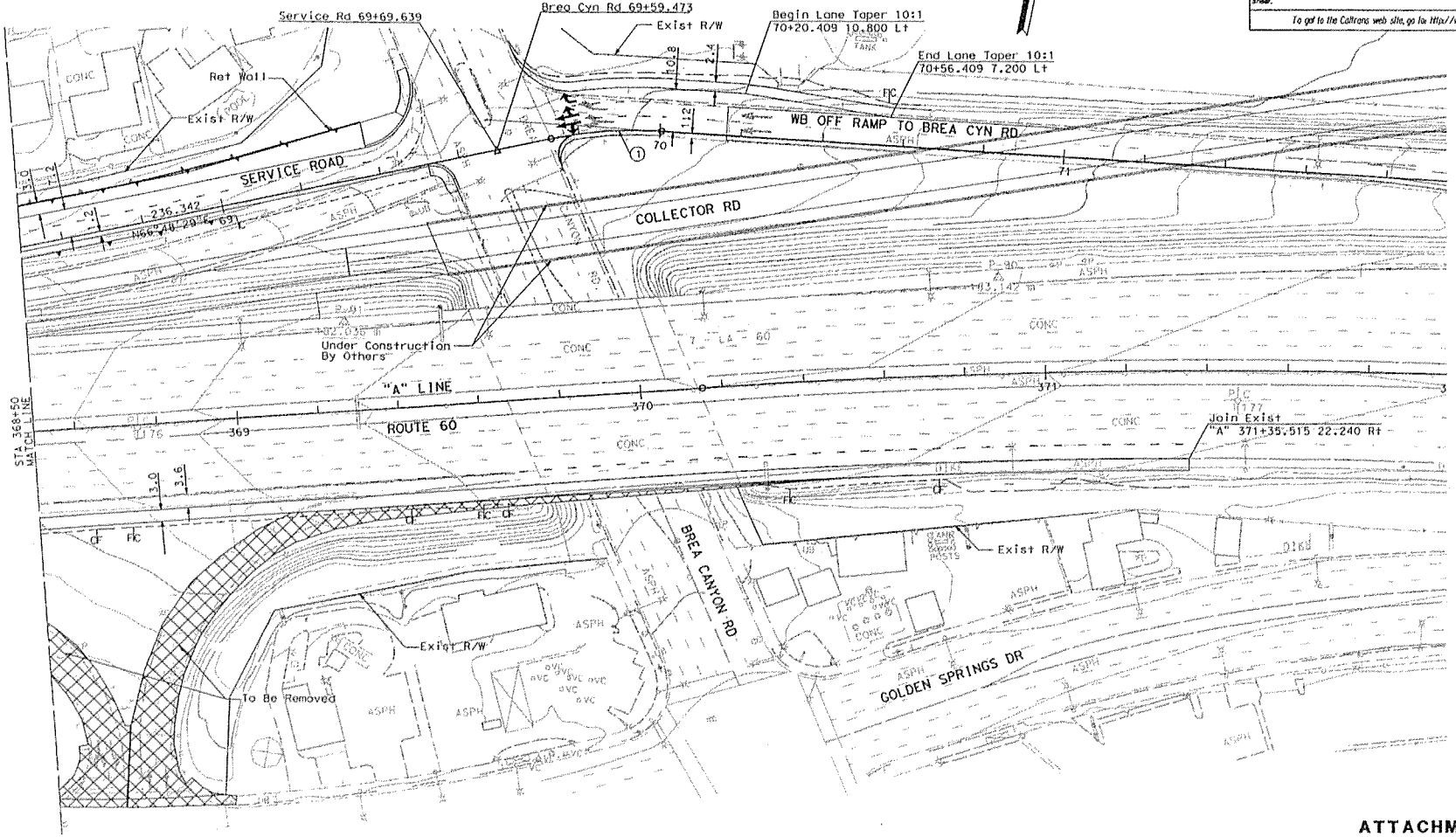

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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Caltrans Metric

ATTACHMENT C
LAYOUT
ALTERNATIVE 4
SHEET 5 OF 5

SCALE 1:1000

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

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CU 00000

EA 000000

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY

CHECKED BY

DATE REVISED BY

DATE REVISED

LAST REVISION 00-00-00

DATE PLOTTED => 10/13/2006
TIME PLOTTED => 03:23:16 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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Caltrans Metric

DATE	REVISED BY	DATE REVISED

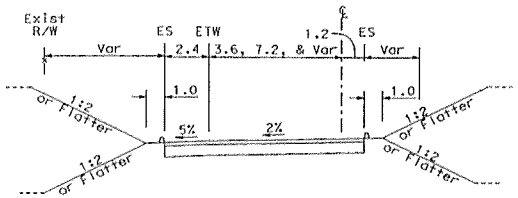
CALCULATED/DESIGNED BY

CHECKED BY

PROJECT ENGINEER

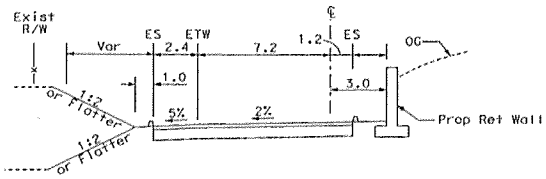
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans



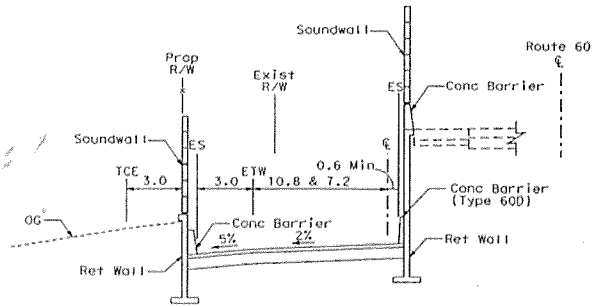
LEMON AVE WB ON RAMP

STA 56+20.00 TO STA 59+30.20



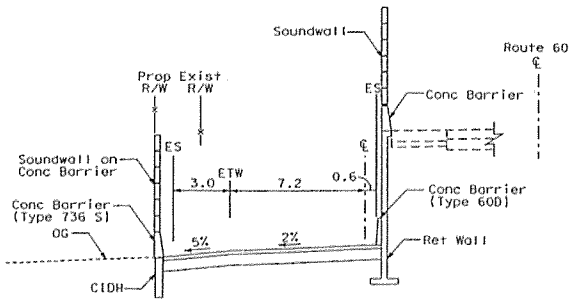
LEMON AVE WB ON RAMP

STA 59+30.20 TO STA 60+19.46



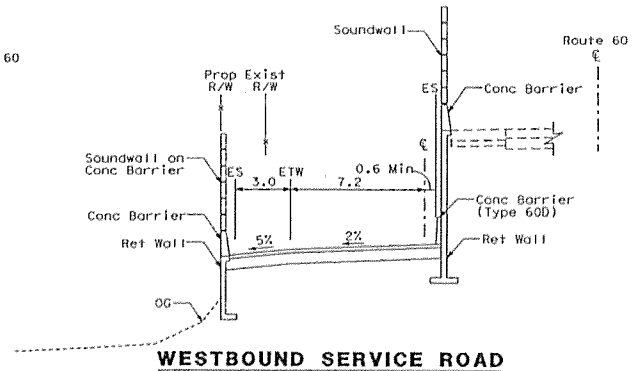
WESTBOUND SERVICE ROAD

STA 60+46.17 TO STA 61+57.55



WESTBOUND SERVICE ROAD

STA 61+57.55 TO STA 64+13.99



WESTBOUND SERVICE ROAD

STA 64+13.99 TO 69+36.61

ATTACHMENT B
TYPICAL CROSS SECTION

SHEET 1 OF 3

NO SCALE

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jeffcrg
DGN FILE => ...\702civil\sheets\Attchd_X-1.dgn

CU 00000

EA 000000

LAST REVISION 00-00-00

DATE PLOTTED => 10/16/2006
TIME PLOTTED => 01:12:38 PM

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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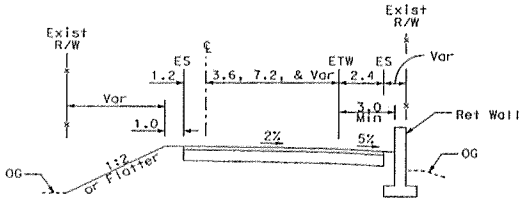
REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

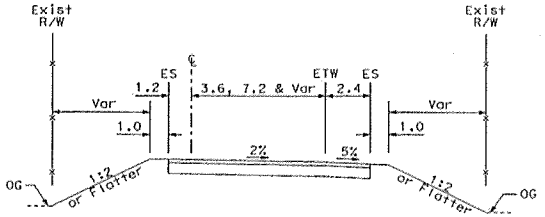
To get to the Caltrans web site, go to: http://www.dot.ca.gov

Caltrans Metric



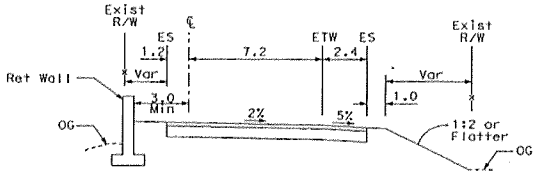
LEMON AVE EB HOOK OFF RAMP

STA 59+01.17 TO STA 59+24.63
STA 60+57.02 TO STA 62+05.71



LEMON AVE EB HOOK OFF RAMP

STA 58+60.00 TO STA 60+16.29
STA 62+51.03 TO STA 62.98.82



LEMON AVE EB HOOK OFF RAMP

STA 62+05.71 TO STA 62+51.03

ATTACHMENT B
TYPICAL CROSS SECTION

SHEET 3 OF 3

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

PROJECT ENGINEER

CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

RELATIVE BORDER SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => jefferg
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CU 00000 | EA 000000

LAST REVISION 00-00-00 | DATE PLOTTED => 10/16/2006 TIME PLOTTED => 01:22:30 PM

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