Interstate 5 Corridor Improvement Project

Los Angeles and Orange Counties, California

DRAFT EIR - EIS

Draft Environmental Impact Report/ Environmental Impact Statement And Section 4(f) Evaluation

INTERSTATE CALIFORNIA 5

Interstate 5
CORRIDOR IMPROVEMENT PROJECT

CHRONICLING THE IMPROVEMENT PROJECT OF THE INTERSTATE-5 CORRIDOR

Prepared by the State of California Department of Transportation and the U.S. Department of Transportation Federal Highway Administration

Caltrans

SANTA ANA FREEWAY

INTERSTATE CALIFORNIA 5

91 to INTERSTATE CALIFORNIA 605

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

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INTERSTATE 5 (SANTA ANA FREEWAY)
FROM STATE ROUTE 91 IN ORANGE COUNTY TO
INTERSTATE 605 IN LOS ANGELES COUNTY, CALIFORNIA

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT AND SECTION 4(F EVALUATION

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Date

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Abstract

This Draft EIR/EIS addresses proposed alternatives, including freeway widening, designed to improve the operation and safety of Interstate 5 (Santa Ana Freeway) corridor from State Route 91 in Orange County to Interstate 605 in Los Angeles County. The Locally Preferred Alternative would involve landform alterations and aesthetic impacts, displacement of existing urban land uses and community disruption, air quality and noise effects, impacts upon utilities and short-term construction impacts. Mitigation measures would reduce the level of significance of some of these impacts.

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SUMMARY

INTRODUCTION AND BACKGROUND

Interstate 5 (I-5) is a major regional transportation corridor that extends the entire length of the western United States from Mexico to Canada. It also serves as the backbone of the transportation system connecting the major urban centers of Los Angels County and Orange County. I-5 was originally constructed as a six-lane facility in Los Angeles and Orange Counties. The portion of I-5 north of Interstate 605 (I-605) has been widened to eight mixed-flow lanes. The portion of I-5 in Orange County south of State Route 91 (SR 91) has been widened to ten lanes (eight mixed flow lanes and two High Occupancy Vehicle (HOV) lanes). The section of I-5 between the vicinity of SR 91 and I-605 in Los Angeles County is currently composed of six mixed-flow lanes. This segment acts as a traffic bottleneck and effectively limits capacity for the entire corridor. As a separate project, the segment between SR 91 and Western Avenue in Orange County would be widened to at least eight lanes (3 mixed flow lanes and one HOV lane in each direction), moving the southern end of the bottleneck north into Los Angeles County. Construction of the project from State Route 91 to Western Avenue began in March 2006.

To address these deficiencies, this project is being developed collectively by the U.S. Federal Highway Administration (FHWA), Caltrans, Los Angeles County Metropolitan Transportation Authority (LACMTA), and Orange County Transportation Authority (OCTA), in cooperation with the I-5 Consortium Cities Joint Powers Authority (I-5 JPA).

PURPOSE AND NEED

The primary purpose of the proposed project is to reduce existing and forecast traffic congestion on Interstate 5 between SR 91 and I-605. The proposed project would include short- and long-term strategies to improve regional air quality. The proposed project also implements Traffic Control Measures (TMCs) that are included in the Statewide Implementation Plan (SIP). Reconstruction of Interstate 5 would allow the State to implement current functional and safety design standards, which would increase safety and overall operation of the facility.

If no improvements are made in the affected section of I-5, traffic delays caused by congestion would substantially increase by the year 2015. The proposed HOV lanes would also provide a needed linkage in the HOV system on Interstate 5 between State Route 91 and Interstate 605. If no improvements are made within the project limits, the northbound section just north of SR 91 would continue as a major bottleneck.

PROJECT LOCATION

The proposed I-5 Corridor Improvement Project encompasses the I-5 Corridor from State Route 91 in Orange County in the south through the Interstate 5/605 interchange in Los Angeles County in the north, a distance of approximately 15 kilometers (9 miles). The proposed freeway mainline improvements would occur within the cities of Buena Park, La Mirada, Santa Fe Springs and Downey. Some non-mainline improvements are proposed in the City of Cerritos (see figure 1-1.1).

DESCRIPTION OF THE PROPOSED ACTION

The general purpose of the proposed action is to enhance capacity within the corridor. Summarized below are the five alternatives that have been evaluated in the Environmental Impact Report/Environmental Impact Study (EIR/EIS) for the proposed I-5 Corridor Improvement Project. Each includes at least one of the following elements: freeway, bus, rail, intelligent transportation systems (ITS), transportation demand management (TDM), truck, HOV, and roadway improvements. Four build alternatives and a No Build Alternative is being considered for implementation. The five alternatives are:

- Alternative 1: No Build Alternative (includes I-5 Interim HOV Improvements)
- Alternative 2: Transportation Systems Management/Transportation Demand Management
- Alternative 3: Transit Enhancement
- Alternative 4: Ten Lane Facility
- Alternative 5: Twelve Lane Facility

In addition, there are sub-alternatives within several of the project alternatives with minor changes from the alternatives themselves. The final recommended project be a hybrid combination of two or more of these alternatives or their sub-alternatives.

Description of Alternatives

Alternative 1: No Build Alternative

The No Build Alternative assumes that no improvements are made to the I-5 corridor beyond those already committed, funded, and expected to be in place by the year 2025. The No Build is an eight-lane facility which includes construction of the I-5 Interim HOV Lane Improvement Project. The elements of the No Build Alternative are to be implemented by the local agencies and jurisdictions sponsoring them. The key elements of the No Build Alternative are identified in Table 2-1 and include elements for bus, rail, Intelligent Transportation Systems, Traffic Demand Management, Truck and Roadway improvements.

Alternative 2: Transportation Systems Management/Transportation Demand Management Alternative (TSM/TDM)

The goal of the TSM/TDM Alternative is to increase the operational efficiency of the existing facilities and to shift transportation users to higher capacity modes such as transit. The TSM/TDM Alternative goes beyond the No Build Alternative by adding transportation system management techniques to those elements already assumed in the No Build Alternative. In addition, it is assumed that the elements of the TSM/TDM Alternative are to be implemented by the local agencies and jurisdictions sponsoring them. This alternative does not include any improvements to the State facility. The key elements of the TSM/TDM Alternative are identified in Table 2-1 and include elements for bus, rail, Intelligent Transportation Systems, Traffic Demand Management, Truck and Roadway improvements above and beyond those already planned as part of the no-build alternative.

Alternative 3: Transit Enhancement

This alternative would improve the efficiency of transit service through the Interstate 5 corridor. This would be accomplished with the modification and addition of new local and express transit routes. Other improvements under this alternative include: decreasing the headway between

buses and alignment of new and modified routes to connect transit hubs and park and ride facilities in the corridor.

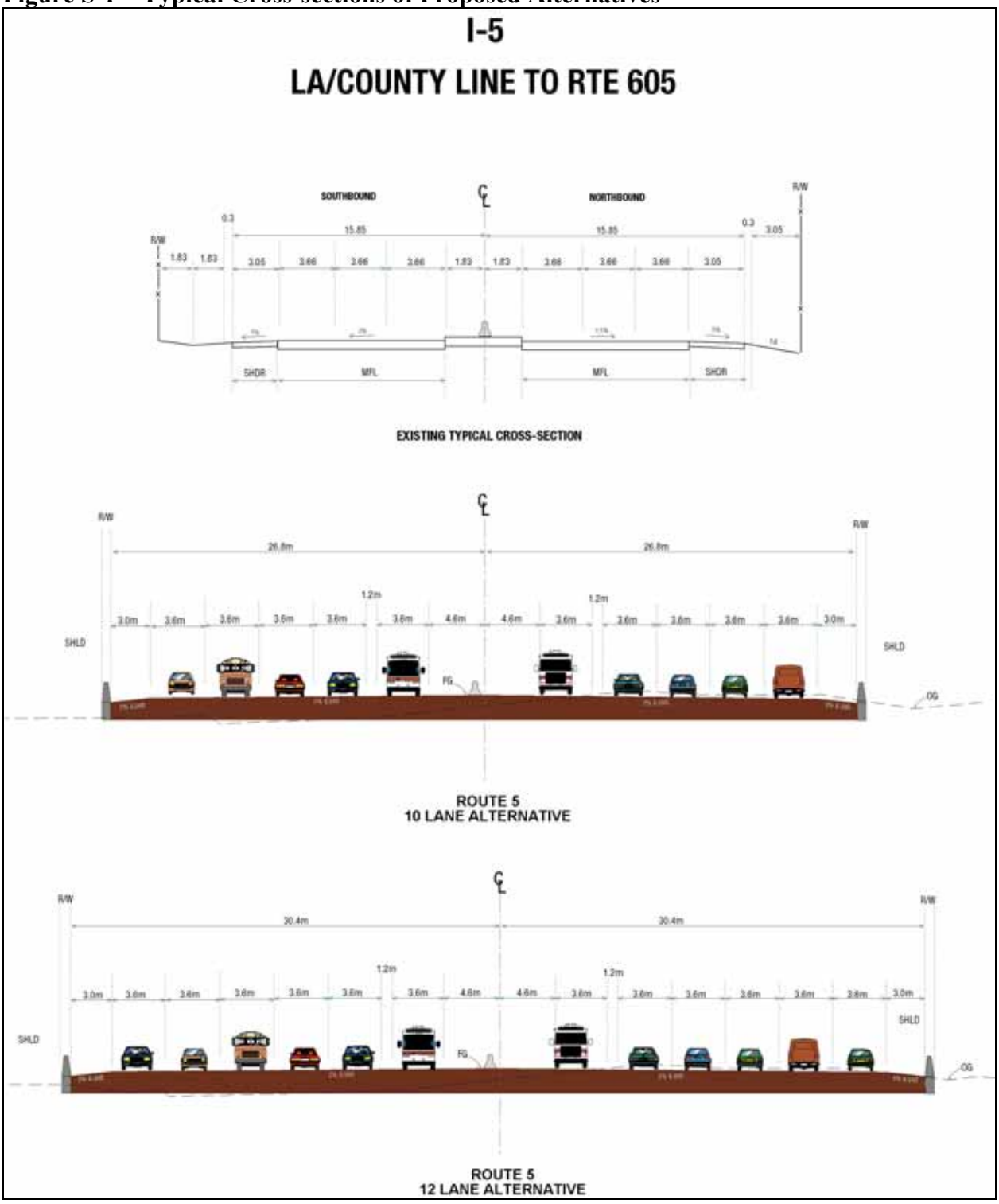
The major elements of the selected **Transit Enhancement Alternative** (TEA) include:

- Three possible new transit park and ride joint development sites along the I-5 corridor, with approximately 800 total spaces, near Florence Avenue, Imperial Highway and Rosecrans Avenue at Bloomfield Avenue. These sites could be developed as joint land use transit oriented parking development locations and would be subject to further discussions with local agencies. This may require supplemental environmental documentation if specific land use proposals are not identified prior to selection of preferred alternative.
- Increased frequency and route improvements on several local bus lines in Los Angeles County: Florence Avenue, Firestone Boulevard, Imperial Highway, Rosecrans Avenue, Alondra Boulevard, and Artesia Boulevard in the east-west orientation; and Carmenita Road in the north-south orientation.
- Limited stop bus service increases/implementation on Firestone Boulevard, Whittier Boulevard, Beach Boulevard and La Palma Avenue.
- More frequent express buses along I-5 and I-605 and new express routes serving the Norwalk Green Line station and the park and ride lots along I-5.
- Expansion of Metrolink Service. Various agencies, including the I-5 JPA are working together to increase the commuter rail service between Orange County and Los Angeles County. This would benefit the I-5 freeway corridor.

Alternatives 4 and 5

The proposed project consists of widening the existing six-lane facility to provide an HOV lane and 4 (or 5) general-purpose lanes in each direction. For all design alternatives, the project proposes to alter the profile grade of the facility to meet sight distance and design speed standards improve the operation and safety of the facility. To reduce future impacts to the I-5 JPA Cities, and in anticipation of future traffic needs, all over-crossing structures would be constructed to span across a standard 12 lane freeway cross section. All existing nonstandard hook ramps would be replaced with standard tight diamond configuration ramps. In areas with sensitive right of way, ramp construction would utilize retaining walls instead of embankments. These alternatives proposes 30-foot-wide median, (22-foot-wide medians are proposed within the Carmenita segment, as per Agreement with the JPA, Joint Powers Authority). Use of 22-foot medians at other locations for specific impact mitigation is also being considered.

Figure S-1 – Typical Cross-sections of Proposed Alternatives



The project would also enhance safety and improve operation for local communities by constructing a railroad grade separation on Valley View Boulevard and re-establishing the continuity of Bloomfield Avenue with an under-crossing. Other cross streets and frontage roads would be reconstructed to improve local circulation.

The project would be constructed in smaller segments to limit consecutive ramp closures, minimize traffic congestion during construction, minimize impact to the residents and businesses within the communities, and limit the size of construction contracts to a manageable level.

Construction of the I-5 Corridor Improvement Project is currently programmed to take place over a 5 ½ year period and could begin as early as July 2011. The project would be constructed in smaller segments to prevent consecutive ramp closures, minimize traffic congestion during construction, minimize impact to the residents and businesses within the communities, and limit the size of construction contracts to a manageable level. The construction period for each segment is expected to be less than 5 years.

Alternative 4: Ten Lane Facility
The existing freeway provides three general-purpose lanes in each direction from SR 91 to I-605. The addition of two lanes in each direction is proposed under this alternative. One mixed flow lane and one HOV lane in each direction would bring the total number of lanes to ten. The typical cross-section width of Interstate 5 would be widened from 39 meters (128 feet) to 54 meters (177 feet) under this alternative. Existing soundwalls would be replaced. New soundwalls would be constructed concurrently with the proposed project where noise levels approach or exceed federal noise abatement criteria in residential areas if said mitigation is reasonable and feasible. There are two design variations for this alternative. Those variations are described below.

Alternative 4A: Ten-Lane, Modified MIS Alignment
This alternative includes widening the existing Interstate 5 facility to a full standard, ten-lane, at-grade facility between State Route 91 and Interstate 605. The alignment for this alternative, for the most part, follows the existing centerline alignment of the existing mainline. The proposed alternative represents a modified version of the alignment proposed by the Locally Preferred Alternative in the Major Investment Study (MIS). This alternative proposes four mixed flow lanes and one HOV lane in each direction.

Alternative 4B: Ten-Lane, Value Analysis Alignment
This alternative includes widening the existing Interstate 5 facility to a full standard, ten-lane, at-grade facility between State Route 91 and Interstate 605. The alignment for this alternative was generated to reduce right of way impacts by significantly shifting the existing centerline alignment to the northbound or southbound side of the freeway. Thus, in this alternative, most right-of-way acquisition is limited to one side of the freeway. Locations of alignment shifts were determined in coordination with local cities. This 10-lane Alternative on the Value Analysis alignment maintains all other characteristics of the Modified MIS Alternative.

Alternative 5: Twelve Lane Facility
Alternative 5 would consist of adding three additional lanes to the existing facility in each direction. One mixed flow lane, one HOV lane, and either another mixed flow or HOV lane would increase the freeway to twelve lanes. The typical cross-section width of Interstate 5 would be widened from 39 meters (128 feet) to 61 meters (200 feet) under this alternative. There are two design variations for this alternative. Those variations are described below.

Alternative 5A: Modified 12-lane Alternative
This alternative maintains the same alignment as the Modified 10-Lane alternative. The Modified 12-lane alternative proposes adding an additional lane in each direction. This additional lane would be either an HOV lane or a mixed flow lane.

Alternative 5B: Value Analysis 12-lane Alternative
This alternative maintains the same alignment as the Value Analysis 10-lane Alternative with an additional lane in each direction. The additional lane could be either a mixed flow or an HOV lane.

SUMMARY OF MAJOR ENVIRONMENTAL IMPACTS

Potential Impacted Resource		No-Build Alternative	Alternative 2 TSM/TDM	Alternative 3 Transit Enhancement	Alternative 4A Modified MIS 10-lane	Alternative 4B Value Analysis 10-lane	Alternative 5A Modified MIS 12-lane	Alternative 5B Value Analysis 12-lane
Land Use and Planning (Consistency with City General Plans)		Inconsistent	Consistent	Consistent	Consistent	Consistent	Inconsistent	Inconsistent
Growth Inducement		Restricting or No Impact			No Impact	No Impact	No Impact	No Impact
Farmlands/Agricultural Lands		No Impact	No Impact	No Impact	No Impact	No Impact	No Impact	No Impact
Community Impacts	**Relocations**	No Impact	No Impact	No Impact	198 Residential 48 Commercial	102 Residential 43 Commercial	205 Residential 52 Commercial	108 Residential 43 Commercial
	Community Character and Cohesion	No Impact	No Impact	No Impact	Temporary neighborhood disruption during construction periods. Displacement of residents in established neighborhoods.			
	Environmental Justice	No Impact						
Utilities & Emergency/Community Services		No Impact			Possible Intermittent utility disruption during relocation Possible delays in response time for fire, police, and emergency services			
Traffic Transportation Pedestrian Bicycle Parking	**Interstate 5 Corridor**	Substantial degradation of Corridor Level of Service			Improvement in existing and future Corridor Level of Service			
	Transit Service	No Impact	Some improvement	Noticeable improvement in transit service	Temporary change in bus routes and bus stops during construction Some operational improvement due to improved corridor Level of Service			
	Pedestrian Access	No Impact			Temporary pedestrian access impacts during construction periods Improved operational pedestrian access from new pedestrian over-crossing			
	Bicycles	No Impact			Improved operational bicycle access across freeway			
	Parking	No Impact		Additional parking at 3 proposed Park-and-Ride lots	Temporary loss of parking access and street parking during construction periods. Net loss of on- and off-street parking during project operation.			
Visual/Aesthetics		No Impact			Temporary visual degradation during construction periods. Substantial change in appearance of freeway facility. Enhanced freeway landscaping on right-of-way and remnant parcels and aesthetic treatment of structures and soundwalls.			
Cultural Resources	**Historic Resources**	No Impact						
	Archaeological Resources	No Impact			Low likelihood of discovery of subsurface archaeological resources			
Hydrology & Floodplains		No Impact			Increase in freeway drainage surface area			

SUMMARY OF MAJOR ENVIRONMENTAL IMPACTS							
Potential Impacted Resource	**No-Build Alternative**	**Alternative 2 TSM/TDM**	**Alternative 3 Transit Enhancement**	**Alternative 4A Modified MIS 10-lane**	**Alternative 4B Value Analysis 10-lane**	**Alternative 5A Modified MIS 12-lane**	**Alternative 5B Value Analysis 12-lane**
Water Quality & Storm Water Run-off	No Impact			Increase in pollutants from freeway during rain events			
Geology/Soils/Seismic/ Paleontology/Topography	No Impact			Low likelihood of discovery of paleontological resources Minor changes in topography adjacent new structures.			
Hazardous Materials	No Impact			Likelihood of encountering aerially deposited lead, asbestos-containing materials, and lead-based paint. Possible discovery of unknown oil or gas wells and underground storage tanks. Possible discovery of contaminated soils and groundwater.			
Air Quality	Continued degradation of air quality			Temporary fugitive dust and diesel engine emissions during construction periods. Decreased air pollutant emissions during operation.			
Noise & Vibration	No Impact			Temporary increase in noise levels during construction periods. Increase in noise levels during operation.			
Energy	Increasing levels of fossil fuel consumption	Marginal improvement in fossil fuel consumption compared to the No-Build		One-time expenditure of energy to construct Improvements Overall improvement in fossil fuel efficiency of corridor.			
Wetlands & Waters of the United States	No Impact			Temporary impacts to Other Waters of the U.S during construction periods.			
Vegetation	No Impact			Removal of vegetation, including mature trees			
Wildlife	No Impact			Habitat loss for urban wildlife and nesting birds			
Threatened & Endangered Species	No Impact						
Section 4(f) Resources	No Impact			Marginal use of 2 parks			

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Section 15126.6(e)(2) of the *State CEQA Guidelines* requires that an EIR identify the "Environmentally Superior Alternative" among the alternatives considered. CEQA states that if the No-Build Alternative does not meet the project objectives, an Environmentally Superior Alternative is identified from the build alternatives. Each of the build alternatives (Alternatives 4 and 5) considered in this EIR would generally result in similar impacts, and each is likely to result in unavoidable significant adverse impacts (construction air quality impacts, local traffic impacts during construction, and impacts associated with relocation of residents and businesses). Alternative 4 would result in fewer or less extensive right-of-way impacts than Alternative 5. Additionally, Alternative 4 could result in increased congestion, inferior improvement in operational air quality, and increased energy consumption compared to Alternative 5. The No-Build Alternative would not result in any of the impacts of either of the build alternatives. However, the No-Build Alternative would not fulfill the projects objectives or provide the benefits the build alternatives would (e.g., improvements to local and interregional access, reduced vehicle miles traveled, or improved traffic circulation). The No-Build Alternative would result in increased congestion, decreased mobility, and increased air pollution and fuel consumption compared to the build alternatives. Additionally, the No-Build Alternative would be inconsistent with the General Plans of the affected municipalities and Southern California Associated Government's Regional Transportation Plan. Consequently, the build alternatives would be environmentally superior to the No-Build Alternative. When compared to each other, Alternative 4 would result in slightly fewer or less extensive right-of-way impacts than Alternative 5. However, Alternative 4 would be less beneficial than Alternative 5. Therefore, at this point neither of the build alternatives can be considered environmentally superior to the other.

All of the alternatives, with the exception of the No-Build Alternative, would result in some improvement in traffic through the study corridor. The degree of improvement is minor for Alternatives 2 and 3. Alternative 4 and to a greater degree Alternative 5 offer the most significant improvement to traffic capacity enhancement. These improvements are considered beneficial environmental impacts and result in improvements to regional air quality commensurate with the level of congestion alleviation.

Alternatives 4 and 5 require major reconstruction and considerable expansion of the existing freeway facility. Construction of either of these alternatives would result in right-of-way acquisition of commercial and residential properties adjacent to the existing facility. These acquisitions could result in relocation of businesses and residents. Indirect effects of right-of-way acquisition include impacts to sales and property tax revenues, neighborhood disruption

AREAS OF CONTROVERSY

The Interstate 5 at Carmenita Interchange Improvement Project has been an area of controversy. After the environmental document was approved in June of 2001, the I-5 JPA brought a lawsuit against Caltrans citing that the state had not adequately disclosed all the environmental impacts associated with the approved project design. A temporary restraining order was issued restricting Caltrans efforts to continue final project design until the lawsuit could be litigated. The I-5 JPA and Caltrans agreed to settle the pending mandate and complaint action without

further litigation. As a part of this agreement, some concessions regarding project design were made regarding the cross-section width of the proposed median. Also, Caltrans agreed to consult with the I-5 JPA prior to making any changes to the agreed upon design and to coordinate all interactions with the affected public through the I-5 JPA and/or the cities that have jurisdiction.

The acquisition of residential and commercial property, and associated project costs remains the most controversial issues associated with this project. Existing and projected traffic demand and associated air quality and noise issues have also resulted in some controversy.

Additional areas of controversy with local agencies and the I-5 JPA include the magnitude of loss of sales tax revenues, traffic projections, mitigation of street impacts, the rational for elimination of non-standard design alternatives, and the justification for studying the option of two HOV lanes in each direction under Alternative 5. The description of this project as listed in the current Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) does not include Alternatives 1, 2, 3, or 5. If Alternative 2, 3, or 5 were selected for construction, the RTP and RTIP would have to be amended for the project to be in conformance with the State Implementation Plan (SIP). SCAG and the FHWA have been requested to develop a method of promptly addressing this change, should it occur.

UNRESOLVED ISSUES WITH OTHER AGENCIES

Permits required from U.S. Army Corps of Engineers (404), California Department of Fish and Game (1601), and the Regional Water Quality Control Board (401) would be acquired prior to project construction.

Caltrans is continuing coordination with Norwalk Parks and Recreation Department and Little Lake School District to develop mitigation measures to minimize impacts to 2 Section 4(f) resources within their jurisdictions.

PERMITS NEEDED

The following permits would be required to construct the proposed project:

- Section 404 nationwide permit from the U.S. Army Corps of Engineers
- Section 401 Water Quality Certification from the California Regional Water Quality Control Board
- Section 1601 Streambed Alteration Agreement from the California Department of Fish and Game
- Encroachment Permits from the various cities in which project construction would occur

CHAPTER 1 – PURPOSE AND NEED FOR PROJECT

1-1 INTRODUCTION

Interstate 5 (I-5) between State Route 91 (SR 91) and Interstate 605 (I-605), traversing through the cites of Buena Park, La Mirada, Santa Fe Springs, Norwalk and Downey, serves as a principal corridor linking Orange County and Los Angeles County. It not only provides regional connectivity for Southern California commuters but also provides intra- and interstate connectivity for goods movement.

In July 1981 an Alternatives Analysis was initiated as a cooperative effort which included the California Department of Transportation (Caltrans), Southern California Association of Governments (SCAG), Orange County Transportation Commission (OCTC), twenty six cities, and federal transportation agencies. Named the Santa Ana Transportation Corridor (SATC) Study, this multi-modal analysis examined a three to six mile wide corridor along the I-5 freeway. The improvements recommended in 1984 by the SATC Study included widening I-5 between I-405 and I-605. These recommendations have been implemented between I-405 and SR 91. The portion of I-5 in Orange County south of SR 91 has been widened to ten lanes (1 High Occupancy Vehicle (HOV) lane and 4 mixed-flow lanes in each direction with future provisions for two additional lanes) and the portion of I-5 north of I-605 contains eight lanes. However, the section of I-5 between SR 91 in Orange County and I-605 in Los Angeles County currently has six lanes, creating a recurrent bottleneck on I-5 in both directions. This is the last remaining unimproved segment of the SATC freeway improvement plan.

Currently on I-5, there is heavy congestion in the northbound direction of during AM peak period and southbound direction during PM peak period. These traffic conditions are forecasted to further deteriorate in future years due to a projected increase in traffic demand. A review of year 2025 traffic demands for the I-5 corridor indicates the need for additional roadway capacity. To improve mobility and achieve acceptable levels of traffic operation, the California Department of Transportation (Department), in collaboration with the Federal Highway Administration (FHWA), the I-5 Consortium Cities Joint Powers Authority (JPA) and the Los Angeles County Metropolitan Transportation Authority (LACMTA), initiated a Major Investment Study (MIS) to develop ultimate improvements for the I-5 corridor between SR 91 and Interstate 710 (I-710). The MIS process was completed on July 3, 1998.

Funding for those ultimate improvements was not available or foreseen, so the Department prepared a *Project Study Report* in March 1996 for interim High Occupancy Vehicle improvements that would serve as the first phase of the ultimate improvements addressed in the I-5 MIS. On September 10, 1999 an environmental document approved the interim project which would add a non-standard HOV lane in each direction between SR 91 in Orange County and Lakewood Boulevard in Los Angeles County. The proposed interim improvements would not provide the capacity needed to satisfy the projected future demands, but would help to prevent freeway levels of service from further deteriorating to uncontrollable levels, until such time as the ultimate improvements could be implemented.

In 2000, Governor Gray Davis implemented the Transportation Congestion Relief Program that provided $5.3 billion in critically needed transportation resources to fund more than 100 locally

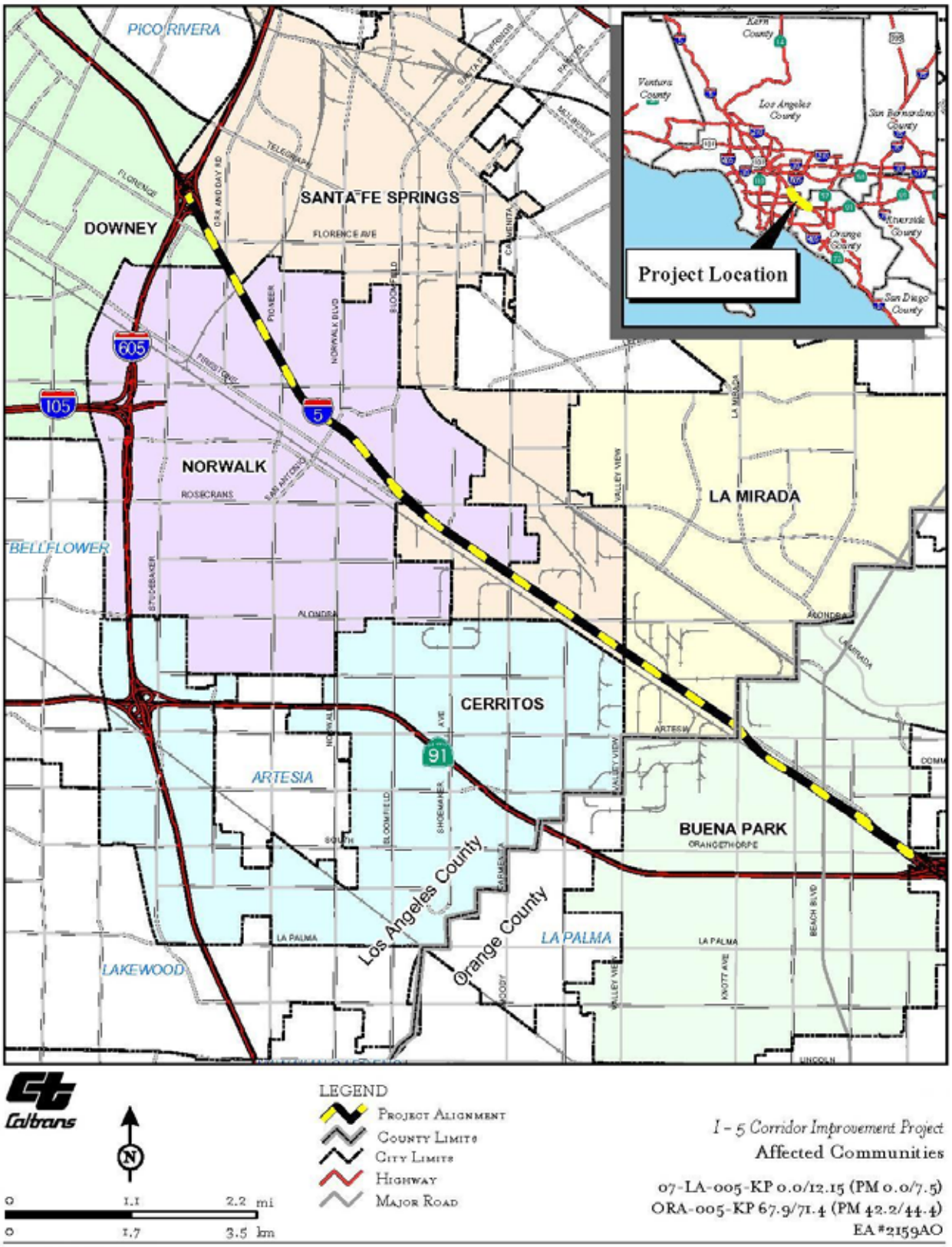
recommended projects throughout California. One of the projects chosen was the ultimate improvement project on Interstate 5 that was proposed in the MIS. With this funding available, focus was shifted towards the ultimate project again.

1-2 THE TRANSPORTATION FACILITY

Interstate 5, from SR 91 to I-605, is a six-lane freeway. The freeway profile grade is generally flat with grades less than 3 percent. There are 18 existing structures (12 overcrossings or bridges and 6 undercrossings), all built between 1953 and 1959. There are several segments of striped auxiliary lanes with outside shoulder widths varying from 0 to 0.6 meters (2 feet) and 0.6-meter (2-foot) inside shoulders. The 3.6-meter (12-foot) wide freeway median has a double metal-beam barrier (on top of a raised island).

North of I-605, I-5 is an eight-lane facility (four mixed-flow lanes in each direction) with 3.05-meter (10-foot) outside shoulders and 0.6-meter (2-foot) inside shoulders. Lane widths are typically 3.66 meters (12 feet). The profile of the freeway is generally flat with grades less than 2 percent while cross-slopes for the traveled way are typically 1.5 percent in straight sections. The freeway median is 3.66 meters (12 feet) wide and includes a double metal-beam barrier situated on top of a raised island. The only major structure involved is the I-5/I-605 separation structure.

Figure 1-1.1 – Project Vicinity Map



1-3 PURPOSE OF THE PROPOSED PROJECT

The primary purpose of the proposed project is to reduce existing and forecast traffic congestion on I-5 between SR 91 and I-605. This project would reduce congestion occurring subsequent to completion of improvements on I-5 south of State Route 91 in Orange County. The project would also constitute the first phase of the recommended ultimate improvements on I-5 that have been identified through the completed MIS process. The project would include short- and long-term strategies to improve regional air quality, and implement Traffic Control Measures (TCMs) in the Statewide Implementation Plan (SIP).

1-4 NEED FOR THE PROPOSED PROJECT

If no improvements are made in the affected section of I-5, traffic delays caused by congestion will substantially increase by the year 2013. According to the 2006 Interstate 5 Traffic and Transportation Study Technical Addendum, by the year 2013 Interstate 5 within the project area will experience 20 hours of congestion in each 24-hour period.

Because northbound Interstate 5 in Orange County (south of SR 91) has four mixed-flow lanes plus one HOV lane, a bottleneck exists when these lanes transition into three mixed-flow lanes near Beach Boulevard. If no improvements are made within the project limits, the northbound section just north of SR 91 will continue as a major bottleneck. Orange County has plans for a 12-lane freeway to the County line, which further supports the need for the proposed project. The proposed HOV lanes would also provide an HOV linkage in the gap on I-5 between Orange County and I-605.

Reconstruction of Interstate 5 would allow the State to implement current functional and safety design standards, which would increase safety and overall operation of the facility. Reconstruction of bridges and interchanges throughout the project area would be designed to accommodate both design and right-of-way objectives of the ultimate corridor footprint.

Freeway Mainline

According to the traffic analysis, in both the existing and 2013 no build scenarios, the northbound freeway segments currently operate at LOS F, with the exception of the segment north of the Artesia on-ramp, which operates at LOS E in both peak hours. In the southbound direction, all freeway segments operate at LOS F in at least one peak hour. In the 2030 no build scenario, all freeway segments are forecast to operate at LOS F in both directions. With implementation of the four mixed-flow lanes (MFL) plus one HOV lane alternative in 2013, some freeway segments are forecast to improve to LOS D or better in at least one peak hour. The exception in the segment north of the Artesia on-ramp, which is forecast to deteriorate to LOS F in both peak hours due to increased traffic volumes. When the four MFL plus one HOV lane is implemented in 2030, some improvement is seen in the northbound direction; however, all segments are forecast to operate at LOS F in the southbound direction.

Corridor Bridge Structures

All of the bridge structures within the project area are structurally deficient and functionally obsolete and need to be replaced.

Freeway Ramps
The freeway ramps generally operate at LOS E or worse in the existing condition, with the exception of the southbound Valley View on-ramp, which operates at LOS C or better, and the northbound Valley View off-ramp, which operates at LOS D. In the 2013 and 2030 no build scenarios, the ramps are forecast to operate at LOS E or worse, with the exception of the southbound Valley View on-ramp, which is forecast to operate at LOS D. Implementation of the four MFL plus one HOV lane alternative in both the 2013 and 2030 horizons would result in some improvements to the freeway ramps, with many locations operating at LOS C.

Intersections
In the existing condition, four intersections currently operate at LOS E or worse. By the year 2013, nine locations are forecast to operate at LOS E or worse. In the 2030 horizon, 15 of the 44 intersections are forecast to operate at LOS E or worse.

Operational Characteristics
The I-5 freeway currently consists of six mixed-flow lanes (three lanes in each direction) from SR 91 to I-605. North of the I-605/I-5 interchange, the freeway widens to an eight-lane facility (four lanes in each direction). Five auxiliary lanes currently exist between SR 91 and I-605: four in the northbound direction and one in the southbound direction. The four northbound auxiliary lanes are located from Beach Boulevard to Artesia Boulevard, Artesia Blvd. to Valley View Ave., Alondra Blvd. To Carmenita Road, and from Carmenita Road to Rosecrans Ave. The southbound auxiliary lane is located between I-605 and Pioneer Blvd.

The existing AM peak period on I-5 extends from approximately 6:00 AM to 9:00 AM, with the peak hour occurring from about 8:00 AM to 9:00 AM. The existing PM peak period extends from approximately 3:00 PM to 7:00 PM, with the peak hour occurring from about 5:00 PM to 6:00 PM. Existing AM and PM peak hour freeway mainline and ramp volume data were taken from the Caltrans Automated Traffic Management System (ATMS) for February 14 and 28 of 1996, March 4, 1998, and February 16 and March 15 of 2000. Between SR 91 and I-605, I-5 carries an average daily traffic (ADT) volume of approximately 173,800 vehicles per day.

The I-5 Corridor is a major local and regional truck route. The percent of trucks currently served by I-5 ranges from 8.1 to 20 percent, with the highest truck traffic levels occurring within the segment between SR 91 and Beach Boulevard. Midday peak hour truck percentages are typically higher than AM and PM peak hours, and can reach as high as 20 percent or more of the ADT.

Travel time is an important measure of mobility. Travel time data are collected through field surveys for periods when no incidents, such as accidents or lane closures, occur on the freeway. I-5 mainline travel time runs were conducted in September 2002 for the segment between SR 91 and I-605 during the AM and PM peak hours for both northbound and southbound directions. The floating-car technique, which is described in the Manual of Transportation Engineering Studies (Institute of Transportation Engineers 1994), was used to perform the surveys. During freeflow conditions, a driver should be able to travel on Interstate 5 between the County line and Interstate 605 in just over eight minutes. During peak periods (northbound during AM and

southbound during PM) congestion on Interstate 5 increases the travel time to an average of almost 14 minutes.

Traffic Safety

Accident data from the Traffic Accident Analysis System (TASAS), Table B, and Accident Summary for a three-year period reveals the following:

Table 1-4.1 – Traffic Accident Analysis System (TASAS) Table B			
Location/Period 1999-04-01 2002-03-31	Fatal Actual/Avg (Acc/MV km)	Fatal + Injury Actual/Avg (Acc/MV km)	Total Actual/Avg (Acc/MV km)
Orange/LA Co. Line to Rte 19 Mainline + ramps	0.002/0.008	0.32/0.42	1.47/1.34
Orange/LA Co. Line to Rte 19 Mainline Only	0.002/0.008	0.29/0.42	1.29/1.34

Although the number of fatal accident for this time period with or without ramps remains the same, indicating that all fatalities occurred on the freeway mainline, the overall mainline total actual accident rate, 1.29 is lower than the average accident rate, 1.34, for a similar type of facility.

A closer look at accident data for the project area confirms that the locations with the greatest accident rates are on the ramps and their intersections. An analysis of the types of accident reveals that excessive speed on the hook ramps and congestion while entering or exiting the freeway are the primary collision factors for a majority of the accidents. On the mainline, sideswipe and rear-end accidents account for 85.7% of the types of collisions, and 74% of the accidents occurred between the peak traffic hours of 7 AM to 5 PM peak hours, which suggests that these accidents are congestion related.

Pavement Rehabilitation

Time and increasing traffic have notably impacted freeway pavement while its age has grown past its intended service life. The 2004 Pavement Condition Inventory indicates that the center and outer lanes of the northern half of the project has an average of 30% 1st stage cracking and nearly 20% 3rd stage cracking in the pavement resulting in faulting and poor ride quality. A $22 million dollar capital preventative maintenance project (CAPM project, Expenditure Authorization: 22620) would replace approximately 3500 concrete slabs with 3rd stage cracking between postmile 0 and 12. This rehabilitation is a short-term solution geared towards preserving the ride quality and extending the service life of the existing structural section approximately 5 years.

However, major long-term pavement rehabilitation has been deferred in favor of constructing the new pavement as part of the ultimate facility's improvements for a number of reasons. Rehabilitated pavement sections would be incompatible with the ultimate facility because the build alternatives' require a change in horizontal and vertical alignment. In addition, the

widening proposed by the ultimate facility would accommodate long-term closures and detours while maintaining the full number of existing thru-lanes. The only major drawback to this approach is that the need for rehabilitation grows more urgent as the pavement ages.

1-5 COMPLIANCE WITH MAJOR INVESTMENT STUDY

A Major Investment Study (MIS) Compliance Report (June 1998) was prepared in support of the Initial Study/Environmental Assessment (IS/EA) for the proposed I-5 Interim HOV Lane Improvement Project. The MIS Compliance Report documents how the I-5 HOV Interim Project complies with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) requirements and MIS guidance, and is consistent with the I-5 Corridor MIS Project ultimate improvements.

Conceptual alternatives were developed for the I-5 Corridor MIS by building on previous studies that had analyzed multi-modal improvements in the I-5 Corridor. The I-5 Corridor MIS No Build and Transportation Systems Management/Transportation Demand Management (TSM/TDM) Alternatives include the interim HOV lanes to reflect the committed and funded status of the Interim HOV Project. In addition, a Locally Preferred Alternative (LPA) for the I-5 Corridor MIS was adopted in January 1998. The LPA includes a full-standard, 10-lane (8 mixed-flow lanes, 2 HOV lanes), at-grade freeway facility between SR 91 and I-710.

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CHAPTER 2 – PROJECT ALTERNATIVES

2-1 DESCRIPTION OF THE ALTERNATIVES

Summarized below are the five alternatives that are evaluated in this Environmental Impact Report/Environmental Impact Study (EIR/EIS). Each includes at least one of the following elements: freeway, bus, rail, intelligent transportation systems (ITS), transportation demand management (TDM), truck, HOV, and roadway improvements. Four build alternatives and a No Build Alternative are being considered:

- Alternative 1: No Build Alternative
- Alternative 2: Transportation Systems Management/Transportation Demand Management (TSM)
- Alternative 3: Transit Enhancement (TEA)
- Alternative 4A: Ten Lane Facility MIS Modified Alignment (MIS 10)
- Alternative 4B: Ten Lane Facility Value Analysis Alignment (Value Analysis 10)
- Alternative 5A: Twelve Lane Facility MIS Modified Alignment (MIS 12)
- Alternative 5B: Twelve Lane Facility Value Analysis Alignment (Value Analysis 12)

The selection of a preferred alternative would not be made until the consideration of public comments on the Draft EIR/EIS is complete and the Final EIR/EIS has been approved. The final recommended alternative could be a hybrid combination of two or more of these alternatives.

2-1.1 Alternative 1: No-Build Alternative

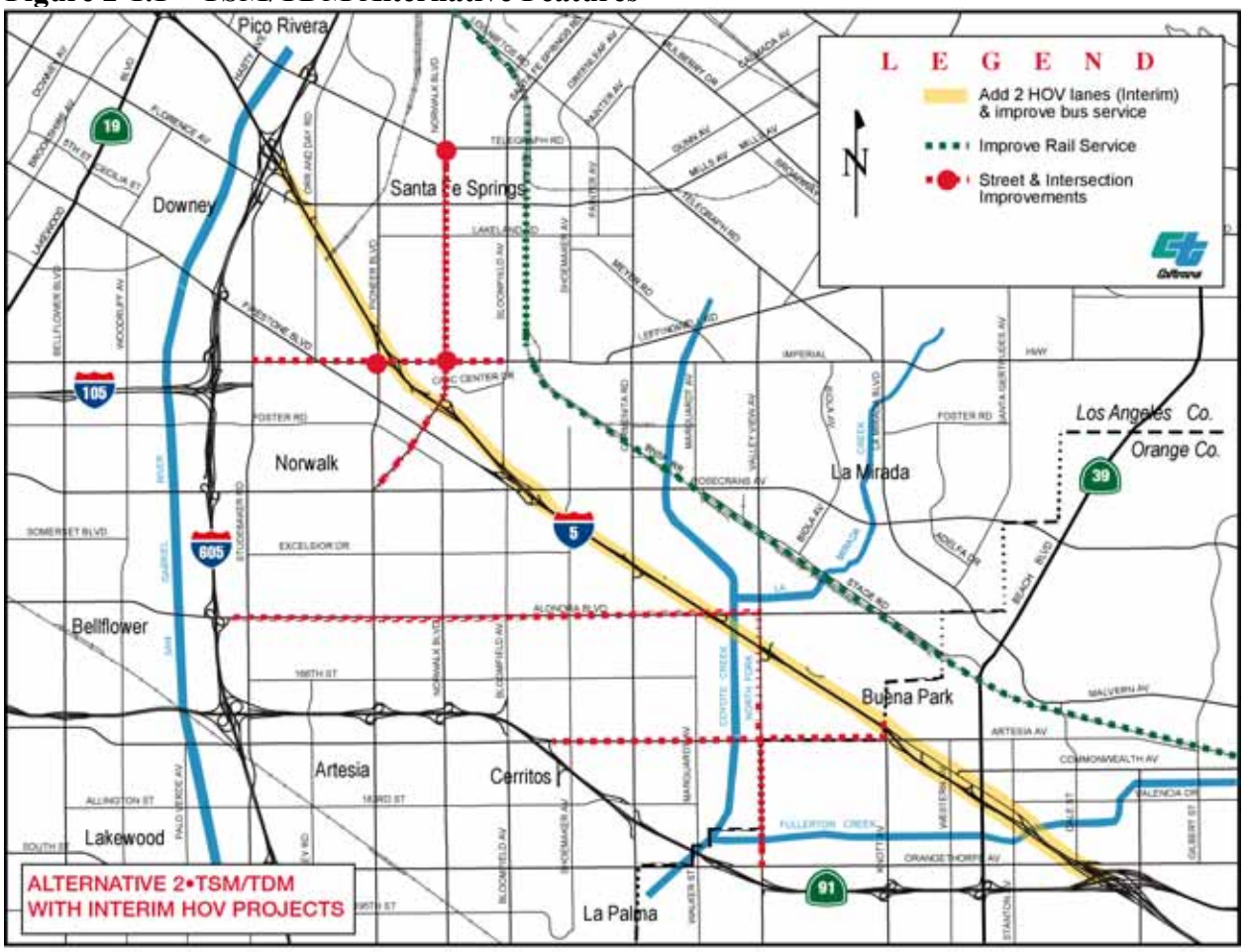
The No Build Alternative assumes that no improvements are made to the I-5 corridor beyond those already committed, and expected to be in place by the year 2025. The key elements of the No Build Alternative are identified in Table 2-1. These elements of the No-Build Alternative are not to be implemented by the State as a part of the proposed project. They are stand-alone projects proposed by partner agencies and are subject to independent environmental and project approval processes. Therefore, environmental impacts of these elements are not discussed in this EIR/EIS.

If the No Build Alternative is selected, it would still be possible for Caltrans to proceed with construction of the previously approved I-5 Interim HOV Lane Improvement Project, which proposed the reconstruction of the median and addition of one HOV lane in each direction (see the I-5 Interim HOV Improvement Project ND/FONSI, September 1999, for more information).

2-1.2 Alternative 2: Transportation Systems Management/Transportation Demand Management (TSM/TDM)

The goal of the TSM/TDM Alternative is to increase the operational efficiency of the existing facilities and to shift transportation users to higher capacity modes such as transit. The TSM/TDM Alternative goes beyond the No Build Alternative by adding transportation system management techniques to those elements already assumed in the No Build Alternative. The key elements of the TSM/TDM Alternative are identified in Table 2-1. The previously approved I-5 Interim HOV Improvement Project could be most appropriately selected for construction with this alternative.

Figure 2-1.1 – TSM/TDM Alternative Features



For more information on the elements of this alternative, see the following documents:

- I-5 Interim HOV Lane ND/FONSI (& technical studies) August 1999
- Arterial and Ramp Terminal Intersections Final Report, Task 2.2.11, Prepared by Meyer, Mohaddes Associates, June 1998.

Table 2-1 - No Build and TSM/TDM Alternatives-TSM/TDM Project Elements		
Element	No Build Alternative	TSM/TDM Alternative (Added elements beyond No Build)
Bus	Planned bus service (2015) by various operators as detailed in and consistent with their Short Range Plans and the MTA Long Range Transportation Plan.	Optimize travel time and reliability, including coordination with rail stations and improvement of headways. Add reverse commute service to OCTA express lines. Additional vehicles would be required on improved routes.
Rail	Completion of Buena Park Metrolink station and Eastern Extension of Metro Red Line to Atlantic/Whittier. Addition of Metrolink reverse commute service in peak periods.	Reduce headways by adding additional trains. Coordinate schedules with other rail and bus lines. Additional vehicles would be required on improved routes.
ITS	Southern CA Priority Corridor, Showcase Project; IMAJINE I and II; Gateway Cities Signal Synchronization; OCTA Smart Streets; Inter-County Arterial Hwy./Smart Street Connections; Caltrans ATMS; Local Traffic Control Systems; Orange County Travel TIP. SELAC improvements on arterial streets.	Signal Synchronization/Controller Upgrades (remaining signals); Surveillance; I-5 Transportation Management Center; Incident Response Plan; ATIS and message signs; Commercial Vehicle Operations; APTS to increase transit performance.
TDM	Implementation of programs in 1998 SCAG Draft Regional Transportation Plan, including promotion of telecommuting and bicycling.	Create a Transportation Management Association to champion and coordinate TDM strategies. Implement various strategies.
Truck	No elements proposed under this alternative.	Improve arterial street truck operations by implementing recommendations in the Gateway Cities Trucking Study.
Roadway	No elements proposed under this alternative. However, the previously approved I-5 Interim HOV Improvement Project could proceed if this alternative is selected.	Improve additional arterials to Smart Street standards. Enhance intersection capacity with widening, signal phasing, etc. as described in the ITS element. Provide an improved arterial on each side of the freeway as an alternative route from SR 91 to I-710. Provide lane balancing along arterial routes. Construct the Interim HOV Lanes.

2-1.3 Alternative 3: Transit Enhancement

This alternative would improve the efficiency of transit service through the Interstate 5 corridor. This would be accomplished with the modification and addition of new local and express transit routes. Other improvements under this alternative include: decreasing the headway between buses and alignment of new and modified routes to connect transit hubs and park and ride facilities in the corridor. A complete description of the Transit Enhancement Alternative features can be found in the Transit Enhancement Alternative Interim Report (November 2004.) The previously approved I-5 Interim HOV Improvement Project could be most appropriately selected for construction with this alternative.

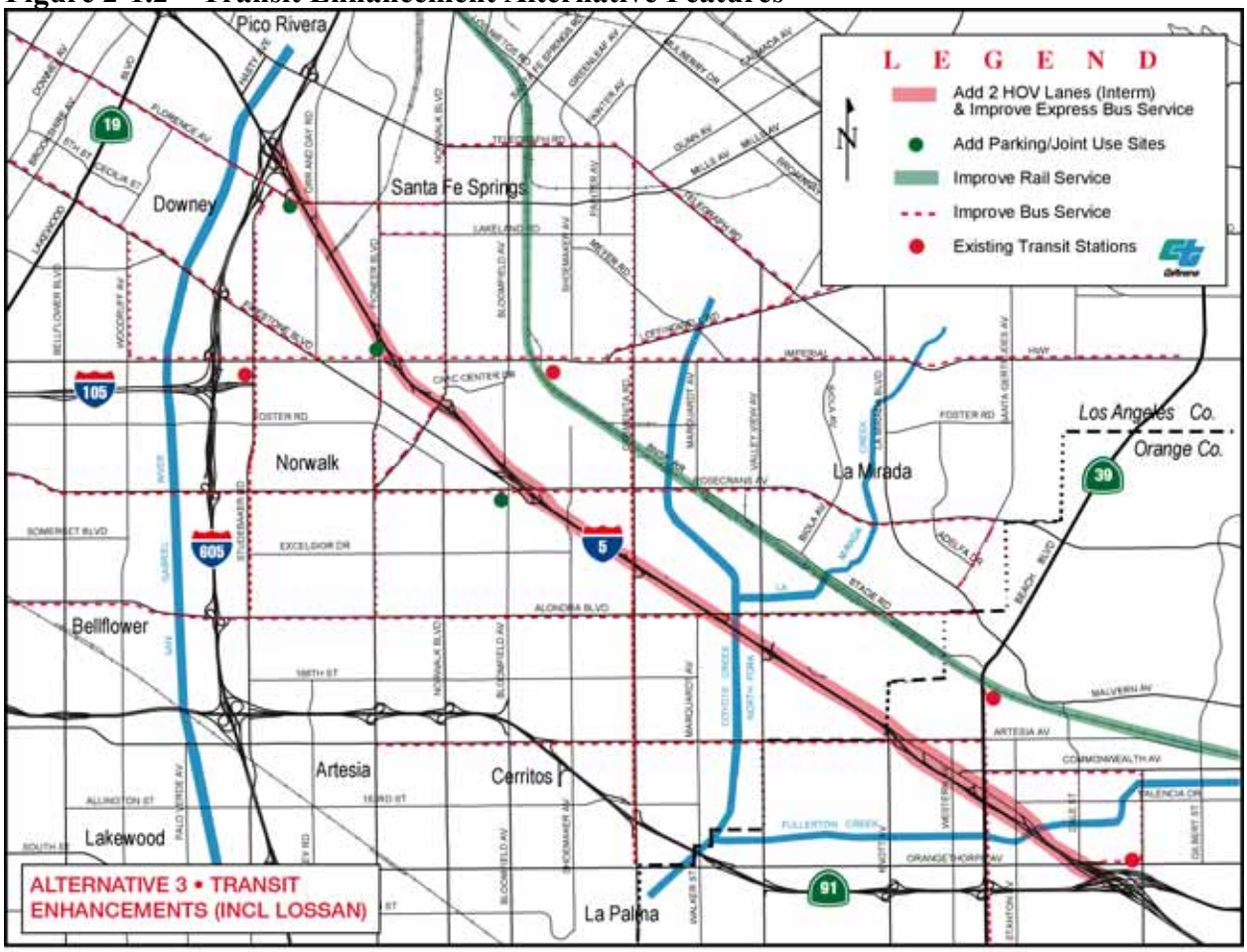
The major elements of the selected **Transit Enhancement Alternative** (TEA) include:

- Three possible new transit park and ride joint development sites along the I-5 corridor, with approximately 800 total spaces, near Florence Avenue, Imperial Highway and Rosecrans Avenue at Bloomfield Avenue. These sites could be developed as joint land use transit oriented parking development locations and would be subject to further discussions with local agencies. This may require supplemental environmental documentation if specific land use proposals are not identified prior to selection of preferred alternative.

- Increased frequency and route improvements on several local bus lines in Los Angeles County: Florence Avenue, Firestone Boulevard, Imperial Highway, Rosecrans Avenue, Alondra Boulevard, and Artesia Boulevard in the east-west orientation; and Carmenita Road in the north-south orientation.
- Limited stop bus service increases/implementation on Firestone Boulevard, Whittier Boulevard, Beach Boulevard and La Palma Avenue.
- More frequent express buses along I-5 and I-605 and new express routes serving the Norwalk Green Line station and the park and ride lots along I-5.
- Implementation of the Burlington Northern Santa Fe Railway Company Third Main Track and Grade Separation Project. Commuter Rail Improvements would be separately funded (for more information, see the Third Main Track and Grade Separation Final EIR, December 2003).
- Expansion of Metrolink Service. Various agencies, including the I-5 JPA are working together to increase the commuter rail service between Orange County and Los Angeles County. This would benefit the I-5 freeway corridor.

The estimated cost for Alternative 3 is $116,881,000 (excluding rail improvements)

Figure 2-1.2 – Transit Enhancement Alternative Features



For more information on the elements of this alternative see the Transit Enhancement Alternative Interim Report prepared by IBI Group, November 2004.

Alternatives 4 and 5
In general, Alternatives 4 and 5 would alter the profile grade of the facility to meet sight distance and design speed standards to improve the operation and safety of the facility. To reduce future impact, and in anticipation of future traffic needs, all over-crossing structures would be constructed to span across a standard 12 lane freeway cross section. All existing nonstandard hook ramps would be replaced with standard tight diamond ramps. In areas with sensitive right of way, ramp construction would utilize retaining walls instead of embankments. These alternatives propose a 30-foot-wide median, (22-foot-wide medians are proposed within the Carmenita segment, as per a legal agreement with the I-5 Joint Powers Authority). Use of 22-foot median at other locations is also being considered. These build alternatives would also construct a railroad grade separation on Valley View Boulevard and re-establish the continuity of Bloomfield Avenue with an under-crossing. Other cross streets and frontage roads would be reconstructed to improve local circulation. These alternatives would be constructed in phases to minimize impacts to the corridor.

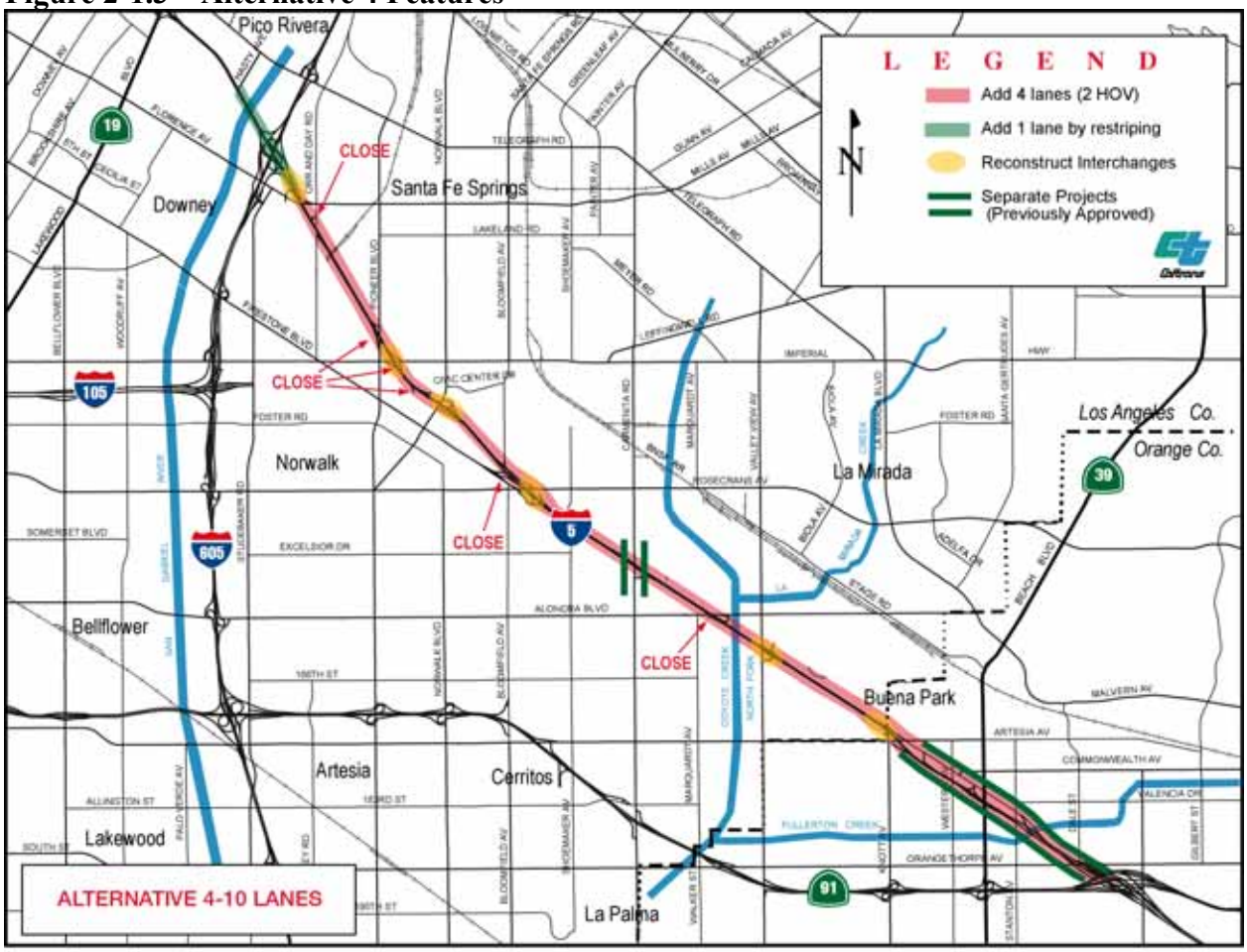
2-1.4 Alternative 4: Ten Lane Facility

This plan would expand the existing freeway from three general-purpose lanes in each direction by the addition of two lanes in each direction. One mixed flow lane and one HOV lane in each direction would bring the total number of lanes to ten. The typical cross-section of the freeway would be increased from 39 meters (128 feet) to 54 meters (177 feet). See Figure 2-1.1 for typical cross-section. Existing soundwalls would be replaced. New soundwalls would be constructed concurrently with the proposed project where noise levels approach or exceed federal noise abatement criteria in residential areas if said mitigation is reasonable and feasible. This alternative has two design options:

Alternative 4A: Modified MIS Ten-Lane Alignment
This alternative includes widening the existing Interstate 5 facility to a full standard, ten-lane, at-grade facility between State Route 91 and Interstate 605. The alignment for this alternative, for the most part, follows the existing centerline alignment of the existing mainline. The proposed alternative represents a modified version of the Locally Preferred Alternative in the Major Investment Study (MIS) in that the interchanges at Valley View Road and Carmenita Road would remain overcrossings vice changing them to undercrossings as proposed by the MIS LPA. The estimated cost for Alternative 4A is $617,568,000.

Alternative 4B: Value Analysis Ten-Lane Alignment
This alternative includes widening the existing Interstate 5 facility to a full standard, ten-lane, at-grade facility between State Route 91 and Interstate 605. The alignment for this alternative was generated to reduce right of way impacts by shifting the existing centerline alignment to the northbound or southbound side of the freeway. Development of this alternative, and specifically where and to which side the alignment shifts are proposed, was conducted in coordination with the JPA and the individual cities. Thus, in this alternative, most right-of-way acquisition is limited to one side of the freeway. This 10-lane Alternative on the Value Analysis alignment maintains all other characteristics of the Modified MIS Alternative. The estimated cost for Alternative 4A is $594,669,000.00.

Figure 2-1.3 – Alternative 4 Features



2-1.5 Alternative 5: Twelve Lane Facility

Alternative 5 would consist of adding three additional lanes to the existing facility in each direction. The typical cross-section of the freeway would be increased from 39 meters (128 feet) to 61 meters (200 feet). See Figure 2-1.1 for typical cross-section. Due to available funding, this alternative may be selected and only 10 lanes initially constructed with the intent to complete the ultimate project when funds became available. This alternative has two design options:

Alternative 5A: Modified MIS 12-Lane Alignment

This alternative maintains the same alignment as the Modified MIS Locally Preferred 10-Lane proposal (Alternative 4A). The Modified 12-lane alternative proposes adding either two mixed flow lanes and one HOV lane in each direction, or one mixed flow lane and two HOV lanes in each direction. The estimated cost for Alternative 4A is $668,693,000.00.

Alternative 5B: Value Analysis 12-Lane Alignment

This alternative maintains the same alignment as the Value Analysis 10-lane proposal (Alternative 4B). The Value Analysis 12-lane alternative proposes adding either two mixed flow lanes and one HOV lane in each direction, or one mixed flow lane and two HOV lanes in each direction. The estimated cost for Alternative 4A is $598,539,000.00.

Figure 2-1.4 – Alternative 5 Features

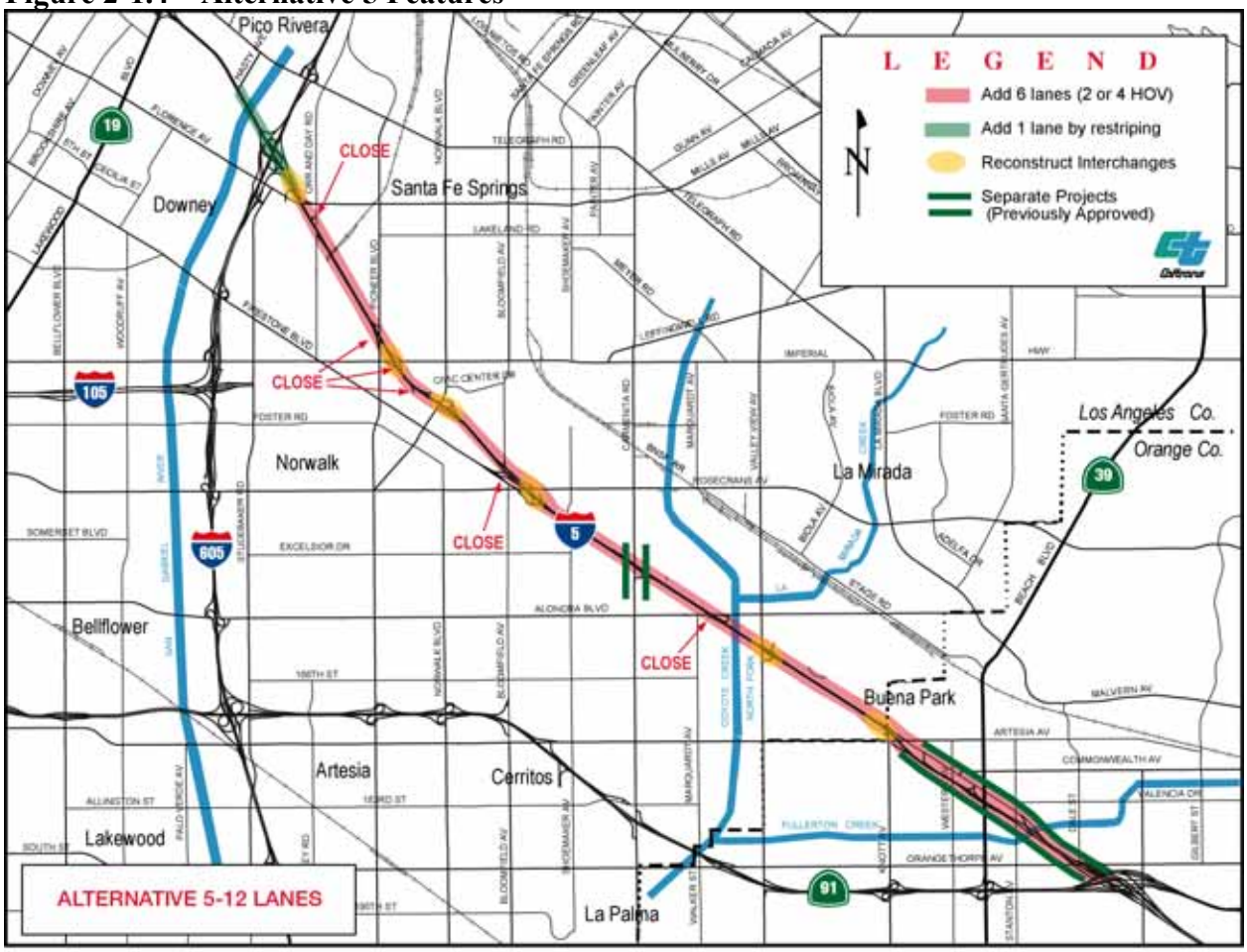
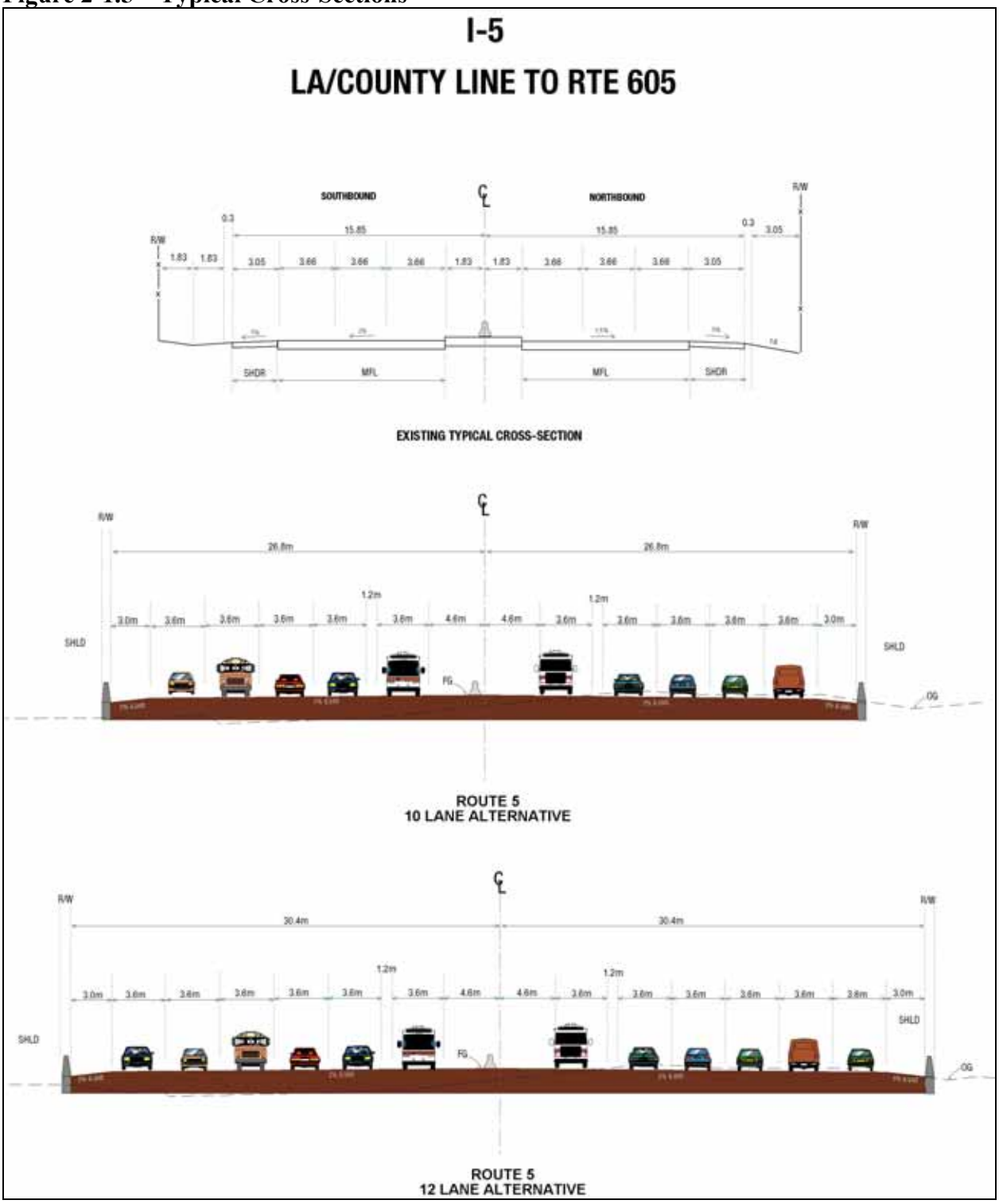


Figure 2-1.5 – Typical Cross-Sections



2-1.6 Proposed Design Features

Horizontal Alignment
The freeway mainline alignment is the backbone of each alternative design option and ultimately plays a central role in determining the right-of-way footprint. The proposed mainline alignments improve upon the existing alignment with increased radii and design speeds. Superelevation is required for curves with a radius less than 6000m, so the curves were designed with radii greater than 6000m to maintain a standard crown section where possible.

Modified MIS Alignment
The Modified MIS Alignment is the existing I-5 centerline with modifications made between the limits of the Carmenita Road interchange and the Valley View Avenue interchange to reduce the R/W impacts.

Value Analysis Alignment
This Value Analysis alignment expands on the same approach used in the Modified MIS Alignment in the Carmenita and Valley View interchanges to encompass the entire project corridor at the requests from the JPA cities to avoid sensitive right-of-way and allow for planned redevelopments.

- This includes a segment in La Mirada where the alignment was shifted south to avoid impacting recent frontage road improvements and planned improvements on the northbound side.
- At the Shoemaker overcrossing, the alignment was shifted north to minimize right-of-way impacts.
- Between Pioneer Blvd and San Antonio Blvd, the alignment was shifted south to impact the residential properties to only the southbound side without affecting the residential properties and the Marriott Hotel on the northbound side as opposed to the Modified MIS alignment, which affects properties on both sides in this area.

In addition to avoiding R/W takes on one side or another; the Value Analysis alignment features geometrically more desirable radii that are larger than the existing radii. The result is a higher design speed and lower super-elevation rates, thereby improving the drainage, easing construction, improving traffic operations, and enhancing the safety of the mainline.

Cross Section
The cross section is a defining feature between the build alternatives 4 and 5. There are design options such as the Modified MIS alignment and Value Analysis alignment, but the cross section remains exclusive to its respective alternative (see Table 2-2 below and Figure 2-1.5 - Typical Cross-Sections).

The build alternatives No. 4 and No. 5 are similar except for the addition of a lane in each direction. Both cross sections provide for a CHP enforcement area with a 9.2 m median (4.3 m shoulder +0.6 m concrete barrier + 4.3 m shoulder), 3.6 m standard width for all lanes, 1.2 m buffer between the HOV and MFL, and standard 3.0 m right shoulders. These standard features are an improvement over the existing freeway cross section with non-standard shoulders and metal beam guard railing in the median.

Table 2-2 - Typical Cross Sections		
Alternative	**Mixed-flow Lanes**	**HOV Lanes**
Alt 1: No-build	6 Mixed-flow Lanes	0 HOV Lanes
Alt 2: TSM (w/Interim Project)	6 Mixed-flow Lanes	2 HOV Lanes
Alt 3: TEA (w/Interim Project)	6 Mixed-flow Lanes	2 HOV Lanes
Alt 4: 10 Lanes	8 Mixed-flow Lanes	2 HOV Lanes
Alt 5: 12 Lanes (5+1)	10 Mixed-flow Lanes	2 HOV Lanes
Alt 5: 12 Lanes (4+2)	8 Mixed-flow Lanes	4 HOV Lanes

The cross sections of the local streets in the interchange area between ramps would be improved to have standard lane widths and shoulders according to Caltrans' standards. Cross streets would be widened in coordination with the cities' plans for future improvements regarding the number of through lanes approaching, and the pedestrian and bicycle accommodations.

Profile

The existing I-5 mainline profile over most of the undercrossing structures has a design speed slightly above 50 mph (80.47 kmh) using the current Caltrans Highway Design Manual (HDM) standards to calculate the stopping sight distance (SSD). The Federal Standards (American Association of State Highway Transportation Officials, AASHTO Green Book) are less conservative regarding the vertical profile and allow for a higher design speed than the Caltrans HDM, around 60 mph (96.56 kmh). Using the Caltrans standard, the mainline profile was designed to meet a minimum design speed of 110 km/hr (65 mph). To accomplish this profile upgrade, the vertical curve lengths were increased so that the curves would be considerably flatter than the existing curves. The profiles between the 10 and 12 lane alternative and the Modified and Value Analysis alignment would essentially have the same design speed and is not a distinguishing factor between the build alternatives.

In the original MIS LPA, the profile of the mainline was raised high enough to accommodate a flip-flop of the structures at Carmenita Road and Valley View Avenue so that these would become undercrossings. Because an undercrossing was undesirable at these locations due to long-term closures, the Modified MIS and Value Analysis alternatives maintain the overcrossing configuration and do not propose to change the general profile configuration of the other structures.

However, the proposed profile would need to be higher than the existing grade by a considerable height just to meet the minimum clearance requirements. In several cases, no falsework (precast structure) may be required just to minimize the raising of the profile and the amount of resulting earthwork. In other cases, additional earthwork may be more feasible. The aim is to find the most economical balance between earthwork and structure work. In areas of an undercrossing, the profile must be raised to adequately clear the cross streets underneath. In areas of an overcrossing, the cross streets' profile would be higher than the existing profile. As part of the structures accommodation for 12 lanes, the clearances are calculated for a 12-lane width.

Interchange and Ramp Modification

Major reconstruction of interchanges is the key operational and safety improvement feature to the design. The proposed configurations beyond the mainline, which include ramps,

interchanges, cross streets, frontage roads, and intersections, are essentially the same in all of the build alternatives. The basic strategy is to eliminate the hook ramps and replace them with a more standard, higher capacity, and safer operating ramps by improving the acceleration and deceleration length, storage length, auxiliary lanes, and ramp termini.

The Valley View Avenue interchange is proposed to be a tight-diamond over crossing (type L-1) interchange with six through lanes and a grade separated railroad crossing. This is a considerable operational improvement over the existing hook ramps, 4-lane over crossing, and at-grade railroad crossing.

The proposed Rosecrans Avenue interchange would be modified, with the removal of the left lane exit to Firestone Boulevard and the addition of Bloomfield Avenue Undercrossing allowing a more direct north-south traffic flow across the freeway on Bloomfield. The proposed ramp configuration is a tight diamond. However, as new traffic data is currently being gathered, other configurations may be considered to improve operation without increasing the R/W requirements.

Between Norwalk and Imperial Highway, the on and off-ramps with an auxiliary lane are proposed to be removed in favor of a split interchange where the SB on-ramp and NB off-ramp are located at Norwalk Boulevard and the NB on-ramp and SB off-ramp are located at Imperial Hwy.

The proposed ramps at Florence connect directly to Florence as opposed to the existing hook ramps connected to small side streets. Similar to the other interchanges, this configuration is also a type L-1 interchange.

High Occupancy Vehicle (HOV) Lanes
The proposal is to add one 3.6 m (12 ft) wide HOV lane in each direction with a 1.2 m (4 ft) buffer separating it from the mixed-flow lanes and a 4.3 m (14 ft) left shoulder for continuous CHP enforcement. These HOV lanes would be in constant operation and would be accessible via ingress/egress sections at various locations along the project corridor.

With the 12-lane proposal for double HOV lanes and 4 mixed-flow lanes in each direction, the overall operation appears to be the same as the proposal to add only one HOV lane and 5 mixed-flow lanes in each direction.

Ramp Metering/HOV Bypass Lane
All proposed on-ramps should have a ramp meter and HOV bypass lanes to improve peak-hour operation and encourage carpooling. However, there would be exceptions to having a bypass lane for various reasons, including R/W limitations, and operational conflicts. The locations with exceptions are the NB Rosecrans Avenue on-ramp, SB San Antonio Avenue on-ramp, and the NB Imperial Highway on-ramp. These ramps have heavy general-purpose traffic coming from the double left-turn lanes on the cross street, which could trap single occupancy vehicles in a bypass lane. Unless the ramp can be widened to three lanes, there cannot be an HOV bypass lane. Because available R/W is very limited, an exception is necessary for these locations.

CHP Enforcement Areas
In coordination with the California Highway Patrol, HOV Enforcement Areas have been added to the project design. There are two types of areas utilized for CHP enforcement areas. In the median shoulder, 4.3 m (14') is proposed for a continuous CHP enforcement area along the HOV lane. On the on-ramp shoulder, a CHP enforcement area is provided to monitor the ramp meter and HOV bypass lane. These two measures should help reduce the violation rate and increase the HOV percentage.

Utility and Other Owner Involvement
Additional acquisition of Right of Way would be required for this project with any of the build alternatives. The construction and removal of structures, frontage roads, local streets and other roadway items would impact the existing utilities and sewer system. Relocation of various utility facilities would be required.

The exiting utilities within the project area have been identified with the help of the City, County, other government agencies and private utility firms by gathering the latest as-built drawings, topographic maps, survey maps and by field observation and measurements.

A preliminary utility relocation study has been completed. A refined and detailed study would be conducted during the design phase, which would include but not be limited to work such as replacing utility lines, relocation power poles and overhead power lines, acquiring new easement for relocated facilities, providing temporary connections during construction, and replacing various gas, oil, telephone, water, and power lines.

Railroad Involvement
The Union Pacific Rail Road (UPRR) runs adjacent to the I-5 approximately 150 meters southerly to the I-5 centerline from State Route 91 to Rosecrans Avenue. Beyond this cross street, the I-5 diverges away for this set of tracks. A separate set of tracks crosses underneath the I-5 at the Orr and Day Road Overhead. The I-5 project corridor has at-grade railroad crossings at Artesia Avenue, Knott Avenue, Valley View Avenue, Carmenita Road, Marquardt Boulevard, Alondra Boulevard, Shoemaker Avenue, Bloomfield Avenue, and Rosecrans Avenue. Because of their close proximity to the I-5, the train operations have been observed to affect the mainline freeway operations where the queue of cars on the off ramp has backed up into the mainline. To remedy this operational conflict, a grade separation at Carmenita Road (under a separate EA 2159C0) and Valley View Avenue are proposed. However, this improvement would not directly impact the R/W or the UPRR tracks, since, the structure bents and columns would remain outside of the UPRR right of way.

The Orr and Day OH would have to be reconstructed (widened and raised) to accommodate the proposed I-5 mainline. This structure must maintain the existing clearances from the tracks, meet the required minimum distance from the centerline of tracks to the face of the structures, and not affect the railroad R/W. These improvements would require a railroad agreement to be obtained as part of this project.

Highway Planting
Because the visual quality of the freeway area is considered medium or low, landscaping would be a integral part of this project's aesthetics value. The preliminary design and cost of the

highway planting are based upon the standard Caltrans landscaping practices. An Aesthetic Subcommittee headed by the Caltrans Landscape department comprised of various State and local agencies including Caltrans structures and the cities, has been meeting at various stages of the design to develop a coordinated aesthetic guideline for the I-5 facility throughout the corridor. The goal is to implement the Caltrans policy, on "context sensitive solutions" that achieves a balance between maintaining an aesthetic uniformity along the corridor while enhancing the individual identity of each city. The amount and type of treatments would depend on the negotiations on the cooperative agreements regarding costs and maintenance with each city in the Aesthetic Subcommittee.

Erosion Control

Projects of this magnitude (two hectares [5 acres] and above disturbed soil) containing both cut and fill areas up to 7 meters in height, which could be subject to erosion, require implementation of a Storm Water Pollution Prevention Plan (SWPPP) to meet water quality discharge requirements under the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit. The San Gabriel River, Coyote Creek, and the North Fork Coyote all carry storm water from within the project limits and construction within these channels may be restricted to the dry season only. However, implementation of the SWPPP is a year round process. At this stage, all of the 10 or 12-lane build alternatives would have the same best management practices (BMP's) to control the discharge.

The segment of the I-5 between route 19 and the Orange County line, which this project lies within, is part of a site selection study for the implementation of infiltration basins for the treatment of storm water runoff. Evaluation of potential infiltration basin (IFB) sites are being conducted based on the availability of right-of-way outside of the roadway design footprint. Four locations from north of Coyote Creek to the Rio Hondo river segment were considered as some of the best areas for a potential IFB sites because they are located in an areas of significant recharge to the Central Ground Basin. They are:

- NB on ramp from Alondra Boulevard
- NB off ramp to Firestone Avenue
- 5 NB on ramp from San Antonio Avenue
- Between 605 and 605 NB to 5 NB ramp

An additional area at the SB off-ramp to Rosecrans Avenue was evaluated for an IFB site. However, after the setbacks and other area requirements are considered the remaining area did not meet the minimum area necessary for implementation.

Noise Barriers

A noise impact study was conducted using a level-of-service C (a total of 1950 vehicles per hour per lane and a 9% truck traffic distribution based on the year 2000 truck traffic statistics was also factored into the study) for the projected traffic in the year 2025 to ensure an operational worst-case traffic noise scenario at the sensitive receptor locations where the future first row of houses would be located for both the 12-lane Modified MIS and 12-lane Value Analysis alternative.

The noise impact study recommended segments of noise barriers ranging in height from 2.4m (8ft) to 4.9m (16ft) along the future right-of–way for most of the freeway bordering residential areas. In many cases, noise barriers would be built on retaining walls and barriers because of restrictive R/W conditions. In addition, it is recommended as a construction noise mitigation measure to build the noise barriers as early in the construction schedule as possible to provide the least amount of disturbance to the remaining neighboring residences.

Non-Motorized and Pedestrian Features

To improve the safety of both motorists and bicyclists, the designed overcrossings and undercrossings at Valley View Avenue, Bloomfield Avenue, Pioneer, and Florence Avenue, for all of the build alternatives, have cross section widths to accommodate proposed regional *Class II* bike routes under the Southeast Area Bicycle Master Plan. In most cases, this involves a striped 1.5 m bike lane including a gutter or a striped 1.2 m bike lane without a gutter in the shoulder area. Provisions for a future *Class I* bicycle undercrossing at Coyote Creek are also being studied.

The proposed sidewalks are equal to the widths of the existing sidewalks approaching the reconstruction to provide a continuous pedestrian facility. In addition, the Americans with Disabilities Act (ADA) standards as described in the Design information bulletin 82 updated in November 2004 would be incorporated into all pedestrian facilities.

Needed Roadway Rehabilitation and Upgrading

Due to its age and heavy use, the existing pavement on Route 5 is showing signs of deterioration. To address the rehabilitation needs of this segment, short-term strategies are proposed to improve the rideability on Interstate 5 until a long-term solution can be constructed.

In the short-term, a Capital Preventative Maintenance Project (CAPM Project) Expenditure Authorization (EA) 226204, from the LA/Orange County line to Washington Boulevard, dated February 17, 2004, has been under construction to replace 1921 deteriorating concrete slabs with 205 mm rapid strength concrete (RSC) in both directions, and cold plane and place 45 mm Rubberized Asphalt Concrete Type G (RAC Type G) on all ramps, shoulders, and AC lanes. The slab replacement strategy was favored over an overlay strategy due to reduced vertical clearances at structures and overhead signs and drainage problems on the mainline. Although it would have been preferable to be able to reconstruct the pavement as part of the HOV project, the preventative maintenance of the pavement is already needed and can no longer be deferred until the HOV project is ready for construction. Five years after completion of this CAPM project, another maintenance project may be needed unless the HOV project can be ready.

The long-term rehabilitation strategy is developed in a Project Scope Summary Report for Pavement Rehabilitation completed in October 1997 recommending a long-life lane replacement strategy from the LA/Orange County line to Washington Blvd. A supplemental PSSR was completed in September 1999 to add the cost of dowel bar installation to the slab replacement from Rosecrans Avenue to Washington Boulevard. The long-life strategy includes replacing the existing mainline with 300 mm Portland Cement Concrete (PCC) over 150 mm lean concrete base (LCB), the ramps and interchanges with 230 mm Asphalt Concrete (AC), and the ramp termini with 310 mm PCC.

This project's current recommendations are based on traffic index projections up to the year 2030, which is a long-term pavement strategy. However, since the structural recommendations were given in February 2003, the Highway Design Manual (HDM) has been updated in July 2004 to increase the standard PCC pavement section to 300 mm from 260 mm for a traffic index (TI) of 14 and greater. This project's projected TI is 14.5 and the current recommendation calls for 285 mm PCC pavement. The structural section recommendation would be updated to reflect the changes in the HDM and the estimates would be revised.

Needed Structure Rehabilitation and Upgrade

For both the 10 and 12-lane options, the widened cross section would require vertical alignment adjustments to allow for upgraded standard vertical clearances. Horizontal alignment shifts would also be used to avoid right-of-way takes and facilitate stage construction. Therefore, all of the overcrossing and undercrossing structures for both the 10 and 12 lane alternatives must be reconstructed to accommodate the widening. The Structural Analysis and Improvement Needs (STRAIN) report does not indicate any structure rehabilitation, however, a majority of the structures have been identified with a bridge railing system upgrade and the Silverbow pedestrian overcrossing would need to have an improvement to conform to the current American Disabilities Act Standards. At this point, there are currently no separate proposals for upgrading these structures so these improvements are deferred until the I-5 Corridor Improvement Project can be built.

Right-of-Way Data

Right-of-way costs are the single largest item currently representing approximately 50% of the total project cost. Between each alternative, R/W costs contribute the most significant difference in costs. Right-of-way data sheets were made for each alternative based on preliminary assessments of full and partial acquisition on residential and commercial properties (see Attachment 8 of the Project Report). The commercial properties that were only partially affected were assessed without standard setbacks and may be upgraded to a full acquisition if cities do not grant legal-noncompliant status for these properties.

2-2 ALTERNATIVES CONSIDERED AND WITHDRAWN

In addition to the alternatives that are examined in this document, several other alternatives were considered, but were subsequently withdrawn. They are:

- The Major Investment Study Locally Preferred Alternative with non-standard features. This is a 10-lane alternative that was suggested by the I-5 JPA and included non-standard features such as lane widths and median widths. It also included tight-diamond interchanges with structures that would have a maximum 10-lane cross-section. This alternative was withdrawn from further consideration due to: lack of operational improvements, poor geometrics, excessive amount of non-standard features, lack of space for future freeway expansion capabilities, and local opposition to access road cross-sections.

  Caltrans has continued to work with the JPA and local cities on the design of the freeway to address concerns about property impacts and the inclusion of an option or alternative acceptable to them. While some of the corridor cities and also some members of the JPA may continue to support the modified non-standard alternative, a new alternative (the Value Analysis Alternative) has been developed working with the cities and the JPA. Additional

non-standard features would continue to be considered through the design process, especially as a recommended alternative is selected after the public circulation process.

The following alternatives were examined during the Major Investment Study process and were withdrawn from further consideration in the final MIS Report. The findings of the MIS Final Report are hereby incorporated by reference in accordance with 40 CFR 1502.21.

- Alternatives to add two or three mixed flow lanes, rather than HOV lanes. These alternatives were rejected during the MIS process because they are inconsistent with applicable air quality plans for the region.
- Alternatives that incorporated elevated structures for HOV lanes. These alternatives were rejected during the MIS process because of high capital cost, lack of local access, and broad community opposition.
- An alternative to construct light-rail or commuter trains to the median of Interstate 5. This alternative was rejected during the MIS process due to high cost, lack of logical termini, lack of connectivity to other rail lines, and inconsistency with the improved section of the I-5 freeway directly to the south.

For additional analysis supporting these findings on why these alternatives were rejected, please review the Interstate 5 Major Investment Study (MIS) Report (July 1998). The MIS will be made available to potentially interested persons during the comment period of this draft EIR/EIS.

CHAPTER 3 - AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

HUMAN ENVIRONMENT

3-1 LAND USE

3-1.1 REGULATORY SETTING

Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in the human use of the land, including population distribution and population concentration, and commercial and residential development. Section 15131 allows public agencies to consider economic and social impacts when determining the significance of an environmental impact.

The description of the affected environment is based on data from the U.S. Census Bureau and from State of California and County of Los Angeles/Orange sources. County-, City-, and tract-level data are available from the 2000 census. This section describes demographic characteristics of Los Angeles and Orange Counties, the affected communities, and, when detailed tract-level data are available, the smaller "study area."

Council on Environmental Quality (CEQ) regulations 40 CFR 1502.16(c) require environmental documents identify possible conflicts between the project and local land use plans.

3-1.2 AFFECTED ENVIRONMENT

Information regarding land use was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005, and the I-5 Interim HOV Land Use & Socioeconomic Technical Study, Myra L. Frank & Associates, Inc., August 1998.

Study Area

The regional area includes Los Angeles and Orange Counties. The "affected communities" include the total area of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs. The "study area" henceforth refers to the 16 census tracts identified in Figure 3-1.2.

Regional Area

The I-5 Corridor is located in northern Orange and southeast Los Angeles Counties in Southern California. The southern limit of the corridor is located at the Riverside Freeway (SR-91) in Buena Park, and its northern limit is the I-605 Freeway.

Affected Communities

The affected communities, as shown in Figure 3-1.1, include the total area of the Cities of Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs in the County of Los Angeles and the City of Buena Park in the County of Orange. These communities may be directly affected by the alternatives through the expansion of transportation facilities, modification of streets, right-of-way acquisition, or displacement of homes and businesses. Residents within these communities

may experience reduced local or regional travel time by improved access to a higher capacity transportation facility. Residents may also benefit from improved mobility across eastern Los Angeles County and northern Orange County.

Five of the six affected communities are members of the I-5 Consortium Cities Joint Powers Authority (JPA). The JPA is a six-city joint powers authority that serves approximately 350,000 people in the Cities of Buena Park, Commerce, Downey, La Mirada, Norwalk, and Santa Fe Springs.

Existing Land Use

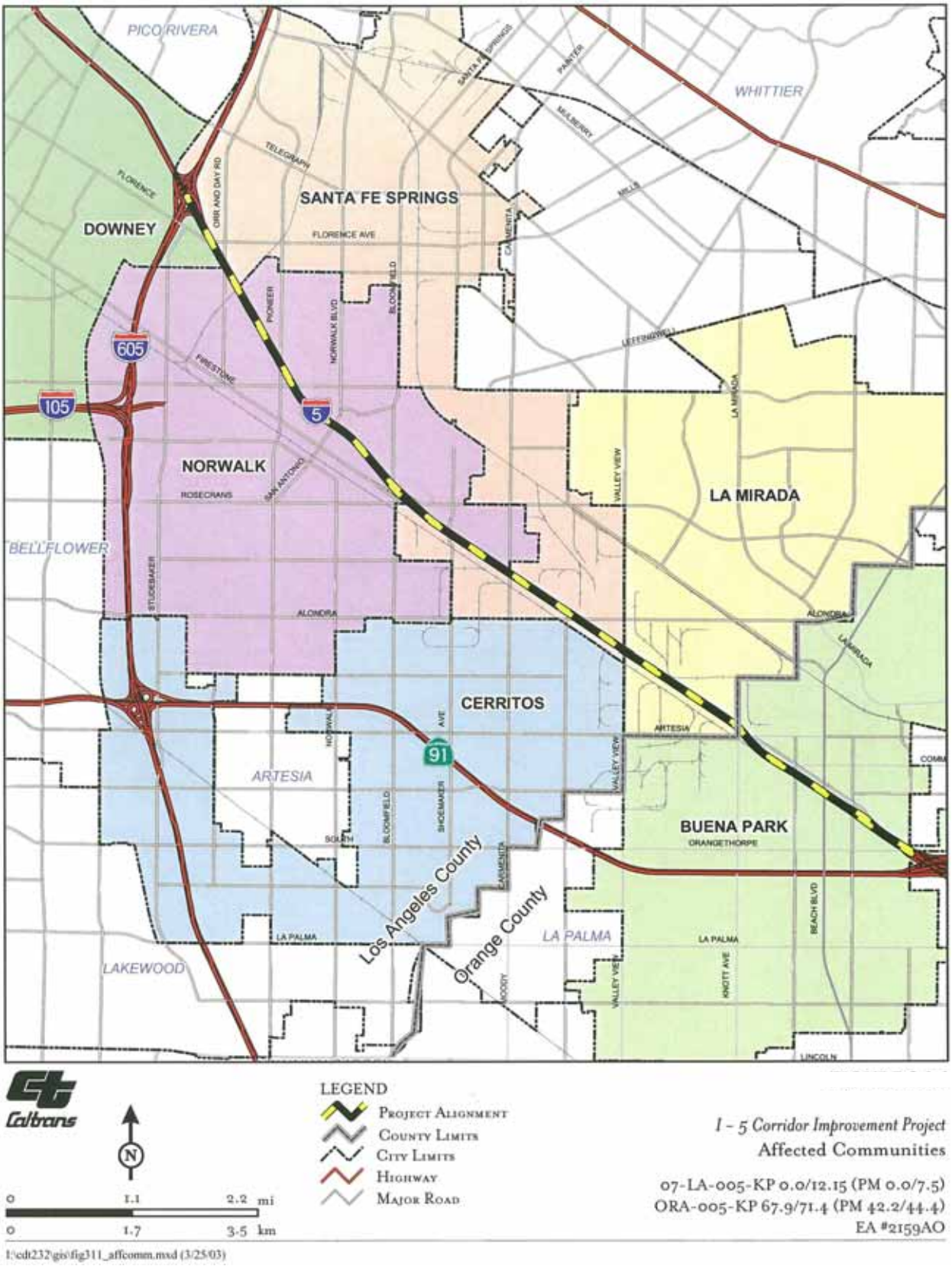
The land use pattern along I-5 is primarily residential, but also contains scattered large-scale, regional commercial uses, as well as pockets of industrial development. A long stretch of commercial properties begins at the Corridor's southern limit (SR-91) and extends northward through the City of Santa Fe Springs toward Shoemaker Avenue. In general, a mixture of commercial and residential uses prevails south of Santa Fe Springs, while residential uses predominate north of Santa Fe Springs in the cities of Norwalk and Downey. Overall, the corridor cities are older, substantially urbanized communities, where existing development and land use patterns have been in place for many years.

General Plan Land Use Patterns[1]

The General Plans of the six affected communities were reviewed in order to understand the development trends, land use-related goals, and specific policies of the local jurisdictions that could be affected by the proposed project. According to the local general plans, substantial new growth in the area is negligible, occurring slowly as a result of redevelopment projects in selected areas. Two generalizations about the corridor cities emerge from the General Plans. First, most of the cities acknowledge their strategic locations along the I-5 Freeway. The freeway has been important in shaping their land use and economic development patterns, providing access to several major regional freeway and rail corridors. Second, the General Plans reveal that many of the corridor cities are experiencing a lack of civic identity. Thus, many of the land use goals and policies seek to foster a sense of uniqueness within the constraints of very mature and fully developed communities. The following sections discuss the local General Plans.

1 Land use patterns as identified in the I-5 Interim HOV Land Use & Socioeconomic Technical Study, Myra L. Frank & Associates, Inc., August 1998.

Figure 3-1.1 – Affected Communities



Buena Park. Buena Park has been fully urbanized for several years. Development is characterized by low-density residential neighborhoods, a solid commercial base, a well-developed tourist and entertainment industry, and an established industrial base. The City of Buena Park is divided into four planning areas. Both the Central Business District (CBD) and the Central Planning Area border I-5 to the north and south, respectively. The CBD area includes most of the city′s multifamily housing, as well as auto dealerships. With the exception of the residential areas, most of the CBD planning area is part of a redevelopment project area to promote economic revitalization. The city has a Central Business District Specific Plan covering the area east of Knott Avenue and north of I-5. It promotes new investment and redevelopment in an expanded CBD and would entail establishing a new zone district. In the same Planning Area, the city has adopted the Auto Center Specific Plan to promote continued development of auto dealerships along the highly visible and freeway-accessible areas of Manchester Boulevard and Beach Boulevard. A new zone district has been created to expand dealerships, allow for supporting retail uses, and create signage standards. Within this plan area, there are several projects currently proposed. There is a 20-acre automobile dealership center proposed for a site adjacent to the freeway extending from Botryoides Avenue/Artesia Boulevard on the north to Western Avenue on the south. The Central Planning Area includes the Civic Center, several historic residences and businesses, and older residential areas. No specific plans in this Planning Area cover areas near I-5. Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Ensure that the development proposals are compatible with existing development and promote the quality of life.
- Preserve the single family character of low-density neighborhoods and upgrade high-density residential neighborhoods.
- Preserve and enhance commercial areas and expand commercial development opportunities.
- Maintain a high level of quality industrial development.
- Encourage the development of a safe, efficient, and comprehensive circulation system.

Cerritos. The City of Cerritos is an established, fully urbanized city. Most of its land is dedicated to residential uses (37 percent), while freeways/public streets accounts for the second-largest land use in the City (23 percent). The Area Development Plans (ADPs) account for 14 percent of all land uses, and commercial and industrial uses make up 9 percent and 13 percent of land use, respectively. There are no ADPs or redevelopment areas located near I-5. Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Preserve, promote, and protect the existing high-quality physical development and quality of life that characterizes life within the City of Cerritos.
- Coordinate land use and circulation patterns to ensure proper circulation capacity and infrastructure.

Downey. The City of Downey is largely built out. However, new development is occurring in the city through recycling, redevelopment, and/or revitalization of existing properties. Planned development would generally replace older structures. There are no redevelopment areas located in the vicinity of the proposed improvements. However, the project is located within the Florence Avenue/I-5 Specific Plan 90-1, bounded by I-605 on the west, the City of Santa Fe Springs on the east and the City of Norwalk on the south. Specific Plan 90-1 serves as the planning and

development regulations for future improvements to the 39-acre area, focusing on the introduction and intensification of auto and auto related uses. The Specific Plan consists of 12 sites. The City of Downey has indicated that one commercial parcel located on Site 1 (11111 Florence Avenue) of the Specific Plan is currently vacant and would be redeveloped in compliance with the development regulations identified in Specific Plan 90-1. As of December 2004, the City of Downey has received no applications for redevelopment.[1] Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Maintain the high-quality and single-family character of the City.
- Maintain a balance of land uses
- Coordinate land use and transportation needs of the City.
- Promote project designs that reduce dependency on vehicles and promote pedestrian, transit, and alternative modes of travel.
- Promote commercial and residential uses in proximity to transit stops to reduce dependency on vehicles.
- Retain existing businesses and attract new businesses.

La Mirada. The City of La Mirada is a fully urbanized city. Single family residences are the predominant land use in the City. Industrial development is concentrated in the southern part of the city around I-5. The City's redevelopment area borders the freeway on both sides. The City aims to maintain its balance of land uses and preserve its single-family neighborhoods and open space areas. Focused land use policies within the La Mirada General Plan (March 2003) recognize the new opportunities and improved access that would result from the planned widening of I-5. Portions of the study area are located within the I-5 Corridor Land Use Focus Area, as identified in the City's General Plan. Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Preserve established neighborhoods.
- Maintain an atmosphere conducive to industrial development.
- Maintain a balanced community that meets the needs of all residents.
- Obtain positive land use and economic benefits from the widening of Interstate 5.

Norwalk. Low-density residential uses make up over 45 percent of all land uses within the City of Norwalk. In contrast to other cities within the study area, Norwalk has limited commercial or industrial development. Only 6 percent of land uses are commercial, and only five percent are industrial. Open space/public facilities and undesignated uses account for the balance of land uses within the City. Plans for new development are confined to specific sites within the City because Norwalk is fully urbanized. Currently two redevelopment areas within the City are intended to eliminate physical and economic conditions of blight. Within the study area, new development contemplated includes the proposed expansion of the Civic Center (Norwalk Boulevard and I-5, located within Redevelopment Project 1 Area) and the development of an approximately six-acre vacant parcel into a mixed-use development (Bloomfield Avenue and Imperial Highway).

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[1] Based on a telephone conversation with Jay Jarrin, Senior Planner, City of Downey, on December 9, 2004.

In addition to development plans for specific parcels, the City has three Area Plans that focus on planning, urban design, and economic development in specific areas of the City. The Civic Center Plan covers contiguous areas along Imperial Highway east of I-5. The intent of this plan is the improvement of this area as a major office center. The San Antonio Village Plan centers around San Antonio Drive west of I-5. This plan seeks to create a community and cultural center in San Antonio Village. The Firestone Boulevard Plan encompasses Firestone Boulevard through Norwalk, west of I-5. This plan focuses on the importance of Firestone Boulevard as a commercial corridor through Norwalk. Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Provide for a development pattern to maximize the City's changing role as a subregional center.
- Coordinate land use with planned transportation facilities and infrastructure.
- Develop an integrated transportation system to meet transportation needs in a more efficient manner.
- Upgrade infrastructure and services to support the City's growth.
- Encourage a regional network of transportation facilities that ensures safe and efficient travel within the City and to surrounding areas and that accommodates regional travel demands.

Santa Fe Springs. Santa Fe Springs is almost fully built out, and extensive new development is not expected. Approximately 10 percent of the City's area is designated as residential. Single family homes account for 84 percent of all residential development. The City plans to maintain this proportion of residential uses and allow conversion of other uses to housing use, if developer interest occurs (MFA, August 1998). Commercial uses account for another 10 percent of all development. Most commercial use occurs clustered in commercial centers located around the city. Industrial development comprises the majority of land use in Santa Fe Springs. Seventy-five percent of the City's land uses are devoted to industrial development. The remaining 5 percent of land uses within the City are used by public and community services, institutional uses, and parks. The City also aims to provide for the addition and preservation of open space. In 1980 several redevelopment areas located in Santa Fe Springs were consolidated into one Consolidated Redevelopment Area. There are currently four redevelopment projects in the study area. Relevant land use-related goals and policies stipulated in the City's General Plan are summarized below:

- Emphasize managed growth and maintain or reduce travel time and distances.
- Provide an environment to stimulate local employment, property values, and community stability.
- Protect land suitable for industrial use from encroachment by non-industrial uses.
- Support and encourage the viability of industrial and commercial areas.
- Maintain and improve the residential community.
- Maintain historic sites and open space.
- Widen I-5 within its existing right-of-way without displacing any buildings.

As described in the City of Santa Fe Springs Municipal Code, "Due to the unique impacts imposed on properties in close proximity to the freeway [I-5], a detailed analysis and an application of high standards of design and quality of improvements are warranted to ensure orderly and consistent development." In response to this need, the City of Santa Fe Springs Freeway Overlay Zone designation was passed on February 7, 2003, and is included in the City's Municipal Code. The purpose of the Freeway Overlay Zone is to:

- To present a positive community identity reflected through the portion of the regional transportation system that traverses the City;
- To establish and maintain a high quality aesthetic appearance, efficient access, and optimum functionality for specially designated properties located adjacent to, directly abutting the freeway, or directly abutting a street adjacent to the freeway through the implementation of design standards as established by this zoning overlay;
- To stimulate continued investment and reinvestment in the properties and businesses within this exceptional location as well as attract uses that benefit from direct regional access and freeway visibility;
- To encourage a creative approach in a development of land and improvements adjacent to the freeway and to allow a variety of industrial and commercial uses while maintaining high standards of design and quality of improvements to preserve the quality of life and economic vitality for the City's businesses and residents;
- To establish a basis for reviewing and evaluating projects on a case-by-case basis to ensure high levels of design and quality developments are maintained adjacent to the freeway and to ensure that they achieve the intent of the Freeway Overlay Zone and design standards; and
- To provide a means for requiring review and action on development plans for properties that are within the proximity of a freeway (either directly abutting or separated by a frontage road) by Planning Commission or other necessary approval bodies. The Freeway Overlay Zone is intended to address the special circumstances and potential impacts created by the existence or expansion of a freeway that traverses the community.

3-1.3 IMPACTS

CONSISTENCY WITH LOCAL PLANS

The study area includes six incorporated cities within Los Angeles and Orange Counties in which existing land uses are determined by Specific and General Plans. This analysis evaluates changes to existing land uses that may occur from the proposed I-5 widening. Throughout the study area, residential and commercial/industrial land dominates existing land use.

General Plan Consistency

The Congestion Management Program (CMP) is a State-mandated program that addresses regional traffic congestion by linking transportation, land use, and air quality decisions. Each county transportation agency (such as MTA in Los Angeles County and OCTA in Orange County) must adopt its own CMP and annually monitor the performance of local jurisdictions in complying with its implementation requirements. Because the I-5 Corridor travels through Los Angeles and Orange Counties, compliance with the Los Angeles County CMP (1999) and Orange

County CMP (2001) is required. Each of the cities within the study area is responsible for implementing the requirements of the CMP.

The CMP must include a Transportation Demand Management (TDM) component that includes a trip reduction and travel demand element that promotes alternative transportation methods, such as carpools, vanpools, transit, bicycles, and park-and-ride lots. The adoption of a TDM ordinance was required of every local jurisdiction within Los Angeles and Orange Counties.

The City of Santa Fe Springs Freeway Overlay Zone was adopted to address the unique impacts imposed on properties in close proximity to I-5 and to ensure orderly and consistent development. A detailed description of the Freeway Overlay Zone is provided in Section 3-1.2, under Santa Fe Springs.

Alternatives 2 and 3. As described in Section 2.2, the goal of Alternative 2 (TSM/TDM) is to increase the operational efficiency of existing transit facilities and shift transportation users to higher capacity modes such as transit. Alternative 3 (TEA) aims to improve integration of I-5 with the existing transit system. Each of the affected communities has adopted goals and policies within its General Plan that aim to support the requirements of the CMP and reduce traffic congestion using strategies other than the construction or expansion of roadways. Therefore, Alternatives 2 and 3 are consistent with the local general plans within the study area.

Alternative 4. The consistency determination for a 10-lane facility within each of the affected communities is shown in Table 3-1.1 below. The construction of a 10-lane facility would be consistent with the goals of the Buena Park, Cerritos, La Mirada, and Norwalk General Plans. The construction of the 10-lane facility would not be supportive of the Downey and Santa Fe Springs goals to widen I-5 without property acquisitions.

Alternative 5. The consistency determination for a 12-lane facility within each of the affected communities is shown in Table 3-1.1 below. The construction of a 12-lane facility would be consistent with the goals of the Cerritos General Plan. The Buena Park, Norwalk, and La Mirada General Plans do not support the expansion of I-5 to a 12-lane freeway. The construction of the 12-lane facility would not be supportive of the Downey and Santa Fe Springs goals to widen I-5 without property acquisitions.

Table 3-1.1 - General Plan Consistency for Alternatives 4 and 5			
General Plan	**Consistency Determination**	**Alternative 4**	**Alternative 5**
Buena Park	The Circulation Element supports the efforts to widen I-5 to an 8- to 10-lane facility.	Consistent	Inconsistent
Cerritos	Although the proposed I-5 facility would not travel through Cerritos, the General Plan aims to work with the counties to solve regional transportation problems.	Consistent	Consistent
Downey	Program 2.1.1.5 of the Circulation Element supports the development of HOV lanes on I-5 within existing right-of-way.	Inconsistent	Inconsistent
La Mirada	Goal 8.0 of the Land Use Element and Goal 2.0 of the Circulation supports the widening of I-5 to a 10-lane facility.	Consistent	Inconsistent
Norwalk	The Circulation Plan supports the effort to widen I-5 to an 8- or 10-lane facility.	Consistent	Inconsistent
Santa Fe Springs	The Plan supports the widening of I-5 without property acquisitions.	Inconsistent	Inconsistent

Source: City General Plans.

Redevelopment Plan Consistency

Redevelopment project areas are essential to a local jurisdiction's income, because a city can substantially increase its tax base with redevelopment projects. An increase in tax revenue can result from a rise in property values that occurs within the redevelopment or from rehabilitation of property in the project area. Redevelopment projects in the study area are described in Section 3-1.2 and are summarized in Table 3-1.2.

Alternative 2. Direct impacts to development efforts within the Corridor cities may occur as a result of Alternative 2. Redevelopment impacts would be associated with enhancement of intersection capacity, upgrading of arterials to Smart Street status, and provision of an improved arterial on each side of I-5 that would serve as an alternative route from SR-91 to I-710. The ability to redevelop parcels in the study area would potentially be limited as a result of conversion of any properties for roadway or transit purposes to the I-5 Corridor. Any loss of redevelopment would not substantially reduce the ability to recycle and upgrade the local community and may provide opportunities to enhance such improvements by providing aesthetic treatments, such as landscaping and streetscape elements, that improve the community aesthetics.

Alternative 3. No direct impacts to development efforts within the Corridor cities are anticipated. The proposed park-and-ride lots associated with this alternative would be located on remnant parcels acquired by Alternative 4 or Alternative 5 and no additional right-of-way would be acquired. Parcel acquisitions associated with this alternative would not conflict with existing redevelopment projects or alter future projects.

Table 3-1.2 - Redevelopment Project Consistency		
City	**Project**	**Project Impact**
Buena Park	20-acre Auto Dealership (Botryoides Ave/Artesia Blvd.) located in the Auto Center Specific Plan	No impact, due to distance from Corridor.
	26.5-acre single-family residential and commercial development Master Plan (La Mirada Boulevard/Beach Boulevard)	No impact, due to distance from Corridor.
Cerritos	No projects adjacent to the Corridor	
Downey	Improvements to Lakewood Boulevard between Telegraph Road and Gardendale Street	Project improvements would occur along an area of Lakewood Boulevard that intersects I-5. No direct impact would occur.
	Commercial parcel (11111 Florence Avenue)	Full acquisition of parcel by Alternatives 4b and 5b.
La Mirada	No current projects adjacent to the Corridor	
Norwalk	Civic Center Expansion (Norwalk Blvd. and I-5) located in the Redevelopment Project 1 Area	Partial acquisition from hotel and parking property by Alternatives 4 and 5.
Santa Fe Springs	Golden Springs Development, Bloomfield Business Center, Southern Wine and Spirits, Villages at Heritage Springs	No impact, due to distance from Corridor.

Source: MFA, August 1998 and LSA Associates, Inc., March 2003.

Alternatives 4 and 5. The consistency between redevelopment projects within the affected communities and proposed right-of-way acquisitions is summarized in Table 3-1.2. The two vacant parcels planned for redevelopment in the City of La Mirada are located within the City's I-5 Land Use Focus Area, but would not be directly impacted by the proposed project. However, the developer and the City should work with Caltrans to develop a compatible site plan for the parcels to ensure adequate access after project implementation. Alternatives 4 and 5 would require partial/full acquisition from properties located in Redevelopment Project Area 1 within the City of Norwalk. The partial acquisition would not eliminate an existing business, nor would the proposed improvements be incompatible with the planned expansion of the Civic Center. Alternative 5 would result in the full acquisition of Site 1 of the City of Downey's Specific Plan 90-1. This property contains a vacant structure, and the City of Downey has not received any applications for development of this parcel.[1]

Physical Compatibility

Full acquisitions that would vacate a large area of land for an extended period of time or introduce new roadway structures that would substantially alter an existing land use pattern could create physical incompatibility with the existing and planned land uses within the study area.

[1] Based on a telephone conversation with Jay Jarrin, Senior Planner, City of Downey, on December 9, 2004.

Alternatives 4 and 5 would require the acquisition of several businesses along Firestone Boulevard, a major commercial corridor that runs through all of the affected communities (with the exception of Cerritos). As discussed in Section 3-1.2, the Firestone Boulevard Plan in the City of Norwalk General Plan focuses on the importance of Firestone Boulevard as a commercial corridor. The proposed widening would result in scattered full and partial acquisitions along Firestone Boulevard and adjacent to I-5, including portions of major commercial business centers such as the La Mirada Business Center, API Properties Association, Meyer Properties Business Park, the Gateway Center, and Parkway La Mirada.

Alternative 2. Alternative 2 would focus on increasing the efficiencies of transit and improving local circulation by utilizing the existing infrastructure of I-5 and local streets. However, physical compatibility impacts resulting from parcel acquisitions adjacent to the I-5 Corridor may result from enhancement of intersection capacity, upgrading of arterials to Smart Street status, and provision of an improved arterial on each side of I-5 that would serve as an alternative route from SR-91 to I-710. This improved arterial may result in physical incompatibilities with parcels adjacent to the I-5 Corridor.

Alternative 3. Alternative 3 is not anticipated to directly produce any physical incompatibilities with the adjacent land uses. The parcel acquisitions and any associated physical incompatibilities required for park-and-ride lots associated with this alternative would involve leftover rights-of-way resulting from takes and the interchange configurations for Alternative 4 or Alternative 5, since Alternative 3 functions as an adjunct to Alternatives 4 and 5. The Florence Avenue/I-5 and Bloomfield Avenue/Firestone Boulevard lots would utilize land made available by the closure of existing I-5 on-ramps and off-ramps. The existing commercial plaza and hotel at the corner of Imperial Highway and Pioneer Boulevard would be acquired as part of Alternatives 4 and 5 and would be utilized for the Imperial Highway/Pioneer Boulevard lot.

Alternative 4A. On the south side of I-5, the removal of seven commercial properties on Firestone Boulevard would create an approximately 0.8-kilometer (0.5-mile) long stretch of vacant land within the City of La Mirada (beginning at 14500 Firestone Boulevard on the east and 14300 Firestone Boulevard on the west). West of Valley View Avenue, Alternative 4a would also require the full acquisition of the Meyer Properties Business Park (14060 Firestone Boulevard), creating an additional approximately 0.4-kilometer (0.25-mile) long stretch of vacant land along Firestone Boulevard in the City of Santa Fe Springs. The properties on Firestone Boulevard adjacent to I-5 are located within areas designated for commercial freeway development. Many of the properties are large and can be reconfigured and resold after construction of the project, maintaining the pattern of commercial freeway development on Firestone Boulevard. If not resold for private development, the land could be used as a community amenity (such as for landscaping, etc.). Therefore, it is not anticipated that these full acquisitions would result in long-term land use impacts through the creation of incompatible vacant land.

Alternative 4B. On the south side of I-5, the removal of 12 commercial properties on Firestone Boulevard would create an approximately 1.1-kilometer (0.7-mile) long stretch of vacant land between Coyote Creek on the east and Valley View Avenue on the west. This stretch of vacant land includes the full acquisition of all of the businesses within the La Mirada Businesses Center at 14670 Firestone Boulevard. West of Valley View Avenue, Alternative 4b would also require the full acquisition of the Meyer Properties Business Park (14060 Firestone Boulevard), creating

an additional approximately 0.4-kilometer (0.25-mile) long stretch of vacant land along Firestone Boulevard in the City of Santa Fe Springs. The properties on Firestone Boulevard adjacent to I-5 are located within areas designated for commercial freeway development. Many of the properties are large and can be reconfigured and resold after construction of the project, maintaining the pattern of commercial freeway development on Firestone Boulevard. If not resold for private development, the land could be used as a community amenity for landscaping, etc. Therefore, it is not anticipated that these full acquisitions would result in long-term land use impacts through the creation of incompatible vacant land.

For Alternative 4b, full acquisitions of 33 single-family residences in the City of Norwalk on the east side of I-5 between Dinard Street and the Ranch Market Strip Mall at Rosecrans Boulevard would create a strip of vacant land between the single-family neighborhood and the freeway. If the parcels were reconfigured and resold after project completion, the acquisitions would not alter the existing land use pattern.

Alternative 5A. On the south side of I-5, the removal of 10 commercial properties on Firestone Boulevard would create an approximately one-kilometer (0.62-mile) long stretch of vacant land between the La Mirada Business Park on the east and Valley View Avenue on the west. West of Valley View Avenue, Alternative 5a would also require the acquisition of the Meyer Properties Business Park, creating an additional approximately 0.4-kilometer (0.25-mile) long stretch of vacant land along Firestone Boulevard in the City of Santa Fe Springs. The properties on Firestone Boulevard adjacent to I-5 are located within areas designated for commercial freeway development. Many of the properties are large and can be reconfigured and resold after construction of the project, maintaining the pattern of commercial freeway development on Firestone Boulevard. Therefore, it is not anticipated that these full acquisitions would result in long-term land use impacts through the creation of incompatible vacant land.

The acquisition of one commercial property (11111 Florence Avenue) would fall within Specific Plan 90-1 in the City of Downey. The site is currently vacant. If the remaining portions of the site are resold after construction of the project, redevelopment of the site would have to follow the development standards established in Specific Plan 90-1.

Alternative 5B. East of Alondra Boulevard, the acquisitions along Firestone Boulevard on the south side of I-5 are the same as Alternative 4b. West of Alondra Boulevard, Alternative 5b would require the acquisition of 10 commercial and industrial properties that would create an additional approximately 0.8 kilometer (0.5-mile) long stretch of vacant land along Firestone Boulevard between Alondra Boulevard and Carmenita Road in the City of Santa Fe Springs. The properties on Firestone Boulevard adjacent to I-5 are located within areas designated for commercial freeway development. Many of the properties are large and can be reconfigured and resold after construction of the project, maintaining the pattern of commercial freeway development on Firestone Boulevard. Therefore, it is not anticipated that these full acquisitions would result in long-term land use impacts through the creation of incompatible vacant land.

The acquisition of one commercial property (11111 Florence Avenue) would fall within Specific Plan 90-1 in the City of Downey. The site has been recently vacated. If the remaining portions of the site are resold after construction of the project, redevelopment of the site would have to follow the development standards established in Specific Plan 90-1.

Full acquisitions of the same 33 single-family residences acquired by Alternative 4b (in the City of Norwalk on the east side of I-5 between Dinard Street and the Ranch Market Strip Mall at Rosecrans Boulevard) would occur under Alternative 5b and create a strip of vacant land between the single-family neighborhood and the freeway. If the parcels were reconfigured and resold after project completion, the acquisitions would not alter the existing land use pattern.

3-1.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Prior to and during construction, Caltrans staff would contact and interview individual businesses potentially affected by construction activities. Interviews with commercial and industrial businesses would provide knowledge of how these firms conduct their businesses and identify business usage; delivery and shipping patterns; frequented travel routes of customers and clients upon entering and exiting the business establishment; parking requirements; hours of operation; and critical times of the day and year for business activities. Information gathered from these interviews would be used to develop the construction traffic control plans and alternate access routes to maintain critical business activities. Caltrans staff would inform the public of its progress in implementing the measures selected through periodic project newsletters sent to businesses, residents, and property owners within close proximity to the project. Staff would be assigned to work directly with the public to provide project information and resolve construction-related problems.

Prior to and during construction, ongoing coordination between Caltrans and the Joint Powers Authority (JPA)/individual cities would minimize any General Plan/Redevelopment Plan inconsistencies that may result during implementation of the proposed project.

Parcels subject to full acquisition shall be reconfigured or combined with adjacent parcels to allow for development commensurate with previous land uses. Commercial and industrial land uses subject to partial acquisitions should be reconfigured on site in such a manner as to remain in operation. Reconfigurations of remnant properties would need to comply with local codes and some remnants may result in smaller developments. These situations would be reviewed on a case-by-case basis. The mechanism for reconfiguring impacted parcels would be determined by the I-5 Corridor Improvement Project Steering Committee.

3-1.5 CUMULATIVE IMPACTS

Cumulative Impacts Analysis Introduction

The cumulative impact analysis provided for this EIR/EIS assesses the potential environmental effects of the proposed I-5 (Freeway) improvement project (Proposed Action), past, present, and reasonably foreseeable development (cumulative projects) and the Proposed Action's contribution to cumulative effects. For larger development or redevelopment projects identified in Chapter 4, Tables 4-1 (Past Projects) and 4-2 (Present and Foreseeable Future Projects), potential environmental effects of these developments as described in their related environmental documentation has been summarized in Table 6.A of the Cumulative Impact Assessment. Other smaller projects (e.g., a 4,000-square-foot restaurant) often did not have environmental documentation associated with them because they were either exempt from CEQA and NEPA, or they were part of a larger development or redevelopment project. The smaller projects are not included on Table 6.A; however, they are listed on Tables 4-2 and 4-3. Cumulative effects of all

projects, however, both small and large, are considered and documented under each resource section in Chapter 3.

Cumulative Land Use Effects
The Cities within the I-5 Corridor are urban, mature, and predominantly built out, particularly within the study area. Of the projects listed in Tables 4-1, and 4-2 the most common purpose of the projects is to redevelop underutilized or blighted areas. It does not appear that the types of land uses would likely change as a result of any of the build alternatives. Parcels that may end up unusable may be rezoned as open space.

General Plan/Redevelopment Plan Consistency. There are projects in the Cities of Buena Park (Big-T), La Mirada, and Norwalk that are inconsistent with the land use designations set forth in their General Plans. Cumulative development and residential redevelopment has been conducted generally consistent with the overall land use pattern and the City General Plan and redevelopment plans, if appropriate. Redevelopment of prior industrial uses with commercial retail developments has occurred within the last decade as manufacturing and other industrial uses have moved out of the study area.

Project Contribution to Cumulative Land Use Effects
Alternatives 2 and 3
These alternatives are inconsistent with all of the city general plans with the exception of the City of Cerritos General Plan because they do not include widening of the I-5; however, the elements that are part of these alternatives are consistent with the general plans. So, although they do not support the goal of widening the I-5, they do not prevent it from happening in the future. Therefore, the contribution of these alternatives to cumulative land use effects is not substantial.

Alternatives 4 and 5
All of the city general plans support widening of the I-5; however, two general plans only support widening if they do not involve property acquisitions. In addition, the general plans only support up to a 10-lane facility. Essentially, the goals of the plans are to provide an adequate transportation facility without allowing conversion of existing land uses. Other cumulative projects in the area do not include major freeway widening. The purpose of these alternatives is to reduce congestion on this segment of I-5 to match the alignment of the adjoining segments. Because these alternatives would result in a one-time conversion of land use and would not cause other projects to convert land use to transportation facilities, the contribution of these alternatives to cumulative land use effects is not considered substantial.

3-2 GROWTH

3-2.1 REGULATORY SETTING

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969, require evaluation of the potential environmental consequences of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations, 40 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. CEQA guidelines, Section 15126.2(d), require 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…"

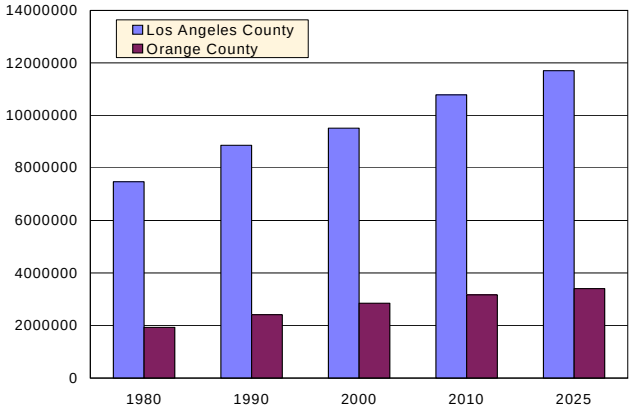
Under NEPA and CEQA, growth inducement is not necessarily considered detrimental, beneficial, or environmentally significant. Typically, the growth inducing potential of a project is considered significant if it fosters growth or a concentration of population in excess of what is assumed in relevant master plans, land use plans, or in projections made by regional planning agencies. Significant growth impacts could be manifested through the provision of infrastructure or service capacity to accommodate growth beyond the levels currently permitted by local or regional plans and policies. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way.

3-2.2 AFFECTED ENVIRONMENT

Information regarding land use impacts was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005.

Regional Population

Los Angeles County and Orange County currently have the first and second largest populations in the Southern California region, respectively. The Southern California Association of Governments (SCAG) reports that Los Angeles County's population totaled 7,472,761 in 1980. In the 20 years that followed, the population increased by more than 25 percent, to 9,519,338. Orange County's population totaled 1,932,705 in 1980. Over the next 20 years, the County's population increased by nearly 50 percent to 2,846,289 in the year 2000.



SCAG projects that Los Angeles County will experience the largest share of regional population growth over the next several decades, reaching 11.9 million by 2025, at an annual growth rate of approximately 1.0 percent. Orange County is projected to increase to 3.5 million in 2025, representing an annual growth rate of approximately 0.9 percent.

Population within Affected Communities

Populations within the affected communities are shown in Table 3-2.1 (SCAG, 2001 RTP Growth Forecast). The City of Santa Fe Springs had the smallest population among the affected communities in 2000 (17,501), and SCAG projects that the City's population will increase to 20,750 in 2025. The City of Downey had the largest population among the affected communities in 2000 (107,821), and the City's population is expected to increase to 121,228 in 2025. The City of Norwalk is anticipated to experience the greatest amount of population growth over the next several decades, reaching 119,336 by 2025. Cerritos and La Mirada are projected to reach 55,282 and 67,163 in 2025, respectively.

Table 3-2.1 – Study Area Populations

City	Census Tract	Population 1990	Population 2000	Percent Change
Buena Park	1105	7086	8599	(+) 21.4%
Buena Park	1106.01	6366	N/A[1]	N/A
Buena Park	1106.06	N/A[2]	4841	N/A
Buena Park	1106.03	6754	8573	(+) 26.9%
Cerritos	5545.11	4446	4323	(-) 2.8%
La Mirada	5039.02	4290	4492	(+) 4.7%
Norwalk	5501	6607	7314	(+) 10.7%
Norwalk	5502	7602	8352	(+) 9.9%
Norwalk	5503	6822	7660	(+) 12.3%
Norwalk	5520	6621	7924	(+) 19.7%
Norwalk	5522	5922	6819	(+) 15.1%
Norwalk	5523	8472	8664	(+) 2.3%
Norwalk	5524	2499	2691	(+) 7.7%
Norwalk	5527	5693	6702	(+) 17.7%
Santa Fe Springs	5028	7116	8627	(+) 21.2%
Santa Fe Springs	5041.02	27	8	(-) 70.4%
Downey	5504	1305	1437	(+) 10.1%
Total Study Area		**87,628**	**97,316**	**(+) 11%**

Source: U.S. Census Bureau, Census 1990 and 2000.

[1] The census tract boundary for tract 1106.01 was redefined after the 1990 Census. Tract 1106.01 was not included in the 2000 Census.

[2] Census tract 1106.06 was not included in the 1990 Census.

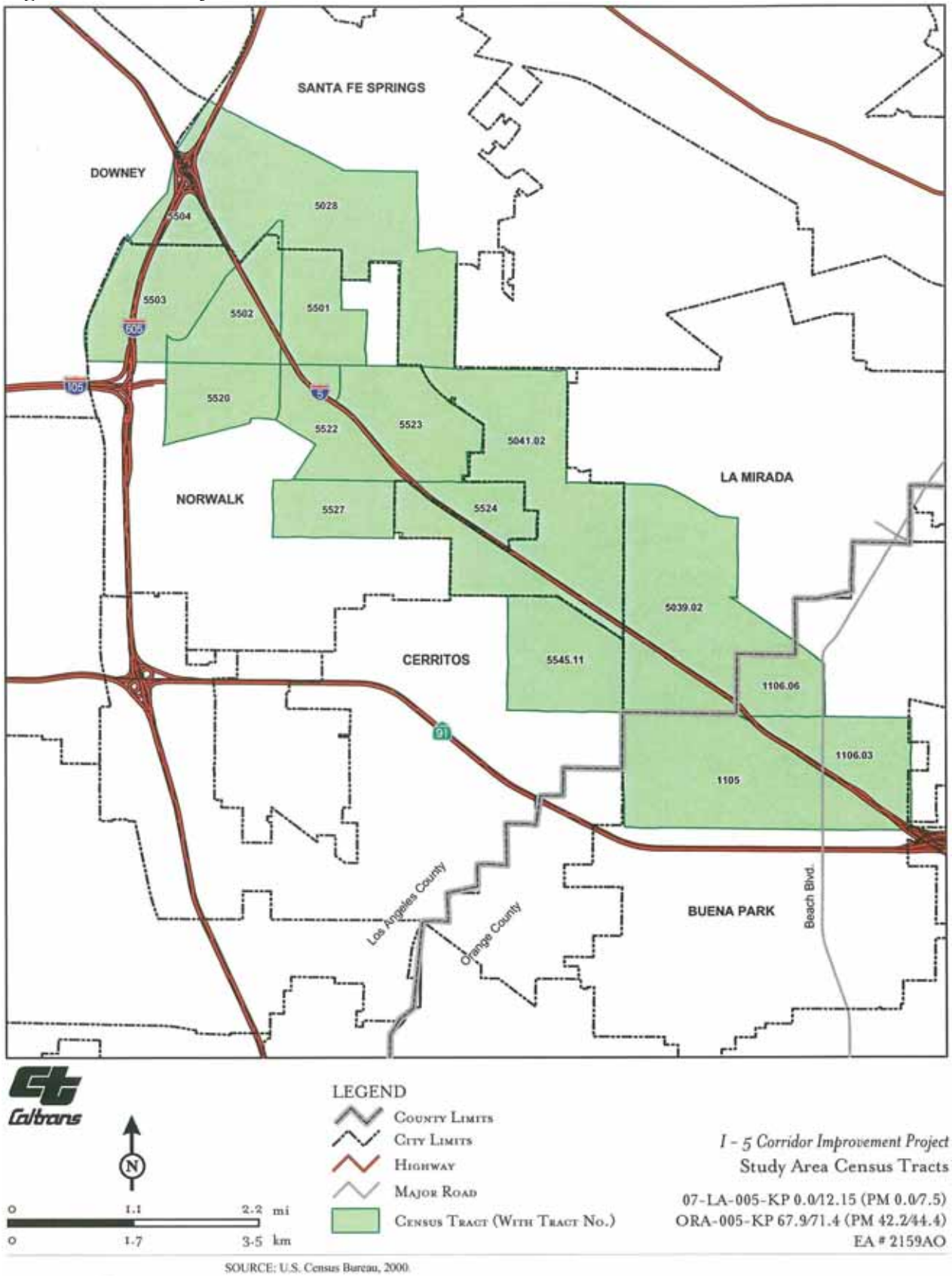
Study Area Population

The population within the study area is shown in Table 3-2.1. Figure 3-2.1 shows the census tracts within the study area. Census Tract 5523 in the City of Norwalk, designated primarily as residential, had the greatest population in 2000 (8,664 persons). Census tract 5041.02 in the City of Santa Fe Springs, containing predominantly commercial and industrial uses, had the smallest population in 2000 (8 persons). The percentage of population change between 1990 and 2000 within each census tract ranges from a decrease of 70.4 percent (Tract 5041.02, from 27 to 8) to an increase of 26.9 percent (Tract 1106.03, from 6,754 to 8,573).

Development Projections

According to SCAG's 2004 RTP Growth Forecast, total employment in Los Angeles County is projected to increase by 1.2 million jobs between 2000 and 2030. This represents an average annual increase of 40,000 jobs, or 0.9 percent, compared to an annual average increase of 43,000 jobs or 1.4 percent during the 1972–2000 period. Total employment in Orange County is projected to increase from 1.3 million jobs in 2000 to 2.0 million jobs in the year 2030. This represents an average annual increase of 23,300 jobs or 1.8 percent, as compared to an annual increase of 32,500 jobs or 6.7 percent during the 1972–2000 period.

Figure 3-2.1 – Study Area Census Tracts



3-2.3 IMPACTS

The proposed project study area is generally older with substantially urbanized communities where existing developments have been in place for many years. The region that the I-5 facility serves is experiencing continuous population, housing, and employment growth. Although the build alternatives of the proposed project are intended primarily to accommodate rather than induce growth, the improvements to Interstate 5 would provide additional transportation capacity to accommodate the increasing regional growth. It is neither intended, nor expected, to induce a substantial change in the location, distribution, or rate of population and housing growth from that planned by the regional and local land use authorities.

Traditionally, there is a general perception that freeway widening promotes or influences urban growth. This perception is difficult to substantiate in areas that are fully developed in contrast to rural or underdeveloped land areas.

While the perceived demand for new development induced by a highway in the inner city is complex, the U.S. Council on Environmental Quality's report, "The Growth Shapers" provides some insight on the subject in those situations where access is significantly improved. The potential for growth in an area is based upon three factors:

1. The supply of developable land
2. The demand for development
3. The potential for land use change.

A survey of vacant land in the corridor revealed that, aside from a few isolated vacant lots scattered throughout the project area, there was virtually no developable land. The only supply of land which could even remotely be considered as developable anywhere near the proposed project are the underutilized oil production areas in Santa Fe Springs.

The attractiveness of demand for development in the area has remained stable for a number of years. A number of existing office and industrial building in the area remain vacant. While this proposed project might enhance the serviceability of these existing developments, this would not be new growth. To date, previous lane additions south of SR 91 have not led to an increased demand for development in this corridor.

The high degree of neighborhood stability in this area, together with discussions with local land use experts lead to the conclusion that this project held no potential for intensifying or significantly changing land use. Discussions with various developers, as well as local City staff members responsible for land use planning indicated that the proposed widening would not significantly stimulate new growth. In fact there is today a growing pattern of reverse commuting centered in the Irvine area. This is the area where the public's perception of growth is and would be focused.

The results of our examination of the possible growth inducing impacts of this project were conclusive. There is no supply of developable land in the study area; demand for the development in the study area will remain stable; and there will be a minimal amount of land use intensification with or without widening the freeway. Considering these overwhelming constraints together with the excessive traffic volume constraints on freeway capacity and access

to the area the only conclusion that can be made is that the proposed project has no meaningful potential for stimulating growth.

3-2.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Because the proposed project has no meaningful potential for stimulating growth, no mitigation measures would be required.

3-2.5 CUMULATIVE IMPACTS

Cumulative Growth Effects

The overriding purpose of most projects in the cumulative study area is to revitalize properties and stimulate economic activity. The projects encourage economic growth and community revitalization by replacing underutilized or blighted areas with new commercial, retail, and residential land uses. Additionally, residential development has increased the housing stock within each of the cities, providing opportunities for each jurisdiction to balance jobs and housing consistent with the Housing Elements of their General Plans. The commercial development has created short-term construction jobs and long-term employment. The provision of additional housing balances the jobs-to-housing ratio within each local city. Given the mature nature of the local communities, inducement of substantial growth effects has been limited, but serves to maintain or enhance the existing economic vitality of each jurisdiction, particularly with the loss of industrial/manufacturing uses over the last decade. The projects individually and collectively do not appear to create adverse growth impacts.

Project Contribution to Cumulative Growth Effects

The proposed alternatives are not anticipated to induce any unplanned growth either regionally or in the project area, and therefore are not anticipated to contribute to any cumulative growth impacts.

3-3 FARMLANDS/AGRICULTURAL LANDS

3-3.1 REGULATORY SETTING

The California Land Conservation Act of 1965 (Williamson Act) discourages premature and unnecessary conversion of agricultural land to urban uses (California Government Code Section 51200). See also the Farm Protection Policy Act (7 USC 4201) and the Food Security Act (16 USC 3811) relating to the preservation of farmland.

Prime Farmland is defined by the California Department of Conservation and the U.S. Natural Resource Conservation Service within the Department of Agriculture (NRCS) as land that has the best combination of physical and chemical characteristics for producing agricultural crops and may include land currently used as cropland, pastureland, rangeland, or forestland. It does not include land that is already in or committed to urban development.

3-3.2 AFFECTED ENVIRONMENT

The study area census tracts include approximately 4,223 hectares (10,436 acres) of urbanized land uses and do not contain any designated prime farmland; land in agricultural production; or land protected by Williamson Act contracts.

3-3.3 IMPACTS

This project would not impact farmlands or agricultural lands.

3-3.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

None Required

3-3.5 CUMULATIVE IMPACTS

Cumulative Farmlands/Agricultural Effects

The cumulative study area includes approximately 4,223 hectares (10,436 acres) of urbanized land uses and does not contain any designated prime farmland; land in agricultural production; or land protected by Williamson Act contracts. The areas adjacent to the project study area contain minimal agricultural land. There would be no cumulative impact to farmlands with implementation of the project.

Project Contribution to Cumulative Farmlands/Agricultural Effects

The project would not impact farmlands or agricultural lands; therefore, it would not contribute to cumulative effects on these resources.

3-4 COMMUNITY IMPACTS

3-4.1 RELOCATIONS

3-4.1.1 REGULATORY SETTING

The Department's 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 Code of Federal Regulations (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 would not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

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 U.S.C. 2000d, et seq.]. Please see Appendix C for a copy of the Department's Title VI Policy Statement.

3-4.1.2 AFFECTED ENVIRONMENT

Information regarding relocations was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005 and the I-5 Corridor Improvement Project Draft Relocation Impact Report, October 2002.

Housing Characteristics

A lack of affordable housing can be a major barrier to a strong, reliable economy. High relative housing prices potentially influence location decisions of corporations, causing some to consider whether to relocate or remain in a region. A shortage of affordable housing (particularly for first-time buyers) may discourage young families from staying in the Southern California region. Alternatively, high housing costs can encourage workers to settle outside Los Angeles and Orange Counties, resulting in longer commutes, increased congestion and pollution, decreased productivity, and an overall diminished quality of life.

Table 3-4.1 shows the average home ownership rates within Los Angeles and Orange Counties and the affected communities (U.S. Census Bureau, Census 2000). The Los Angeles County communities have a greater number of owner-occupied housing units than the County average (47.9 percent), while Buena Park is slightly lower than the Orange County average (61.4 percent). Cerritos has the highest rate of home ownership (83 percent) among the affected communities. The study area census tracts contained approximately 3,974 housing units in 2000, 98 percent of which were occupied, including 67 percent by the property owner.

The median home price within Los Angeles and Orange Counties and the affected communities is shown in Table 3-4.1. The median home price in Orange County ($685,000) is much higher than the Los Angeles County average ($548,000). The median home price in the affected communities (except Cerritos, Downey, and La Mirada) is lower than the respective County averages, primarily due to their inland location. There are generally low vacancy rates, overcrowding, and a shortage of affordable housing in these communities. The City of Santa Fe Springs has the lowest median home price ($510,000), and the City of Cerritos has the highest median home price ($752,000) among the affected communities. Several of the cities have initiated government

programs to provide financial assistance to first-time lower income homebuyers and help residents pay for housing and essential home repairs.

Table 3-4.1 - Percent Owner Occupied and Median Home Price

Jurisdiction	Percentage Owner Occupied	2000 Price	2006 Price
Counties			
Los Angeles County	47.9%	$270,000	$548,000
Orange County	61.4%	$382,000	$685,000
Affected Communities			
Buena Park	59%	$241,500	$575,000
Cerritos	83%	$281,000	$752,000
Downey	53%	$270,000	$700,000
La Mirada	81.4%	$281,000	$650,000
Norwalk	65%	$208,000	$488,000
Santa Fe Springs	62.5%	$224,000	$510,000

Source: U.S. Census Bureau, Census 2000 & Dataquick News: Southern California Home Resale Activity, August 2006

The Housing Affordability Index (HAI), defined by the Association of Realtors as the percentage of homes sold that a median income family can purchase, is 17 percent in Los Angeles County and 13 percent in Orange County (CAR, October 2001). These rates are over 38 percent below the national HAI rate (55 percent) and 27 percent below the State HAI rate (19 percent). There is a great need for multifamily housing that is affecting both low-income and middle-income populations in Los Angeles County. Renting, as opposed to owning, is often times the only viable option for these groups as a result of the rising home prices. The high cost of housing in Los Angeles and Orange Counties requires people to commute long distances, resulting in long travel times. High paying jobs in coastal communities of Los Angeles and Orange Counties continue to draw people from the inland communities of Los Angeles and Orange Counties, where housing tends to be more affordable.

Despite the rising cost of housing, the demand for housing remains high in Los Angeles and Orange Counties. With an active job growth and natural population growth, housing demand is anticipated to remain strong in the Southern California region. According to SCAG's 2001 RTP Growth Forecast, the number of households in the region is projected to increase to 7.42 million in 2025, which is a 2.2 million household increase from 1997 estimates.

Most of the affected communities experienced their greatest growth during the 1950s and are now mature, nearly built-out cities. An anticipated increase in the housing supply is extremely low within the affected communities. However, many of the communities are undergoing redevelopment and anticipate more housing as a result of infill development and the recycling of existing development.[1]

Business Conditions

The Los Angeles and Orange County profiles of business firms and employment are presented in Table 3-4.2, with comparisons to the State economy. Among the 21 primary economic sectors reported by the Census Bureau in 2000, retail trade accounts for the most establishments (12 percent of the total reported) in Los Angeles County, and Professional and Technical Services

[1] Final IS/EA I-5 Interim HOV Lane Improvement Project, September 1999.

accounts for the most establishments (14 percent of the total reported) in Orange County. Manufacturing firms account for the largest share of employment (16 percent) and payroll in Los Angeles (16 percent) and Orange (18 percent) Counties. Professional and Technical Services and Health Care and Social Assistance also rank high in economic activity in both Los Angeles and Orange Counties. Relative to the State's economy, Los Angeles and Orange Counties have greater activity in the Manufacturing sector and less activity in the Retail Trade sector.

Table 3-4.2 - Los Angeles and Orange County Business Patterns 2000

Economic Sector	Establishments			Employees			Annual Payroll (millions)		
	LA	Orange	CA	LA	Orange	CA	LA	Orange	CA
Construction	12,197 (5%)	6,145 (8%)	9%	140,294 (4%)	88,266 (6%)	6%	5,290 (4%)	3,497 (7%)	6%
Manufacturing	17,606 (8%)	5,768 (7%)	6%	608,230 (16%)	223,025 (16%)	14%	22,208 (16%)	9,425 (18%)	16%
Retail Trade	28,126 (12%)	9,544 (12%)	14%	371,627 (10%)	141,863 (10%)	12%	8,894 (6%)	3,588 (7%)	7%
Finance, Insurance	10,708 (5%)	5,004 (6%)	5%	177,376 (5%)	84,604 (6%)	5%	11,732 (8%)	4,862 (9%)	8%
Professional, Tech Service	25,391 (11%)	10,690 (14%)	12%	406,503 (11%)	99,031 (7%)	8%	16,941 (12%)	6,368 (12%)	13%
Health Care, Social Asst.	22,962 (10%)	7,905 (10%)	10%	372,844 (10%)	106,138 (8%)	10%	12,810 (9%)	3,508 (7%)	9%
Lodging, Food Service	15,985 (7%)	5,565 (7%)	8%	278,078 (7%)	112,670 (8%)	9%	4,060 (3%)	1,514 (3%)	3%
All Other Sectors	42%	36%	36%	37%	39%	36%	42%	37%	38%

Source: http://www.census.gov/epcd/cbp/map/00data/06/999.txt and http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl.

Property Tax Revenue

Property taxes are based on the assessed value of all privately owned property within each tax rate area of each city. Property taxes for properties within the study area are collected by the Counties of Los Angeles and Orange and apportioned to local jurisdictions, the amount levied being approximately one percent of assessed property value. Property tax revenues generated in a tax rate area are then distributed to the county, city, special districts, and schools within the subject tax rate area based on tax rates for each tax rate area. Thus, a privately owned property within the study area is located in a designated tax rate area of its respective city. Property tax revenues generated by the property are distributed in the county and city in which the property is located and to the special districts and schools in the tax rate area.

The City of Cerritos does not receive revenue from property tax collected from residents because the City is a no-low property tax city (City of Cerritos Budget Summary 2002-2003). Property tax from commercial property owners is determined based upon special districts located within the City. Because there is only one full property acquisition within the City of Cerritos for each of the build alternatives, the potential loss is considered negligible and is not included in this estimation of property tax loss. The City of La Mirada and the City of Norwalk are also no-low property tax cities and receive a very small portion of property tax revenue.

Sales Tax Revenue
Sale tax paid by consumers in Los Angeles and Orange Counties is a primary source of funds for local governments. When businesses cease to function, the local and state jurisdictions lose sales tax revenue. This analysis provides an estimate of the annual sales tax revenue losses to city, county, and state governments as a result of the nonresidential acquisitions that would occur from the proposed project. The State Board tabulates sales tax revenues by business and jurisdictions on a quarterly basis. The Board does not disclose sales tax revenues generated by individual businesses due to privacy laws. As such, the taxable sales for the businesses to be impacted by the proposed project could not be obtained.

3-4.1.3 IMPACTS

Alternatives 2 and 3. Alternatives 2 and 3 would require intersection improvements that may result in right-of-way acquisitions within the study area. Generally, these impacts would be minor, partial acquisitions or encroachments and are not anticipated to result in any business or residential relocation.

Alternatives 4 and 5. The construction of Alternatives 4 or 5 would require the acquisition of private property, some of which includes residences and nonresidential buildings. Project impacts include both complete and partial acquisition of existing uses, which may displace or alter existing uses. This analysis identifies properties and improvements affected by each of the proposed alternatives. This analysis was conducted using aerial photographs (2001) of the study area, conceptual site plans, and right-of-way data. Counts of parcels affected are based on preliminary engineering plans and the Draft Relocation Impact Report (April 2006) prepared by Caltrans and are subject to change as a result of project final design.

The proposed project includes the restriping of I-5 south of Artesia Boulevard. There are no right-of-way acquisitions south of Artesia Boulevard within the City of Buena Park. The socioeconomic impacts of right-of-way acquisitions within the City of Buena Park were previously evaluated in the I-5 Interim HOV Project Environmental Reevaluation/Addendum (August 2002). The Reevaluation identified the displacement of four additional commercial and office buildings (including two residential units) that were not identified in the ND/FONSI prepared for the I-5 Interim HOV project. The Reevaluation concluded that there were adequate available office, commercial, and industrial properties to relocate the affected businesses and residential units. There are no additional relocation impacts within the City of Buena Park associated with the proposed project beyond those already documented in the IS/EA prepared for the Interim HOV project and the subsequent Environmental Re-evaluation.

Two types of effects to properties are considered:

- Full acquisition of a property occurs if the entire parcel is within the footprint (right-of-way) of an alternative or if the majority of the building lies within the footprint of an alternative.
- Partial acquisition of a property occurs if any part of a parcel is within the footprint (right-of-way) of the alternative but does not require the displacement of the entire property. These impacts range from a sliver or edge of a parcel within the right-of-way preservation area to substantial portions that fall short of entire displacement.

Full acquisitions would require relocation of employees and businesses to other locations; partial acquisitions generally would not require relocation. Properties impacted by full and partial acquisition for each alternative are identified in Appendix E.

Residential Relocation Impacts

Alternative 4a. Properties to be fully acquired by Alternative 4a are identified in Appendix E and are summarized in Table 3-4.3. Alternative 4a would result in 198 full residential acquisitions. Based upon the household occupancy rate within each community (see Table 3-4.12, Local, Regional, and State Demographic Summaries), approximately 734 people would be displaced by Alternative 4a.

Alternative 4b. Properties to be fully acquired by Alternative 4b are identified in Appendix E and are summarized in Table 3-4.3. Alternative 4b would result in 102 full residential acquisitions. Based upon the household occupancy rate within each community (see Table 3-4.12, Local, Regional, and State Demographic Summaries), approximately 378 people would be displaced by Alternative 4b.

Alternative 5a. Properties to be fully acquired by Alternative 5a are identified in Appendix E and are summarized in Table 3-4.3. Alternative 5a would result in 205 full residential acquisitions. Based upon the household occupancy rate within each community (see Table 3-4.12, Local, Regional, and State Demographic Summaries), approximately 761 people would be displaced by Alternative 5a.

Alternative 5b. Properties to be fully acquired by Alternative 5b are identified Appendix E and are summarized in Table 3-4.3. Alternative 5b would result in 108 full residential acquisitions. Based upon the household occupancy rate within each community (see Table 3-4.12, Local, Regional, and State Demographic Summaries), approximately 401 people would be displaced by Alternative 5b.

Business and Employee Relocation Impacts

The number of employees displaced as a result of business full property acquisitions was estimated based on the employee generation factors. The density factors are based on a weighted average of employees per acre (derived from the SCAG employment database) and a weighted average of floor area ratios (derived from Assessor's parcel records). The employee generation factors are based upon density factors for Los Angeles County. The estimated employee displacements would represent a worst-case scenario for the proposed project. Actual employee displacements would be determined based upon the selection of a build alternative and the actual number of employees within each business to be acquired.

Table 3-4.3 - Summary of Property Acquisitions																
City	**Alternative 4a**				**Alternative 4b**				**Alternative 5a**				**Alternative 5b**			
	Res		**Comm**		**Res**		**Comm**		**Res**		**Comm**		**Res**		**Comm**	
	Part	Full	Part	Full	Part	Full	Part	Full	Part	Full	Part	Full	Part	Full	Part	Full
Cerritos			5				1	3			3	3			2	3
Downey	4	19	5		4	9	5		4	19	5		4	9	5	
La Mirada			25	25			11	20			25	25			11	20
Norwalk	47	172	18	15	38	87	15	12	43	178	18	15	41	93	15	12
Santa Fe Springs	6	7	14	8	6	6	9	8	5	8	22	9	6	6	9	8
Total	**57**	**198**	**67**	**48**	**48**	**102**	**41**	**43**	**52**	**205**	**73**	**52**	**51**	**108**	**42**	**43**
	370				**234**				**382**				**244**			

Alternative 4a. Properties to be fully acquired by Alternative 4a are identified in Appendix E and are summarized in Table 3-4.3. Alternative 4a would result in 52 full commercial property acquisitions, which could impact 4,200 employees within the affected communities.

Alternative 4b. Properties to be fully acquired by Alternative 4b are identified in Appendix E and are summarized in Table 3-4.3. Alternative 4b would result in 45 full commercial property acquisitions, which could impact 5,116 employees within the affected communities.

Alternative 5a. Properties to be fully acquired by Alternative 5a are identified in Appendix E and are summarized in Table 3-4.3. Alternative 5a would result in 57 full commercial property acquisitions, which could impact 5,854 employees within the affected communities.

Alternative 5b. Properties to be fully acquired by Alternative 5b are identified in Appendix E and are summarized in Table 3-4.3. Alternative 5b would result in 49 full commercial property acquisitions, which could impact 5,116 employees within the affected communities.

Property Tax Revenue Impacts

As described below, the potential property tax loss for each city is shown by alternative in Tables 3-4.4 through 3-4.7. Commercial Revitalization Focus Areas, in the Economic Element of the City of La Mirada's General Plan (2003), areas designated as "freeway commercial target areas" that are a part of "commercial revitalization focus areas" are immediately adjacent to the project area. The City of La Mirada's Redevelopment Agency receives a significant amount of tax increment revenue from these revitalization areas to be used to service bonded indebtedness.

Alternatives 2 and 3. As previously mentioned, no additional property acquisitions beyond those identified for Alternatives 4 and 5 would be required for Alternatives 2 or 3. The park-and-ride lots associated with this alternative would utilize remnant property to be acquired to construct the proposed freeway widenings associated with Alternatives 4 and 5. Therefore, no property tax losses beyond the losses identified for Alternatives 4 and 5 would result.

Alternatives 4 and 5

The potential loss of property tax revenue for Alternatives 4 and 5 is shown in 3-4.4 through 3-4.7. Potential property tax loss is less than 1 percent of the total revenues within each tax rate

area in each jurisdiction. The potential property tax loss represents a worst-case scenario for full property acquisitions within the affected communities. The potential losses in property tax revenues would be increased somewhat because Alternatives 4 and 5 also involve partial property acquisitions. The property tax loss would be considered temporary because it is anticipated that most of the displaced businesses would be relocated within the same City (Draft Relocation Impact Report, March 2003). Adequate relocation resources may not exist for residential displacements. It is anticipated that acquired property that is not needed for the project would be reconfigured and resold in the private market for redevelopment.

Potential property tax losses as a result of parcel acquisitions within the City of La Mirada's "commercial revitalization focus areas" present a potential for the City of La Mirada to lose a small amount of tax increment revenue from these revitalization areas. However, there are several "commercial revitalization focus areas" located throughout the City of La Mirada. Based on a review of the City of La Mirada's redevelopment parcels close to I-5, it is not expected that any one revitalization or redevelopment project would be completely removed as a result of the proposed project. In addition, property values have risen in recent years, resulting in increased levels of property tax revenue, including tax increment property tax revenues generated from revitalization and redevelopment areas to the Redevelopment Agency. The unprecedented increases in tax revenue in recent years would offset any City of La Mirada tax increment revenue impacts stemming from the proposed project.

Table 3-4.4 - Potential Property Tax Loss for Alternative 4a								
Jurisdiction	**Assessed Property Valuation[1]**	**Tax Rate Areas (TRA) in City**	**Assessed Property Valuation Per TRA[2]**	**Tax Rate[3]**	**Revenues Generated from Properties in TRA**	**Total Property Tax Loss[4]**	**Property Tax Loss to Jurisdiction[5]**	**Loss as a % of City Revenues[6]**
Downey	$7,000,897,606	64	$109,389,025	14%	$15,314,464	$41,595	$5,823	0.04%
Special Districts				4%	$4,375,561		$1,664	
Schools				49%	$53,600,622		$20,382	
Los Angeles County				33%	$36,098,378		$13,726	
La Mirada	$4,279,151,494	49	$87,329,622	12%	$10,479,555	$659,671	$79,161	0.76%
Special Districts				23%	$20,085,813		$151,724	
Schools				43%	$37,551,737		$283,659	
Los Angeles County				22%	$19,212,517		$145,128	
Norwalk	$4,749,638,565	30	$158,321,286	12%	$18,998,554	$553,997	$66,480	0.35%
Special Districts				22%	$34,830,683		$121,879	
Schools				43%	$68,078,153		$238,219	
Los Angeles County				23%	$36,413,896		$127,419	
Santa Fe Springs	$4,653,502,457	43	$108,220,987	6%	$6,493,259	$262,100	$15,726	0.24%
Special Districts				5%	$5,411,049		$13,105	
Schools				50%	$54,110,494		$131,050	
Los Angeles County				39%	$42,206,185		$102,219	

1 2005 Annual Report, Office of the Assessor, Los Angeles County

2 Estimated average as the quotient of the Assessed Property Valuation and total number of TRAs by City.

3 Tax Rates for the typical tax rate area in the respective city, as used in the I-5 Interim HOV Land Use & Socioeconomic Technical Study

4 Calculated as the sum of the property tax paid to the County Assessor in 2004–2005 for each property to be fully acquired.

5 Calculated as the product of the tax rate and the estimated total property tax loss. Figures are for fiscal year 2003–2004.

6 Calculated as the quotient of property tax loss to jurisdiction (City) and revenues generated from properties in TRA.

Table 3-4.5 - Potential Property Tax Loss for Alternative 4b								
Jurisdiction	**Assessed Property Valuation[1]**	**Tax Rate Areas (TRA) in City**	**Assessed Property Valuation Per TRA[2]**	**Tax Rate[3]**	**Revenues Generated from Properties in TRA**	**Total Property Tax Loss[4]**	**Property Tax Loss to Jurisdiction[5]**	**Loss as a % of City Revenues[6]**
Downey	$7,000,897,606	64	$109,389,025	14%	$15,314,464	$41,595	$5,823	0.04%
Special Districts				4%	$4,375,561		$1,664	
Schools				49%	$53,600,622		$20,382	
Los Angeles County				33%	$36,098,378		$13,726	
La Mirada	$4,279,151,494	49	$87,329,622	12%	$10,479,555	$387,195	$46,463	0.44%
Special Districts				23%	$20,085,813		$89,055	
Schools				43%	$37,551,737		$166,494	
Los Angeles County				22%	$19,212,517		$85,183	
Norwalk	$4,749,638,565	30	$158,321,286	12%	$18,998,554	$346,885	$41,626	0.22%
Special Districts				22%	$34,830,683		$76,315	
Schools				43%	$68,078,153		$149,161	
Los Angeles County				23%	$36,413,896		$79,784	
Santa Fe Springs	$4,653,502,457	43	$108,220,987	6%	$6,493,259	$281,549	$16,893	0.26%
Special Districts				5%	$5,411,049		$14,077	
Schools				50%	$54,110,494		$140,775	
Los Angeles County				39%	$42,206,185		$109,804	

1 2005 Annual Report, Office of the Assessor, Los Angeles County.

2 Estimated average as the quotient of the Assessed Property Valuation and total number of TRAs by City.

3 Tax Rates for the typical tax rate area in the respective city, as used in the I-5 Interim HOV Land Use & Socioeconomic Technical Study.

4 Calculated as the sum of the property tax paid to the County Assessor in 2004–2005 for each property to be fully acquired.

5 Calculated as the product of the tax rate and the estimated total property tax loss. Figures are for fiscal year 2003B2004.

6 Calculated as the quotient of property tax loss to jurisdiction (City) and revenues generated from properties in TRA.

Table 3-4.6 - Potential Property Tax Loss for Alternative 5a								
Jurisdiction	**Assessed Property Valuation[1]**	**Tax Rate Areas (TRA) in City**	**Assessed Property Valuation Per TRA[2]**	**Tax Rate[3]**	**Revenues Generated from Properties in TRA**	**Total Property Tax Loss[4]**	**Property Tax Loss to Jurisdiction[5]**	**Loss as a % of City Revenues[6]**
Downey	$7,000,897,606	64	$109,389,025	14%	$15,314,464	$41,595	$5,823	0.04%
Special Districts				4%	$4,375,561		$1,664	
Schools				49%	$53,600,622		$20,382	
Los Angeles County				33%	$36,098,378		$13,726	
La Mirada	$4,279,151,494	49	$87,329,622	12%	$10,479,555	$671,769	$80,612	0.77%
Special Districts				23%	$20,085,813		$154,507	
Schools				43%	$37,551,737		$288,861	
Los Angeles County				22%	$19,212,517		$147,789	
Norwalk	$4,749,638,565	30	$158,321,286	12%	$18,998,554	$569,688	$68,363	0.36%
Special Districts				22%	$34,830,683		$125,331	
Schools				43%	$68,078,153		$244,966	
Los Angeles County				23%	$36,413,896		$131,028	
Santa Fe Springs	$4,653,502,457	43	$108,220,987	6%	$6,493,259	$281,549	$16,893	0.26%
Special Districts				5%	$5,411,049		$14,077	
Schools				50%	$54,110,494		$140,775	
Los Angeles County				39%	$42,206,185		$109,804	

1 2005 Annual Report, Office of the Assessor, Los Angeles County.

2 Estimated average as the quotient of the Assessed Property Valuation and total number of TRAs by City.

3 Tax Rates for the typical tax rate area in the respective city, as used in the I-5 Interim HOV Land Use & Socioeconomic Technical Study.

4 Calculated as the sum of the property tax paid to the County Assessor in 2004–2005 for each property to be fully acquired.

5 Calculated as the product of the tax rate and the estimated total property tax loss. Figures are for fiscal year 2003B2004.

6 Calculated as the quotient of property tax loss to jurisdiction (City) and revenues generated from properties in TRA.

Table 3-4.7 - Potential Property Tax Loss for Alternative 5b								
Jurisdiction	**Assessed Property Valuation[1]**	**Tax Rate Areas (TRA) in City**	**Assessed Property Valuation Per TRA[2]**	**Tax Rate[3]**	**Revenues Generated from Properties in TRA**	**Total Property Tax Loss[4]**	**Property Tax Loss to Jurisdiction[5]**	**Loss as a % of City Revenues[6]**
Downey	$7,000,897,606	64	$109,389,025	14%	$15,314,464	$41,595	$5,823	0.04%
Special Districts				4%	$4,375,561		$1,664	
Schools				49%	$53,600,622		$20,382	
Los Angeles County				33%	$36,098,378		$13,726	
La Mirada	$4,279,151,494	49	$87,329,622	12%	$10,479,555	$421,598	$50,592	0.48%
Special Districts				23%	$20,085,813		$96,968	
Schools				43%	$37,551,737		$181,287	
Los Angeles County				22%	$19,212,517		$92,752	
Norwalk	$4,749,638,565	30	$158,321,286	12%	$18,998,554	$569,688	$68,363	0.36%
Special Districts				22%	$34,830,683		$125,331	
Schools				43%	$68,078,153		$244,966	
Los Angeles County				23%	$36,413,896		$131,028	
Santa Fe Springs	$4,653,502,457	43	$108,220,987	6%	$6,493,259	$281,549	$16,893	0.26%
Special Districts				5%	$5,411,049		$14,077	
Schools				50%	$54,110,494		$140,775	
Los Angeles County				39%	$42,206,185		$109,804	

1 2005 Annual Report, Office of the Assessor, Los Angeles County

2 Estimated average as the quotient of the Assessed Property Valuation and total number of TRAs by City.

3 Tax Rates for the typical tax rate area in the respective city, as used in the I-5 Interim HOV Land Use & Socioeconomic Technical Study

4 Calculated as the sum of the property tax paid to the County Assessor in 2004–2005 for each property to be fully acquired.

5 Calculated as the product of the tax rate and the estimated total property tax loss. Figures are for fiscal year 2003–2004.

6 Calculated as the quotient of property tax loss to jurisdiction (City) and revenues generated from properties in TRA.

Sales Tax Revenue Impacts

Alternatives 2 and 3. As previously mentioned, no additional property acquisitions beyond those identified for Alternatives 4 and 5 would be required for Alternatives 2 or 3. The park-and-ride lots associated with this alternative would utilize remnant property to be acquired to construct the proposed freeway widenings associated with Alternatives 4 and 5. Therefore, no sales tax losses beyond the losses identified for Alternatives 4 and 5 would result.

Alternatives 4 and 5. The right-of-way acquisitions associated with Alternatives 4 and 5 would result in a net loss of land available for sales tax generating business locations. Under worst case conditions, the acquisitions would reduce local sales tax revenue if the all businesses relocated could not do so within their respective cities. Table 3-4.8 shows the estimated loss in annual sales tax revenue that impacts each city if all businesses had to be relocated outside of that city. Potential total sales tax losses range from $219,630 for Alternative 4b to $271,608 for Alternative 5b. Table 3-4.8 indicates that the City of La Mirada could be impacted the most disproportionately because it has the fewest number of businesses and the lowest total sales tax revenue. This impact is magnified by the scarcity of replacement commercial and industrial land in La Mirada and Norwalk. Alternative 5a has the most severe impact on La Mirada's sales tax revenue. Alternative 5b has the most adverse impact on the other cities, potentially reducing the sales tax revenues within Santa Fe Springs by almost $130,000 annually. The majority of available land needed for development is absorbed by Santa Fe Springs. The inventory of industrial properties and the projected inventory by the time right-of-way activities commence may fulfill projected requirements, however, office and retail inventory may prove more difficult to replace within the respective cities.

Table 3-4.8 – Sales Tax Revenue

				Potential Tax Loss by Alternative[1]			
City	**Total Sales Tax Revenue[2]**	**Total City Business[3]**	**Average Sales Tax/ Business[4]**	**4a**	**4b**	**5a**	**5b**
Cerritos	$22,149,620	2,800	$7,911	$0	$0	$23,733	$15,822
Downey	$11,407,850	2,800	$4,074	$0	$0	$0	$0
La Mirada	$6,267,090	1,470	$4,263	$110,838	$76,734	$110,838	$80,997
Norwalk	$6,731,980	1,913	$3,519	$52,785	$45,747	$52,785	$45,747
Santa Fe Springs	$18,864,230	3,500	$5,390	$70,070	$75,460	$75,460	$75,460
Total				$233,693	$197,941	$262,816	$218,026

1 Calculated as the product of average sales tax per business and the number of potentially displaced commercial parcels shown in Table 3-4.3.
2 Calculated as one percent of total taxable sales within each city (California State BOE).
3 Local Chamber of Commerce.
4 Calculated as the quotient of total sales tax revenue and total number of businesses.

Economic Impacts Associated with Alternatives 4 and 5
In 2001, the Interstate 5 Joint Powers Authority commissioned the University of Southern California (USC) School of Policy, Planning and Development to study the economic impacts associated with the project proposed in the Interstate 5 Major Investment Study. The findings of the USC Study were presented in *The Economic Impacts of Caltrans' I-5 Corridor Improvement Project – Final Report,* December 2002. The USC Study examined the original 10-lane MIS alignment from State Route 91 to Interstate 710 as well as a 12-lane alternative on the same alignment. The corridor cities in the USC Study included The City of Commerce, Downey, Los Angeles, La Mirada, Montebello, Norwalk and Santa Fe Springs.

The USC Study presented direct, indirect and induced economic impacts associated with the 10 and 12-lane alternatives under three different scenarios: Displaced businesses relocate within the I-5 Corridor, Displaced businesses relocate to the Inland Empire, and Displaced businesses relocate out of the region. The USC Study concludes that the second scenario would be the most likely of the three to occur. Under that scenario, the corridor cities would lose 7,742 jobs if the 10-lane alternative were constructed and 12,693 jobs if the 12-lane alternative was constructed. The majority of these job loses would occur in the City of Commerce and Santa Fe Springs. Economic losses for the corridor cities would be $758,812,000 and $1,443,065,000 annually for the 10 and 12-lane alternatives respectively. The majority of annual economic loses would occur in the cities of Commerce, Santa Fe Springs, and La Mirada.

While the limits of the USC Study went beyond the Route 605 Freeway, the economic implications are relevant. The USC Study illustrates that the adverse economic impacts of alternatives 4 and 5 are potentially substantial, particularly in the cities of Santa Fe Springs and La Mirada.

3-4.1.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Public agencies responsible for the acquisitions are required to provide relocation assistance to displaced residents and businesses and compensate the property owners for the sale of the property in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1974, revised effective January 1, 1991 (Public Law 91-646 & 49 CFR Part 24) (see Appendix D). This law establishes a uniform policy for the fair and equitable treatment of residents and businesses displaced as a direct result of programs or projects undertaken by a public entity. The Relocation Assistance Act would be administered in a manner, which is consistent with the fair housing requirements and assures all persons their rights under Title VIII of the act of April 11, 1968 (Public Law 90-284), commonly known as the Civil Rights Act of 1968 and Title VI of the Civil Rights Act of 1964.

To minimize the impact on cities due to loss of property and sales tax, efforts would be made to find suitable replacement housing or business locations within the community if the displacees desire to remain. The Relocation Assistance Act provides nothing to mitigate the loss of tax revenue or loss of economic activity.

3-4.1.5 CUMULATIVE IMPACTS

Cumulative Relocation Effects
The overriding purpose of most projects in the cumulative study area is to revitalize properties and stimulate economic activity. The projects encourage economic growth and community

revitalization by replacing underutilized or blighted areas with new commercial, retail, and residential land uses. Additionally, residential development has increased the housing stock within each of the cities, providing opportunities for each jurisdiction to balance jobs and housing consistent with the Housing Elements of their General Plans. The commercial development has created short-term construction jobs and long-term employment. The provision of additional housing balances the jobs-to-housing ratio within each local city. Given the mature nature of the local communities, inducement of substantial growth effects has been limited, but serves to maintain or enhance the existing economic vitality of each jurisdiction, particularly with the loss of industrial/manufacturing uses over the last decade. The cumulative projects individually and collectively do not require right-of-way acquisitions and therefore do not contribute to a cumulative relocation effect.

Project Contribution to Cumulative Relocation Effects
Since the cumulative projects do not require right-of-way acquisitions, the proposed project alternatives do not contribute to a cumulative relocation effect.

3-4.2 COMMUNITY CHARACTER AND COHESION

3-4.2.1 REGULATORY SETTING

NEPA, as amended, established that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings [42 U.S.S. 4331(b)(2)]. The Federal Highway Administration (FHWA) in its implementation of NEPA [23 U.S.C. 109(h)] directs that final decisions regarding projects are to 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. Since this project would result in 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.

3-4.2.2 AFFECTED ENVIRONMENT

Information regarding Community Character and Cohesion was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005.

Study Area Census Tracts
The study area for the proposed project comprises 16 tracts from the 2000 census that are adjacent to or encompass the I-5 Corridor[1]. The study area census tracts are illustrated in Figure 3-2.1 (Study Area Census Tracts). There are three census tracts located in the City of Buena Park, one in the City of Cerritos, one in the City of La Mirada, eight in the City of Norwalk, two in the City of Santa Fe Springs, and one in the City of Downey. The study area census tracts

1 The study area includes all census tracts located within 3 mile of the I-5 facility. There are five census tracts located within 3 mile of I-5 that were not included in the study area due to their distance from the proposed improvements. No direct or indirect impacts to these census tracts are anticipated.

identified in Figure 3-2.1 extend beyond the limits of impact for this project. However, if any portion of a census tract would be potentially impacted by the proposed project, the entire census tract was included to ensure that impacts to the study area population were identified.

Population within Affected Communities

The City of Santa Fe Springs had the smallest population among the affected communities in 2000 (17,501), and SCAG projects that the City's population will increase to 20,750 in 2025. The City of Downey had the largest population among the affected communities in 2000 (107,821), and the City's population is expected to increase to 121,228 in 2025. The City of Norwalk is anticipated to experience the greatest amount of population growth over the next several decades, reaching 119,336 by 2025. Cerritos and La Mirada are projected to reach 55,282 and 67,163 in 2025, respectively.

Study Area Population

The population within the study area is shown in Table 3-4.9. Census Tract 5523 in the City of Norwalk, designated primarily as residential, had the greatest population in 2000 (8,664 persons). Census tract 5041.02 in the City of Santa Fe Springs, containing predominantly commercial and industrial uses, had the smallest population in 2000 (8 persons). The percentage of population change between 1990 and 2000 within each census tract ranges from a decrease of 70.4 percent (Tract 5041.02, from 27 to 8) to an increase of 26.9 percent (Tract 1106.03, from 6,754 to 8,573).

Table 3-4.9 – Study Area Populations

City	Census Tract	Population 1990	Population 2000	Percent Change
Buena Park	1105	7086	8599	(+) 21.4%
Buena Park	1106.01	6366	N/A	N/A
Buena Park	1106.06	N/A	4841	N/A
Buena Park	1106.03	6754	8573	(+) 26.9%
Cerritos	5545.11	4446	4323	(-) 2.8%
La Mirada	5039.02	4290	4492	(+) 4.7%
Norwalk	5501	6607	7314	(+) 10.7%
Norwalk	5502	7602	8352	(+) 9.9%
Norwalk	5503	6822	7660	(+) 12.3%
Norwalk	5520	6621	7924	(+) 19.7%
Norwalk	5522	5922	6819	(+) 15.1%
Norwalk	5523	8472	8664	(+) 2.3%
Norwalk	5524	2499	2691	(+) 7.7%
Norwalk	5527	5693	6702	(+) 17.7%
Santa Fe Springs	5028	7116	8627	(+) 21.2%
Santa Fe Springs	5041.02	27	8	(-) 70.4%
Downey	5504	1305	1437	(+) 10.1%
Total Study Area		**87,628**	**97,316**	**(+) 11%**

Source: U.S. Census Bureau, Census 1990 and 2000.

Age

Table 3-4.10 shows the distribution of the population by age within Los Angeles and Orange Counties and the affected communities in 1990 and 2000. According to the U.S. Census Bureau, the number of residents in Los Angeles County under the age of 18 rose to 2,665,415 in 2000, an increase of 15 percent since 1990. The number of seniors 65 or older remained unchanged at 9.7 percent. The number of residents in Orange County under the age of 18 rose to 768,498 in 2000, an increase of 31 percent since 1990.

The population between the ages of 18 and 64 has declined in all of the affected communities since 1990. The number of middle-aged residents within the study area census tracts and affected communities have all decreased since 1990, while the number of senior citizens and residents under the age of 18 is on the rise. SCAG projects that the percentage of senior citizens in the Southern California region will continue to rise over the next two decades, with approximately one in six people expected to be a senior citizen in 2030.

Table 3-4.10 – Age Distribution

		Percentage		
Year	**Jurisdiction**	**Population < 18**	**Population 18-64**	**Population > 64**
Counties				
1990	Los Angeles	26.2%	64%	9.7%
2000	Los Angeles	28%	62.3%	9.7%
1990	Orange	24.4%	66.4%	9.2%
2000	Orange	27%	63.2%	9.9%
Affected Communities				
1990	Buena Park	26.6%	65.4%	8%
2000	Buena Park	29.4%	61.2%	9.3%
1990	Cerritos	27.7%	66.5%	5.7%
2000	Cerritos	24.5%	65.9%	9.7%
1990	Downey	24.4%	62.2%	13.4%
2000	Downey	29.2%	59.8%	11%
1990	La Mirada	24.1%	64.5%	11.4%
2000	La Mirada	26.2%	60%	13.8%
1990	Norwalk	29.8%	61.6%	8.6%
2000	Norwalk	32.1%	58.8%	9%
1990	Santa Fe Springs	28.8%	59.6%	11.6%
2000	Santa Fe Springs	29.1%	58.2%	12.8%

Source: U.S. Census Bureau, Census 1990 and 2000.

Ethnicity

Table 3-4.11 shows the racial composition of Los Angeles and Orange Counties and the affected communities in 1990 and 2000. Based on the 2000 Census, Hispanics are the largest ethnic group in Los Angeles County (45 percent) and Non-Hispanic Whites are currently the majority in Orange County (51 percent).

Non-Hispanic Whites are currently the largest ethnic group in the Cities of Buena Park (38.2 percent) and La Mirada (47.1 percent), but the number of Non-Hispanic Whites has decreased by

26 percent in Buena Park and 15 percent in La Mirada since 1990. Asians are currently the majority in the City of Cerritos, while Hispanics are currently the majority in the Cities of Downey (57.9 percent), Norwalk (62.9 percent), and Santa Fe Springs (71.4 percent). The study area census tracts are predominantly Hispanic (56.2 percent), rising above 50,000 in 2000, an increase of 41 percent since 1990.

Table 3-4.11 – Ethnic Composition

Year	Jurisdiction	Percentage[1]						
		White	Black	American Indian/ Native Alaskan	Asian[2]	Hawaiian[3]/ Pacific Islanders	Other	Hispanic
Counties								
1990	Los Angeles	40.8%	10.5%	0.3%	10.2%	--	0.2%	37.8%
2000	Los Angeles	31.1%	9.5%	0.3%	11.8%	0.2%	0.2%	44.6%
1990	Orange	64.5%	1.6%	0.4%	10%	--	0.1%	23.4%
2000	Orange	51.3%	1.5%	0.3%	13.5%	0.3%	0.2%	30.8%
Affected Communities								
1990	Buena Park	58.6%	2.4%	0.5%	13.8%	--	0.2%	24.5%
2000	Buena Park	38.2%	3.6%	0.4%	20.9%	0.5%	0.3%	33.5%
1990	Cerritos	42.3%	7.4%	0.3%	45.2%	--	4.7%	12.5%
2000	Cerritos	26.9%	6.7%	0.3%	58.4%	0.2%	7.5%	10.4%
1990	Downey	55.4%	3.1%	0.5%	8.4%	--	0.2%	32.3%
2000	Downey	28.7%	3.5%	0.3%	7.6%	0.1%	0.2%	57.9%
1990	La Mirada	64.4%	1.3%	0.4%	7.9%	--	0.2%	25.9%
2000	La Mirada	47.1%	1.8%	0.3%	14.7%	0.2%	0.3%	33.5%
1990	Norwalk	36.7%	3%	0.5%	11.6%	--	0.3%	47.9%
2000	Norwalk	18.9%	4.4%	0.4%	11.3%	0.3%	0.1%	62.9%
1990	Santa Fe Springs	26.1%	1.7%	0.4%	4.1%	--	0.3%	67.4%
2000	Santa Fe Springs	19.2%	3.7%	0.5%	3.7%	0.2%	0.1%	71.4%

Source: U.S. Census Bureau, 1990 and 2000 Census.

SCAG's 2004 RTP Socioeconomic Forecast Report identifies regional projections of population, households, and employment by five-year increments for the 1997 to 2025 period. Due to a high fertility rate and immigration from Latin America, SCAG projects that the Hispanic population will become the dominant majority in Los Angeles County in 2030. Approximately three out of five people in Los Angeles County will be Hispanic by 2030. The Asian and Pacific Islander population in Los Angeles County is also projected to grow rapidly, adding 0.7 million people between 2000 and 2030. The number of White and African Americans is projected to decrease, as they are expected to leave Los Angeles County to take advantage of affordable housing in the

[1] Percentages do not add to 100 percent because the White, Black, American Indian and Alaska Native, Hawaiian and Pacific Islander, and Other categories include persons identified with one race only; the Hispanic category overlaps with other categories.

[2] In 1990, the Asian population included Hawaiian and Other Pacific Islanders; in 2000, the Asian population did not include Hawaiian and Other Pacific Islanders.

[3] In the 1990 U.S. Census, the Hawaiian and Other Pacific Islanders race was included with the Asian population.

Inland Empire or job opportunities and a lower cost of living in other western states. Orange County is projected to be transformed from a County with a White majority into a racially and ethnically diverse area. Hispanics are expected to have the largest share of the Orange County population by 2030. The Asian population in Orange County is projected to increase 41 percent by 2030, and the White population is projected to decrease by 2030.

Other Demographics

Table 3-4.12 provides a snapshot of other demographic characteristics of the affected communities, compared to County and State averages. Population growth in the last decade in the affected communities within Los Angeles County (with the exception of Cerritos) was significantly greater than the County average (7.4 percent), which was much lower than the growth rate in Orange County (18.1 percent). The household income in the affected communities within Los Angeles County is greater than the County average ($42,189), while Buena Park is below the Orange County average ($58,820). The proportion of persons living in poverty within the Los Angeles County affected communities is below the County (17.9 percent) and State (14.2 percent) averages, while the proportion in Buena Park is above the Orange County average (10.3 percent). Cerritos, Downey, and La Mirada all have a greater number of residents with high school diplomas than the County average (69.9 percent), and La Mirada has a greater number of residents with college degrees than the County average (24.5 percent).

Table 3-4.12 – Local, Regional, and State Demographic Summaries									
	Affected Communities						Regional		State
Characteristic	Cerritos	Buena Park	Downey	La Mirada	Norwalk	Santa Fe Springs	Los Angeles County	Orange County	CA
Population Change (1990 to 2000)	(-) 3.3%	(+) 13.7%	(+) 17.4%	(+) 15.7%	(+) 9.6%	(+) 12.4%	(+) 7.4%	(+) 18.1%	(+) 13.6%
Median Household Income	$73,030	$50,336	$45,667	$61,632	$46,047	$44,540	$42,189	$58,820	$47,493
Persons Below Poverty	5.0%	11.3%	11.1%	5.6%	11.9%	12.5%	17.9%	10.3%	14.2%
High School Graduate or Higher (over age 25 years)	90.7%	75.8%	72.3%	84.5%	63.0%	62.9%	69.9%	79.5%	76.8%
College Graduate or Higher (over age 25 years)	43.7%	19.7%	17.3%	25.2%	10.6%	9.2%	24.9%	30.8%	26.6%
Employed Civilian Labor Force	25,424	36,763	44,108	21,162	39,231	6,457	3,953,415	1,338,838	14,718,928
Persons Per Household	3.34	3.32	3.11	3.10	3.79	3.35	2.98	3.00	2.87

Source: U.S. Census Bureau, Census 2000.

3-4.2.3 IMPACTS

Neighborhood Disruption

The expansion of an existing freeway facility may affect communities and neighborhoods in ways other than direct property acquisition and displacements. The proposed project could disrupt neighborhoods, further separate resident children from schools, and fragment edges of cohesive groups of people, thereby adversely affecting how a community or neighborhood functions. The residential relocations cited in this section pertain only to those relocations that would result in neighborhood disruption. These relocations are a subset of the total number of relocations resulting from the proposed project cited in Section 3-4.1.3.

The proposed project would benefit the affected communities by reducing congestion and the current and potential costs of traffic delays caused by the existing freeway operation. The project would increase the efficiency of moving people and goods throughout the affected communities and cities located along the I-5 Corridor.

Alternative 2. It is anticipated that Alternative 2 would benefit neighborhoods by increasing accessibility within the affected communities. Residential displacements and the fragmentation of neighborhoods would not occur as a result of Alternative 2, since no residential property acquisitions would occur and physical barriers would not be created that would further divide neighborhoods or cohesive groups of people.

Alternative 3. It is anticipated that Alternative 3 would benefit neighborhoods by increasing accessibility within the affected communities and by providing enhanced transit routes. Residential displacements and the fragmentation of neighborhoods would not occur as a result of Alternative 3, since residential property acquisitions would be minimal for this alternative. Implementation of the associated park-and-ride lots would not create physical barriers that would further divide neighborhoods or cohesive groups of people.

Alternative 4. Alternative 4 would also displace 14 residences located on Firestone Boulevard in the City of Norwalk, adjacent to I-5. The acquisitions would remove the entire segment of homes fronting Firestone Boulevard but would not disrupt the cohesive neighborhood located north of the homes bounded by Rosecrans Avenue, Lochnevis Avenue, Mc Laren Street, and Greenstone Avenue.

Alternative 4 would result in up to 15 residential displacements (13 for Alternative 4a, 15 for Alternative 4b) within the neighborhood located east of Norwalk Park and bounded by I-5 on the north and Firestone Boulevard on the south. Sporadic acquisitions along the northern portion of the neighborhood would remove approximately 12 percent of the single-family homes within the neighborhood.

Alternative 4 would displace up to 18 residences (16 for Alternative 4a, 18 for Alternative 4b) located on Paddison Avenue and Zeus Avenue in the City of Norwalk. The displacements would remove a segment of homes (approximately 50 percent) within a cohesive neighborhood bounded by Zeus Avenue, Lyndora Street, and Paddison Avenue.

Alternative 5. The project would displace up to 14 residences (14 for Alternative 5a, 13 for Alternative 5b) located on Firestone Boulevard in the City of Norwalk, adjacent to I-5.

Alternative 5b would leave one home on Lochnevis Avenue on the south side of the neighborhood as the only remaining home fronting Firestone Boulevard.

Alternative 5 would also displace up to 18 residences (16 for Alternative 5a, 18 for Alternative 5b) located on Paddison Avenue and Zeus Avenue in the City of Norwalk. The displacements would remove a segment of homes (approximately 50 percent) within a cohesive neighborhood bounded by Zeus Avenue, Lyndora Street, and Paddison Avenue.

Alternative 5 would result in up to 18 residential displacements (15 for Alternative 5a, 18 for Alternative 5b) within the neighborhood located east of Norwalk Park and bounded by I-5 on the north and Firestone Boulevard on the south. The acquisitions would remove approximately 14 percent of the single-family homes within the neighborhood. Several of the displacements (five for Alternative 5a, eight for Alternative 5b) would occur on the north side of Sproul Street, creating a separation between the homes that would remain at the north end of Sproul Street, east of Araby Avenue.

Construction Impacts

The proposed project may cause disruptions in community circulation during the construction period by restricting local street access. The closure of freeway ramps, overcrossings, and interchanges during the construction period would result in freeway and local street detours that may increase traffic volumes and restrict neighborhood travel patterns. The proposed project would temporarily close the pedestrian crossing located at Silverbow Avenue and I-5 in the City of Norwalk. The closure would restrict students living in the Norwalk San Antonio Village (located on the south side of I-5) from walking to the Moffitt Elementary School on the north side of I-5 for approximately 12 months during the construction of the replacement crossing. The crossing would be reopened after construction is complete.

Construction activity along the project area may produce a substantial effect upon businesses located along the I-5 Corridor. Disruption could occur when I-5 ramps and local street access is restricted during construction, and businesses would also experience noise and dust impacts from construction activity. Businesses may lose off-street parking as a result of nearby construction. For some businesses, especially small retail operations, the construction period could substantially affect their operation and viability.

Full and partial street closings may be required throughout the construction period. The precise effect to businesses located along the I-5 Corridor would depend upon 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 having a loyal client base (such as those that provide unique goods or services) would have less difficulty than those depending upon trade from the general public would.

Temporary project impacts are defined as those that would occur during the construction of the proposed project. These temporary impacts would not occur prior to the construction effort and would be no longer be evidenced upon completion and full operation of the I-5 facility. Construction activities that could affect business operations would include freeway lane and ramp closures, freeway and local street detours, overcrossing closures, stockpiling of construction equipment and excavated materials, removal of billboards along the freeway shoulders, removal of on- and off-street parking, and closures of local frontage roads. The

freeway and street closures and detours could temporarily 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. The temporary impacts would occur only during the construction period.

3-4.2.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Neighborhood Disruption

Pedestrian access points to businesses within the construction area would be maintained throughout the construction period. If usual access points were lost, provisions for alternative access to the affected parcels would be made. Appropriate signage would be placed to inform pedestrians of access to local businesses. Temporary sidewalks, if necessary, would be installed during the construction phase. Disabled access shall be maintained during construction where feasible.

Appropriate signage would be developed and displayed by Caltrans to direct both pedestrian and vehicular traffic to businesses via alternate routes.

During construction, Caltrans staff would establish one or more information field office(s) near the construction site(s). The field office-(s) would serve the following multiple purposes:

- Provide the community and businesses with a physical location where information pertaining to construction can be exchanged
- Enable Caltrans staff to better understand community/business needs during construction
- Notify property owners, residences, and businesses of major construction activities (e.g., utility relocation/disruption, re-routing of delivery trucks)
- Respond to phone inquiries
- Coordinate business outreach programs

Information and field office telephone numbers would be available to provide community members and businesses a means of direct communication regarding construction activities. Caltrans staff would review and forward calls to the appropriate party for action. A follow-up procedure would be implemented to ensure that calls are be responded to. Community involvement specialists would be available to provide information such as current project schedule, dates for upcoming community meetings, notice of construction impacts, individual problem solving, construction complaints, and general information.

Construction Impacts

Advance notification of temporary parking loss and, where necessary, identification of temporary replacement parking or alternative adjacent parking would be made. Where possible, temporary parking could be provided on either or both ends of the immediate construction areas to serve adjacent uses. If parking areas are sufficiently distant from businesses, shuttle service may be provided. Caltrans would coordinate with the local jurisdictions to mitigate parking losses to businesses.

Construction activities could result in temporary removal of on-street parking and restricted access to off-street parking that serves businesses near the construction sites. Caltrans would consult with those businesses whose parking would be affected during construction. If space is

available in another location, alternative parking spaces may be provided as mitigation. Access to off-street parking would be maintained.

To mitigate the temporary closure of the Silverbow Avenue pedestrian over-crossing, special busses or similar shuttle service would have to be provided to transport students who normally use the Silverbow Avenue pedestrian overcrossing to get to and from school.

Traffic management plans would be developed to maintain access to all businesses near construction activity. For example, mitigation measures to alleviate adverse traffic impacts include: (1) avoiding access points to construction sites on residential streets and posting speed limits of 25 mph along the streets in the vicinity of the construction sites; and (2) preparing specific traffic mitigation plans for each construction site, including detour routes, lane assignments, and vehicular and pedestrian traffic circulation and control. Construction contracts would contain provisions to require the maintenance of driveway access to businesses to the extent feasible with the following measures:

- Construction would be staged. For large businesses with extensive roadway frontage, this would allow at least some access to driveways or loading docks to remain available at all times.
- Construction could occur during off-peak business hours to minimize the impact on employee or customer parking and/or deliveries.

Prior to and during construction, Caltrans staff would contact and interview individual businesses potentially affected by construction activities. Interviews with commercial and industrial businesses would provide knowledge of how these firms conduct their businesses and identify business usage; delivery and shipping patterns; frequented travel routes of customers and clients upon entering and exiting the business establishment; parking requirements; hours of operation; and critical times of the day and year for business activities. Information gathered from these interviews would be used to develop the construction traffic control plans and alternate access routes to maintain critical business activities. Caltrans staff would inform the public of its progress in implementing the measures selected through periodic project newsletters sent to businesses, residents, and property owners within close proximity to the project. Staff would be assigned to work directly with the public to provide project information and resolve construction-related problems.

3-4.2.5 CUMULATIVE IMPACTS

Cumulative Community Character and Cohesion Effects

Implementation of any of the cumulative projects has the potential to result in short-term effects to neighborhoods as a result of construction activities. These activities include grading and excavation, road detouring, and utility construction/relocation. Permanent neighborhood disruption would not occur as a result of the cumulative projects, since the development is consistent with the land use patterns of the local jurisdictions. Site-specific effects, such as noise, vibration, traffic, aesthetics, lighting, and air quality have been addressed through the local project review and appropriate minimization measures identified.

Project Contribution to Cumulative Community Character and Cohesion Effects
The proposed alternatives each involve roadway construction and would contribute incrementally to the other projects to neighborhood disruption by slowing circulation and restricting some local street access during construction. Freeway ramp closures would cause short-term impacts to local circulation. Since the cumulative projects are not anticipated to cause long-term neighborhood disruptions, the impacts to community character and cohesion due to the proposed alternatives are not anticipated to contribute to cumulative impacts to the community.

3-4.3 ENVIRONMENTAL JUSTICE

3-4.3.1 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 Bill Clinton on February 11, 1994. This Executive Order 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 Department of Health and Human Services poverty guidelines. For 2006, this was $20,000 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

The environmental justice analysis was conducted using census tract level information from the 2000 census. In order to provide full disclosure, data from all of the study area census tracts were included in the following discussion. The following analysis provides a comparison of four measures with which to evaluate environmental justice.

- Percentage of non-white residents
- Percentage of Hispanic residents (the Census Bureau considers Hispanic or Latino ethnicity distinct from racial background)
- Percentage of population below poverty level
- Median household income

3-4.3.2 AFFECTED ENVIRONMENT

Information regarding environmental justice was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005

Non-White Population. The percentage of non-White residents was calculated by subtracting the number of White residents (one race only, as identified by the 2000 census) from 100 percent. As identified in Table 3-4.11, Ethnic Composition, all of the affected communities have a higher percentage of non-White residents than the Los Angeles and Orange County averages (with the exception of La Mirada). The affected communities have led the transition of Los Angeles County into an area dominated by non-White residents.

Figure 3-4.6, Environmental Justice: Non-White Population, illustrates the percentage of non-white residents within each study area census tract. The ethnic composition within the Buena

Park and Cerritos census tracts is comparable to the composition of the Cities as a whole. The census tracts in the Cities of Downey, La Mirada, Norwalk, and Santa Fe Springs are considerably less diverse than the respective city averages.

Hispanic Population. With the exception of the Cities of Cerritos and La Mirada, all of the affected communities have a higher percentage of Hispanic residents than the Los Angeles and Orange County averages (see Table 3-4.11, Ethnic Composition). Hispanics are currently the majority in the Cities of Downey, Norwalk, and Santa Fe Springs.

Figure 3-4.7, Environmental Justice: Hispanic Population, illustrates the percentage of Hispanic residents within each study area census tract. The census tracts in the City of Santa Fe Springs have a substantially lower number of Hispanic residents than the city average of 71 percent, and the Cerritos, Downey, and La Mirada tracts have a comparable percentage of Hispanic residents to the city averages. The three tracts in the City of Buena Park have nearly 20 percent more Hispanic residents than the City average of 34 percent. Five of the census tracts in the City of Norwalk have a greater percentage of Hispanics than the City average of 63 percent, with one tract (Tract 5524.00) reporting 78 percent Hispanic residents.

There are a disproportionately high number of Hispanic residents in the census tracts in the Cities of Buena Park and Norwalk relative to the City average. However, Buena Park has a substantially lower percentage of Hispanic residents than the other affected communities. The percentage of Hispanic residents within the Buena Park tracts are consistent with the local composition of the I-5 Corridor.

Figure 3-4.6 – Environmental Justice: Non-White Population

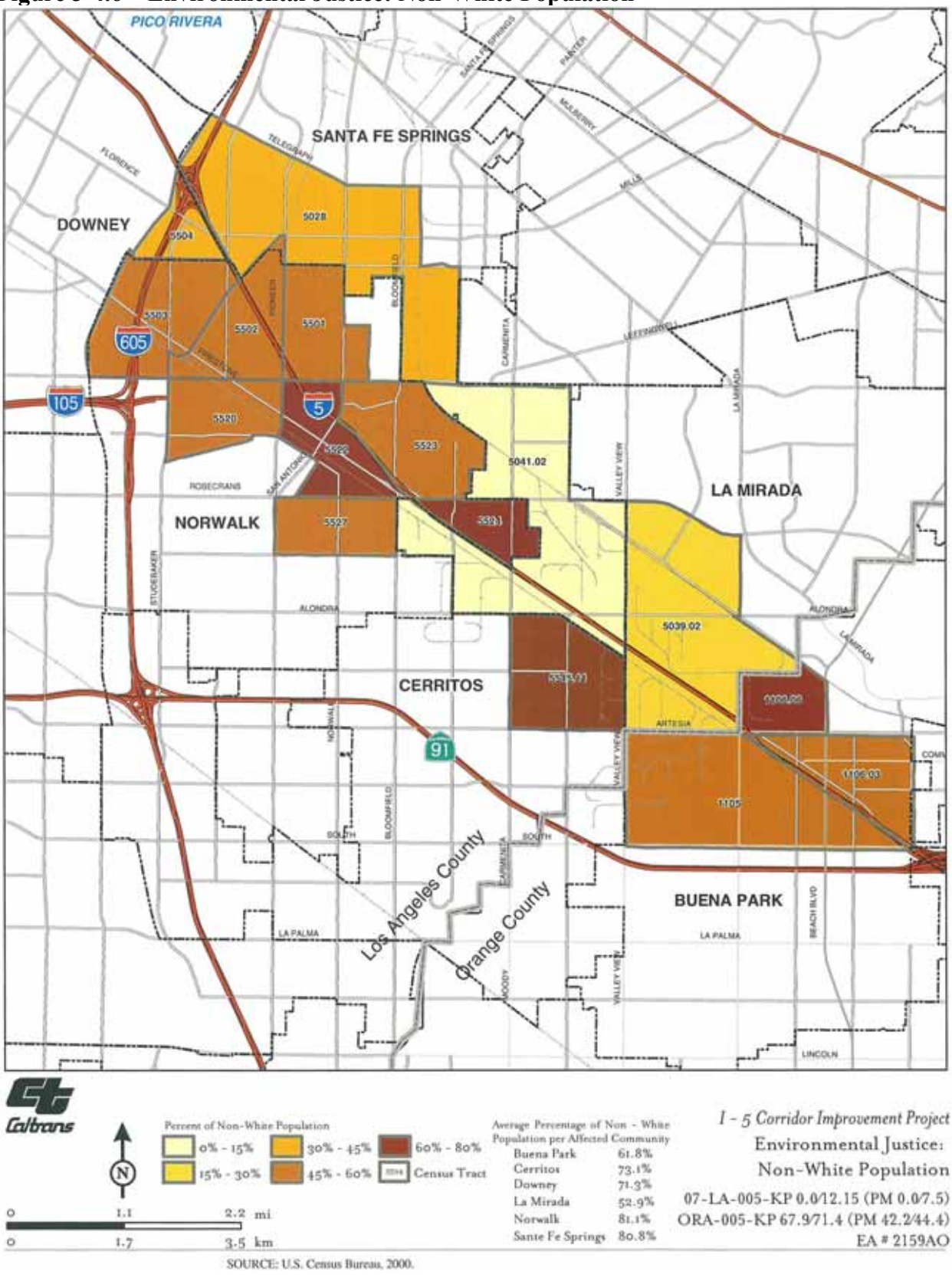
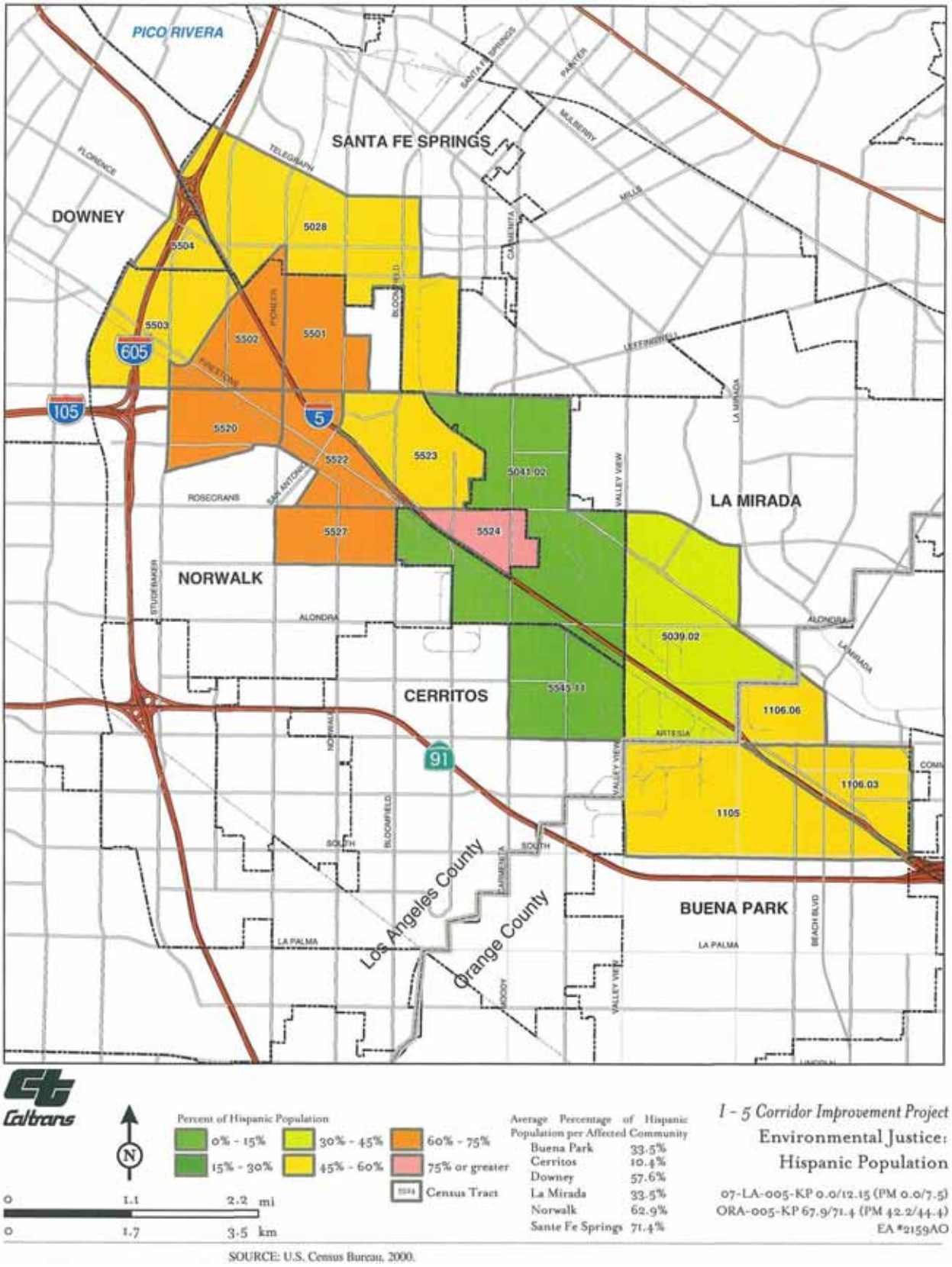


Figure 3-4.7 – Environmental Justice: Hispanic Population



Poverty. As identified in Table 3-4.12, Local, Regional, and State Demographic Summaries, the affected communities within Los Angeles County all have a lower percentage of persons below the poverty level than the County average, while the City of Buena Park has a higher percentage than the Orange County average.

Figure 3-4.8, Environmental Justice: Poverty, illustrates the percentage of persons below the poverty level within each study area census tract. The residents in the Downey and La Mirada census tracts have a higher percentage of persons living in poverty than the City averages of 11 and 6 percent, respectively. All of the census tracts in the City of Buena Park have a higher percentage of persons living in poverty than the City average of 11 percent. Two tracts in the City of Norwalk have a higher percentage of persons living in poverty than the City average of 12 percent.

Of the 16 tracts within the study area, eight have a higher percentage of residents living in poverty than the respective City averages. Census tract 5041.02 in Santa Fe Springs has an uncharacteristically high proportion (75 percent) of persons living in poverty. However, there are only eight residents in the tract, resulting in an anomaly when compared to the study area as a whole. This tract is not indicative of the distribution of persons living in poverty throughout the study area. The average percentage of persons living in poverty in La Mirada (6 percent) is substantially lower than the other affected communities. The tract in La Mirada has a comparable percentage of residents living in poverty with other census tracts within the study area, consistent with the local character of the I-5 Corridor.

Median Household Income. The median household income in the affected communities within Los Angeles County is greater than the County average, while the median household income in the City of Buena Park is well below the Orange County average (see Table 3-4.12, Local, Regional, and State Demographic Summaries).

Figure 3-4.9, Environmental Justice: Median Household Income, illustrates the median household income within each study area census tract. Eight of the 16 tracts within the study area have a lower median household income than the respective City averages. All of the census tracts in Buena Park have a lower median household income than the City average ($50,000). The Cerritos tract has a lower median household income than the City average ($73,000). Three tracts in Norwalk have a lower median household income than the City average ($46,000). Tract 5028 in Santa Fe Springs has a lower median household income than the City average ($45,000). However, tract 5028 has a comparable median household income to the City average, with a difference of less than $2,000. Census tract 5041.02 in Santa Fe Springs has a median household income of $110,555. This tract has an uncharacteristically high median household income and is not indicative of the median household income throughout the study area. However, there are only eight residents in the tract, resulting in an anomaly when compared to the study area as a whole.

There is a disproportionately high number of Hispanic residents, persons living in poverty, and households with a lower median income in the study area census tracts than the affected communities within the I-5 Corridor. Potential impacts to these residents as a result of project implementation are discussed below.

Figure 3-4.8 – Environmental Justice: Poverty

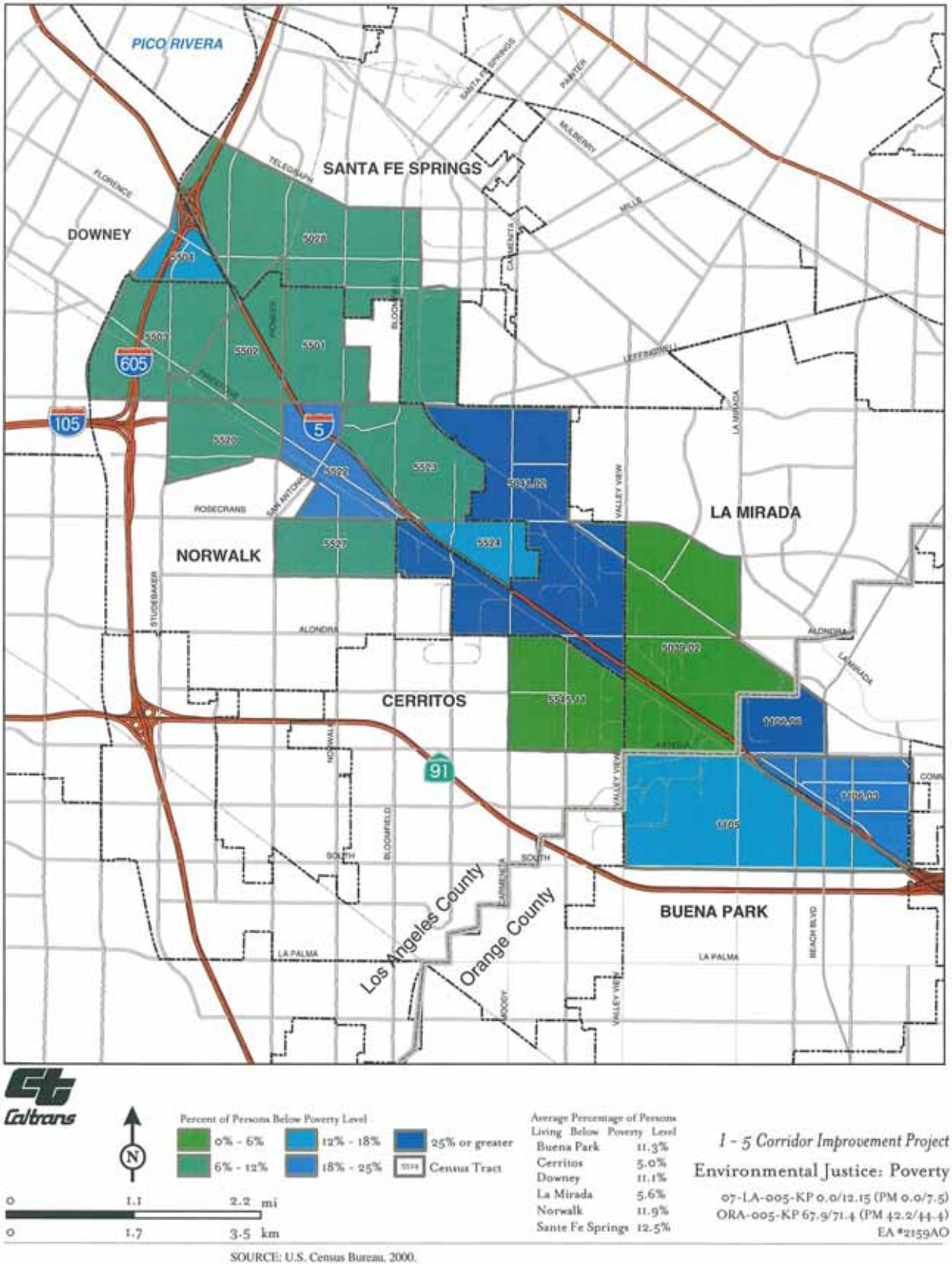
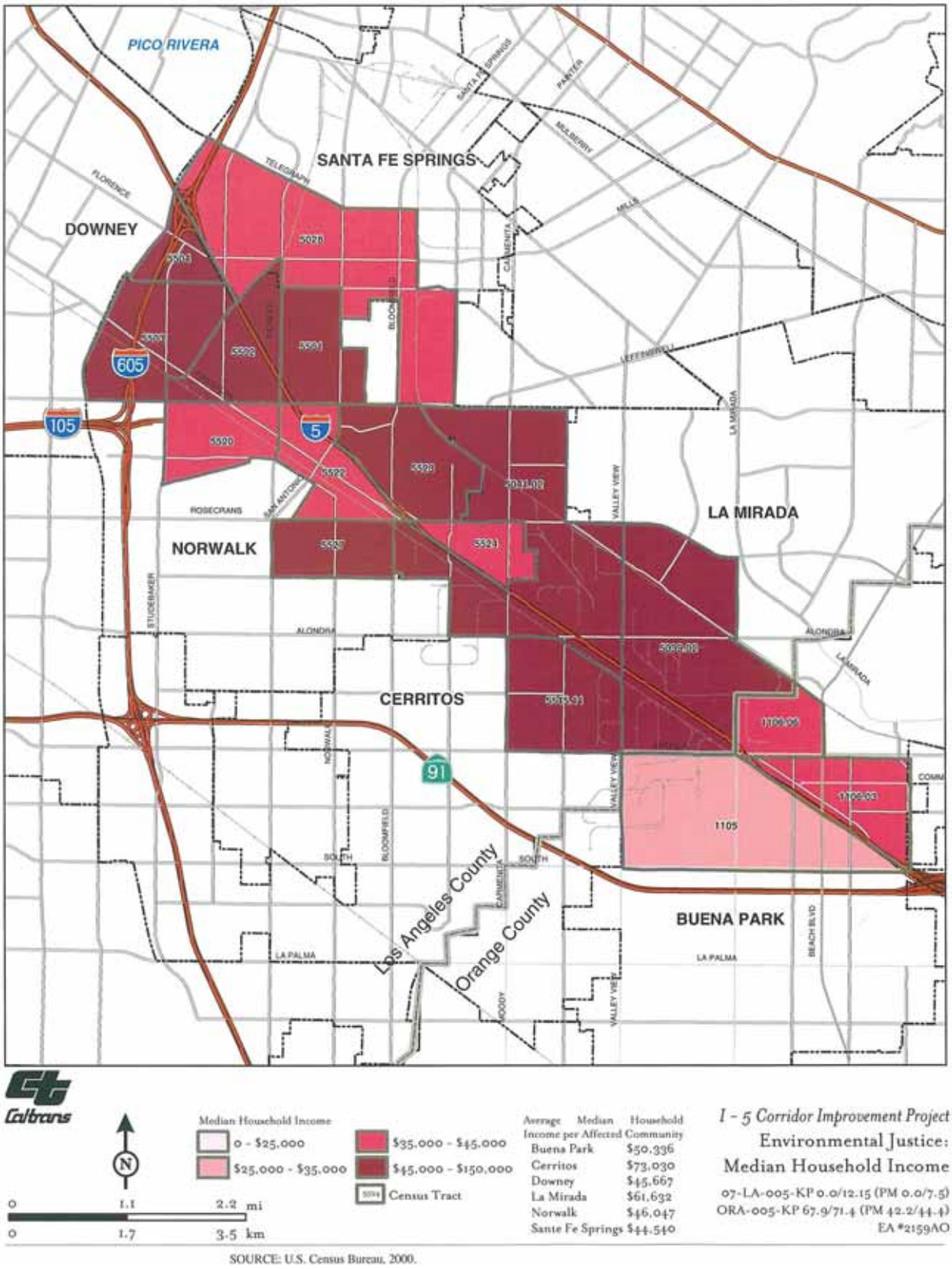


Figure 3-4.9 – Environmental Justice: Median Household Income



3-4.3.3 IMPACTS

Alternatives 2. Alternative 2 is not expected to result in disproportionate impacts to minority or low-income communities. The proposed improvements are anticipated to have a beneficial impact on all study area residents, including minority and low-income populations, by providing traffic improvements that increase the operational efficiency of existing transit services and provide additional transit services throughout the affected communities.

Alternative 3. Alternative 3, as in Alternative 2, is not expected to result in disproportionate impacts to minority or low-income communities. Beneficial impacts, which result from the operational efficiency of existing transit services and provide additional transit services throughout the affected communities, are similar to the beneficial impacts identified in Alternative 2. In addition to the enhanced transit services, Alternative 3 would include park-and-ride facilities that would provide connections to regional and local bus lines, light and commuter rail, as well as the I-5 freeway.

Alternatives 4 and 5. The proposed project would benefit all study residents, including minority and low-income populations, by improving mobility and circulation. Construction activity such as roadway and bridge widening and excavation could expose hazardous materials in the soil and result in intermittent air quality and noise impacts from construction equipment operations.

Residential acquisitions that would occur as a result of the proposed project would affect minority, and low-income populations in the cities of Norwalk and Downey. Residential acquisitions may affect a disproportionately high number of Hispanic and low-income populations in census tracts 5524, 5523, 5501, 5522, 5502, and 5503 in the City of Norwalk. Acquisitions in tract 5504 in the City of Downey may affect a disproportionately high number of persons living in poverty.

3-4.3.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Because the proposed project involves improvements to an existing transportation facility, avoidance and minimization measures for environmental justice impacts are very limited. Alternatives to widening the freeway, such as double decking the freeway in lieu of widening or construction of an entirely new alignment, would result in severe adverse social, economic, environmental, and human health impacts that are more significant and involve increased costs of an extraordinary magnitude compared to the proposed alternatives.

Short-term construction-related air quality impacts would be mitigated by adhering to South Coast Air Quality Management District rules and regulations and Department Standard Construction Specifications for equipment emission and fugitive dust. Temporary noise impacts would be mitigated through implementation of Department Standard Construction Specifications for noise.

Standard relocation assistance (as detailed in Appendix D) would be provided to all displacees, in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. As indicated in the Draft Relocation Impact Report (March 2003), there is adequate replacement housing for those residences being displaced in the Cities of Downey, La Mirada, and Norwalk. The search for replacement housing within the City of Santa Fe Springs was not successful. However, there are a minimal number of residential displacements within

the City of Santa Fe Springs for Alternatives 4 and 5 (fewer than 10 residential displacements compared to 4,834 households within the City of Santa Fe Springs).

Any increase in noise above the Noise Abatement Criteria (NAC) would be minimized by implementing mitigation measures such as noise barrier construction. These barriers reduce noise levels to within noise abatement criteria, an improvement in many cases over existing and future no-build conditions.

3-4.3.5 CUMULATIVE IMPACTS

Cumulative Environmental Justice Effects
As stated earlier, most of the projects in the cumulative study area were designed to redevelop underutilized or blighted areas, resulting in improvements to cities and neighborhoods where these projects occur. All of the cumulative projects identified are proposed to maintain/enhance the economic vitality of these communities, especially in light of the loss of manufacturing/industrial jobs in recent years. The projects, therefore, do not collectively result in disproportionately high impacts to low-income and minority populations. Some of these projects would have localized effects to neighborhoods, which are addressed through the City approval process that identifies minimization measures to reduce any such neighborhood impacts.

Project Contribution to Cumulative Environmental Justice Effects
Since the majority of the cumulative projects are proposed for redevelopment, displacement of existing uses is not anticipated for these projects. Therefore, the I-5 project build alternatives, when considered with these other projects, would not contribute to substantial cumulative adverse impacts related Environmental Justice in the study area.

3-5 UTILITIES & EMERGENCY/COMMUNITY SERVICES

3-5.1 REGULATORY SETTING

California Code of Regulations Streets and Highways Code Sections 700-711 discusses utility relocation policies and procedures. Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in the human use of the land, including public services. Public Utilities Commission General Order 131-D provides guidance for transportation projects that involve relocation of 50kV or higher transmission lines.

3-5.2 AFFECTED ENVIRONMENT

Information regarding utilities and emergency/community services was obtained from the I-5 Corridor Improvement Project Community Impact Assessment, March 2005 and the I-5 Corridor Improvement Project Draft Project Report, 2005.

Community Facilities and Services

Community facilities and services located within the study area are shown in Figure 3-5.1 (Community Services and Facilities). Community facilities and services include public and private utilities, schools, fire stations, police stations, religious institutions, medical institutions, and parks and recreational facilities.

Public and Private Utilities

There are several public and private utilities located with the project area. The utilities within the project area are owned by: Southern California Gas Company, Southern California Edison, City of Santa Fe Springs, Verizon, Southern California Water, Charter Communications, Metropolitan Water District, and the US Navy. The types of utility facilities include: power poles, telephone poles, utility poles, natural gas pipelines, fuel oil pipelines, water pipelines, sewers, manholes, aerial and underground transmission lines, frontage roads, and fire hydrants.

Schools

There are 32 schools located within the study area, including eight schools from the Little Lake City Unified School District, seven schools from the Norwalk-La Mirada Unified School District, three schools from the Buena Park School District, one school from the Whittier Union High School District, two schools from ABC Unified School District, ten schools that are privately owned and operated, and one adult education facility.

Fire Protection Services

The Los Angeles County Fire Department, which provides fire protection services to the cities of Cerritos, La Mirada, and Norwalk, has two facilities located within the study area: Fire Station #20 at 12110 Adore Street in Norwalk and Fire Station #35 at 13717 Artesia Boulevard. The Santa Fe Springs Fire Department has three fire protection facilities located within the study area: Fire Station Headquarters at 11300 Greenstone Avenue, Fire Station #3 at 1517 Carmenita Road, and Fire Station #4 at 11736 Telegraph Road. The Downey Fire Department and Orange County Fire Authority (which provides fire protection services to the City of Buena Park) do not have fire stations within the study area.

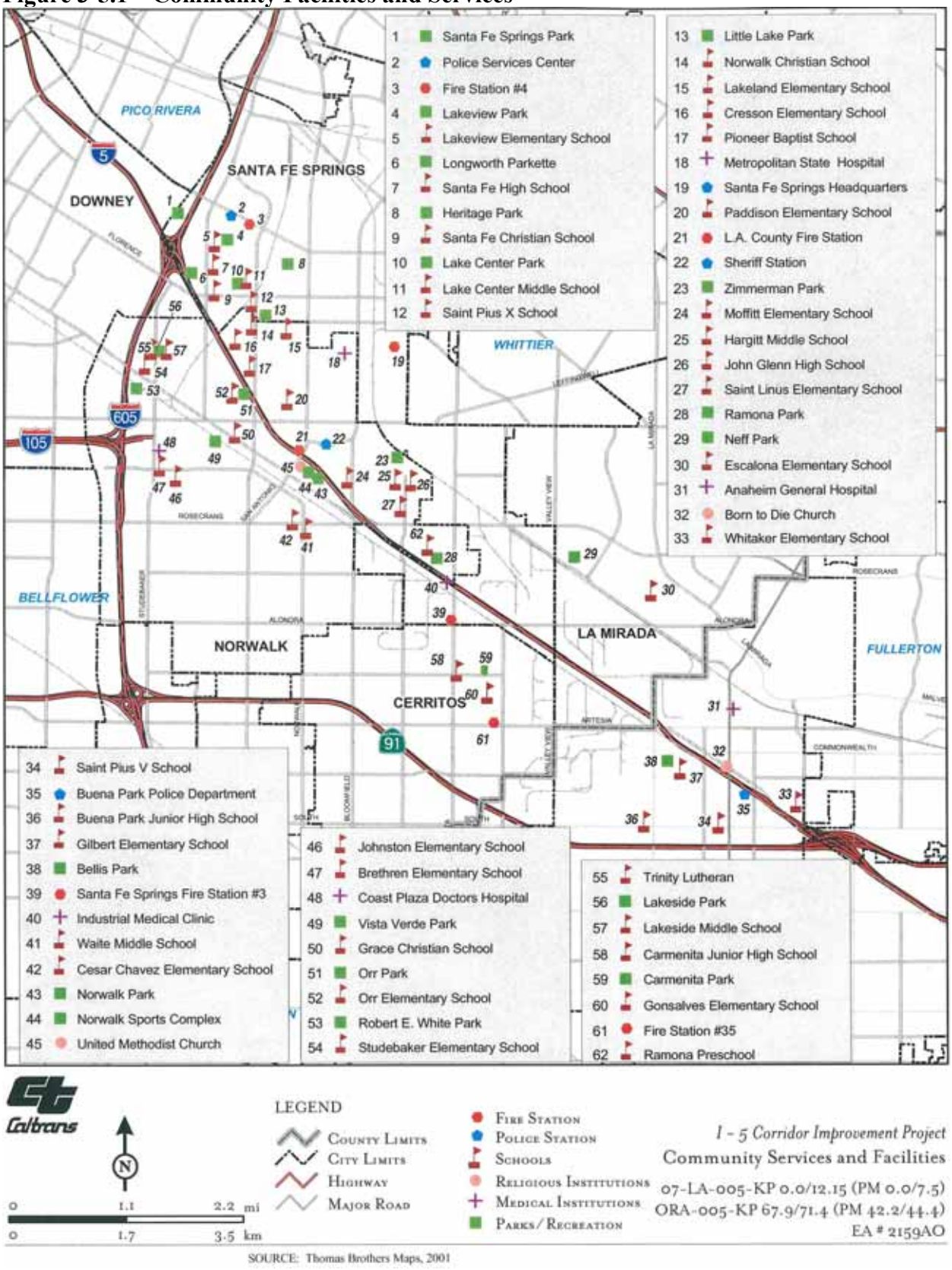
Police Protection Services
The Los Angeles County Sheriff's Department (which provides law enforcement services to the cities of La Mirada and Norwalk), Buena Park Police Department, and Santa Fe Springs Police Department each has one police facility located within the study area. The Los Angeles County Sheriff's Station is located at 12335 Civic Center Drive in the City of Norwalk, the Buena Park Police Station is located at 6650 Beach Boulevard, and the Santa Fe Springs Police Services Center is located at 11576 Telegraph Road. The City of La Mirada Public Safety Annex is located at 15715 Phoebe Avenue. The Downey Police Department does not have any facilities located within the study area.

Religious Institutions
The study area contains two religious institutions: Norwalk United Methodist Church, located at 12111 Olive Street in the City of Norwalk, and the Born to Die Church & Ministries, located at 6309 Manchester Boulevard in the City of Buena Park. The Cities of Cerritos, Downey, La Mirada, and Santa Fe Springs do not have religious institutions within the study area.

Medical Institutions
The study area contains four acute-care medical institutions: Anaheim General Hospital, located at 5742 Beach Boulevard in the City of Buena Park; the Industrial Medical Clinic of Santa Fe Springs, located at 13030 Firestone Boulevard; the Coast Plaza Doctors Hospital, located at 13100 Studebaker Road in the City of Norwalk; and the Metropolitan State Hospital, located at 11400 Norwalk Boulevard in the City of Norwalk. The Cities of Cerritos, Downey, and La Mirada do not have medical institutions within the study area.

Parks and Recreational Facilities
There are 20 parks located within the study area, including 8 parks in the City of Norwalk, 7 in the City of Santa Fe Springs, 2 in the City of La Mirada, and 1 each in the Cities of Cerritos, Buena Park, and Downey.

Figure 3-5.1 – Community Facilities and Services



3-5.3 IMPACTS

Impacts to public utilities/services are determined based on such factors as: noise, air quality, safety, distance, circulation, accessibility, and disruption of operation during both the construction and the operation of the proposed project alternatives. Potential operational impacts to community facilities include property acquisitions affecting community facilities, restricted access to community facilities and services, or impaired use of the facilities.

Alternative 2

The implementation of Alternative 2 would result in improvements to the study area, including an increase in the number of buses and bus routes, signalization improvements, and the construction of additional bus stops. Community facilities would benefit from the increased accessibility provided by the additional transit facilities and subsequent reduction in traffic anticipated from this alternative. Alternative 2 may also include an improved arterial on each side of I-5 that would serve as an alternative route from SR-91 to I-710 and would provide increased accessibility for community facilities. This arterial may result in parcel acquisitions, circulation, and accessibility impacts to community facilities adjacent to the arterial alignment.

Alternative 3

As previously mentioned, Alternative 3 would include the modification of existing bus lines and the addition of new local and express transit routes. Other improvements under this alternative include decreasing the headway between buses, aligning new and modified routes to connect transit hubs, and adding three new park-and-ride facilities in the corridor. The three new park-and-ride facilities would be located at the following intersections: I-5/Florence Avenue, Imperial Highway/Pioneer Boulevard, and Bloomfield Avenue/Firestone Boulevard. Community facilities would benefit from the increased accessibility provided by the additional transit facilities and subsequent reduction in traffic anticipated from this alternative.

Alternatives 4 and 5

A partial acquisition of the Norwalk United Methodist Church would be required under Alternative 5a (see #45 in Figure 3-5.1, Community Services and Facilities), while a full acquisition resulting in relocation of the church would be required under Alternative 5b.

Impacts to Parks and Recreational Facilities

A partial acquisition of the Norwalk Arts & Sports Complex and the park at William W. Orr Elementary School would be required under Alternatives 4 and 5 (see #44 and #52 in Figure 3.2.3, Community Services and Facilities). The partial acquisition of the Norwalk Arts & Sports Complex may result in a parking loss and disruptions to the storage area, and nature center/petting zoo adjacent to I-5. The partial acquisition of the park at William W. Orr Elementary School would result in loss of a portion of grassy area located adjacent to I-5. A section 4(f) evaluation has been prepared pursuant to specifically address impacts to public parks. A copy of the Section 4(f) Evaluation can be found in Appendix B.

Construction Impacts

Construction of Alternative 4 or 5 would require the relocation of several public and private utilities within the project area.

Alternatives 4 or 5 would require reconstruction of 18 existing freeway structures (12 overcrossings or bridges and six undercrossings). Access to community services and facilities in the vicinity of these structures would be diminished during the 5.5-year construction period. The project would be constructed in six segments that would minimize impacts to community services by avoiding consecutive ramp closures and traffic congestion during construction. Potential construction-related impacts such as noise, fugitive dust, and roadway closures/detours would be minimized through the implementation of standard Caltrans construction specifications.

Construction of Alternatives 4 and 5 could involve intermittent and temporary road closures in and around the freeway corridor. This could result in delayed response times for police, fire protection and emergency services.

3-5.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Utility infrastructures that are impacted by project construction would be relocated before construction, relocated during construction, protected in place, or abandoned. Those utilities that must be relocated as a part of project construction would be relocated in such a manner as to minimize any disruption of service those utilities provide.

The impact to fire, police and emergency services response times would be minimized by implementation of a traffic management plan (TMP) that would contain detailed plans of access routes and detours during construction. The TMP should be reviewed and approved by the County Fire Department and any potentially affected fire or law enforcement agency. Caltrans would maintain contacts with the community, police and fire protection services through public outreach during the construction phase.

3-5.5 CUMULATIVE IMPACTS

Cumulative Utilities and Emergency/Community Services Effects

Utilities. Projects in the cumulative study area collectively could result in adverse impacts on utilities related to increased demand for facilities, requiring new or expansion of facilities, and/or the need to relocate or modify utilities to accommodate proposed development. Build out of the land uses assumed in the development utilities could require upgrading of existing anticipated demand. Where feasible, appropriate minimization measures have been identified to reduce individual project impacts to utilities either through relocation or upgrading of facilities or payment of in-lieu fees.

Fire Protection and Emergency Services. Intensification of land uses associated with the cumulative projects could increase demand for fire and emergency medical services and may affect response times.

Law Enforcement. Intensification of land uses associated with the cumulative projects has the potential to increase demand for law enforcement services and may affect response times and increase property values and tax revenue associated with the redevelopment. Intensification of land uses identified in the cumulative projects would serve to provide additional funds to increase law enforcement officers or facilities, offsetting the cost of any increased demand.

Solid Waste Disposal Services. The projects in the study area would potentially increase solid waste demand due to intensification of uses and could incrementally reduce capacity within County of Los Angeles and County of Orange sanitary landfills. Application of State-mandated recycling requirements for construction and operational activities would reduce the total increase and minimize solid waste.

Schools. Any development has the potential to generate additional students who would need to be accommodated by the local school districts. Currently, payment of State-mandated developer fees are assessed to mitigate potential effects to schools by new development and are considered full mitigation under CEQA. None of the project alternatives would generate demand for schools and, therefore, would not contribute to cumulative impacts to schools. Residential displacement would contribute to a very slight reduction in the need for school expansion.

Project Contribution to Cumulative Utilities and Emergency/Community Services Effects
Utilities. Alternatives 4 and 5 could require substantial utility relocation during construction. However, since the cumulative projects are not anticipated to adversely impact utilities, the impacts to utilities due to the proposed project are not anticipated to contribute to a cumulative impact. Utility disruption due to widening of the freeway and widening replacement of overcrossings would be minimized through development and implementation of a Utility Relocation Plan for the I-5 project; therefore, the project's contribution to cumulative effects to utilities is not adverse.

Fire Protection/Emergency Services and Law Enforcement. Alternatives 4 and 5 involve construction and would, therefore, contribute to short-term cumulative effects to fire protection and emergency services delayed response times. The impact would be minimized by implementation of a traffic management plan (TMP) that would contain detailed plans of access routes and detours during construction. The TMP should be reviewed and approved by the County Fire Department and any potentially affected fire or law enforcement agency. Since the cumulative projects are not anticipated to adversely impact Fire Protection/Emergency Services and Law Enforcement, the impacts due to the proposed project are not anticipated to contribute to a cumulative impact.

Solid Waste. All of the build alternatives would require some level of demolition to accommodate the proposed improvements; therefore, all of the alternatives would create demolition and construction debris. These short-term impacts potentially could be adverse, when considered with the waste disposal needs of the other cumulative projects in the area. Recycling of material either on site or off site would minimize the impacts of the build alternatives; however, these alternatives would not result in long-term cumulative impacts on solid waste disposal because it is a transportation facility and would result in only a minor increase in collection of roadside debris.

3-6 TRAFFIC & TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES

3-6.1 REGULATORY SETTING

The Federal Highway Administration (FHWA) directs that full consideration should 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 must 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.

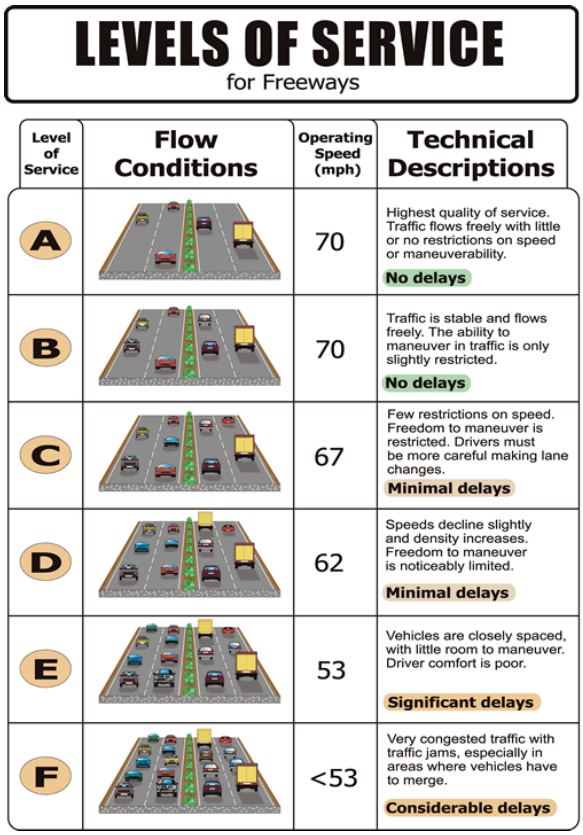
California Code of Regulations Streets and Highways Code Sections 890-894.2, the California Bicycle Transportation Act, discusses the importance of a non-motorized transportation system, establishes bikeway specifications and encourages local agency participation in developing improved bikeways. California Code of Regulations Streets and Highways Code Sections 894.6-894.8, the California Pedestrian Safety Act, encourages projects that address pedestrian safety.

3-6.2 AFFECTED ENVIRONMENT

Information regarding Traffic and Transportation/Pedestrian and Bicycle Facilities was obtained from the I-5 Corridor Improvement Project Traffic and Transportation Study, January 2005 and Technical Addendum, August 2006, and the I-5 Corridor Improvement Project Draft Project Report, 2005.

Evaluation Criteria

Based on the Highway Capacity Manual, the Level of Service (LOS) for freeway segments and freeway ramps is determined by the traffic flow density. The flow density is determined using a static analysis of cumulative volumes divided by the length of the segment or ramp. Table 3-6.1 shows the correlation between level of service and flow density. LOS A represents a freeway segment or ramp with a density less than or equal to 11 passenger cars per mile per lane (pc/mi/ln). LOS F represents a freeway segment or ramp with a density greater than 45 pc/mi/ln. LOS E is considered the maximum threshold for all freeway segments and ramps throughout the study area.



Synchro 6.0 software was used to conduct the intersection analysis. Synchro evaluation criteria for signalized intersections are adapted from the 2000 Highway Capacity Manual (HCM). This method defines level of service

(LOS) in terms of control delay. Control delay is the delay that is attributed to the traffic signal operations for signalized intersections (in seconds per vehicle). Control delay includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table 3-6.1 below provides the level of service corresponding to the control delay for signalized intersections. As described in the HCM, LOS A represents free-flow activity with very low delay, and LOS F is overcapacity operations with a condition of excessively high delay. There are six cities within the project study area. For consistency with the local municipal requirement, LOS D is considered the minimum design criteria for satisfactory operation. LOS D or better during the a.m. and p.m. peak hours represents the minimum acceptable intersection level of service for all the municipal intersections.

Table 3-6.1 – Level of Service (LOS)

	Freeway Segments and Freeway Ramps	Arterial Intersections
LOS	**Density (pc/mi/ln)**	**Control Delay Per Vehicle (seconds per vehicle)**
A	≤ 11	≤ 10
B	11–18	10–20
C	19–26	20–35
D	27–35	35–55
E	36–45	55–80
F	>45	> 80

Source: Highway Capacity Manual (HCM), 2000

Freeway Segments Existing Conditions

The freeway geometric information (e.g., the number of lanes on the freeway) and freeway mainline and ramp volumes were obtained from Caltrans District 7. Freeway segment and ramp volumes within Los Angeles County were obtained from Los Angeles Regional Transportation System (LARTS) model and based on Caltrans Automatic Traffic Monitoring System (ATMS) traffic counts. Only Los Angeles County volumes were provided by Caltrans District 7.

The January 2005 Traffic and Transportation Study was updated (Technical Addendum, August 2006) using more current traffic volumes for the existing condition and applying growth factors to these new volumes to estimate the 2013 and 2030 conditions. The growth factors used to develop the Technical Addendum's 2013 and 2030 traffic volumes are the same as those used in the 2005 Traffic and Transportation Study. The Freeway Mainline Analysis Level of Service worksheets are also provided in Appendix B of the Technical Addendum. The following four project alternatives were analyzed for existing, 2013, and 2030 future year: No Build; four mixed-flow lanes with one High Occupancy Vehicle (HOV) lane; four mixed-flow lanes with two HOV lanes; and five mixed-flow lanes with one HOV lane. To identify freeway mainline-only traffic volumes in the future scenarios, Caltrans provided HOV percentages to deduct from the mainline volumes for each scenario. These percentages were derived from the Caltrans Travel Demand Model. The HOV percentages for the four mixed-flow lanes with one HOV lane, four mixed-flow lanes with two HOV lanes, and five mixed-flow lanes with one HOV lane project alternatives were 15.4 percent, 19.8 percent, and 13.4 percent, respectively.

Table 3-6.2 summarizes the results of the existing freeway mainline conditions. As seen in the Table, a majority of the freeway segments operate unacceptably at LOS F in the peak direction (northbound during the a.m. peak hour, southbound during the p.m. peak hour), except for the

segment between Stanton Avenue and Artesia Boulevard in the existing condition. The freeway segment between Imperial Highway and I-605 operates at LOS F in both directions (northbound and southbound) in both peak hours (a.m. and p.m.).

Table 3-6.2 - Existing Condition - Freeway Mainline Analysis Summary

SEGMENTS: LEVELS OF SERVICE (LOS)	Existing Condition	
Freeway Mainline Segment	**AM**	**PM**
Northbound:		
Stanton Avenue[1]	E	E
Artesia Blvd[1]	E	D
Valley View Avenue	F	E
Alondra Boulevard	F	E
Carmenita Road	F	E
Firestone Boulevard	F	E
Norwalk Boulevard	F	E
Imperial Highway	F	F
Interstate 605	F	F
Southbound:		
Stanton Avenue[1]	D	E
Artesia Blvd[1]	D	E
Valley View Avenue	E	F
Alondra Boulevard	E	F
Carmenita Road	E	F
Firestone Boulevard	E	F
Norwalk Boulevard	E	F
Imperial Highway	F	F
Interstate 605	F	F

Notes:
[1] Orange County Section
Freeway Mainline Segment operating at LOS F

Freeway Ramps Existing Condition

The freeway ramp volumes were taken from the freeway mainline and ramp data provided by Caltrans traffic department. The geometric data (e.g., lengths of the accelerate/decelerate lanes and number of ramp lanes) are measured directly from Caltrans existing graphic file (in Microstation format) and converted into feet. Truck percentage data for the ramps and freeways were obtained from the Caltrans Web site (www.dot.ca.gov).

The levels of service for the existing on- and off-ramps during a.m. and p.m. peak hours for southbound and northbound traffic flow are summarized in Table 3-6.3. The majority of the on- and off-ramps for both southbound and northbound directions operate at LOS F except for the following that operate at LOS E or better.

Northbound

- Valley View Avenue off-ramp (LOS D during the a.m. and p.m. peak hour)
- Kalnor(Adoree)/Norwalk Boulevard on-ramp (LOS E during the a.m. peak hour)
- Imperial Highway off-ramp (LOS E during the a.m. and p.m. peak hour)
- Florence (Orr and Day Road) off-ramp (LOS A during the a.m. peak hour)
- Florence Avenue on-ramp (LOS E during the a.m. and p.m. peak hour)

- NB 605/Studebaker Road on-ramp (LOS E during the a.m. peak hour)

Southbound

- Valley View Avenue on-ramp (LOS C during the a.m. and LOS D during the p.m. peak hour)

Intersections Existing Conditions

The existing a.m. and p.m. peak-hour traffic volumes for ramp terminals and adjacent intersections (within one major street of the I-5 corridor) were provided by Caltrans District 7. The geometric data for the initial list of study area intersections were provided by Caltrans District 7 in July 2004. The locations of intersections included in the Traffic and Transportation Study can be found in Figure 3-6.1. The existing geometrics for those intersections can be found on Table 3-6.4. No geometric data for intersections that were later added to the project study area are available.

The intersections that exceed the LOS E threshold at the ramp terminals and adjacent intersections during the a.m. and p.m. peak hours are shown in Table 3-6.5. Based on the table, 19 intersections operate at LOS E in the existing condition with assumed optimization.

Table 3-6.3 - Existing Condition - Freeway Ramps Analysis Summary		
SEGMENTS: LEVELS OF SERVICE (LOS)	**Existing Condition**	
Freeway Ramps	**AM**	**PM**
Northbound:		
Artesia Blvd OFF [1]	D	D
Artesia Blvd ON	C	C
Valley View OFF	D	D
Valley View ON	F	F
Alondra ON	F	F
Carmenita OFF	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text	
Carmenita ON		
Rosecrans OFF	F	F
Firestone OFF	F	F
Rosecrans (Bloomfield) ON	E	F
Norwalk OFF	F	F
Norwalk ON	E	F
Kalnor (Adoree)/ Norwalk ON	E	F
Imperial Hwy OFF	E	E
Imperial Hwy ON	F	F
Pioneer ON	F	F
Florence (Orr and Day) OFF	E	F
Southbound:		
Artesia ON	D	D
Artesia/ Knott OFF	E	F
Valley View ON	C	D
Valley View OFF	F	F
Alondra ON	F	F
Carmenita ON	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text	
Carmenita OFF		
Rosecrans ON	F	F
Rosecrans OFF	F	F
Firestone ON	F	F
Norwalk ON	F	F
San Antonio/ Union OFF	F	F
Imperial Hwy ON	F	F
Pioneer/ Imperial OFF	F	F
Orr and Day ON	F	F
Florence ON	F	F

Notes:

[1] Orange County Section

Freeway Ramps operating at LOS F

Figure 3-6.1 – Study Intersection Locations

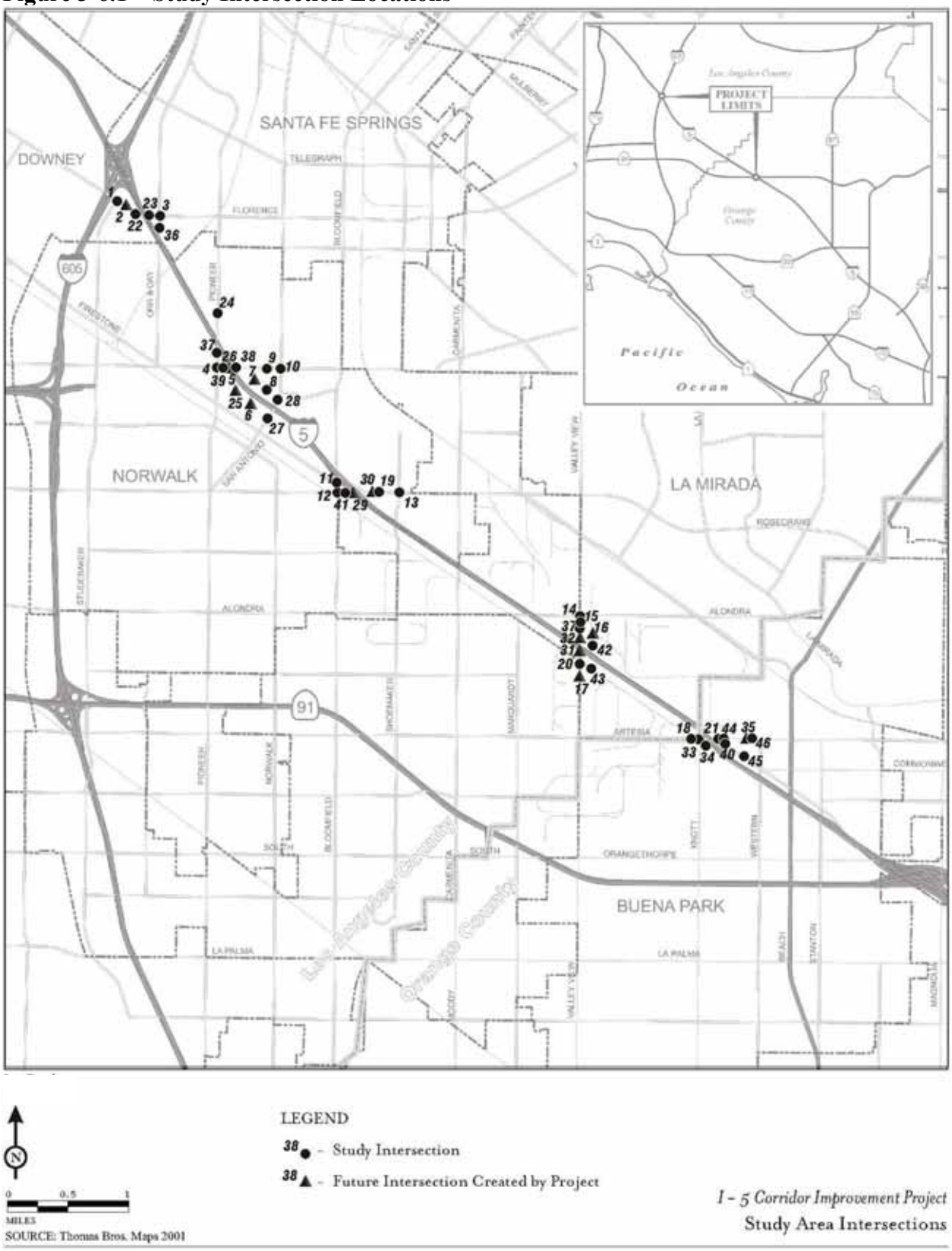


Table 3-6.4 - Existing (2001) Intersection Geometrics													
		Northbound			Southbound			Eastbound			Westbound		
Index	Intersection Name	left	thru	right	left	thru	right	left	thru	right	left	thru	right
1	Florence / Studebaker	1	1	1	0	0	0	0	2	1	1	2	1
2	Florence / Fairford												
3	Florence / Orr and Day	1.5	1.0	0.5	1.5	0.5	2	2	1.5	0.5	1	2	1
4	Imperial / Pioneer	1	2	1	2	2	1	1	3	1	1	3	1
5	Union / I-5 SB Off and Union												
6	Union / I-5 SB Off and Paddison												
7	Adoree / Paddison												
8	Kalnor / Adoree	0	0	0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
9	Imperial / Kalnor	0.5	0.5	1	1	0.5	0.5	1	2.5	0.5	1	3	1
10	Imperial / Norwalk	1	2	1	1	3	1	1	3	1	1	2.5	0.5
11	Firestone / Bloomfield	0	1	1	0	0	0	0	1	1	0	1	0
12	Rosecrans / Bloomfield	1	2	1	1	2	1	1	2.5	0.5	2	1.5	0.5
13	Rosecrans / Shoemaker	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2.5	0.5
14	Alondra / Valley View	1	2	1	1	2	1	1	1.5	0.5	1	1.5	0.5
15	Firestone (N) / Valley View	1	1.5	0.5	0.5	1.5	1	1	1	1	1	1	1
16	Firestone (N) / Gateway Dr												
17	Firestone (S) / Valley View												
18	Artesia / Firestone (S)	0	0	0	1	0	1	1	2	0	1	1.5	0.5
19	Rosecrans / Firestone	1.5	0	1.5	1	1	0	1	2	0	0	2	1
20	I-5 SB Ramps / Valley View Ave	0	2	1	1	2	0	0	0	0	1	0	1
21	Artesia / Firestone (N)	1	1	1	1	1	1	1	2	1	1	1	1
22	Florence / I-5SB On-Ramp	1	0.5	0.5	0	0	0	0	2	1	1	1.5	0.5
23	Florence / I-5 NB Ramps	0	0	0	0	0	0	0	3	0	0	2	1
24	I-5 NB On-Ramp / Pioneer Blvd	1	2	0	0	2	1	0	0	0	0	0	0
25	Imperial Hwy & Union St/ I-5 SB Off												
26	Imperial Hwy / I-5 SB On Ramp	0	0	1	0	0	0	0	3	0	0	3	1
27	I-5 SB On Ramp / San Antonio	1	2	1	1	2	1	0.5	0.5	1	0	0	0
28	I-5 NB Off Ramp / San Antonio & Adoree St	1	1.5	0.5	0	2.5	0.5	1	0	1	1	0.5	1.5
29	Rosecrans Ave / I-5 SB Ramps												
30	Rosecrans Ave / I-5 NB Ramps												
31	I-5 SB Ramps / Valley View Ave												
32	I-5 NB Ramps / Valley View Ave												
33	Artesia Blvd / I-5 SB Off- Ramps	2	0	1	1.5	1.0	0.5	0	2	1	1	2	0
34	Artesia Blvd / I-5 SB On- Ramps	0	0	0	0	0	0	0	2	1	1	2	0
35	Artesia Blvd & Firestone (N) / I-5 NB Ramps												
36	I-5 NB Off-Ramp / Orr and Day	0	1	0	0	1	0	1	0	1	0	0	0
37	Pioneer / I-5 SB Off-Ramp	0	2	0	0	2	0	1	0	1	0	0	0
38	Imperial Hwy / I-5 SB On Ramp	0	0	0	0	0	0	0	2.5	0.5	0	3	0
39	I-5 SB Off-Ramp / Union	0.3	0.3	0.3	0.5	0.5	1	0.3	0.3	0.3	0.3	0.3	0.3
40	I-5 NB On-Ramp / Firestone	1	2	0	0	2	1	0	0	0	0	0	0
41	Rosecrans / Firestone	1	1	0	0	1	0	0	0.5	0.5	0.5	0.5	1
42	I-5 NB On-Ramp / Firestone (N)	1	0.5	0.5	0.3	0.3	0.3	1	1	1	1	1.5	0.5
43	I-5 SB Ramps / Firestone (S)	0.5	0.5	1	1	0.5	0.5	0.5	0.5	1	0	0.5	0.5
44	Artesia / I-5 NB On-Ramp	1.5	1.5	1	0	0	0	1	2	1	1	2	1
45	Manchester / I-5 SB Off-Ramp	1	1	0	0	0	1	1	1	0	0	0.5	0.5
46	Artesia / I-5 NB Off-Ramp	1	0	1	0	0	0	0	2	1	1	2	0

Notes:

Some intersections would be added to or removed from the project area as a result of project construction

Intersections operating at LOS E or F

Table 3-6.5 - Existing (2001) Intersection Level of Service Summary					
		Existing AM		Existing PM	
Index	Intersection Name	Delay (sec)	LOS	Delay (sec)	LOS
1	Florence / Studebaker	72.2	E	99.0	F
2	Florence / Fairford				
3	Florence / Orr and Day	51.4	D	39.1	D
4	Imperial / Pioneer	25.2	C	50.3	D
5	Union / I-5 SB Off and Union				
6	Union / I-5 SB Off and Paddison				
7	Adoree / Paddison				
8	Kalnor / Adoree	8.5	A	9.0	A
9	Imperial / Kalnor	15.2	B	19.0	B
10	Imperial / Norwalk	60.9	E	50.9	E
11	Firestone / Bloomfield	40.1	E	19.5	C
12	Rosecrans / Bloomfield	30.0	C	105.1	F
13	Rosecrans / Shoemaker	68.0	E	55.3	E
14	Alondra / Valley View	96.9	F	113.6	F
15	Firestone (N) / Valley View	232.2	F	280.6	F
16	Firestone (N) / Gateway Dr				
17	Firestone (S) / Valley View				
18	Artesia / Firestone (S)	73.3	E	63.5	E
19	Rosecrans / Firestone	49.9	D	47.9	D
20	I-5 SB Ramps / Valley View Ave	159.6	F	162.2	F
21	Artesia / Firestone (N)	124.7	F	83.5	F
22	Florence / I-5SB On-Ramp	OVERFLOW	F	OVERFLOW	F
23	Florence / I-5 NB Ramps	0.0	A	0.0	A
24	I-5 NB On-Ramp / Pioneer Blvd	11.4	B	11.0	B
25	Imperial Hwy & Union St/ I-5 SB Off				
26	Imperial Hwy / I-5 SB On Ramp	11.5	B	11.9	B
27	I-5 SB On Ramp / San Antonio	33.1	C	10.5	B
28	I-5 NB Off Ramp / San Antonio & Adoree St	OVERFLOW	F	OVERFLOW	F
29	Rosecrans Ave / I-5 SB Ramps				
30	Rosecrans Ave / I-5 NB Ramps				
31	I-5 SB Ramps / Valley View Ave				
32	I-5 NB Ramps / Valley View Ave				
33	Artesia Blvd / I-5 SB Off- Ramps	15.3	B	74.4	E
34	Artesia Blvd / I-5 SB On- Ramps	15.4	C	39.9	E
35	Artesia Blvd & Firestone (N) / I-5 NB Ramps				
36	I-5 NB Off-Ramp / Orr and Day	9.7	A	10.2	B
37	Pioneer / I-5 SB Off-Ramp	13.6	B	12.1	B
38	Imperial Hwy / I-5 SB On Ramp	0.0	A	0.0	A
39	I-5 SB Off-Ramp / Union	12.8	B	12.5	B
40	I-5 NB On-Ramp / Firestone	76.9	E	7.4	A
41	Rosecrans / Firestone	1421.8	F	4200.7	F
42	I-5 NB On-Ramp / Firestone (N)	72.8	E	18.0	B
43	I-5 SB Ramps / Firestone (S)	267.9	F	121.0	F
44	Artesia / I-5 NB On-Ramp	18.0	B	47.0	D
45	Manchester / I-5 SB Off-Ramp	16.1	C	50.1	F
46	Artesia / I-5 NB Off-Ramp	16.5	B	13.8	B

Notes:

Some intersections would be added to or removed from the project area as a result of project construction

Intersections operating at LOS E or F

Commuting Patterns

I-5 serves as the backbone of Southern California's transportation network, connecting the major urban centers within Los Angeles, Orange, and San Diego Counties. It is used as a commuter route between the residential areas of Orange and Riverside Counties and the employment centers of Los Angeles County, such as the corridor industrial zones and downtown Los Angeles.

The 2000 Census provides other measures of commuting patterns. Travel patterns for Los Angeles and Orange Counties and the affected communities are depicted in Table 3-6.6.

- Place of Work: While the Orange County average (78 percent) for employees working outside their home is greater than the Los Angeles County average (62 percent), at least 82 percent of employees within the affected communities work outside their place of residence.
- Travel Time: Approximately six to seven percent of employees commuted between 60 and 90 minutes to work (one-way) in Los Angeles and Orange Counties on a daily basis, and two to three percent drove for more than 90 minutes. Commuting times within the affected communities were generally consistent, if not lower than the County averages. Santa Fe Springs was the only city with over three percent of employees commuting more than 90 minutes.
- Travel Together: Over 74 percent of employees in the affected communities drive to work alone; between 12 and 17 percent carpooled; and less than 3 percent walked.

Table 3-6.6 – Travel Patterns

	Regional		Affected Communities					
	Los Angeles County	**Orange County**	**Buena Park**	**Cerritos**	**Downey**	**La Mirada**	**Norwalk**	**Santa Fe Springs**
Work outside of residence	62%	76%	86%	87%	82%	86%	87%	82%
Travel Time								
60 - 89 minutes	7%	6%	7%	7%	6%	7%	6%	4%
> 90 minutes	3%	2%	2%	2%	2%	2%	2%	3%
Travel Type								
Drive alone	70%	77%	76%	81%	75%	79%	74%	77%
Carpool	15%	13%	15%	13%	16%	12%	17%	16%
Walk	3%	2%	2%	1%	1%	3%	2%	2%

Source: U.S. Census Bureau, Census 2000, http://factfinder.census.gov

These commuting patterns build the economic linkages among cities in southern California and diversify the employment options to Los Angeles and Orange County residents. For transportation planning and infrastructure development considerations, these patterns increase the importance of the I-5 transportation network and linking local residents with surrounding areas.

Buena Park has a number of major transportation facilities, including two freeways (I-5 and SR-91), two principal highways (Valley View Street and Beach Boulevard), and two major highways (Lincoln Avenue and Orangethorpe Avenue).

Policy 1.1 of the Circulation Element of the City of Buena Park General Plan encourages the continued development of safe and efficient freeway services to the City and discourages the use of local roadways for non-local and regional through traffic.

Downey is virtually surrounded by freeways; the I-5 Freeway to the north, the I-605 to the east, the I-710 to the west and the I-105 Freeway to the south. Downey is a mature, established community that has developed circulation problems on arterial streets over the years. These have been partially relieved by street widenings in recent years. The Rapid Transit District (RTD) has nine bus routes through Downey, and the City has its own public transportation called DowneyLINK. The Los Angeles MTA Green Line runs through South Downey.

La Mirada is in an urban area with a well-established street system. I-5 runs through the southwestern portion of the City. The General Plan Circulation Element has policies to: continue to work with transit service providers to identify and respond to the short- and long-term mobility needs of residents; continue to provide special transit services for seniors, disabled persons, and other special needs groups residing in La Mirada; work with regional and local transit service providers to improve the connectivity of transit service to other regional transportation service; and continue to accommodate bicycle lanes and pedestrian paths citywide.

Existing Transit Service

Two commuter rail lines provide service to the I-5 study area: the Metrolink system and the Metro Green line. The Metrolink is the regional commuter rail system operated by the Southern California Regional Rail Authority (SCRRA) that provides transit services to the Counties of Orange, San Bernardino, Ventura, Riverside, and San Diego. The SCRRA is a joint powers authority of five member agencies that represents the five Southern California Counties of Ventura, Los Angeles, San Bernardino, Riverside, and Orange. The Norwalk Santa Fe Springs Transportation Center, located at 12700 Imperial Highway in the City of Norwalk, serves as a Metrolink commuter rail station. The Norwalk/Santa Fe Springs Transportation Center is a cooperative venture between the Cities of Norwalk and Santa Fe Springs and Metrolink to provide transit service within Norwalk and Santa Fe Springs. The Metro Green line, operated by the Los Angeles County Metropolitan Transportation Authority (MTA), is part of the Metro Rail System and runs east to west between the Cities of Norwalk and Redondo Beach. There is one Green line station located in the City of Norwalk, at 12901 Hoxie Avenue.

The Santa Fe Springs Tram provides shuttle service within the City of Santa Fe Springs. The Tram provides service to several locations within the study area census tracts, including north-south routes along Orr and Day Road and Pioneer Boulevard and east-west routes along Florence Avenue, Telegraph Road, and Lakeland Road. DowneyLINK provides shuttle service within the City of Downey. The bus provides service to numerous locations within the study area, and all routes begin and end at Firestone Boulevard. Norwalk/La Mirada Transit provides transit service within the City of Norwalk, the City of La Mirada, and adjacent communities through fixed route bus schedules. Norwalk/La Mirada Transit routes 1, 2, 3, 4, and 5 provide service within the study area. Cerritos on Wheels (COW) is a public transportation system that links parks, schools, retail centers, the library, and other major points of interest in the City of Cerritos. The transit service travels a 24-mile route that connects with Long Beach Transit, OCTA, Norwalk Transit, and MTA buses.

The Orange County Transportation Authority (OCTA) provides transit services to the Orange County region through fixed route bus schedules. There are several existing bus routes that provide service through the study area census tracts in the City of Buena Park, including north-south routes along Valley View Street, Knott Avenue, Beach Boulevard, and Magnolia Avenue and east-west routes along Commonwealth Avenue, Orangethorpe Avenue, and La Palma Avenue.

Transit Dependent Population

The Federal Transit Administration defines transit-dependent persons as 1) those without private transportation, 2) elderly (over age 65), 3) youths (under age 18), and 4) persons below poverty or median income levels defined by the U.S. Census Bureau. The presence of low-income residents is discussed in detail in the previous section (Section 3-4.3, Environmental Justice); this section presents information on age characteristics of residents in the study area census tracts. The analysis of residents' age characteristics was conducted using census tract level information, which is available from the 2000 census. While this may overstate the population affected by a given alternative, it was deemed more important to compare consistent census data rather than to try to achieve an exact match of data with alignments.

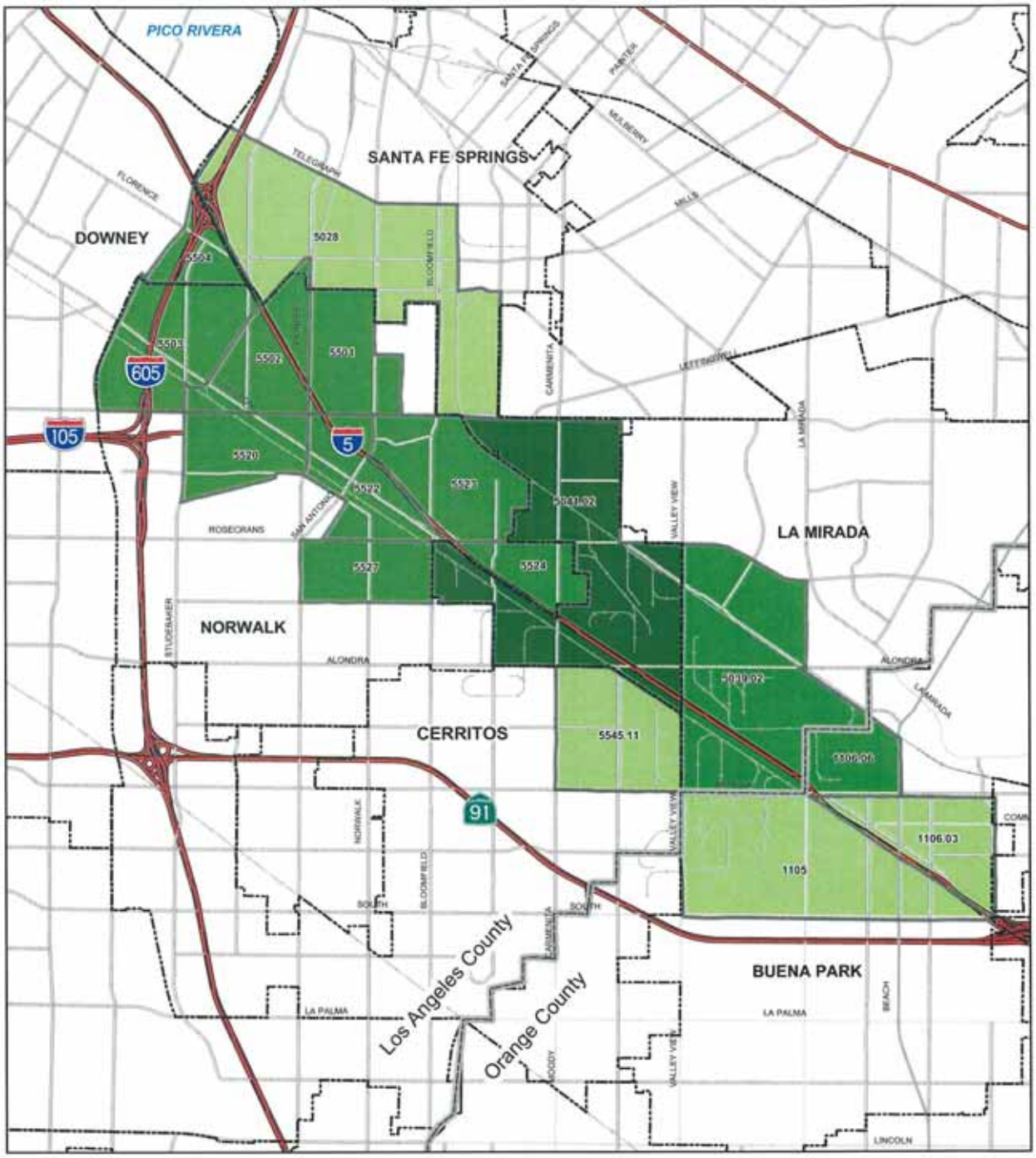
As identified in Table 3-4.2, Age Distribution, the affected communities reported a higher percentage of transit-dependent persons than the Los Angeles and Orange County averages, ranging from 38.7 percent in the City of Buena Park to 41.9 percent in the City of Santa Fe Springs. This reflects a trend in the affected communities to increasingly become a home for young families and senior citizens who tend to walk or utilize public transportation for travel. As discussed in Section 3-4.2 (Community Character and Cohesion) of this report, the number of residents under 18 and over 65 within the affected communities is expected to rise over the next two decades. This suggests that the transit-dependent population would continue to rise within the project study area.

Figure 3-6.2, Transit-Dependent Population, illustrates the percentage of transit-dependent persons located within each study area census tract. The proportion of transit-dependent persons (combined under 18 plus over 65) in the census tracts in the Cities of Buena Park, Cerritos, La Mirada, Norwalk, and Downey did not vary from the respective city averages by more than two percentage points. An elevated level of potential age related transit-dependency was found in 12 census tracts (Tracts 1106.66, 5039.02, 5041.02, 5501, 5502, 5503, 5504, 5520, 5522, 5523, 5524, and 5527) reported that residents less than 18 years of age and residents exceeding 65 years of age equaled 40 percent or more. The discussion of potential impacts to low income residents is included in Section 3-4.3, Environmental Justice.

Pedestrian and Bicycle Access

There is currently one (1) dedicated pedestrian freeway overcrossing located at Silverbow Avenue. Pedestrians also have access across the freeway using arterial freeway crossings.

Figure 3-6.2 - Transit-Dependent Population



Bicycle facilities are designated in three classifications. *Class I* Bike Paths are special pathway facilities for the exclusive use of *bicycle*s which are separated from motor vehicle facilities by space or a physical barrier. A bike path may be located on a portion of a street or highway right-of-way or in a special right-of-way not related to a motor vehicle facility; it may be grade separated or have street crossings at designated locations. It is identified with "Bike Route" signs and also may have pavement markings.

Class II Bike Lanes are lanes on the paved area of a road for preferential use by *bicycle*s. It is usually located along the edge of the paved area or between the parking lane and the first motor vehicle travel lane. It is identified by "Bike Lane" or "Bike Route" guide signing, special lane lines, and other pavement markings. *Bicycle*s have exclusive use of a bike lane for longitudinal travel, but must share the facility with motor vehicles and pedestrians crossing it.

Class III Bike Routes are streets identified as a *bicycle* facility by "Bike Route" guide signing only. There are no special lane markings; *bicycle* traffic shares the roadway with motor vehicles.

There are two *Class I* bike paths within the project area. These bike paths run adjacent to the San Gabriel River and North Fork Coyote Creek. Orange County Transit Authority and Los Angeles County Metropolitan Transit Authority propose a *Class I* bike path along Coyote Creek.

Carmenita Road – Interchange Improvement Project

Because the Carmenita Road project has an approved environmental document, "Initial Study/Environmental Assessment (IS/EA)" by Caltrans District 7, dated March 2002, Carmenita Road was not included in the traffic study prepared for this project. For continuity of the traffic study, the freeway mainline in the vicinity of the Carmenita Road Interchange has been included in this document.

The Carmenita Road project proposes the removal of the existing I-5 at Carmenita Road overcrossing structure and the associated hook ramps and replacing them with the proposed alternative; the Design Variation 3A Tight Diamond is the preferred alternative in the IS/EA. The improvement would provide the horizontal clearance required for the addition of a minimum of two HOV lanes and two mixed-flow lanes on the freeway mainline. In addition, the improvement would also provide a grade separation for the railroad crossing south of the freeway. The project proposes to realign the existing hook ramps, which would improve freeway movement.

3-6.3 IMPACTS

Each of the project alternatives would have different impacts on the movement of vehicles on Route 5 and on the traffic circulation patterns on local surface streets. Under Alternative 1, the No-Build Alternative, corridor travel times would continue to increase. Some freeway drivers would be deterred from using Route 5 as congestion increases and they would take more circuitous route to their destination, increasing the use of local, parallel city streets. Rerouted trips may also increase congestion on Route 91 between I-5 and I-605. Alternative 1 may discourage some individuals from taking a trip, thereby reducing mobility for those individuals. Alternative 2, the TSM/TDM Alternative, would provide limited congestion relief and has traffic impacts comparable to Alternative 1. Congestion during peak hours would be reduced slightly in duration. Alternative 3, the Transit Enhancement Alternative, would provide limited congestion relief at a level similar to Alternative 2. The extent of the bus and rail service improvements,

though undetermined at this point, has potential of reducing the need for the 12-lane freeway proposals. Substantial expansion of transit service in this corridor, especially the Metrolink Commuter Rail Service would reduce traffic congestion of I-5 by unquantifiable but meaningful volume. Components of either Alternative 2 and/or 3 could be selected as complimentary additions to Alternatives 4 or 5. The purpose and need for I-5 Corridor Improvements could be achieved under this hybrid combination scenario.

Freeway Mainline and High Occupancy Vehicle (HOV) Lane 2013 Conditions

The forecasted mainline and ramp volumes for the I-5 in the Los Angeles County segment under the 2013 condition for seven alternatives including No Build were provided by LARTS. The freeway geometric data remain unchanged from the existing condition for 2013 No Build condition. The traffic projections provided by Caltrans have taken into consideration the continued growth of the communities and the socioeconomic changes within the communities along the I-5 corridor. Traffic volumes were provided for each freeway cross section alternative (e.g., four mixed-flow and one HOV, four mixed-flow and two HOV). Traffic projection for each alternative with the same number of lanes (i.e., 5 + 1 MIS Modified, 5 + 1 Value Analysis) are expected to be the same. The mainline volumes are balanced based on the ramp volumes. The growth in traffic that was assumed by Caltrans varied in each scenario and is provided below.

Table 3-6.7 – 2013 Growth Rates

Alternative	Growth Rates	
	Northbound	Southbound
No Build	1.09 – 1.32	1.03 – 1.17
4 Mixed Flow + 1 HOV	1.29 – 1.43	1.18 – 1.31
4 Mixed Flow + 2 HOV	1.22 – 1.45	1.19 – 1.31
5 Mixed Flow + 1 HOV	1.28 – 1.52	1.25 – 1.38

Table 3-6.8 summarizes the results of the future 2013 freeway mainline conditions for the No Build alternative and the different lane configurations possible with the two capacity increasing alternatives. The only possible lane configuration for Alternative 4 is four mixed flow lanes and one HOV lane (4+1). Two configurations are possible for Alternative 5, which are four mixed flow lanes and two HOV lanes (4+2), and five mixed flow lanes and one HOV lane (5+1).

2013 No Build Alternative Freeway Mainline LOS

The majority of freeway segments in the No Build alternative are forecast to operate at LOS F. The segments that are forecast to operate at LOS E or better are northbound between Stanton Avenue and Artesia Boulevard during the p.m. peak hour, southbound between Alondra Boulevard and Stanton Avenue during the a.m. peak hour, and southbound at Artesia Boulevard during the p.m. peak hour.

2013 Four Mixed-Flow Lanes with One HOV Lane Alternative Freeway Mainline LOS

As shown in Table 3-6.8, all freeway mainline segments are forecast to operate at unsatisfactory LOS in 2013 for the four mixed-flow lanes with one HOV lane alternative, with the exception of northbound at Stanton Avenue during the p.m. peak hour, northbound between Valley View Avenue and Imperial Highway during the p.m. peak hour, and southbound between Stanton Avenue and I-605

2013 Four Mixed-Flow Lanes with Two HOV Lanes Alternative Freeway Mainline LOS
As shown in Table 3-6.8, all freeway mainline segments are forecast to operate at unsatisfactory LOS in 2013 for the four mixed-flow lanes with one HOV lane alternative, with the exception of northbound between Stanton Avenue and Imperial Highway during the p.m. peak hour, southbound between Stanton Avenue and I-605 during the a.m. peak hour, and southbound between Valley View Avenue and Alondra Boulevard during the p.m. peak hour.

2013 Five Mixed-Flow Lanes with One HOV Lane Alternative Freeway Mainline LOS
As shown in Table 3-6.8, all freeway mainline segments are forecast to operate at unsatisfactory LOS in 2013 for the five mixed-flow lanes with one HOV lane alternative, with the exception of northbound between Valley View Avenue and Firestone Boulevard during the a.m. peak hour, northbound between Stanton Avenue and Imperial Highway during the p.m. peak hour, southbound between Stanton Avenue and I-605 during the a.m. peak hour, southbound between Stanton Avenue and Norwalk Boulevard during the p.m. peak hour.

Table 3-6.8 - Year 2013 Condition - Freeway Mainline Analysis Summary

SEGMENTS: LEVELS OF SERVICE (LOS)	No Build		4+1		4+2		5+1	
Freeway Mainline Segment	AM	PM	AM	PM	AM	PM	AM	PM
Northbound:								
Stanton Avenue[1]	F	E	F	E	F	E	F	E
Artesia Blvd[1]	F	E	F	F	F	E	F	E
Valley View Avenue	F	F	F	E	F	E	E	D
Alondra Boulevard	F	F	F	E	F	E	E	D
Carmenita Road	F	F	F	E	F	E	E	E
Firestone Boulevard	F	F	F	E	F	E	E	E
Norwalk Boulevard	F	F	F	E	F	E	F	E
Imperial Highway	F	F	F	E	F	E	F	E
Interstate 605	F	F	F	F	F	F	F	F
Southbound:								
Stanton Avenue[1]	E	F	E	F	E	F	D	E
Artesia Blvd[1]	D	E	E	F	E	F	D	E
Valley View Avenue	E	F	E	F	E	E	D	E
Alondra Boulevard	E	F	E	F	E	E	D	E
Carmenita Road	F	F	E	F	E	F	D	E
Firestone Boulevard	F	F	E	F	E	F	D	E
Norwalk Boulevard	F	F	E	F	E	F	D	E
Imperial Highway	F	F	E	F	E	F	E	F
Interstate 605	F	F	E	F	E	F	E	F

Notes:
[1] Orange County Section
Freeway Mainline Segment operating at LOS F

Table 3-6.9 - Year 2013 Condition - Freeway HOV Lanes Analysis Summary														
SEGMENTS: LEVELS OF SERVICE (LOS)	**2013 No Build[2]**		**4+1 (MIS Modified)**		**4+1 (Value Analysis)**		**4+1 (LPA)**		**4+2**		**5+1 (Value Analysis)**		**5+1 (MIS Modified)**	
Freeway HOV Lanes	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound:														
Artesia Blvd OFF [1]			C	D	C	D	C	D	B	C	D	D	D	D
Artesia Blvd ON			D	D	D	D	D	D	B	C	D	D	D	D
Valley View OFF			C	D	C	D	C	D	B	C	C	D	C	D
Valley View ON			D	E	D	E	D	E	B	C	D	D	D	D
Alondra ON														
Carmenita OFF			Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text											
Carmenita ON														
Rosecrans OFF			C	D	C	D	C	D	B	C	C	D	C	D
Firestone OFF														
Rosecrans (Bloomfield) ON			C	E	C	E	C	E	B	C	C	D	C	D
Norwalk OFF			C	D	C	D	C	D	B	C	C	D	C	D
Norwalk ON														
Kalnor (Adoree)/ Norwalk ON														
Imperial Hwy OFF														
Imperial Hwy ON			D	D	D	D	D	D	B	C	C	D	C	D
Pioneer ON			D	E	D	E	D	E	B	D	D	D	D	D
Florence (Orr and Day) OFF				D	D	D	D	D	D	B	D	D	D	D
605 OFF			C	C	C	C	C	C	B	C	C	C	C	C
WB Florence ON			C	C	C	C	C	C	B	C	C	C	C	C
NB 605/ Studebaker ON			C	D	C	D	C	D	B	D	D	D	D	D
SB 605 ON			C	E	C	E	C	E	B	D	D	D	D	D
Southbound:														
Artesia ON			D	E	D	E	D	E	C	D	D	D	D	D
Artesia/ Knott OFF			D	E	D	E	D	E	C	D	D	E	D	E
Valley View ON			D	E	D	E	D	E	C	D	D	D	D	D
Valley View OFF			E	E	E	E	E	E	D	D	D	E	D	E
Alondra ON														
Carmenita ON			Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text											
Carmenita OFF														
Rosecrans ON			E	E	E	E	E	E	D	D	D	E	D	E
Rosecrans OFF			E	E	E	E	E	E	D	D	E	E	E	E
Firestone ON														
Norwalk ON			E	E	E	E	E	E	C	D	D	D	D	D
San Antonio/ Union OFF														
Imperial Hwy ON														
Pioneer/ Imperial OFF			E	E	E	E	E	E	D	D	E	E	E	E
Orr and Day ON														
Florence ON			E	E	E	E	E	E	D	D	D	E	D	E
NB 605/ Studebaker ON			E	E	E	E	E	E	D	D	D	E	D	E
SB 605 ON			D	E	D	E	D	E	C	D	D	D	D	D
SB 605/ Florence OFF			E	F	E	F	E	F	D	E	E	E	E	E

Notes:

[1] Orange County Section

[2] No HOV Lanes in 2013 No Build

Freeway Ramps Removed in Future Alternatives

Freeway Ramps operating at LOS F

Freeway Ramps 2013 Condition
The level of service summary for northbound and southbound on- and off-ramps during the a.m. and p.m. peak is shown in Table 3-6.10. The table provides a comparison of the impacted ramps operating at LOS F for the 2013 conditions for each cross section alternative.

Compared with the existing condition, the 2013 No Build condition presents the same or worse levels of service due to the increase of traffic volumes. As shown in Table 3-6.10, the results of the 2013 freeway ramp analysis are similar for each of the build alternatives.

Ramp Meters 2013 Condition
The freeway ramp volumes were analyzed to determine the average queue on the on-ramps due to the ramp meter. Every on-ramp in the future design alternatives is assumed to have ramp meters. In addition, all on-ramps are assumed to have HOV bypass lanes except northbound Rosecrans Boulevard and Imperial Highway, and southbound Norwalk Boulevard.

The hourly ramp volumes are considered to be the arrival rate (vehicles/hour). A peak-hour factor was applied to the arrival rate and divided by 4 to get the peak 15-minute volumes. The queuing calculations were applied to the worst-case 15 minutes. The peak 15-minute meter rate is one-fourth of the hourly rate of 900 vehicle/hour/lane. The queuing equations for a Constant Service Problem from *Traffic Flow Fundamentals,* by Adolf D. May,[1] were used where the arrivals are randomly distributed and the service rate is constant, such as at a ramp meter.

The results of the queuing analysis for each alternative, 4 + 1, 4 + 2, and 5 + 1 are shown below.

- 4 + 1 Configuration: During the northbound a.m. and p.m. peak hour, no more than one vehicle is forecast to be in the queue for all on-ramps. For the southbound a.m. and p.m. peak hour, a maximum of three vehicles are forecast to queue at all on-ramps. No vehicle queues are forecast to back up in the adjacent intersection at any on-ramp.
- 4 + 2 Configuration: During the northbound a.m. and p.m. peak hour, no more than one vehicle is forecast to be in the queue. For the southbound a.m. and p.m. peak hour, a maximum of two vehicles is forecast to be in the queue at all on-ramps. No vehicle queues are forecast to back up in the adjacent intersection at any on-ramp.
- 5 + 1 Configuration: During the northbound a.m. and p.m. peak hour, a maximum of two vehicles is forecast to be in the queue. For the southbound a.m. and p.m. peak hour, a maximum of three vehicles is forecast to queue at all on-ramps. No vehicle queues are forecast to back up in the adjacent intersection at any on-ramp.

Based on the results of the queuing analysis, ramp metering is not forecast to create an impact on the adjacent arterial streets in the 2013 horizon in any alternative.

1 Adolf D. May, *Traffic Flow Fundamentals* (Prentice-Hall, Inc., 1990).

Table 3-6.10 - Year 2013 Condition - Freeway Ramp Analysis Summary								
SEGMENTS: LEVELS OF SERVICE (LOS)	**2013 No Build**		**4+1**		**4+2**		**5+1**	
Freeway Ramps	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound:								
Artesia Blvd OFF [1]	E	D	F	F	F	F	F	F
Artesia Blvd ON	F	F	C	C	C	C	C	C
Valley View OFF	F	F	F	F	F	F	F	F
Valley View ON	F	F	C	C	C	C	C	C
Alondra ON	F	F						
Carmenita OFF	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text							
Carmenita ON								
Rosecrans OFF	F	F	F	E	F	F	F	F
Firestone OFF	F	F						
Rosecrans (Bloomfield) ON	F	F	C	C	C	C	C	C
Norwalk OFF	F	F	F	F	F	F	F	F
Norwalk ON	E	F						
Kalnor (Adoree)/ Norwalk ON	E	F						
Imperial Hwy OFF	E	E						
Imperial Hwy ON	F	F	B	B	B	C	C	C
Pioneer ON	F	F	C	C	C	D	C	D
Florence (Orr and Day) OFF	F	F	C	C	C	C	C	D
Southbound:								
Artesia ON	D	D	C	C	C	C	C	D
Artesia/ Knott OFF	F	F	F	F	F	F	F	F
Valley View ON	D	D	C	D	C	D	C	D
Valley View OFF	F	F	F	F	F	F	F	F
Alondra ON	F	F						
Carmenita ON	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text							
Carmenita OFF								
Rosecrans ON	F	F	C	C	C	C	C	C
Rosecrans OFF	F	F	F	F	F	F	F	F
Firestone ON	F	F						
Norwalk ON	F	F	C	C	C	C	C	C
San Antonio/ Union OFF	F	F						
Imperial Hwy ON	F	F						
Pioneer/ Imperial OFF	F	F	F	F	F	F	F	F
Orr and Day ON	F	F						
Florence ON	F	F	C	C	C	C	C	C

Notes:

[1] Orange County Section

Freeway Ramps Removed in Future Alternatives

Freeway Ramps operating at LOS F

Intersections 2013 Conditions

The 2013 ramp terminals and adjacent intersections a.m. and p.m. peak-hour traffic within the study area for the three alternatives including No Build were provided by Caltrans District 7. The projected 2013 traffic volumes are based on growth rates from the LARTS traffic model applied to the existing traffic. The traffic projections provided by Caltrans have taken into consideration the continued growth of the communities and the socioeconomic changes within the communities along the I-5 corridors.

The intersections that are forecasted to exceed the LOS E threshold in the 2013 condition at the ramp terminals and adjacent intersections during the a.m. and p.m. peak hours are shown in Table 3-6.11. The table provides a comparison of the impacted segments that are forecasted to operate at LOS F for 2013 No Build, Alternative 4 + 1, Alternative 4 + 2, and Alternative 5 + 1.

Based on Table 3-6.11, 25 intersections would operate at LOS E or worse under the 2013 Baseline (No-Build) condition. With the implementation of the project alternatives, many intersections would be either removed or relocated. With the 4+1 alternative, 17 intersections would operate at LOS E or worse; with the 4+2 alternative, 15 intersections would operate at LOS E or worse; and with the 5+1 alternative, 20 intersections would operate at LOS E or worse.

The intersection analysis includes the recommended geometrics for each intersection. The recommended geometrics are provided in Table 3-6.19. The intersection geometrics reflect the attempt to provide the number of lanes required to achieve LOS D conditions. At some intersections, it was not possible to achieve LOS D even with the maximum feasible intersection. The maximum feasible intersection consists of one right-turn lane, three through lanes, and two left-turn lanes. It should be noted that 11 intersections in the 4 + 1 and 4 + 2 scenarios and 13 intersections in the 5 + 1 scenario would continue to operate at LOS E or LOS F conditions with the maximum feasible improvements. The intersections that would operate at LOS E or LOS F with the maximum feasible improvements are listed below:

- Florence/Studebaker (4 + 1, 4 + 2, and 5 + 1)
- Florence/Fairford (5 + 1 only)
- Florence/Orr and Day (4 + 1, 4 + 2, and 5 + 1)
- Imperial/Norwalk (4 + 1, 4 + 2, and 5 + 1)
- Firestone/Bloomfield (4 + 1, 4 + 2, and 5 + 1)
- Rosecrans/Bloomfield (4 + 1, 4 + 2, and 5 + 1)
- Alondra/Valley View (4 + 1, 4 + 2, and 5 + 1)
- Firestone (N)/Valley View (4 + 1 and 5 + 1)
- Firestone (S)/Valley View (4 + 1, 4 + 2, and 5 + 1)
- Artesia/Firestone (S) (4 + 1 and 4 + 2)
- Florence/I-5 SB On-Ramp (5 + 1 only)
- Imperial Hwy & Union St./I-5 SB Off-Ramp (5 + 1 only)
- Rosecrans/I-5 SB Ramps (4 + 2 and 5 + 1)
- Rosecrans /I-5 NB Ramps (4 + 1, 4 + 2, and 5 + 1)
- I-5 SB Ramps/Valley View (4 + 1 and 4 + 2)

Table 3-6.11 - Year 2013 Intersection Level of Service Summary																	
Project Year 2013																	
		No Build AM		No Build PM		Alternative 4+1 AM		Alternative 4+1 PM		Alternative 4+2 AM		Alternative 4+2 PM		Alternative 5+1 AM		Alternative 5+1 PM	
Index	Intersection Name	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Florence / Studebaker	126.5	F	167.0	F	93.6	F	106.9	F	111.3	F	122.8	F	171.4	F	166.3	F
2	Florence / Fairford					51.3	D	67.3	E	37.7	D	70.3	E	77.4	E	84.6	F
3	Florence / Orr and Day	93.4	F	78.3	E	131.4	F	104.5	F	140.9	F	106.9	F	231.6	F	154.1	F
4	Imperial / Pioneer	34.2	C	70.4	E	43.7	D	89.4	F	39.2	D	89.4	F	49.2	D	108.8	F
5	Union / I-5 SB Off and Union					11.9	B	11.2	B	13.9	B	16.6	B	11.5	B	20.5	C
6	Union / I-5 SB Off and Paddison					12.3	B	19.4	B	12.3	B	6.7	A	11.8	B	12.4	B
7	Adoree / Paddison					13.6	B	13.7	B	13.6	B	13.7	B	12.5	B	15.2	B
8	Kalnor / Adoree	8.7	A	9.7	A	25.6	D	16.1	C	16.1	C	25.6	D	31.0	D	17.8	C
9	Imperial / Kalnor	8.2	A	15.0	B	27.4	C	44.7	D	27.4	C	44.7	D	13.6	B	68.8	E
10	Imperial / Norwalk	105.5	F	104.0	F	145.5	F	109.1	F	145.5	F	109.1	F	205.9	F	144.3	F
11	Firestone / Bloomfield	54.8	F	25.5	D	124.5	F	79.3	F	124.4	F	81.7	F	280.1	F	96.6	F
12	Rosecrans / Bloomfield	50.5	D	97.0	F	248.0	F	234.2	F	253.6	F	237.9	F	367.3	F	301.0	F
13	Rosecrans / Shoemaker	89.3	F	81.5	F	49.4	D	45.7	D	49.4	D	47.2	D	57.8	E	49.1	D
14	Alondra / Valley View	128.5	F	193.9	F	71.8	E	90.8	F	74.6	E	91.5	F	84.8	F	109.5	F
15	Firestone (N) / Valley View	394.2	F	437.4	F	63.9	F	73.5	E	36.8	D	46.8	D	71.1	E	71.1	E
16	Firestone (N) / Gateway Dr					10.2	B	8.0	A	10.2	B	8.0	A	10.6	B	8.1	A
17	Firestone (S) / Valley View					264.9	F	249.5	F	264.9	F	303.1	F	260.3	F	188.8	F
18	Artesia / Firestone (S)	63.7	E	50.9	D	96.0	F	104.8	F	97.3	F	93.9	F	11.6	B	122.4	F
19	Rosecrans / Firestone	63.4	E	72.8	E												
20	I-5 SB Ramps / Valley View Ave	279.3	F	269.0	F												
21	Artesia / Firestone (N)	161.7	F	109.5	F												
22	Florence / I-5SB On-Ramp	O/F	F	O/F	F	45.1	D	32.7	C	35.3	D	24.3	C	57.1	E	68.0	E
23	Florence / I-5 NB Ramps	0.0	A	0.0	A	42.5	D	44.6	D	23.5	C	18.7	B	34.9	C	33.1	C
24	I-5 NB On-Ramp / Pioneer Blvd	12.2	B	11.8	B	0.2	A	0.5	A	0.2	A	0.5	A	3.0	A	4.5	A
25	Imperial Hwy & Union St/ I-5 SB Off					47.8	D	79.1	E	48.5	D	78.5	E	74.9	E	99.5	F
26	Imperial Hwy / I-5 SB On Ramp	10.3	B	11.7	B	26.1	C	39.3	D	26.1	C	39.3	D	23.3	C	52.3	D
27	I-5 SB On Ramp / San Antonio	59.7	E	14.2	B	49.1	D	24.5	C	48.4	D	25.0	C	61.9	E	23.2	C
28	I-5 NB Off Ramp / San Antonio & Adoree St	O/F	F	O/F	F	30.2	C	28.6	C	30.2	C	28.6	C	26.8	C	31.5	C

Table 3-6.11 - Year 2013 Intersection Level of Service Summary, Continued																	
Project Year 2013																	
		No Build AM		No Build PM		Alternative 4+1 AM		Alternative 4+1 PM		Alternative 4+2 AM		Alternative 4+2 PM		Alternative 5+1 AM		Alternative 5+1 PM	
Index	Intersection Name	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
29	Rosecrans Ave / I-5 SB Ramps					53.7	D	63.5	E	61.5	E	58.9	E	88.6	F	67.5	E
30	Rosecrans Ave / I-5 NB Ramps					231.9	F	109.1	F	234.7	F	215.3	F	269.1	F	126.2	F
31	I-5 SB Ramps / Valley View Ave					93.5	F	135.2	F	93.5	F	136.4	F	105.6	F	24.0	C
32	I-5 NB Ramps / Valley View Ave					14.2	B	17.2	B	14.1	B	17.5	B	16.1	B	16.5	B
33	Artesia Blvd / I-5 SB Off- Ramps	17.5	B	94.1	F	33.5	C	123.1	F	34.5	C	124.7	F	38.8	D	137.7	F
34	Artesia Blvd / I-5 SB On- Ramps	18.2	C	92.2	F	10.6	B	56.0	E	10.1	B	47.6	D	17.5	B	48.3	D
35	Artesia Blvd & Firestone (N) / I-5 NB Ramps					33.0	C	55.0	D	33.7	C	40.9	D	34.5	C	54.3	D
36	I-5 NB Off-Ramp / Orr and Day	9.9	A	10.6	B												
37	Pioneer / I-5 SB Off-Ramp	15.2	C	12.9	B												
38	Imperial Hwy / I-5 SB On Ramp	0.0	A	0.0	A												
39	I-5 SB Off-Ramp / Union	14.7	B	13.6	B												
40	I-5 NB On-Ramp / Firestone	115.3	F	17.9	B												
41	Rosecrans / Firestone	1829.9	F	5726.2	F												
42	I-5 NB On-Ramp / Firestone (N)	202.9	F	75.8	E												
43	I-5 SB Ramps / Firestone (S)	355.2	F	181.4	F												
44	Artesia / I-5 NB On-Ramp	44.1	D	85.5	F												
45	Manchester / I-5 SB Off-Ramp	20.1	C	76.3	F												
46	Artesia / I-5 SB Off-Ramp	41.9	D	56.7	E												

Notes:

- Delay is measured in seconds.
- Some intersections would be added to or removed from the project area as a result of project construction.
- Traffic is reassigned from existing to new intersections.
- Data source Caltrans, 2003.
- O/F signifies overflow conditions

Intersections operating at LOS E or F

Freeway Mainline and High Occupancy Vehicle (HOV) Lane 2030 Conditions
The forecasted mainline and ramp volumes for I-5 in the Los Angeles County segment under the 2030 condition for seven alternatives including No Build were provided by LARTS. The freeway geometric data remain unchanged from the existing condition for the year 2030 No Build condition. The traffic projections provided by Caltrans have taken into consideration the continued growth of the communities and the socioeconomic changes within the communities along the I-5 corridors. The growth rates could also represent latent demand that is not served in the existing condition. This additional traffic is not considered generation of new traffic since it already exists on surface streets throughout the corridor. The following shows the different ranges of the growth rate applied to each alternative.

Table 3-6.12 – 2030 Growth Rates

	Growth Rates	
Alternative	**Northbound**	**Southbound**
No Build	1.21 – 1.85	1.06 – 1.45
4 Mixed Flow + 1 HOV	1.85 – 2.30	1.46 – 1.85
4 Mixed Flow + 2 HOV	1.57 – 2.34	1.46 – 1.88
5 Mixed Flow + 1 HOV	1.65 – 2.46	1.55 – 1.97

Table 3-6.13 summarizes the results of the future 2013 freeway mainline conditions for the No Build alternative and the different lane configurations possible with the two capacity increasing alternatives. The only possible lane configuration for Alternative 4 is four mixed flow lanes and one HOV lane (4+1). Two configurations are possible for Alternative 5, which are four mixed flow lanes and two HOV lanes (4+2), and five mixed flow lanes and one HOV lane (5+1).

2030 No Build Alternative LOS
As Table 3-6.13 indicates, all freeway segments are forecast to operate at LOS F in the 2030 No Build Alternative, with the exception of the southbound segment between Artesia Avenue and Stanton Avenue in the a.m. peak hour.

2030 Four Mixed-Flow Lanes with One HOV Lane Alternative LOS
As Table 3-6.13 indicates, all freeway mainline segments are forecast to operate at unsatisfactory LOS in 2030 for the four mixed-flow lanes with one HOV lane alternative.

2030 Four Mixed-Flow Lanes with Two HOV Lanes Alternative LOS
As Table 3-6.13 indicates, all freeway mainline segments are forecast to operate at unsatisfactory LOS in the 2030 for the four mixed-flow lanes with two HOV lane alternative.

2030 Five Mixed-Flow Lanes with One HOV Lane Alternative LOS
As Table 3-6.13indicates, all freeway mainline segments are forecast to operate at unsatisfactory LOS in 2030 for the five mixed-flow lanes with one HOV lane alternative, with the exception of southbound between Norwalk Boulevard and Valley View Avenue during the a.m. peak hour

Table 3-6.13 - Year 2030 Condition - Freeway Mainline Analysis Summary								
SEGMENTS: LEVELS OF SERVICE (LOS)	No Build		4+1		4+2		5+1	
Freeway Mainline Segment	AM	PM	AM	PM	AM	PM	AM	PM
Northbound:								
Stanton Avenue[1]	F	F	F	F	F	F	F	F
Artesia Blvd[1]	F	F	F	F	F	F	F	F
Valley View Avenue	F	F	F	F	F	F	F	F
Alondra Boulevard	F	F	F	F	F	F	F	F
Carmenita Road	F	F	F	F	F	F	F	F
Firestone Boulevard	F	F	F	F	F	F	F	F
Norwalk Boulevard	F	F	F	F	F	F	F	F
Imperial Highway	F	F	F	F	F	F	F	F
Interstate 605	F	F	F	F	F	F	F	F
Southbound:								
Stanton Avenue[1]	E	F	F	F	F	F	F	F
Artesia Blvd[1]	E	F	F	F	F	F	F	F
Valley View Avenue	F	F	F	F	F	F	E	F
Alondra Boulevard	F	F	F	F	F	F	E	F
Carmenita Road	F	F	F	F	F	F	E	F
Firestone Boulevard	F	F	F	F	F	F	E	F
Norwalk Boulevard	F	F	F	F	F	F	E	F
Imperial Highway	F	F	F	F	F	F	F	F
Interstate 605	F	F	F	F	F	F	F	F

Notes:
[1] Orange County Section
Freeway Mainline Segment operating at LOS F

Hourly Variation in Daily Traffic

As indicated in Table 3-6.13, all freeway segments are forecast to operate at LOS F during the peak hours with the four mixed-flow lanes plus one HOV lane and four mixed-flow lanes plus two HOV lanes project alternatives. The five mixed-flow lanes plus one HOV lane alternative would operate slightly better with five segments in the southbound direction operating at LOS E during the a.m. peak hour. To establish which alternative would provide improvements to the operation of the mainline throughout the entire day, the hourly traffic volumes were analyzed to identify the number of hours during which the mainline is forecast to operate at LOS F for each project alternative. In order to identify forecast hourly volumes, hourly to daily percentages to the AADT were calculated. The segment of I-5 between Brookhurst Street and Magnolia Avenue is just south of the proposed project and has already been widened. As a result, the constrained conditions experienced within the project limits may not be as severe in the widened segment, and hourly variations would be more representative of what would be experienced when the project is completed.

In order to make the hourly to daily calculations, the 2006 hourly count data was obtained for three consecutive days during a typical week (Tuesday, Wednesday, and Thursday) for three segments along I-5 in the northbound direction and two segments in the southbound direction from Caltrans. The percentage of traffic per hour based on the total daily volume for each segment for each day was calculated using the data from District 12 segments. Finally, an average of three day percentages of traffic per hour for each individual segment both in northbound and southbound direction was calculated. The threshold of the hourly traffic volume at which the mainline operation changes from LOS E (acceptable) to LOS F (unacceptable) at

each segment along I-5 was identified. Figures 1 and 2 show the results of the hourly variation analysis, and are summarized in the following table:

Table 3-6.14 –Hours of LOS F during each 24-hour Period

Year	No Build		4 + 1		4 + 2		5 + 1	
	NB	SB	NB	SB	NB	SB	NB	SB
2013	7	13	1	0	1	0	0	0
2030	17	16	7.5	13.5	7.5	13.5	4	4.5

Source: I-5 Corridor Improvement Project Traffic and Transportation Study Technical Addendum, August, 2006

Freeway Ramps

The levels of service summary for northbound and southbound on- and off-ramps during the a.m. and p.m. peak are shown in Table 3-6.16. The table provides a comparison of the impacted ramps operating at LOS F for the 2030 conditions for all four (No Build, 4 + 1, 4 + 2, and 5 + 1) alternatives.

Compared with the existing condition, the 2030 No Build condition presents worse levels of services due to the increase of traffic volumes without an increase in available capacity. Project improvements would provide additional capacity and would improve the level of service on several freeway ramps. In the project alternatives, eight ramps are forecast to operate at LOS F. As shown in Table 3-6.16, none of the alternatives operate markedly better than the others do.

Ramp Meters

The 2030 freeway ramp volumes were analyzed to determine the average queue on the on-ramps due to the ramp meters. Every on-ramp in the future design alternatives is assumed to have ramp meters. In addition, all on-ramps are assumed to have HOV bypass lanes except northbound Rosecrans Boulevard and Imperial Highway and southbound San Antonio/Norwalk Boulevard.

The results of the ramp meter analysis for each alternative, 4 + 1, 4 + 2, and 5 + 1 are shown below.

- 4 + 1 Alternatives: In the northbound direction, a maximum queue of seven vehicles is forecast for all on-ramps. For southbound, a maximum of seven vehicles is forecast to queue at all on-ramps except Valley View Avenue, which has potential to impact the adjacent roadways. No vehicle queues are forecast to back up into the adjacent intersection at any on-ramp except Valley View Avenue.
- 4 + 2 Alternatives: In the northbound direction, a maximum queue of three vehicles is forecast for all on-ramps. In the southbound direction, a maximum of three vehicles is forecast to queue at all on-ramps except Valley View Avenue, which has the potential to impact the adjacent roadways. No vehicle queues are forecast to back up into the adjacent intersection at any on-ramp except Valley View Avenue.
- 5 + 1 Alternatives: In the northbound direction, a maximum queue of six vehicles would be in the queue for all on-ramps. In the southbound direction, a maximum queue of three vehicles would be in the queue at all on-ramps except Valley View Avenue. No vehicle queues are forecast to back up into the adjacent intersection at any on-ramp except Valley View Avenue.

At the Valley View on-ramp in all three alternatives, the peak 15-minute demand at the ramp meter would exceed the capacity. As the peak 15-minute traffic volumes at the ramp meter continue to exceed the ramp meter rate over the peak period, the queue at this on-ramp would grow longer until the traffic volumes fall below the meter rate. The dynamic nature of the queue prevents an accurate forecast of queue length. However, it is likely that the queue would spill back onto the adjacent intersection and affect local roadways.

Table 3-6.15 - Year 2030 Condition - Freeway HOV Lanes Analysis Summary

SEGMENTS: LEVELS OF SERVICE (LOS)	2030 No Build[2]		4+1 (MIS Modified)		4+1 (Value Analysis)		4+1 (LPA)		4+2		5+1 (Value Analysis)		5+1 (MIS Modified)	
Freeway HOV Lanes	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound:														
Artesia Blvd OFF [1]			D	E	D	E	D	E	B	C	C	D	C	D
Artesia Blvd ON			D	E	D	E	D	E	C	D	D	D	D	D
Valley View OFF			C	D	C	D	C	D	B	C	C	D	C	D
Valley View ON			D	E	D	E	D	E	B	D	D	D	D	D
Alondra ON														
Carmenita OFF			Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text											
Carmenita ON														
Rosecrans OFF			C	E	C	E	C	E	B	C	C	D	C	D
Firestone OFF														
Rosecrans (Bloomfield) ON			C	E	C	E	C	E	B	D	C	D	C	D
Norwalk OFF			C	D	C	D	C	D	B	C	C	D	C	D
Norwalk ON														
Kalnor (Adoree)/ Norwalk ON														
Imperial Hwy OFF														
Imperial Hwy ON			D	E	D	E	D	E	B	D	C	D	C	D
Pioneer ON			D	E	D	E	D	E	B	D	D	E	D	E
Florence (Orr and Day) OFF			D	E	D	E	D	E	B	D	C	D	C	D
605 OFF			C	D	C	D	C	D	B	C	C	C	C	C
WB Florence ON			C	D	C	D	C	D	B	C	B	C	B	C
NB 605/ Studebaker ON			D	E	D	E	D	E	B	D	D	D	D	D
SB 605 ON			C	E	C	E	C	E	B	D	D	E	D	E
Southbound:														
Artesia ON			E	E	E	E	E	E	D	D	E	E	E	E
Artesia/ Knott OFF			E	F	E	F	E	F	D	D	E	E	E	E
Valley View ON			E	E	E	E	E	E	C	D	E	E	E	E
Valley View OFF			E	F	E	F	E	F	D	D	E	E	E	E
Alondra ON														
Carmenita ON			Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text											
Carmenita OFF														
Rosecrans ON			E	F	E	F	E	F	D	D	E	E	E	E
Rosecrans OFF			F	F	F	F	F	F	D	D	F	E	F	E
Firestone ON														
Norwalk ON			E	E	E	E	E	E	D	D	E	E	E	E
San Antonio/ Union OFF														
Imperial Hwy ON														
Pioneer/ Imperial OFF			F	F	F	F	F	F	D	D	F	E	F	E
Orr and Day ON														
Florence ON			E	F	E	F	E	F	D	E	E	E	E	E
NB 605/ Studebaker ON			E	E	E	E	E	E	D	D	E	E	E	E
SB 605 ON			E	E	E	E	E	E	C	D	E	E	E	E
SB 605/ Florence OFF			F	F	F	F	F	F	E	E	F	F	F	F

Notes:

[1] Orange County Section

[2] No HOV Lanes in 2030 No Build

Freeway Ramps Removed in Future Alternatives

Freeway Ramps operating at LOS F

Table 3-6.16 - Year 2030 Condition - Freeway Ramp Analysis Summary								
SEGMENTS: LEVELS OF SERVICE (LOS)	**2030 No Build**		**4+1**		**4+2**		**5+1**	
Freeway Ramps	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Northbound:								
Artesia Blvd OFF [1]	F	F	F	F	F	F	F	F
Artesia Blvd ON	C	C	C	A	C	C	D	D
Valley View OFF	F	F	F	F	F	F	F	F
Valley View ON	F	F	C	C	C	C	C	D
Alondra ON	F	F						
Carmenita OFF	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text							
Carmenita ON								
Rosecrans OFF	F	F	F	F	F	F	F	F
Firestone OFF	F	F						
Rosecrans (Bloomfield) ON	F	F	C	C	C	C	C	D
Norwalk OFF	F	F	F	F	F	F	F	F
Norwalk ON	F	F						
Kalnor (Adoree)/ Norwalk ON	F	F						
Imperial Hwy OFF	E	E						
Imperial Hwy ON	F	F	C	C	C	C	C	C
Pioneer ON	F	F	C	D	C	D	C	D
Florence (Orr and Day) OFF	F	F	C	D	C	D	C	D
Southbound:								
Artesia ON	D	F	C	D	C	D	C	D
Artesia/ Knott OFF	F	F	F	F	F	F	F	F
Valley View ON	D	F	D	D	D	D	D	E
Valley View OFF	F	F	F	F	F	F	F	F
Alondra ON	F	F						
Carmenita ON	Carmenita Road Segment is not included in this analysis. Please see Carmenita Road Section in Text							
Carmenita OFF								
Rosecrans ON	F	F	C	D	C	D	D	D
Rosecrans OFF	F	F	F	F	F	F	F	F
Firestone ON	F	F						
Norwalk ON	F	F	C	C	C	C	D	D
San Antonio/ Union OFF	F	F						
Imperial Hwy ON	F	F						
Pioneer/ Imperial OFF	F	F	F	F	F	F	F	F
Orr and Day ON	F	F						
Florence ON	F	F	C	C	C	C	D	C

Notes:

[1] Orange County Section

Freeway Ramps Removed in Future Alternatives

Freeway Ramps operating at LOS F

Intersections 2030 Conditions

Caltrans District 7 provided the 2030 a.m. and p.m. peak-hour traffic volumes for ramp terminals and adjacent intersections within the study area for the three alternatives including the No Build. The traffic projections provided by Caltrans have taken into consideration the continued growth of the communities and the socioeconomic changes within the communities along the I-5 corridors.

Table 3-6.17 shows the intersections that exceed the LOS E thresholds at the ramp terminals and adjacent intersections during the a.m. and p.m. peak hours. The table provides a comparison of

the impacted segments that are forecasted to operate at LOS F for the 2030 No Build, Alternative 4 + 1, Alternative 4 + 2, and Alternative 5 + 1.

Based on Table 3-6.17, 25 intersections would operate at LOS E or worse under the 2030 Baseline (No-Build) Condition. With the implementation of the project alternatives, many intersections would be either removed or relocated. With the 4+1 alternative, 21 intersections would operate at LOS E or worse; with the 4+2 alternative, 19 intersections would operate at LOS E or worse; and with the 5+1 alternative, 20 intersections would operate at LOS E or worse.

The intersection analysis includes the recommended geometrics for the intersection. The recommended geometrics are provided in Table 3-6.19. The intersection geometrics reflect the attempt to provide the number of lanes required to achieve LOS D conditions. The Maximum Feasible Intersection consists of one right-turn lane, three through lanes, and two left-turn lanes. It should be noted that 15 intersections in the 4 + 1 Alternative, 17 intersections in the 4 + 2 Alternative and 16 intersections in the 5 + 1 Alternative would continue to operate at LOS E or LOS F conditions with the maximum feasible improvements. The intersections that would continue to operate at LOS E or LOS F with the maximum feasible improvements are listed below:

- Florence/Fairford (4 + 1, 4 + 2, and 5 + 1)
- Florence/Orr and Day (4 + 1, 4 + 2, and 5 + 1)
- Imperial/Pioneer (4 + 1, 4 + 2, and 5 + 1)
- Imperial/Norwalk (4 + 1, 4 + 2, and 5 + 1)
- Firestone/Bloomfield (4 + 1, 4 + 2, and 5 + 1)
- Rosecrans/Bloomfield (4 + 1, 4 + 2, and 5 + 1)
- Rosecrans/Shoemaker (4 + 1, 4 + 2, and 5 + 1)
- Alondra/Valley View (4 + 1, 4 + 2, and 5 + 1)
- Firestone (N)/Valley View (4 + 1, 4 + 2, and 5 + 1)
- Firestone (S)/Valley View (4 + 1, 4 + 2, and 5 + 1)
- Artesia/Firestone (S) (4 + 1, 4 + 2, and 5 + 1)
- Imperial Highway & Union St./I-5 SB Off-Ramp (4 + 1, 4 + 2, and 5 + 1)
- Rosecrans/I-5 SB Ramps (4 + 1, 4 + 2, and 5 + 1)
- Rosecrans/I-5 NB Ramps (4 + 1, 4 + 2, and 5 + 1)
- I-5 SB Ramps/Valley View (4 + 2 and 5 + 1)
- Artesia/I-5 SB Off-Ramps (4 + 1, 4 + 2, and 5 + 1)
- Artesia & Firestone (N)/I-5 NB Ramps (4 + 2 only)

Table 3-6.17 - Year 2030 Intersection Level of Service Summary																	
		Project Year 2030															
		No Build AM		No Build PM		Alternative 4+1 AM		Alternative 4+1 PM		Alternative 4+2 AM		Alternative 4+2 PM		Alternative 5+1 AM		Alternative 5+1 PM	
Index	Intersection Name	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Florence / Studebaker	155.7	F	213.0	F	34.9	C	46.9	D	36.7	D	23.6	C	29.1	C	62.9	E
2	Florence / Fairford					60.7	E	103.3	F	66.9	E	117.6	F	169.1	F	127.7	F
3	Florence / Orr and Day	117.5	F	105.2	F	134.6	F	121.9	F	141.3	F	91.1	F	153.1	F	144.1	F
4	Imperial / Pioneer	48.0	D	101.5	F	75.5	E	141.4	F	67.8	E	157.0	F	75.5	E	175.7	F
5	Union / I-5 SB Off and Union					12.0	B	13.9	B	13.0	B	24.0	C	13.1	B	22.0	C
6	Union / I-5 SB Off and Paddison					41.8	D	25.9	C	5.8	A	8.1	A	41.7	D	23.6	C
7	Adoree / Paddison					32.1	C	30.9	C	13.1	B	18.7	B	12.9	B	20.2	C
8	Kalnor / Adoree	8.9	A	9.7	A	23.6	C	44.4	E	21.8	C	45.6	E	12.3	B	16.4	C
9	Imperial / Kalnor	99.4	F	26.1	C	32.6	C	72.3	E	24.0	C	62.9	E	32.6	C	74.8	E
10	Imperial / Norwalk	128.2	F	127.9	F	314.2	F	183.9	F	295.0	F	166.3	F	314.2	F	179.1	F
11	Firestone / Bloomfield	87.3	F	41.1	E	336.1	F	133.6	F	342.2	F	119.3	F	353.9	F	127.6	F
12	Rosecrans / Bloomfield	267.8	F	110.0	F	376.3	F	309.9	F	370.7	F	260.7	F	371.1	F	280.0	F
13	Rosecrans / Shoemaker	134.4	F	126.8	F	135.7	F	113.4	F	104.9	F	68.3	E	113.8	F	74.0	E
14	Alondra / Valley View	177.4	F	203.8	F	88.6	F	148.2	F	118.6	F	154.0	F	99.3	F	164.7	F
15	Firestone (N) / Valley View	809.6	F	457.7	F	89.2	F	105.5	F	87.3	F	108.7	F	95.4	F	124.2	F
16	Firestone (N) / Gateway Dr					22.6	C	18.0	B	24.6	C	17.9	B	26.1	C	18.6	B
17	Firestone (S) / Valley View					121.9	F	238.1	F	254.0	F	246.5	F	243.4	F	238.8	F
18	Artesia / Firestone (S)	96.2	F	121.8	F	114.1	F	62.2	E	117.1	F	140.8	F	123.9	F	156.5	F
19	Rosecrans / Firestone	107.9	E	98.1	F												
20	I-5 SB Ramps / Valley View Ave	269.1	F	299.6	F												
21	Artesia / Firestone (N)	173.8	F	147.1	F												
22	Florence / I-5SB On-Ramp	O/F	F	O/F	F	13.5	B	6.2	A	13.1	B	7.0	A	19.0	B	8.9	A
23	Florence / I-5 NB Ramps	0.0	A	0.0	A	31.3	C	13.8	B	37.3	D	13.2	B	47.1	D	16.3	B
24	I-5 NB On-Ramp / Pioneer Blvd	2.7	B	1.4	B	2.9	A	4.9	A	2.9	A	4.9	A	2.9	A	5.1	A
25	Imperial Hwy & Union St/ I-5 SB Off					95.5	F	126.6	F	84.5	F	111.8	F	95.5	F	129.8	F
26	Imperial Hwy / I-5 SB On Ramp	12.5	B	10.7	B	45.3	D	95.6	F	42.7	D	48.2	D	45.3	D	63.8	E
27	I-5 SB On Ramp / San Antonio	70.0	E	17.1	B	115.9	F	30.9	C	44.8	D	26.6	C	47.3	D	28.2	C
28	I-5 NB Off Ramp / San Antonio & Adoree St	O/F	F	O/F	F	43.7	D	32.7	C	40.7	D	29.5	C	43.7	D	36.1	D

Table 3-6.17 - Year 2030 Intersection Level of Service Summary, Continued																	
Project Year 2030																	
		No Build AM		No Build PM		Alternative 4+1 AM		Alternative 4+1 PM		Alternative 4+2 AM		Alternative 4+2 PM		Alternative 5+1 AM		Alternative 5+1 PM	
Index	Intersection Name	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
29	Rosecrans Ave / I-5 SB Ramps					118.6	F	88.4	F	113.4	F	86.1	F	109.8	F	98.1	F
30	Rosecrans Ave / I-5 NB Ramps					317.8	F	151.3	F	305.0	F	153.3	F	353.2	F	164.3	F
31	I-5 SB Ramps / Valley View Ave					24.3	C	144.1	E	114.3	F	145.3	F	117.4	E	156.9	F
32	I-5 NB Ramps / Valley View Ave					19.7	B	23.7	C	17.0	B	24.6	C	20.4	C	30.5	C
33	Artesia Blvd / I-5 SB Off- Ramps	67.0	E	176.0	F	98.3	F	128.6	F	174.7	F	273.1	F	137.1	F	246.3	F
34	Artesia Blvd / I-5 SB On- Ramps	1.2	D	63.5	F	13.4	B	35.3	D	6.2	A	43.8	D	5.7	A	40.5	D
35	Artesia Blvd & Firestone (N) / I-5 NB Ramps					48.6	D	71.8	E	61.9	E	55.2	E	53.5	D	72.3	E
36	I-5 NB Off-Ramp / Orr and Day	10.0	B	10.8	B												
37	Pioneer / I-5 SB Off-Ramp	17.8	C	14.2	B												
38	Imperial Hwy / I-5 SB On Ramp	0.0	A	0.0	A												
39	I-5 SB Off-Ramp / Union	13.5	B	15.7	B												
40	I-5 NB On-Ramp / Firestone	178.1	F	45.2	D												
41	Rosecrans / Firestone	2642.5	F	979.0	F												
42	I-5 NB On-Ramp / Firestone (N)	134.0	F	30.0	C												
43	I-5 SB Ramps / Firestone (S)	433.7	F	235.5	F												
44	Artesia / I-5 NB On-Ramp	54.8	D	125.5	F												
45	Manchester / I-5 SB Off-Ramp	36.8	E	144.1	F												
46	Artesia / I-5 SB Off-Ramp	48.1	D	18.1	B												

Notes:

- Delay is measured in seconds.
- Some intersections would be added to or removed from the project area as a result of project construction.
- Traffic is reassigned from existing to new intersections.
- Data source Caltrans, 2003.
- O/F signifies overflow conditions

Intersections operating at LOS E or F

The proposed project would not generate traffic, but would facilitate the redistribution of existing and future traffic demand to a proposed enhanced-capacity regional facility. Impacts that have been disclosed in the Traffic and Transportation Study (LSA, January 2005) are a result of regional traffic growth and are not directly attributable to project implementation. Table 3-6.18 summarizes the results of the analyses and shows the number of locations that are forecast to operate at unsatisfactory levels of service (LOS F for freeway and ramps; LOS D for arterial intersections) for each alternative at each time horizon.

Table 3-6.18 - Number of Locations Operating with Unsatisfactory Levels of Service

Analysis Year/ Alternatives	Ramp Terminal/ Adjacent Intersections[1]	Freeway Segments (NB or SB)	HOV Segments (NB or SB)	Freeway Ramps
2013				
No Build	25	38	—	25
4 + 1	17	1	1	8
4 + 2	15	0	0	8
5 + 1	20	0	0	8
2030				
No Build	25	40	—	27
4 + 1	21	8	7	8
4 + 2	19	3	0	8
5 + 1	20	2	3	8

[1] Intersection analysis includes recommended geometrics at ramp termini and adjacent intersections.

As shown in Table 3-6.18, implementation of the 5 + 1 Alternative would result in the least amount of impacts to freeway segments. However, the 5 + 1 Alternative would result in the greatest number of ramp terminal/adjacent intersection impacts in 2013 and the second greatest in 2030. The 4 + 2 Alternative is forecast to result in the fewest number of ramp terminal/adjacent intersection and HOV segment impacts, however would result in the second greatest number of impacts to freeway segments. Based on the simple metrics used in this analysis, the 4+2 alternative would have the fewest congested elements (i.e. segments, ramps, and terminals).

However, as the 4+2 and 5+1 scenarios perform similarly in terms of the number of intersections, freeway and HOV segments, and freeway ramps operating with unsatisfactory levels of service, other factors should be considered in selecting a preferred alternative. These could include latent demand, progression, upstream and downstream bottlenecks, weaving, etc. To evaluate fully the effects of these factors and the relative merits of each alternative, the two alternatives should be further evaluated in more and specific detail to observe the operation of each alternative (e.g., microsimulation). However, before proceeding with the 4+2 option it is recommended to increase the ridership requirements for the proposed HOV lanes to 3+ and determine the affect of that change before proceeding with the 4+2 option.

Transit Dependent Population

Alternative 2

Alternative 2 would benefit transit-dependent persons within the study area by increasing the operational efficiency of existing transit services and providing additional transit services throughout the affected communities. Therefore, Alternative 2 would not result in disproportionate adverse impacts to transit-dependent persons.

Alternative 3
As an overlay to Alternatives 4 and 5, Alternative 3 would benefit transit-dependent persons within the study area by increasing the operational efficiency of existing transit services and providing additional transit services throughout the affected communities. Park-and-ride lots, which would provide a connection to regional and local bus lines, would also be provided as part of Alternative 3. Therefore, Alternative 3 would result in a net benefit to transit-dependent persons over existing conditions.

Alternatives 4 and 5
The displacements associated with Alternatives 4 and 5 are located within census tracts that have transit-dependent populations of 40 percent or more of the total population. Although these alternatives have the potential to acquire properties in areas with large transit-dependent populations, Alternatives 4 and 5 could also potentially benefit these populations by reducing traffic congestion on arterials within the affected communities. Likewise, the reduced traffic congestion may improve transit services that serve the affected communities. Therefore, Alternatives 4 and 5 could result in a net benefit to transit-dependent persons over existing conditions.

3-6.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Freeway and HOV Segments
In the 2013 horizon, almost every freeway segment is forecast to operate at LOS F in the No Build Condition (two segments are forecast to operate at LOS E). With implementation of the 4 + 2 and 5 + 1 Alternatives, every freeway and HOV segment would operate at LOS E or better. With the 4 + 1 Alternative, one freeway and one HOV segment would continue to operate at LOS F. However, the duration of time that LOS F would occur would be reduced when compared to the No-Build Alternative.

In the 2030 horizon, every freeway segment is forecast to operate at LOS F in the No Build condition. Implementation of the 4 + 1 Alternative would result in eight segments and seven HOV segments operating at LOS F. The 4 + 2 Alternative is forecast to result in three freeway segments and no HOV segments operating at LOS F. The 5 + 1 Alternative would result in two freeway and three HOV segments operating at LOS F. Again, the duration of time that LOS F would occur would be reduced when compared to the No-Build Alternative.

Ramp Meters
The overall maximum queue for all alternatives on the on-ramp is approximately seven vehicles except at Valley View Avenue, where the queue is forecast to increase throughout the peak period. Valley View Avenue has a total of two on-ramp lanes, one metered lane, and one HOV bypass lane. To avoid impacts to the downstream intersection due to the ramp meter at the Valley View Avenue on-ramp, the meter rate should be increased from 900 vehicles per hour to at least 1,150 vehicles per hour; or, the HOV bypass lane should be converted to a metered lane, resulting in two metered on-ramp lanes.

Intersections
Direct project impacts to ramp terminals and adjacent intersections for each scenario in the 2013 and 2030 horizons have been shown in Tables 3-6.11 and 3-6.16 respectively. To mitigate these impacts, intersection improvements have been investigated at these intersections to achieve LOS

D or better operations where feasible. It should be noted that even with the implementation of a "Maximum Feasible Intersection" (i.e., one right, three through, and two left lanes on each approach), several of the intersections would not be improved to LOS D. Furthermore, many of the study area intersections have functional classifications that would not even permit the maximum number of approach lanes. However, as a broad indication of feasibility of circulation improvements, it is a fair criterion to use. Table 3-6.19 identifies the future intersection geometrics that would be necessary for satisfactory intersection operations.

Even with implementation of the project alternatives and intersection capacity improvements, a substantial number of intersections would operate unsatisfactorily. To achieve satisfactory LOS at these locations, signal coordination and optimization should be considered.

Studies have shown that traffic signal coordination and optimization can provide an improvement to individual intersections. A 1994 study by the City of Los Angeles cites two travel time and delay studies that have demonstrated a reduction in delay of between 32.3 percent and 44.2 percent due to the implementation of the City of Los Angeles Automated Traffic Surveillance and Control (ATSAC) system. Currently, the City of Los Angeles allows up to a 10 percent credit to the volume-to-capacity ratio if developers provide funding for Intelligent Transportation Systems (ITS) such as ATSAC. A more recent paper, *ITS Benefits: The Case of Traffic Signal Control Systems,* prepared for the Transportation Research Board Annual Meeting in 2001 by Alexander Skabardonis, cites a 16.5 percent reduction in delay as a result of signal timing optimization and a 24.9 percent reduction in delay from signal coordination.

Signal coordination and optimization can provide substantial benefits to the study area intersections within the I-5 corridor. Caltrans shall, in coordination with local municipalities, plan and implement a signal coordination program, such as a simple TRANSYT 7-F application or a complex ATSAC system, as indicated by future progression analysis to improve future traffic flow and reduce congestion and delay attributable to both growth in regional traffic volumes and any effects of the freeway widening project.

Pedestrian and Bicycle Access

The pedestrian overcrossing that is removed at Silverbow Avenue would be replaced and an additional pedestrian overcrossing would be constructed at Buell Street/Cecilia Street. To mitigate the temporary closure of the Silverbow Avenue pedestrian over-crossing, special busses or similar shuttle service would have to be provided to transport students who normally use the Silverbow Avenue pedestrian overcrossing to get to and from school.

The Los Angeles County MTA's Southeast Area Bicycle Master Plan includes several Class II bike routes along arterial roads within the project corridor. Currently, there is insufficient room on the existing arterial overcrossings to accommodate the planned bike routes. To improve the safety of both motorists and bicyclists, the designed overcrossings and undercrossings at Valley View Avenue, Bloomfield Avenue, Pioneer, and Florence Avenues, for all of the build alternatives, have cross section widths to accommodate Class II the proposed regional bike routes. In most cases, this involves a striped 1.5 m bike lane including a gutter or a striped 1.2 m bike lane without a gutter in the shoulder area. The Coyote Creek Bridge would be constructed to accommodate the addition of a planned Class I Bike Path along its banks.

Table 3-6.19 – Recommended Intersection Improvements

Project Year 2030

		4 + 1 Alternative														4 + 2 Alternative														5 + 1 Alternative													
		AM	PM	Northbound			Southbound			Eastbound			Westbound			AM	PM	Northbound			Southbound			Eastbound			Westbound			AM	PM	Northbound			Southbound			Eastbound			Westbound		
Index	Intersection Name	LOS	LOS	left	thru	right	left	thru	right	left	thru	right	left	thru	right	LOS	LOS	left	thru	right	left	thru	right	left	thru	right	left	thru	right	LOS	LOS	left	thru	right	left	thru	right	left	thru	right	left	thru	right
1	Florence / Studebaker	C	D	2	1	1	0	0	0	1	2	1	2	2	1	D	C	2	1	1	0	0	0	1	2	1	2	2	1	C	E	2	1	1	0	0	0	1	2	1	2	2	1
2	Florence / Fairford	E	F	Maximum Feasible Intersection												E	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
3	Florence / Orr and Day	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
4	Imperial / Pioneer	E	F	Maximum Feasible Intersection												E	F	Maximum Feasible Intersection												E	F	Maximum Feasible Intersection											
5	Union / I-5 SB Off and Union	B	B	0.5	0	0.5	1	0	1	0.5	0	0.5	0	0	0	B	C	0.5	0	0.5	1	0	1	0.5	0	0.5	0	0	0	B	C	0.5	0	0.5	1	0	1	0.5	0	0.5	0	0	0
6	Union / I-5 SB Off and Paddison	D	C	0.5	0.5	0	0	0.5	0.5	1	0	1	0	0	0	A	A	0.5	0.5	0	0	0.5	0.5	1	0	1	0	0	0	D	C	0.5	0.5	0	0	0.5	0.5	1	0	1	0	0	0
7	Adoree / Paddison	C	C	0	0.5	0.5	1	0	1	0.5	0.5	0	0	0	0	B	B	0	0.5	0.5	1	0	1	0.5	0.5	0	0	0	0	B	C	0	0.5	0.5	1	0	1	0.5	0.5	0	0	0	0
8	Kalnor / Adoree	C	E	0	0	0	1	0	1	0.3	0.3	0.3	0.3	0.3	0.3	C	E	0	0	0	1	0	1	0.3	0.3	0.3	0.3	0.3	0.3	B	C	0	0	0	1	0	1	0.3	0.3	0	0	2	0
10	Imperial / Norwalk	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
11	Firestone / Bloomfield	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
12	Rosecrans / Bloomfield	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
13	Rosecrans / Shoemaker	F	F	Maximum Feasible Intersection												F	E	Maximum Feasible Intersection												F	E	Maximum Feasible Intersection											
14	Alondra / Valley View	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
15	Firestone (N) / Valley View	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
16	Firestone (N) / Gateway Dr	C	B	0	1	1	1	1	0	0	0	0	1	0	1	C	B	0	1	1	1	1	0	0	0	0	1	0	1	C	B	0	1	1	1	1	0	0	0	0	1	0	1
17	Firestone (S) / Valley View	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
18	Artesia / Firestone (S)	F	E	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
22	Florence / I-5SB On-Ramp	B	A	0	0	0	0	0	0	0	3	1	1	1.5	0.5	B	A	0	0	0	0	0	0	0	3	1	1	1.5	0.5	B	A	0	0	0	0	0	0	0	3	1	1	1.5	0.5
23	Florence / I-5 NB Ramps	C	B	2	0	1	0	0	0	0	3	0	0	3	1	D	B	2	0	1	0	0	0	0	3	0	0	3	1	D	B	2	0	1	0	0	0	0	3	0	0	3	1
25	Imperial Hwy & Union St/ I-5 SB Off	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
26	Imperial Hwy / I-5 SB On Ramp	D	F	2	2	1	0	0	0	2	3	1	1	2.5	1.5	D	D	2	2	1	0	0	0	2	3	1	1	2.5	1.5	D	E	2	2	1	0	0	0	2	3	1	1	2.5	1.5
27	I-5 SB On Ramp / San Antonio	D	C	1	3	1	2	2	1	0.5	0.5	1	0	0	0	D	C	1	3	1	2	2	1	0.5	0.5	1	0	0	0	D	C	1	3	1	2	2	1	0.5	0.5	1	0	0	0
28	I-5 NB Off Ramp / San Antonio & Adoree St	D	C	2	1.5	0.5	0	2.5	0.5	1	0	1	1	0.5	1.5	D	C	2	1.5	0.5	0	2.5	0.5	1	0	1	1	0.5	1.5	D	D	2	1.5	0.5	0	2.5	0.5	1	0	1	1	0.5	1.5
29	Rosecrans Ave / I-5 SB Ramps	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection														Maximum Feasible Intersection											
30	Rosecrans Ave / I-5 NB Ramps	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection														Maximum Feasible Intersection											
31	I-5 SB Ramps / Valley View Ave	C	E	0	3	1	2	3	0	2	2	1	0	0	0	F	F	Maximum Feasible Intersection														Maximum Feasible Intersection											
32	I-5 NB Ramps / Valley View Ave	B	C	2	3	0	0	3	1	0	0	2	2	1	1	B	C	2	3	0	0	3	1	0	0	0	2	1	1	C	C	2	3	0	0	3	1	0	0	0	2	1	1
33	Artesia Blvd / I-5 SB Off- Ramps	F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection												F	F	Maximum Feasible Intersection											
34	Artesia Blvd / I-5 SB On- Ramps	B	D	0	0	0	0	0	0	0	3	1	2	2	0	A	D	2	3	0	0	3	1	0	0	0	2	1	1	A	D	0	0	0	0	0	0	0	3	1	1	3	0
35	Artesia Blvd & Firestone (N) / I-5 NB Ramps	D	E	2	1	1	2	1	1	2	3	1	2	3	1	E	E	Maximum Feasible Intersection												D	E	2	1	1	2	1	1	2	3	1	2	3	1

Notes:

- Maximum Feasible Intersection consists of 2 left, 3 through, and 1 right turn lane on each approach.
- Recommended geometrics are only shown for intersections that require changes from existing conditions.

3-6.5 CUMULATIVE IMPACTS

Cumulative Traffic and Transportation/Pedestrian and Bicycle Facilities Effects
The cumulative study area includes the I-5 mainline and ramps, intersections of ramp terminals with arterial roadways, and intersections within one arterial street of the I-5 freeway. This study area was analyzed in the Traffic and Transportation Study for the project alternatives and includes the freeway mainline in the vicinity of the proposed I-5/Carmenita Road Interchange Improvement Project. Therefore, cumulative traffic and transportation effects are the same as the project effects detailed below.

Project Contribution to Cumulative Traffic and Transportation/Pedestrian and Bicycle Facilities Effects
The project alternative effects described in the Traffic and Transportation Study include the cumulative condition and therefore represent the cumulative contribution as well as the project effects to traffic and transportation.

Alternative 1 would not directly contribute to cumulative effects to traffic and transportation/ pedestrian and bicycle facilities. However, by not providing for future transportation needs and predicted growth in traffic volumes, Alternative 1 would contribute to an indirect adverse cumulative effect on traffic and transportation.

Alternatives 2 and 3 may result in lower future traffic volumes by increasing the number of transit options (buses, bus routes, bus stops) to the study area. This would provide a cumulative benefit to community facilities by providing increased accessibility and a related reduction in traffic anticipated from these alternatives.

Implementation of Alternatives 4 and 5 would reduce traffic congestion on this segment of I-5. Alternatives 4 and 5 do not generate traffic but rather facilitate the redistribution of existing and future traffic to a proposed enhanced-capacity regional facility. Impacts are a result of regional traffic growth and are not directly attributable to project implementation.

Minimization measures are required to reduce construction-related traffic and transportation effects (for all alternatives), impacts to intersections, and impacts to ramp meters (for Alternatives 4 and 5). Even with minimization measures applied, several of the study area intersections would still remain impacted under all of the project alternatives.

3-7 VISUAL/AESTHETICS

3-7.1 REGULATORY SETTING

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

Likewise, 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." (CA Public Resources Code Section 2100[b])

3-7.2 AFFECTED ENVIRONMENT

Information regarding Visual/Aesthetics was obtained from the I-5 Corridor Improvement Project Visual Impact Study, July 2002 and the I-5 Interim HOV Improvement Project Visual Impact Study, June 1998.

The I-5 Corridor Improvement Project area is near the center of the flat Los Angeles Coastal Plain. Development radiates out from the freeway with few visual demarcations of city boundaries. Adjacent development is dense; land use patterns are suburban, including low-rise single family residential, strip commercial, and business parks. There are no scenic vistas from the freeway or adjacent uses. The I-5 freeway would have eight lanes total from SR 91 to Western Avenue and six lanes total from Western Avenue to I-605. The freeway was constructed in the 1950s and has a well-worn appearance due to its age and heavy use. Traffic on I-5 is continual, often congested, and includes large numbers of commuters and freight trucks.

The freeway is bordered primarily by commercial and industrial uses from State Route 91 to Rosecrans Avenue. The I-5 right-of-way is fairly open in from the Los Angeles/Orange County line to Rosecrans Avenue, except for some landscaping along the freeway shoulder, and thus provides good visibility to adjacent businesses. As a result, a number of businesses that cater to a regional clientele and rely on freeway visibility, such as auto dealerships, are located in this area. Billboards are prominently displayed along the freeway and, like many building logos in the I-5 corridor, attract the motorist's attention.

The freeway mainline is bordered by single-family residential neighborhoods in from Rosecrans Avenue to Florence Avenue. These neighborhoods are less visible from the freeway than the businesses in the segments to the south due to adjacent soundwalls and landscaping. However commercial uses border the freeway ramps in this segment and are visible from the freeway.

Because the views of the freeway lack vividness, intactness and unity, the visual quality of the area is considered medium or low. There is no scenic resource in the corridor except for existing landscaping in some sections.

3-7.3 IMPACTS

There are no significant scenic resources or views in the study area. None of the proposed alternatives would have long-term adverse visual impacts, based on an analysis of the effects of property acquisitions on the landscape and the changes in key views due to project components. It could, however, result in an adverse effect because of the acquisition of residential properties. In some cases, there would be remnant parcels remaining as a result of property acquisition and project improvements. These remnant parcels may not be developable due to insufficient lot size and property setback or access requirements. The resulting blight could be considered an adverse visual impact.

Construction lighting could generate light and glare that could intrude into residences and impede motorists' ability to drive.

3-7.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

The proposed project would create a transportation structure that may be up to twice as large as the existing system. In order to minimize the adverse visual impact, landscaping would be important in providing screen, buffer and visual interest for viewers. A comprehensive aesthetic treatment and design plan covering soundwalls, median barriers and structures would help improve visual impact.

Remaining properties after acquisition should be absorbed by adjacent properties or zoning variance should be obtained to allow redevelopment to occur.

During the construction phase, appropriate light shielding equipment would be used to prevent light and glare impacts from construction lighting that could intrude into residences and impede motorists' ability to drive.

3-7.5 CUMULATIVE IMPACTS

Cumulative Visual/Aesthetics Effects

The predominant purpose of the cumulative projects are to maintain/increase economic vitality, provide housing, or reduce blighting elements within the community. These improvements typically enhance the aesthetic quality of neighborhoods by reviving underutilized commercial or industrial parcels with developments that attract business and community members (e.g., new residential). Overall, the cumulative projects would enhance the aesthetic nature of the study area. There may be site-specific visual lighting issues that are addressed through local approval processes. This interpretation of land uses can introduce a denser level of development than currently exists and can be viewed negatively by the local community. Implementation of minimizing measures addressing visual and lighting effects reduces the potential incompatibilities.

Project Contribution to Cumulative Visual/Aesthetics Effects

Potential impacts of the build alternatives were determined to have both positive and negative effects on visual quality within the study area. With implementation of the minimization measures, the contribution to cumulative visual/aesthetic impacts associated with the build alternatives would not be considered adverse.

3-8 CULTURAL RESOURCES

3-8.1 REGULATORY SETTING

The National Historic Preservation Act of 1966, as amended, (NHPA) 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. Section 106 of 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 the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) among the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA takes the place of the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans.

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (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 of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

3-8.2 AFFECTED ENVIRONMENT

In 1998, a Historic Property Survey Report (HPSR) was done to identify all historic properties that may be affected by the Interim HOV Improvement Project. In 2004, a Supplemental HPSR was done to incorporate the additional widening proposed by the I-5 Corridor Improvement Project, and to request concurrence from the State Historic Preservation Officer (SHPO) regarding the eligibility for the National Register of Historic Places. The Ten and Twelve Lane Alternatives require additional right-of-way that necessitates updating the 1998 HPSR. Consequently, the Area of Potential Effects (APE) for the 2002 SHPSR includes the APE for the 1998 HPSR, and any additional parcels that could be affected by right-of-way acquisition, audible effects, or visual effects resulting from implementation of the proposed alternatives. The 1998 HPSR formally evaluated properties with buildings constructed before 1951. The 2004 SHPSR formally evaluates all properties within the APE with buildings constructed in or before 1957 that were not previously evaluated in 1998.

The Supplemental HPSR incorporates the findings of the Historical Resources Evaluation Report (HRER) prepared for this project, and was prepared in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. This report implements the January 1, 2004 Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act.

The results of the HRER indicated that there are 41 properties with buildings constructed in or before 1957 within the APE that require formal evaluation in the SHPSR. The 41 properties that

were evaluated include 14 tracts, with 264 individual buildings. None of the properties are currently listed in, or have been previously determined eligible for listing in the National Register of Historic Places or the California Register of Historical Resources. Of the 41 evaluated properties, none were found to meet the National Register criteria for eligibility.

Numerous archaeological studies have been conducted within the project corridor. None of these studies identified any cultural resources within the proposed project area. Based on these investigations and the highly developed and disturbed nature of the project area, it is unlikely that construction within the APE would encounter any cultural resources.

On August 12, 1998, the SHPO concurred with the findings of the original HPSR that none of the 39 structures within the original APE were eligible for listing on the National Register of Historic Places. On April 12, 2005, the SHPO logged in the Supplemental HPSR that contained the determinations that 41 resources were not eligible for listing on the National Register. On July 12, 2005 Gary Iverson, District 7 Heritage Resource Coordinator, notified the FHWA, the OHP, and Caltrans HQ in Sacramento that because the 30 days allowed for comment has past, per stipulation X.B2.(b) of the 106 PA, Caltrans was proceeding with the project.

3-8.3 IMPACTS

No impact to historic architectural resources would occur. No impact to cultural resources or archaeological sites is likely to occur.

3-8.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

None Required. However, should buried cultural materials be encountered during construction, it is Caltrans policy that work in that area must stop until a qualified archaeologist can evaluate the nature and significance of the find (Environmental Handbook, Volume 2, Chapter 7, Section 7-8).

3-8.5 CUMULATIVE IMPACTS

Cumulative Cultural Resources Effects

The projects in the study area are primarily redevelopment projects on existing, disturbed parcels; therefore, the potential for impacts to known cultural resources is minimal. Any buildings over 50 years old are evaluated for eligibility for the California Register of Historic Landmarks and National Register on a project-specific basis. There is the potential to encounter unknown cultural resources during construction, and appropriate minimization measures have been identified for each project to address unknown cultural resources.

Project Contribution to Cumulative Cultural Resources Effects

Alternatives 4 and 5 would have no direct or indirect effects to cultural resources eligible for the National Register. Because there are no properties within the APE for this project that are eligible for listing on the National Register of Historic Places, there is no potential for a cumulative adverse affect to historic properties.

PHYSICAL ENVIRONMENT

3-9 HYDROLOGY AND FLOODPLAINS

3-9.1 REGULATORY SETTING

Executive Order 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 Federal Highway Administration requirements for compliance 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."

3-9.2 AFFECTED ENVIRONMENT

Information regarding hydrology and floodplains was obtained from a Location Hydraulic Study, dated February 6, 2002.

Surface Waters

The surface waters of the proposed project lie primarily in the San Gabriel River Watershed, but a small portion at the northern end lies within the Los Angeles River Watershed. The surface waters in the project area include the following drainage channels that cross under the I-5 freeway: the Fullerton Creek, the Coyote Creek, and the North Fork of Coyote Creek (also referred to as La Canada Verde Creek).

The project study area is mature and built out, with minimal permeable land. No wild and scenic rivers are present in the study area.

Groundwater

The groundwaters of the proposed project are located within the Central Basin of the Los Angeles Coastal Plain and the Santa Ana Pressure groundwater sub-basin of the Lower Santa Ana Watershed groundwater basins.

The depth to groundwater within the project area is generally greater than 15 meters (50 feet), although the groundwater level will fluctuate depending on precipitation levels, recharge amounts and withdrawal levels. A perched water table is also present in some areas due to a clay horizon.

3-9.3 IMPACTS

The risk associated with the proposed project is low. The project does not contain a longitudinal or encroachment of a floodplain. The risks associated with implementation of the action are not significant. The project would not support probable incompatible floodplain development. There are no significant impacts on natural and beneficial floodplain values.

Increasing the size of the freeway facility would result in minimal paving of permeable land. The increase in freeway pavement would result in water draining into freeway storm drains instead of City storm drains, and is not anticipated to effect groundwater recharge in the study area.

Localized flooding or ponding could be a problem in low-lying portions of the proposed improvements during periods of heavy rainfall. Areas most likely affected would be near the Fullerton Creek, the North Fork of Coyote Creek, and Coyote Creek. Other areas that may have flood potential would be in isolated low areas where flood control inlets are present.

The proposed project would result in the extension of the I-5 freeway bridges over two channelized blue line streams: Coyote Creek and North Fork Coyote Creek. Construction activities would include removal of existing piers and the construction of new piers.

The hydraulic effects of extending the bridge piers would be minimal, resulting in a normal increase in water surface profile.

It is anticipated that the groundwater levels would be high (shallow). However, construction of this project should not have an impact on groundwater.

3-9.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Appropriate drainage and/or pumping systems would be incorporated into the design of the project to control localized flooding or ponding on the freeway. In areas of shallow groundwater, the placing of subdrains or utilizing groundwater pumps would drain freestanding water.

Construction activities in flood control channels would only be scheduled to occur during the dry season (April 1-October 31). If construction during that time is not possible, a suitable water diversion plan must be developed and implemented to minimize impact to water quality.

Permits would be obtained prior to construction in the channels. A 1601 Streambed Alteration Agreement would be obtained from CDFG. In addition, a 404 permit from the U.S. Army Corps of Engineers and a 401 Certification/Waiver from the Regional Water Quality Control Board may be required.

For engineering purposes, groundwater can be mitigated by adoption appropriate foundation design practices for the new structures (retaining wall, tunneling, extension of the existing structure, etc). For construction purposes, any intercepted groundwater flow would require the construction of a system to collect and dispose of the water in an appropriate and approved way.

3-9.5 CUMULATIVE IMPACTS

Cumulative Hydrology and Floodplain Effects
San Gabriel River Reach 1 and Coyote Creek watersheds make up the study area for cumulative hydrology and floodplains impacts.

The cumulative study area is mostly built out; therefore, the conversion of vacant land to developed land is not considerable. Redevelopment of an area with substantial hardscape would not significantly increase existing peak storm flows. That is, most changes to the natural environment and, subsequently, changes to hydrology and floodplains have already occurred in the affected communities.

Recent regulations require certain categories of redevelopment projects to implement best management practices (BMPs) to reduce storm water runoff and treat it before its discharge to receiving waters or the storm drain system. These regulations benefit hydrology of an area by reducing peak storm flows. Therefore, future development/redevelopment within the cumulative study area is not anticipated to substantially impact hydrology and floodplains.

Project Contribution to Cumulative Hydrology and Floodplain Effects
Alternatives 1,2, and 3 would not result in greater surface area for the freeway. Local jurisdiction transportation improvements would occur within existing facilities; therefore, increases in peak storm flows are not anticipated. Drainage facilities would be upgraded on an as-needed basis to prevent localized flooding. These alternatives' contribution to cumulative hydrology and floodplains effects would not be substantial.

Alternatives 4 and 5 would increase the surface area of the freeway and would therefore increase runoff from the facility itself (with greater runoff produced under Alternative 5). However, the I-5 Corridor is located within a developed area, and the widening would not affect large amounts of undeveloped land. The conversion of developed land to freeway and reuse or landscaping of remnant parcels would result in similar or reduced peak storm flows for the area. In addition, these alternatives would be subject to Caltrans requirements for water quality treatment, which may include detention. Drainage facilities would be upgraded on an as-needed basis to prevent localized flooding. Therefore, these alternatives' contribution to cumulative hydrology and floodplains effects would not be substantial.

3-10 WATER QUALITY AND STORM WATER RUN-OFF

3-10.1 REGULATORY SETTING

Section 401 of the Clean Water Act, the primary federal law regulating water quality, requires water quality certification from the state board or regional board when a project (1) requires a federal license or permit—Section 404 is the most common federal permit for Caltrans projects—and (2) would cause discharge into waters of the United States. Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. To ensure compliance with Section 402, the State Water Resources Control Board has developed and issued a National Pollutant Discharge Elimination System, Statewide Storm Water Permit, to regulate storm water discharges from all of Caltran's right of way, properties and facilities. The permit regulates both storm and non-storm water discharges during and after construction.

In addition, the State Water Resources Control Board issues the Statewide Permit for all of Caltrans' construction activities, of 0.4 hectare (1 acre) or greater. Or a number of smaller projects that are part of a common plan of development exceeding with the total area exceeding 0.4 hectares (1 acres), or projects that have the potential to significantly impair water quality. Caltrans projects subject to the Statewide Storm Water Permit require a Storm Water Pollution Prevention Plan, while other projects, smaller than 0.4 hectares, require a Water Pollution Control Program.

The California Environmental Protection Agency has delegated administration of the federal National Pollutant Discharge Elimination System program to the State Water Resources Control Board and nine regional boards. This project is located within the jurisdiction of the State Water Resources Control Board and the Los Angeles Regional Water Quality Control Board.

Subject to Caltrans review and approval, the contractor prepares both the Storm Water Pollution Prevention Plan and the Water Pollution Control Program. The Water Pollution Control Program and Storm Water Pollution Prevention Plan identify construction activities that may cause pollutants in storm water and measures to control these pollutants. Because neither the Water Pollution Control Program nor the Storm Water Pollution Prevention Plan is 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 Section 5650-5656.

3-10.2 AFFECTED ENVIRONMENT

Information regarding water quality and storm water run-off was obtained from the I-5 Interim HOV Improvement Project Water Quality Report, dated June 1998 and a Natural Environment Study Memo, dated December 3, 2002.

Surface Waters
The surface waters of the proposed project lie primarily in the San Gabriel River Watershed, but a small portion at the northern end lies within the Los Angeles River Watershed. The surface waters in the project area include the following drainage channels that cross under the I-5 freeway: the Fullerton Creek, the Coyote Creek, and the North Fork of Coyote Creek (also referred to as La Canada Verde Creek).

3-10.3 IMPACTS

The project has the potential to affect water resources both from storm water runoff associated with construction activities, and from runoff associated with the operation of the highway system.

Construction
Construction of the proposed alternatives could affect water quality: 1) from construction activity within the various flood control channels (through erosion of exposed soil within the drainage channels), 2) through storm water discharges from the construction area along I-5, and 3) by reducing the groundwater recharge during construction.

Since construction of the project would be undertaken in accordance with the applicable National Pollutant Elimination System (NPDES) permits, adverse impacts to water quality are not anticipated.

Operation
During highway operation, roadway surfaces can contribute to pollution of water resources through the collection and subsequent wash off of dirt, pollutants, and trash. The RWQCB is responsible for controlling the discharge of pollution in storm water runoff. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared in addition to a monitoring and reporting program. The proposed alternatives are anticipated to result in adverse impacts to storm water runoff due to freeway or highway operations.

3-10.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

For areas outside of the flood control channels, construction of the 10 and 12 lane alternatives would require construction of an area greater than 5 acres and would therefore be subject to the NPDES permitting process. To address storm water discharges from construction, the permits contain standard provisions that are intended to provide a required level of storm water pollution prevention.

A construction SWPPP would be prepared prior to the start of construction to ensure compliance with existing NPDES permits. The SWPPP would be kept on site during construction and made available upon request to the RWQCB, responsible local agencies, and the public.

The SWPPP would identify potential sources of pollutants, describe erosion and sediment controls, contain non-storm water provisions, describe post-construction storm water management, describe waste management activities, include a maintenance and inspection component, include a list of contractors, incorporate other storm water related plans if applicable, and would list the name of the preparer. Caltrans would conduct additional inspections or analysis if required by the RWQCB, inspect construction sites prior to anticipated storm events and after actual events in order to identify areas contributing to storm water discharge pollutants

in order to evaluate the adequacy of the control measures identified in the SWPPP, certify annually that construction is in compliance with the applicable NPDES permit and SWPPP, and retain the monitoring records for at least three years following completion of construction.

Several locations have been identified for construction of Best Management Practices (BMPs) designed to remove pollutants from storm water run-off from the freeway. One such device, an Extended Retention Basin, has already been installed within the Interstate 5/Interstate 605 interchange. Type selection and final location of the proposed devices would be determined during final design. Figure 3-10 shows the proposed locations of these devices.

Figure 3-10.1 – Proposed Storm Water BMP Locations

3-10.5 CUMULATIVE IMPACTS

Cumulative Water Quality and Storm Water Runoff Effects

San Gabriel River Reach 1 and Coyote Creek watersheds make up the study area for cumulative water quality and storm water runoff impacts.

The conversion of vacant land to developed land is not considerable because the cumulative study area is mostly built out. Redevelopment of an area with substantial hardscape would not

markedly increase existing peak storm flows. However, changes in land use may contribute additional sources of pollutants.

Recent regulations require certain categories of redevelopment projects to implement BMPs to reduce storm water runoff and treat it before its discharge to receiving waters or the storm drain system. These regulations are designed not only to prevent adverse water quality impacts as a result of new development/redevelopment, but to improve existing water quality in each affected watershed. Minimization measures are required to address pollutants associated with a particular land use and to prevent further degradation of waters within the watershed. With these measures in place, future development/redevelopment within the cumulative study area is not anticipated to substantially impact water quality.

Project Contribution to Cumulative Water Quality and Storm Water Runoff Effects
Alternatives 1, 2, and 3 would not result in greater surface area for the freeway. Local jurisdiction transportation improvements would occur within existing facilities; therefore, changes in types of pollutants or concentrations of pollutants are not anticipated. Construction BMPs and operational site design, source control, and treatment BMPs would be required for parking lots associated with the improvements. With minimization measures to address pollutants of concern, these alternatives' contribution to cumulative water quality effects would not be substantial.

Alternatives 4 and 5 would increase the surface area of the freeway and would therefore increase runoff from the facility itself (with greater runoff produced under Alternative 5), which would act to concentrate the amount of pollutants in this runoff. The conversion of developed land to freeway may result in additional sources of pollutants. These alternatives would be subject to Caltrans requirements for construction BMPs and operational design pollution prevention, treatment, and maintenance BMPs to address pollutants of concern. With minimization measures, these alternatives' contribution to cumulative water quality effects would not be substantial.

3-11 GEOLOGY/SOILS/SEISMIC/PALEONTOLOGY/TOPOGRAPHY

3-11.1 REGULATORY SETTING

40 CFR 1508.14 requires that, when economic or social and natural or physical environmental effects are interrelated, the environmental document to discuss all of these effects on the human environment.

3-11.2 AFFECTED ENVIRONMENT

Information regarding geology/soils/seismic/paleontology/topography was obtained from a Preliminary Geotechnical Investigation Report, dated September 2002.

Geology

Regionally, the project site is located in the Los Angeles Basin (Downey Plain) within the Peninsular Ranges, California Geomorphic Province. Structurally, the Los Angeles Basin is relatively simple and is characterized by relatively flat-lying, late Quaternary strata.

Locally, the existing freeway is situated entirely over younger Quaternary alluvial deposits consisting of alternating beds of clay, silt and very fine to very coarse-grained sand and gravel. Existing density of sand layers range from very loose to dense.

There is a low likelihood of discovery of subsurface Paleontological resources.

Seismicity

The project is located in a seismically active area. The geologic processes that have caused earthquakes in the past can be expected to continue. Seismic events, which are likely to produce the greatest bedrock accelerations, could be a moderate event on the Whittier-Elsinore Fault Zone (WEFZ) and/or a large event on a distant active fault.

A fault is considered by the State of California to be active if geologic evidence indicates that movement on the fault has occurred in the last 11,000 years, and potentially active if movement has occurred in the last 2 million years.

There is no geological information that indicates an active fault in the project area. The nearest known active fault (under Alquist-Priolo Earthquake Fault Zoning Act) is the WEFZ, and is located 7.0 km (4.3 miles) to the north of the project.

Ground Shaking

Ground shaking is the primary cause of structural damage during an earthquake; it is considered to be the most likely damage-producing earthquake phenomena for this project. The magnitude, duration and vibration frequency characteristics would vary greatly, depending upon the particular causative fault and its distance from the project.

Deterministic site parameters obtained using the EQFAULT-Version 3.00b (T.Blake, 1999-2000) computer program for the deterministic prediction of peak acceleration from digitized California Fault system indicates that the WEFZ is the closest to the site, having an estimated peak site acceleration of 0.35g for an Maximum Credible Earthquakes (MCE)-Magnitude of 6.8 on the Richter Scale (where g equals the acceleration due to gravity).

Using the 1996 Los Angeles Area Seismic Hazard Map prepared by Caltrans, and the attenuation curve prepared by Maulchin, the Peak Acceleration based on MCE-Magnitude of 7.5 along the WEFZ system would be in the order of 0.5g.

The Norwalk Fault has long been shown on geological maps as an inferred arcuate northwest to east-trending coincident with a prominent linear southern front of the Coyote Hills, crossing I-5 approximately between Imperial Highway and Bloomfield Avenue. This fault is considered a reverse fault with a maximum dip to the north at approximately 80 degrees, and is approximately 28 km in length.

For conservatism, the Norwalk fault may be considered to be potentially active in a seismic analysis but it should not control the seismic design because it would be overshadowed by a larger nearby active fault (WEFZ).

Ground Rupture
An analysis of fault rupture hazard for a particular fault requires that the fault be located exactly, and its approximate potential for rupture to be known. The existing freeway is not located within the confines of an Alquist-Priolo Earthquake Fault Zone. Based on the review of several geologic/seismologic reports, the potential for ground rupture is small and is not considered to be a hazard for this project.

Liquefaction
Liquefaction could exist when fine silts and sands are located below the water table. The water can also be perched groundwater. Liquefaction has been documented to affect soils to ± 15m (50 feet) deep, during prolonged periods of ground shaking.

Based on the limited data available, the potential for this liquifaction is present in the area due to the known shallow groundwater level in the region and the grain-size distribution observed from the boring logs for the existing structures. A regional study conducted by the U.S. Geological Survey (1985) using ground water levels measured from 1960 to 1975, concluded that the relative liquefaction susceptibility along the project is also considered to be high.

Widening of the existing freeway and/or construction of new structures would require additional subsurface exploration that would permit assessment of this seismic phenomenon in detail and describe the appropriate engineering measures to reduce the likelihood of damage due to liquefaction.

Slope Stability
Relocation and/or new construction of some of the slope abutments form the existing structures would be necessary. The Department's Standard Specification Manual Section 19-5.03 provides the side slope compaction required for bridge abutments. Depending on the selected alternative, the Project Materials Report should provide specific slope recommendations.

Landslides
A proper slope design would decrease the landslide potential of new fills during and/or after construction.

3-11.3 IMPACTS

The 10 and 12 lane alternatives would both require minor changes to the topography immediately adjacent to the freeway as fill slopes and retaining walls are modified and overcrossings are constructed. No unique geologic or physical features are present in the project area.

In Southern California, seismic events of damaging magnitude could happen at any time and cause structural damage to this portion of the I-5 freeway by ground shaking and liquefaction. During a moderate to major seismic event near the proposed improvements, seismic settlement from shaking could develop within loose natural soils or in poorly compacted fills. This could result in tension cracks with intermittent elevation differentials on present road surfaces. Elevation differentials at rigid structure joints, such as at a bridge abutment with a fill or soil, could also develop. Relative compaction of native material located outside the existing freeway perimeter, based on existing investigations, is expected to be less than 90 percent in upper natural soils. Compaction to 90 percent would be required for adequate structural support and to prevent settlement from seismic and/or differential compaction.

3-11.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

To mitigate against liquefaction, new piles required for structural support would be placed to a depth below the zones of potential liquefaction to protect structures from liquefaction.

Insufficiently compacted native material in the immediate area of construction would be removed and re-compacted to 90 percent in cut areas and replaced with an imported sub-base in structural sections. In fill areas above natural ground, the natural material would be removed until dense material is reached and replaced as a compacted fill.

It is recommended that fill slopes be treated immediately after construction with planting, hydroseeding or paving to reduce erosion.

3-11.5 CUMULATIVE IMPACTS

Cumulative Geology/Soils/Seismic/Paleontology/Topography Effects

The cumulative study area for geology/soils/seismic/paleontology/topography impacts is the maximum footprint of all the project alternatives.

Ground shaking, landslides, liquefaction and other soils, seismic, and topographical constraints pose a potential hazard for all development/redevelopment projects in Southern California. However, these effects are evaluated on a site-specific basis and potential impacts are minimized via site-specific design features. Likewise, the presence of paleontological resources is site-specific and the potential to encounter these resources depends on soil types and depth of excavation. Measures such as adherence to geotechnical consultant recommendations regarding soil preparation, earthquake structure design, and grading methods, as well as monitoring for paleontological resources minimize potential effects for each project and therefore do not result in substantial cumulative effects.

Project Contribution to Cumulative Geology/Soils/Seismic/Paleontology/Topography Effects

Alternatives 1,2, and 3 involve some degree of ground disturbance but geology/soils/seismic/paleontology/topography effects would be minimal. For these reasons, the effects from construction of these alternatives would not substantially contribute to effects resulting from any adjacent development/redevelopment projects.

As discussed above, Alternatives 4 and 5 have the greatest potential to result in geology/soils/seismic/paleontology/topography effects because of the degree of excavation and structural design involved. However, since there are no cumulative projects located in the immediate vicinity of Alternatives 4 and 5, these effects would not cumulatively contribute to other projects' effects.

3-12 HAZARDOUS WASTE/MATERIALS

3-12.1 REGULATORY SETTING

Regulatory criteria to classify a waste as "California hazardous" for handling and disposal purposes are contained in the CCR Title 22, Division 4.5, Chapter 11, Article 3, §66261.24. Criteria to classify a waste as "Resource, Conservation, and Recovery Act (RCRA) hazardous" are contained in Chapter 40 of the *Code of Federal Regulations* (40 CFR, §261).

For a waste containing metals, the waste is classified as "California hazardous" when: (1) the total metal content exceeds the Total Threshold Limit Concentration (TTLC); or (2) the soluble metal content exceeds the Soluble Threshold Limit Concentration (STLC) based on a Waste Extraction Test (WET) analysis. A material is classified as "RCRA hazardous" when the soluble metal content exceeds the Federal Regulatory Level based on Toxicity Characteristic Leaching Procedure (TCLP) testing.

The above regulatory criteria are based on toxicity. Wastes may also be classified as hazardous based on other criteria including ignitability, toxicity, corrosivity, and reactivity. However, for the purposes of Aerially Deposited Lead (ADL) investigations, toxicity and corrosivity (i.e., chemical concentrations and soil pH values, respectively) are the primary factors considered for waste classification. Waste that is classified as either "California hazardous" or "RCRA hazardous" requires management as a hazardous waste and disposal at an approved disposal facility.

According to §25157.8 of the HSC, after January 1, 1999, no person shall dispose of waste that contains total lead in excess of 350 mg/kg to land other than a Class I hazardous waste disposal facility (or other designated facility meeting all the criteria in HSC 25157.8(b)(3)) is prohibited.

The DTSC issued a variance to selected Caltrans Districts on September 22, 2000, to provide guidance for the disposition of soil containing ADL within Caltrans projects. The California State Assembly passed AB 414 dated October 14, 2001 which allows Caltrans to reuse lead impacted soil within their rights-of-way provided that total lead concentrations do not exceed 1,496 mg/kg. The DTSC Variance will expire on June 30, 2007, and Caltrans is in the process of negotiating terms and conditions for a new variance. If the variance expires and is not renewed by the DTSC, hazardous materials previously considered for re-use may no longer be re-used for the project, but should be disposed of at a Class I facility or a Class II facility with special permits depending on the level of contamination.

3-12.2 AFFECTED ENVIRONMENT

Information regarding hazardous materials/waste was obtained from an Initial Site Assessment (ISA), BAS April 13, 2004; Aerially Deposited Lead Investigation Report, Geocon September 19, 2002; Initial Site Assessment, PBQ & D, June 1998; Initial Site Assessment Geocon October 1886.

Aerially Deposited Lead
Soil samples collected from the site were analyzed for total lead, soil pH, soluble lead using the Waste Extraction Test (WET) method using citric acid as an extractant, and soluble lead using a modified WET method using deionized water (WET-DI) as the extractant.

Based upon the 90% arcsine transformed Upper Confidence Level (UCL) and average Waste Extraction Test-Deionized Water Extraction Solution (WET-DI) results, the upper 0.9m of soil is likely suitable for re-use in Caltrans rights-of-way.

Based upon the 95% arcsine transformed UCLs and predicted WET-Citric results, if any portion of the upper 0.9 m of excavated soil is to be disposed, it should be handled as a hazardous material with respect to total and soluble lead content. Other Title 22 metals do not appear to be of concern; however, additional sampling and statistical analysis would be necessary to fully characterize this soil. Caltrans should notify the contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil and that appropriate health and safety measures should be taken to minimize the exposure to lead.

Asbestos and Lead Paint
Studies show that lead paint waste is affecting soils beneath or adjacent to the following structures: Shoemaker, Carmenita, Route 5/605, Imperial Highway, Route 2/5, Orr and Day Overhead, North Fork Coyote Creek Wash, Rosecrans, Valley View, Florence, San Antonio, Alondra, Silver Bow Pedestrian Overcrossing, Pioneer and Firestone Bridges. Coyote Creek Wash sampling indicated that there are non-hazardous levels of lead in on-site soil.

The majority of residential buildings within the Area of Potential Effect (APE) were constructed prior to 1980. Therefore, there is a high likelihood that these structures incorporate asbestos containing materials (ACM) and/or lead-based paint (LBP). Assessment of ACM and LBP conditions was not in the scope of the ISA. However, it is recommended that the potential presence of these materials be assessed prior to demolition of any structures (including commercial and industrial structures).

Commercial and Industrial Contaminant Sources
Direct inspections of the commercial and industrial properties, located within APE, on May 15 and 22, June 9 and 10, December 16 and 19, 2003, and on February 19, 20 and 23 and March 1, 5, 8, 9, 10, 11 and 12, 2004. In accordance with Notice of Entry letters, all properties, to which access was obtained, were visually inspected for evidence of possible past and/or current environmental concerns. Individual site inspection observations are summarized in tables included in the ISAs. Photos, included on a compact disk (CD) in Appendix E of the ISA, show the general characteristics of each inspected site.

At the times of inspections[1], the majority of inspected sites did not present any recognizable environmental concerns, with the following exceptions:

1 Although some sites may not have been found to present a concern based on visual observations, they were determined to be of environmental concern based on regulatory agency reviews or other reasons, as described in the following sections.

Table 3-12.1 – Properties of Hazardous Material Environmental Concerns		
Site ID	**Site Name**	**Visual Observation of Concern**
Cerritos		
C-6	Royal Plywood	USTs
Downey		
D-1	Sam's Club	Potential former automotive operations, questionable soil conditions, potential former transformers
D-2	Discount Auto SVC & Repair	Small automotive operation
D-3	Massey GM & Chevy	Large automotive operation, on-site clarifier
D-4	Diesel Tune	Small automotive operation, former gas station
La Mirada		
L-7	Former Texaco	Former gas station; impacted soil excavation; multiple groundwater monitoring wells
L-8	Cook's Chevron	USTs. Multiple groundwater monitoring wells; treatment compound
L-17	Star Metal	Large metal recycling operation. Groundwater monitoring wells.
L-26	Vista Media	Poor housekeeping in light-industrial warehouse. Trash/debris around the property.
L-27	Hayes Lemmerz	Large wheel manufacturing operation. Old equipment, although decommissioned, still present on-site. Aluminum dust.
L-28	Diamond Construction	Waste oil AST. Poor housekeeping in heavy machinery yard.
L-29	Architectural Roofing & Construction	Poor housekeeping in equipment yard.
L-30	Multi-Unit Square	Poor housekeeping practices in chemical storage and machine shop units.
L-39	Komatsu/PTO	Poor housekeeping in this medium-size truck repair operation. AST
L-43	Gateway Chevrolet	UST (to be removed). Some surficial staining.
Norwalk		
N-1	Stop-n-Go Market	Former gas station; very uneven pavement
N-6	Former Shell	Former gas station, multiple groundwater monitoring wells; all structures demolished
N-10	Sultze's Auto	Small automotive operation with poor housekeeping
N-11	AC&DC Auto	Small automotive operation; on-site clarifier. Site clean-up performed.
N-18	Budget Rent-a-car	Former location of undocumented UST. Poor housekeeping in portions of the site.
Santa Fe Springs		
S-4	Santa Fe Nissan	Former automotive repairs
S-5	El Monte RV	UST
S-15	Sunston/Komatsu Forklifts	ASTs; surficial staining

Source: I-5 Initial Site Assessment (2004)

3-12.3 IMPACTS

Regional groundwater contamination may affect the project area. During construction of the proposed improvements, oil and gas wells could be encountered. If the wells were not originally abandoned properly according to California codes and regulations, they could leak oil and/or gas and become an environmental or explosion hazard.

Lead contamination from past vehicle emissions may be encountered during construction in unpaved areas of existing Caltrans or local city rights-of-way or rights-of-way that would be acquired by Caltrans.

3-12.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

If excavated soil at the site is to be reused within the Caltrans rights-of-way, any portion of the upper 0.9m of soil should be placed under pavement and at least 1.5m above the maximum groundwater elevation in accordance with the DTSC Lead Variance. If any portion of the upper 0.9m of soil excavated at the site is to be disposed, it should be handled as a hazardous material with respect to total and soluble lead content. Caltrans would notify contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil and that appropriate health and safety measures should be taken to minimize exposure to lead.

Project construction would be conducted with a contingency plan in place in the event that unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes are unexpectedly encountered during construction. This contingency plan would address underground storage tank decommissioning, field screening and materials testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers.

In addition, all structures that would be demolished as part of construction would undergo an evaluation for the presence of asbestos-containing materials and lead-based paint prior to demolition. Solid waste and litter control would be carried out as an extension of existing maintenance procedures.

The asbestos and lead paint survey on the structures revealed the following:

Barrier railing shims and thread sealant on bridges 53-1658 (Florence Ave. on-ramp OC) and 53-1657 (NB 605 to NB 5 connector OC) should be treated as Category II, non-friable asbestos-containing material. It is recommended that a licensed and certified asbestos abatement contractor removes and disposes of the barrier rail shims and thread sealant prior to any activities that would disturb the material.

Structures 53-631 (Valley View Ave. OC), 53-630 (Alondra Blvd. OC), 53-214 (Carmenita Road OC), and 53-1015 (Shoemaker Ave. OC) had peeling/flaking paint that should be removed and disposed of as hazardous waste prior to planned retrofit or demolition activities.

Based on a review of background data, regulatory agency records, historical records, observations made during the site reconnaissance, the following conclusions and recommendations are presented regarding the project site.

The majority of commercial and residential properties encompassed by the I-5 APE do not present a potential environmental threat to the proposed widening. No further inquiry or investigation of these properties is recommended, as discussed on an individual site basis in the ISA. However, the following 38 sites present a concern and require one or some combination of the following:

- Further site investigation (SI, 23 sites). Preliminary scope for the SI is suggested wherever appropriate;

- Implementation of environmental monitoring during construction (10 sites);
- Negotiation of clean-up agreements (3 sites);
- and/or further inquiry (5 sites), as discussed below:

Table 3-12.2 – Recommendations for Further Study

Site ID	Site Name	Conclusion	Recommendation(s)
		Cerritos	
C-3	Roane Floor/Tile Supply	Probability of encountering contamination is unknown.	Perform a limited further SI to confirm the existence or non-existence of the former UST and any associated contamination within the APE.
C-6	Royal Plywood	Moderate amounts of residual contamination exist at the site, and may be encountered during construction.	SI may be necessary to adequately define the limits of contamination. It is also recommended, that if an SI is not performed, environmental monitoring be implemented during construction.
		Downey	
D-1 & 2	Sam's Club and Discount Auto SVC & Repair	Sites involved in variety of automotive operations	Perform a limited-scope SI, e.g. soil gas survey, in areas adjacent to on-ramps to the I-5 and Rt. 605 freeways
D-3	Massey GW & Chevy	Some contamination and/or USTs closed-in-place may still be present at the site	Perform further SI. Scope of SI would depend on the exact limits of the proposed property acquisition.
D-4	Diesel Tune	Former gas station involved in truck repair	Perform further SI to adequately define the extent of potential contamination within the APE.
		La Mirada	
L-3	Samsung	Former location of a gas station	Perform further inquiry and/or investigation into gas station operations. Land survey may be necessary.
L-4	Elephant Bar	Former location of a gas station and/or repair garage	Perform further inquiry and/or investigation into gas station/garage operations. Land survey may be necessary.
L-7 & 8	Former Texaco and Cook's Chevron	Potential environmental problem due to high probability of encountering shallow groundwater contamination during construction. Potential environmental liability, if full takes.	Evaluate the depth of excavation once the design is finalized. Implement environmental monitoring during construction. Negotiate clean-up agreements, if sites become full takes.
L-17	Star Metal	Encountering contamination during construction is unlikely. However, the site is potentially a full take.	If the site is determined to be a full take, conduct SI to screen for shallow heavy metals, solvent and TPH concentrations.
L-23	Schulsinger	Former dry cleaning operation	Conduct a limited SI, e.g., a soil gas survey, to screen for VOCs.
L-26	Vista Media	Encountering contamination during construction is unlikely. However, the site is potentially a full take.	If the site is determined to be a full take, conduct SI to determine the extent of contamination. Implement environmental monitoring during construction.
L-27	Heyes Lemmerz	Probability of encountering contamination is unknown. The site is potentially a full take.	Conduct SI to screen for shallow heavy metals, solvent and TPH concentrations within the potential work and/or right-of-way areas.

Table 3-12.2 – Recommendations for Further Study			
Site ID	**Site Name**	**Conclusion**	**Recommendation(s)**
L-28	Diamond Construction	Encountering contamination during construction is unlikely. However, the site is potentially a full take.	If the site is determined to be a full take, conduct SI to determine the extent of contamination. Implement environmental monitoring during construction.
L-29	Architectural Roofing and Construction	Potential full take. Poor housekeeping practices of environmental concern.	Conduct further inquiry with site owner/operators and more direct inspection to assess the overall potential for contamination.
L-30	Multi-unit Square	Potential full take. Poor housekeeping practices of environmental concern.	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall site contamination.
L-32, 33 & 34	Auto Repair Complex, Machine Shop Complex & Silk Shop	Potential full take. Soil and groundwater contamination at L-33.	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall contamination at L-32 and L-33. Negotiate clean-up agreement and/or conduct a comprehensive investigation, if site L-33 becomes a full take.
L-39	Komatsu/PTO	Poor housekeeping practices of environmental concern. The site is potentially a full take.	If the site is determined to be a full take, conduct an invasive SI to identify and delineate potential site contamination.
L-41 & 42	Mack Sales & Camping World	Encountering contamination during construction is unlikely. However, the site is potentially a full take.	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall site contamination (full take) or only ROW portions (partial take)
L-43	Gateway Chevrolet	Site of variety of commercial and, previously, industrial operations	Implement environmental monitoring during construction.
Norwalk			
N-1	Stop-n-Go Market	Likelihood of encountering contamination is unknown	Conduct further inquiry with site owner/operator; an SI may be appropriate
N-6	Former Shell	Potential for encountering isolated spots of shallow soil contamination	Implement environmental monitoring during construction.
N-10 & 11	Sultze's Auto and AC&DC Auto	Automotive operations. Potential full takes.	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall site contamination.
N-18	Budget Rent-a-Car	Automotive operations. Potential full take.	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall site contamination.
N-19	Tune-up Masters	Minor amounts of residual contamination may be encountered during construction. Former gas station.	Conduct a limited invasive SI to screen the site for the presence of former USTs and associated potential contamination. Implement environmental monitoring during construction.
N-20	El Pollo Loco	Likelihood of encountering contamination is unknown.	Conduct further inquiry with site owner/operator; an SI may be appropriate.
Santa Fe Springs			
S-4	Santa Fe Nissan	Residual soil contamination may be encountered.	Perform further SI. Conduct further inquiry into pipeline leak.
S-5	El Monte RV	Minor residual contamination may be encountered during construction	Implement environmental monitoring during construction
S-7	Bus West	Previous cement operations	Perform further SI to evaluate for shallow soil pH, heavy metals and TPH concentrations within APE
S-9	Carmenita Transfer Plant	Minor residual contamination	Implement environmental monitoring during construction.

Table 3-12.2 – Recommendations for Further Study			
Site ID	**Site Name**	**Conclusion**	**Recommendation(s)**
S-13	Sam Pievac/ COI	Potential for encountering contamination during construction	Perform further SI.
S-15	Sunston/Komatsu Forklifts	Potential for encountering contamination during construction	Perform further SI.
S-18	Freeway Commerce Center	Potential full take; various commercial and light industrial operations	Perform a limited-scope SI, e.g. soil gas survey, to screen for overall site contamination.

Source: I-5 Initial Site Assessment (2004)

3-12.5 CUMULATIVE IMPACTS

Cumulative Hazardous Waste/Materials Effects

The study area for cumulative hazardous waste/materials impacts encompasses the geographic boundaries of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs.

Each project that involves demolition or renovation of structures, excavation of soil, or removal of groundwater has the potential to encounter hazardous waste/materials. Regulations are in place to address handling, transport, and disposal of these substances. Hazardous building materials (e.g., asbestos and lead-based paint) are phased out and are not used for new development/redevelopment projects (with specific exceptions).

Technological improvements have reduced tank spills, and increased education and enforcement has reduced improper disposal of hazardous waste/materials within Los Angeles and Orange Counties. For these reasons, it is anticipated that future projects within the study area would involve less exposure to hazardous waste/materials than is currently experienced.

Project Contribution to Cumulative Hazardous Waste/Materials Effects

All of the project alternatives involve improvements to the existing project area; therefore, they all have the potential to contact hazardous waste/materials. The greater the amount of demolition/renovation and excavation, the greater the potential to contact these substances. Alternative 1 has the lowest potential for hazardous waste/materials effects and Alternative 5 has the greatest potential. Minimization measures are required to address hazardous building materials, contaminated soils, contaminated groundwater, and unknown substances. All of the alternatives would involve cleanup of hazardous waste as part of the acquisition process or as it is encountered, resulting in a beneficial impact to the local community. With mitigation to address use, transport, and disposal of hazardous waste/materials, the project alternatives' contribution to cumulative hazardous waste/materials effects would not be substantial.

3-13 AIR QUALITY

3-13.1 REGULATORY SETTING

The Clean Air Act 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. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. 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 set for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and particulate matter (PM). California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTP) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 25. 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 Clean Air Act are met. If the conformity analysis is successful, the metropolitan planning organization, such as the Southern California Associations of Governments (SCAG) for the Southern California region which includes Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial counties and the appropriate federal agencies, such as the Federal Highway Administration and the Federal Transit Administration, make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is "non-attainment" or "maintenance" for any of the criteria pollutants. A region is a "non-attainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as non-attainment areas but have recently met the standard are called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter 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 "non-attainment" areas the project must not cause any increase in the number and severity of violations. If a project creates a known CO,

particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Project Inclusion in Approved RTP & RTIP
The proposed project is included in SCAG's currently conforming 2004 RTP, which was approved by FHWA/FTA on June 7, 2004. The project is also included in SCAG's currently conforming, financially constrained 2004 RTIP which was approved on October 4, 2004. The following project information is excerpted from the 2004 RTP and RTIP, project listing:

- Lead Agency – Caltrans
- Project ID # - LA0D73
- Air Basin – SCAB
- Model # - 1404
- Program Code – CAN69
- Route – 5
- Begin Post Mile – 0.1
- End Post Mile – 6.8
- **Description from the 2004 RTIP, Section II: Regional Emissions Analysis Modeling list for State Highways on page 2 of 22** – La Mirada, Norwalk & Santa Fe Springs – Orange Co Line to Rte. 605 junction. Widen for HOV & Mixed flow lanes, Reconstruct Valley View.
  - **Proposed Changes:** Widen for HOV & mixed flow lanes – 1 lane in each direction.
- **Description from the 2004 RTP, Appendix I: Tier 2 Los Angeles County Project list for State Highways on page I-99** – La Mirada, Norwalk & Santa Fe Springs – Orange Co Line to Rte. 605 junction. Widen for HOV & Mixed flow lanes, Reconstruct Valley View & Carmenita Rd. I/C. Model # 1404.

On October 25, 2005, SCAG provided a clarification to the RTP and RTIP project description.

- TIP project ID LA0D73 is modeled in 2004 RTIP 2015 Build network as a 10 lane project (4MF + 1 HOV). The project is modeled for 2 additional lanes in each direction (1 HOV and 1MF), thereby going from a 6-lane facility to a 10-lane facility.

Timely Implementation of Transportation Control Measure (TCM)
The proposed project is listed as a TCM in the 2004 RTIP, Technical Appendix, Section III, Timely Implementation of TCMs, p. III-22. The TCM list description for proposed project is consistent with that of Section II. The project completion date is scheduled for 2014 in the 2004 RTP and RTIP.

3-1.2 AFFECTED ENVIRONMENT

General Meteorology
The project site is located in Los Angeles and Orange Counties, which are within the South Coast Air Basin (Basin) that includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by South Coast Air Quality Management District (SCAQMD), a regional agency created for the Basin.

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, and high mountains surround the rest of the Basin. The region lies in the semi-

permanent 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 varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit. 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 Montebello Station. The annual average maximum temperature recorded from January 1979 to December 2005 at this station is 26.2^{o}C (79.1^{o}F), and the annual average minimum is 13.2^{o}C (55.7^{o}F). December and January are typically the coldest months in this area of the Basin.

The majority of annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thunderstorms in coastal regions and slightly heavier showers in the eastern portion of the Basin along the coastal side of the mountains. The Montebello Station also monitors rainfall levels. Average monthly rainfall measured at this station varied from 10.6 centimeters (cm) (4.07 inches [inches]) in February to 0.8 cm (0.32 in) or less between May and October, with an average annual total of 40.39 cm (15.90 in). Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

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 in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning. Inversion layers are significant in determining ozone (O_3) formation. O_3 and its precursors will mix and react to produce higher concentrations under an inversion. PM_{10} is both directly emitted and created indirectly in the atmosphere as a result of chemical reactions. Concentration levels are directly related to inversion layers due to the limitation of mixing space.

Winds in the vicinity of the project area blow predominantly from the east-southeast, with relatively low velocities. Wind speeds in the project area average about 6.4 kilometers per hour (kph) (four miles per hour [mph]). 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 winds, know as Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and temperature inversions produces the greatest pollutant concentration. On days of no inversion of high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominately on shore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are CO and oxides of nitrogen because of inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form photochemical smog or ozone.

Attainment Status
The Basin is designated as in maintenance for NO_2 and non-attainment for the following criteria pollutants: CO, Ozone (1-hour and 8-hour), $PM_{2.5}$, and PM_{10}. A SIP is required for each criteria pollutant designated in maintenance or non-attainment. The Basin currently has four applicable SIPs: The 1997 NO_2 SIP, 1997 Ozone SIP/AQMP (amended in 1999), the 1997 CO SIP, and the 2002 PM_{10} SIP.

The 2003 AQMPs/SIPs were approved by SCAQMD and have received an EPA adequacy finding on the emissions budgets for conformity determination. The U.S. EPA issued final non-attainment area designations on April 15, 2004 for 8-hour ozone. Designations and Phase I of the implementation regulations were published in the Federal Register on April 30, 2004, effective June 15, 2004. An 8-hour conformity determination for SCAG's 2004 RTP and RTIP was made by FHWA and FTA on June 15, 2005. On November 9, 2005 the Environmental Protection Agency (EPA) issued a final rule that would take the next steps to protect the public from ground-level ozone pollution. This rule, called the Phase II Ozone Rule, describes the actions states must take to reduce ground level ozone.

On June 15, 2005 the 1-hour ozone standard was rescinded along with all non-attainment and attainment-maintenance designations, however, the 1-hour ozone NAAQS designation and classification status was retained in reference to the effective data of designation for the 8-hour NAAQS for purposes of the anti-backsliding regulations (40 CFR 51.905). Designation of $PM_{2.5}$ non-attainment areas were published in the Federal Register on January 5, 2005 and is effective as of April 5, 2005. SCAG is working on the $PM_{2.5}$ conformity determination for the 2004 RTP and RTIP and seeks Federal approval prior to April 5, 2006.

The goal of a SIP is to secure an attainment designation for the criteria pollutant at a future year. As such, a SIP is created if a pollutant is in non-attainment. Of the six criteria pollutants, two are in attainment: lead and sulfur dioxide. The remaining pollutants have its respective SIP to address attainment for future years. The following table lists the designations per federal and state (NAAQS) standards:

Table 3-13.1 – Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	Federal	State
O_3 1-hour	Extreme Non-attainment	Non-attainment
O_3 8-hour	Severe-17 Non-attainment	Not designated
PM_{10}	Serious Non-attainment	Non-attainment
$PM_{2.5}$	Non-attainment	Not designated
CO	Serious Non-attainment	Non-attainment
NO_2	Attainment/Maintenance	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB (www.arb.ca.gov/desig/desig.htm).

Criteria Pollutants

Pursuant to the Federal Clean Air Act of 1970 (P.L. 91-064, Dec. 31, 1970) and the Clean Air Act Amendments of 1990 (P.L. 101-549, Nov. 15, 1990), the U.S. Environmental Protection Agency (US EPA) established the NAAQS. The NAAQS was established for six major pollutants or criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e. impairment of visibility, damage to vegetation and property). Likewise, in California, the state has implemented air quality standards or criteria for the six pollutants known as the California Ambient Air Quality Standards (CAAQS). The table below delineates the NAAQS and CAAQS for the criteria pollutants.

Table 3-13.2 – Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)[8]	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m^3)*		0.08 ppm (157 µg/m^3)[8]		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.25 ppm (470 µg/m^3)		--		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	--	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3-Hour	--		--	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		--	--	
Lead[9] (Pb)	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Cloride[9]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: CARB (5/6/05).

* This concentration was approved by the Air Resources Board on Aptil 28, 2005 and is expected to become effective in early 2006.

Footnotes:

[1] California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1 and 24 hour); nitrogen dioxide; suspended particulate matter, PM_{10}; and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25˚C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25˚C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] New federal eight-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.

[9] The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

3-13.2 IMPACTS

Regional Analysis Contingency and Finding

The proposed project is listed in the 2004 RTP and RTIP and by design concept and scope of the project, as assumed in SCAG's regional emissions analysis, is consistent with 10-lane alternative (Alternative 4). However, if Alternative 2, 3, or 5 or a hybrid combination of these is selected as the preferred alternative, SCAG would have to be notified of the selected option for inclusion in the next regional analysis update. A flowchart obtained from the Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21), known as Figure 1, New Project Requirements was used to determine the regional conformity requirement of proposed project. The questions in the flowchart cited are followed by a response, which would determine the next question:

- Is this project exempt from conformity? **NO,** the proposed project is not exempt from conformity because the project includes additional through lanes on the I-5 Freeway. Therefore, it is not exempt from conformity.
- Is the project in an area that is subject to conformity? **YES**, the project is located in a non-attainment or maintenance area for all current federal air quality standards except Lead (Pb) and Sulfur Dioxide (SO_2).
- Is the project exempt from regional conformity? **NO**, as mentioned above, the proposed project would increase the number of through lanes on the I-5 freeway; hence it is not exempt from regional conformity.
- Is the project in an area that has a Metropolitan Planning Organization (MPO)? **YES,** the proposed project is fully funded and is in the 2004 RTP, which was found to conform by SCAG in April 2004. The FHWA and FTA adopted the air quality conformity finding on June 7, 2004. The project also is included in the SCAG's financially constrained 2004 RTIP (Section II: Regional Emissions Analysis Modeling list for State Highways on page 2 of 22). The 2004 RTIP was found to conform by FHWA and FTA on October 4, 2004. The design concept and scope of the proposed project is consistent with the project description in the 2004 RTP, the 2004 RTIP and the assumptions in SCAG's regional emissions analysis.

<u>Carbon Monoxide Hot Spot Analysis</u>

The scope required for local analysis is summarized in Section 4, Local Analysis, Figure 3, entitled Local CO Analysis, of the Transportation Project-Level Carbon Monoxide Protocol. This flowchart is used to determine the type of CO analysis required for the proposed project. Below is a step by step explanation of the flowchart. Each level cited is followed by a response, which would determine the next applicable level of the flowchart for the proposed project. The flowchart begins at level 1:

- Level 1: Is the project in a CO non-attainment area? **Yes**, the Basin is classified as non-attainment for CO. CO designation maps and a summary of the most recent 3 years of the 4-highest monitored CO data are presented below. There is no recorded violation within the most recent three years of CO data. The data is obtained from the California Air Resource Board website. Data from the Pico Rivera Station air-monitoring site was used for the years 2002 to 2004, located at the described location:

Pico Rivera Station
3713 San Gabriel River Pkwy
Pico Rivera, CA 90660

Table 3-13.3 - Highest 4 Daily Maximum 8-Hour CO (ppm) Averages			
	2002	**2003**	**2004**
High	4.00	3.94	3.47
2nd High	3.76	3.74	2.97
3rd High	3.66	3.66	2.97
4th High	3.54	3.54	2.90

Federal Standard = 9 ppm

- Level 2: Is the project located in an area with an approved CO attainment or maintenance plan? **NO,** there is no approved CO attainment or maintenance plan for the project area (Proceed to Level 3).
- Level 3: Is the project in an area with a submitted CO attainment or maintenance plan? **YES**, the 2003 AQMP replaces the submitted 1997 attainment demonstration for the federal CO standard and provides a basis for a CO maintenance plan in the future.
- Level 3 (cont.): Was the analysis in the attainment plan performed in sufficient detail to establish CO concentrations as a result of micro-scale modeling? **YES**.
- Level 3 (cont.): Were impacts acceptable? **YES**.
- Level 3 (cont.): Can CO concentrations in the area affected by the project under review be expected to be lower than at those locations specifically modeled in the attainment plan? **NO**, when comparing the CO concentrations in the attainment plan to the proposed project, the prevailing factor is traffic demand. The attainment plan models the worst case intersections in the region (see the 2003 AQMP Appendix V: Modeling and Attainment Demonstrations) where the proposed project is a freeway project, which would substantially have greater traffic counts than the intersections modeled in the attainment plan (Proceed to Level 4).
- Level 4: Perform a screening analysis considering project location, nearby, traffic volumes, LOS, and air quality conditions for current and future years. The screening analysis in Appendix A of the CO Protocol is based on the EMFAC7 model. As the new EMFAC2002 model is required for CO hot spot analyses, the screening analysis Appendix A is no longer to be used (Proceed to Level 5).
- Level 5: Perform a detailed analysis. Are impacts acceptable? **YES**. As detailed below, a CALINE4 CO hot spot analysis was conducted at 110 receptor locations along the proposed project. Due to the numerous pages needed to display the receptor locations for the entire project, please refer to the Air Quality Analysis, Figure 4, where the model receptor locations are displayed on aerial maps. No receptor locations have been or would be exposed to CO concentrations exceeding the Federal or State standards.

The impact on local CO levels was assessed with the CARB-approved CALINE4 air quality model, which allows micro-scale CO concentrations to be estimated along roadway corridors or near intersections. This model is designed to identify localized concentrations of CO, often termed "hot spots." A brief discussion of input to the CALINE4 model follows. The analysis was performed for the worst-case wind angle and wind speed conditions and is based upon the following assumptions:

- The highest CO concentrations would occur during peak traffic hours; hence, CO impacts calculated under peak traffic conditions represent a worst-case analysis. Modeling of the CO hot spot analysis was based on traffic volumes generated by the project traffic study (Department/LARTS, September 2002, April 2003, and February 2004), which identified the p.m. peak traffic levels generated in the project area for the existing (year 2003), opening year (2013), and year 2030 under no build and build alternatives.
- Selected modeling locations represent the I-5 main lanes and ramps between SR-91 and I-605.
- Receptor locations with the possibility of extended outdoor exposure from 8 meters (approximately 26 feet) to 30 meters (approximately 1,190 feet) of the roadway centerline were modeled to determine CO concentrations.
- The calculations assume a meteorological condition of almost no wind (0.5 meter/second), a suburban topographical condition between the source and receptor, and a mixing height of 1,000 meters, representing a worst-case scenario for CO concentrations.
- CO concentrations are calculated for the one-hour averaging period and then compared to the one-hour standards. CO eight-hour averages are extrapolated using techniques outlined in the SCAQMD CEQA Air Quality Handbook (April 1993) and compared to the eight-hour standards; a persistence factor of 0.7 was used to predict the CO concentrations.
- The "at-grade" link option with speed adjusted based on average cruise speed and number of vehicles per lane per hour was used rather than the "intersection" link selection in the CALINE4 model (Caltrans has suggested that the "intersection" link should not be used due to an inappropriate algorithm based on outdated vehicle distribution). Emission factors from the EMFAC2002 model for all vehicles based on the adjusted speed for the years 2003 (existing), 2013 (opening year), and 2030 (build-out year) were used for the vehicle fleet.
- As suggested by the EPA, the highest level of the second-highest monitored CO concentrations, 5.4 ppm for the one-hour CO and 3.9 ppm for the eight-hour CO at the Pico Rivera station for the past three years is considered "background" concentration and is added to the model results for the existing scenario. Background concentrations for the future scenarios were taken from the SCAQMD "Projected Future Year 1-Hour Concentration" and "Projected Future Year 8-Hour Concentration" tables which were 5.1 ppm and 4.1 ppm respectively and added to the model results for both future scenarios.

It should be noted that although traffic volumes are expected to increase from their existing levels, the decrease in emission factors due to improved technology and lower ambient levels would more than offset the increase in CO emissions from increased traffic volumes. Therefore, future projected CO levels would be lower than their corresponding existing levels. There is no exceedance of either the Federal or State CO standards for the one-hour or the eight-hour durations they are all below the Federal and State standards. The analysis uses three milestone years: existing (2003), build (2013) and horizon (2030). The existing is based on traffic data availability. The build year is the expected year when proposed project would be completed and open to the public. The horizon year coincides with the last year of SCAG's regional emissions analysis. A summary of the traffic data, CALINE4 inputs required for CALINE4 modeling, and a summary of the CALINE4 output printouts are presented in Appendix H.

CO levels for all alternatives and future year scenarios do not exceed Federal and State one-hour and eight-hour standards; hence no further analysis is required.

Figure 3-13.1 – Federal and State CO Non-attainment Area Maps

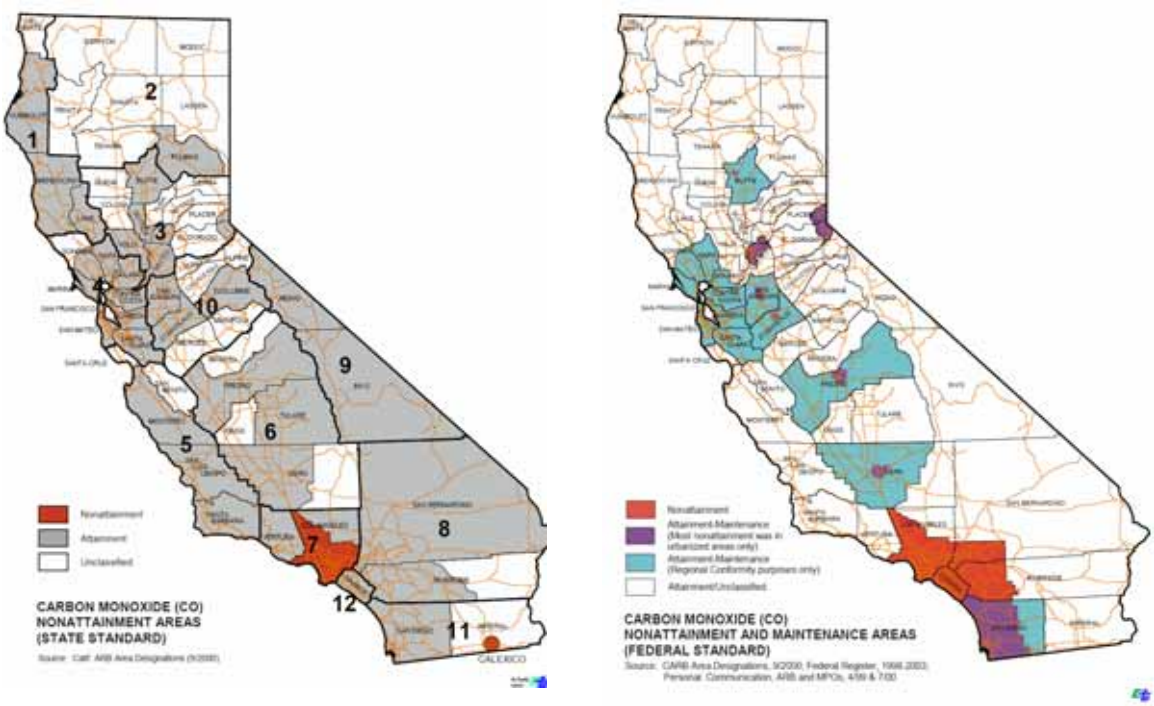
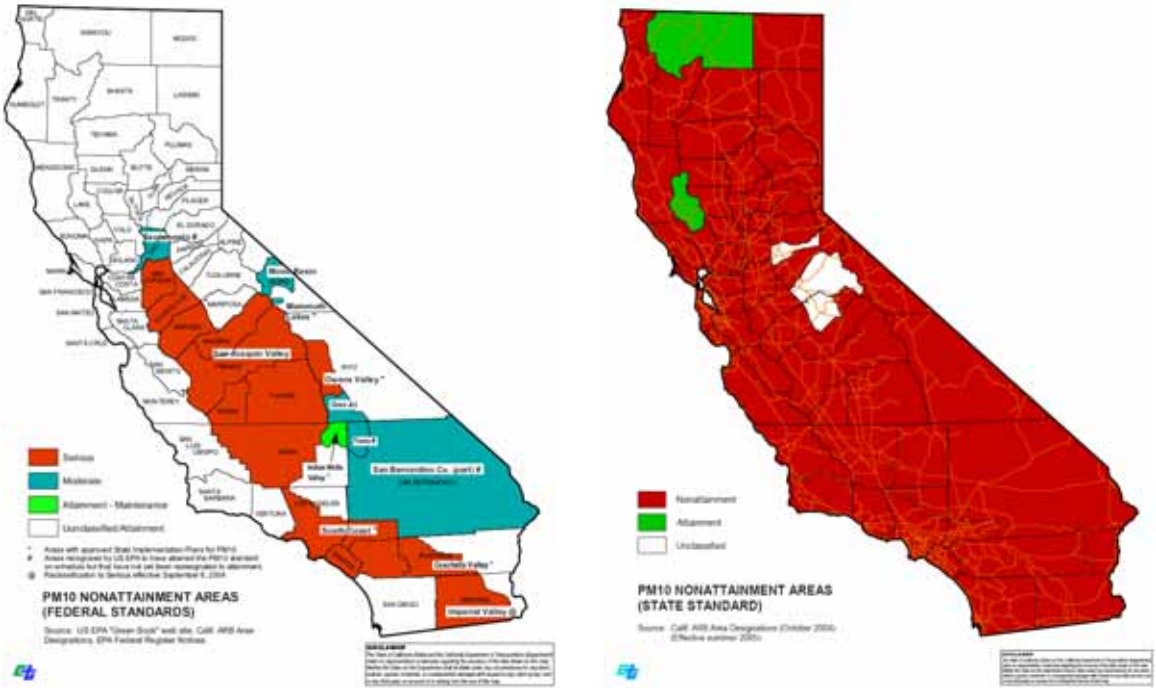


Figure 3-13.2 – Federal and State PM_{10} Non-attainment Area Maps



PM_{10} Hot Spot Analysis

Section 93.116 of the Transportation Conformity Rule states that any project-level conformity determination in a PM_{10} non-attainment or maintenance area must document that no new local PM_{10} violations would be created and the severity or number of existing violations would not be increased as a result of the project. §93.123(b)(1) requires that the PM_{10} analysis be quantitative. However, §93.123(b)(4) waives such analysis until the EPA releases modeling guidance and announces such guidance in the Federal Register. As early as 2005, no quantitative guidance has been released by the EPA, hence §93.123(b)(4) offsets the implementation of §93.123(b)(1).

FHWA released PM_{10} guidance to its field offices in September 2001. The document attempts to fill the gap in understanding the type of analysis required. It provides examples on how to develop a hot spot analysis and the guidance defers to other qualitative analysis methods (40 CFR 93.105(c)(1)(i)). In December 2004, EPA published proposed regulations to revise PM_{10} and $PM_{2.5}$ analysis requirements, but do not yet include or reference guidance materials required to complete such analyses. Caltrans and FHWA sought to build upon FHWA's 2001 guidance document by providing planners with a step-by-step tool to assist those responsible for documenting transportation project-level PM_{10} effects. On February 2005, UC Davis-Caltrans Air Quality Team developed a project-level PM_{10} analysis protocol on behalf of Caltrans and FHWA to satisfy the transportation conformity requirement for hot spot PM_{10} analyses. It is a qualitative guidance specific for California's highways and is currently used, under the terms of the FHWA guidance, to screen projects from transportation conformity analyses that are unlikely to create PM_{10} hot spot problems. Although the protocol is based, in part, on California data, it may be applied in any PM_{10} non-attainment or maintenance areas. Figure 3-13.2 shows the SCAB part of Los Angeles County as in serious non-attainment for PM_{10} per NAAQS standard and non-attainment under CAAQS.

The protocol consists of a four-part methodology to screen projects unlikely to contribute to exceedances of the PM_{10} air quality standards: (1) a "project comparison" approach for maintenance areas that allows users to compare the proposed project to pre-existing facilities; (2) a "project comparison" approach for non-attainment areas; (3) a "threshold screening" analysis that takes advantage of real-world measurements of the contribution of roadways to observed PM_{10} concentrations; and (4) a "relocate and reduce, build vs. no-build" approach that assesses whether a project would spatially reallocate traffic to reduce hot spot problems. Before proceeding with the protocol step-by-step procedures, a checklist of eight questions, helps analysts determine whether the protocol is applicable for their respective project analysis. In this case, the scope of the proposed project does not allow it to immediately be screened out; hence a flowchart is used to determine the type of PM_{10} analysis required. Below is a step by step explanation of the flowchart. The section cited is followed by a response, which would determine the next applicable section of the flowchart for the proposed project. The flowchart for the proposed project begins with Chart 2, question F2.1:

Chart 2: Project Comparison – Non-attainment Areas

- F2.1: Is there an existing facility appropriate for comparison with the proposed project (must meet Table 2 criteria)? **NO**, the Basin does have an approved PM_{10} attainment plan; however there were no intersections or existing facilities applied in the PM_{10} modeling attainment demonstration to compare with the proposed project. The 2003 AQMP incorporated updated modeling tools for attainment demonstration to reach the 2006 PM_{10} attainment target date.
- F2.4: Go to Chart 3 – Threshold Screening.

Chart 3: Threshold Screening

- F3.1: At the most representative monitor for the proposed project site, are 24-hr average concentrations expected to be ≤ 80% of the 24-hr standard (120µg/m^3)? **YES**. Presented below is a summary of the most recent 3 years of the highest four monitored PM_{10} data. Data is obtained from the nearest air monitoring station. There are 3 air monitoring stations in the project vicinity, the Anaheim – Pampas Lane, La Habra, and Los Angeles – Westchester Parkway. The La Habra station has no PM_{10} data available, the Los Angeles – Westchester Parkway PM_{10} station only has 2004 data, hence the Anaheim – Pampas Lane station data was used. The data obtained from the Anaheim – Pampas Lane site is located a the following described location:

  Anaheim – Pampas Lane Station
  1630 Pampas Lane
  Anaheim, CA 92802

Table 3-13.4 - Highest 4 Daily Maximum PM_{10} Measurements (µg/m^3)			
	2002	**2003**	**2004**
High	69.0	96.0	74.0
2nd High	64.0	77.0	70.0
3rd High	61.0	65.0	62.0
4th High	57.0	56.0	61.0

- Project conforms to 24-hr PM_{10} standard. Continue analysis for annual standard.
- F3.3: At the most representative monitor for the proposed project site, are annual average concentrations expected to be ≤ 64% of the annual standard (32µg/m^3)? **NO**. The following annual average concentrations are also obtained from the Anaheim – Pampas Lane site:

Table 3-13.5 – Annual Averages for Pampas Lane Station			
	2002	**2003**	**2004**
National Annual Average	33.5	32.8	33.9
State Annual Average	33.5	32.8	34.0

- F3.4: Calculate the annual threshold value; is the projected annual background PM_{10} concentration <= annual threshold?

  When calculating PM_{10} concentrations, there are 2 factors to account for as to whether the project would pass the annual PM_{10} screening test:
  1. Select a 24-hour project increment; and
  2. Find the appropriate CR (conversion ration)

  If Appendix C is used, the CR (Los Angeles) = 0.55. However, the years used to calculate the CR (1998-2000) are not the most recent 3-years of data; hence the most recent PM_{10} data would be used instead to determine a more appropriate CR.
- F3.4: Calculate the annual threshold value; is the projected annual background PM_{10} concentration ≤ annual threshold?

  When calculating PM_{10} concentrations, there are 2 factors to account for as to whether the project would pass the annual PM_{10} screening test:

1. Select a 24-hour project increment; and
2. Find the appropriate CR (conversion ratio)

If Appendix C is used, the CR (Los Angeles) = 0.55. However, the years used to calculate the CR (1998-2000) are not the most recent 3-years of data; hence the most recent PM_{10} data would be used instead to determine a more appropriate CR.

Table 3-13.6 – Conversion Ratios for PM_{10} Concentrations	
CR = Annual Average/24-hour concentrations:	National Annual PM_{10} Maximum:
CR (2002) = 33.5/69.0 = 0.49	2002 – 33.5
CR (2003) = 32.8/96.0 = 0.34	2003 – 32.8
CR (2004) = 33.9/74.0 = 0.46	2004 – 33.9

Use conservative numbers to calculate the PM_{10} Concentration.
CR (2002) = 0.49 Annual PM_{10} (2004) background concentration = 33.9
Table 3 – Freeway > 150,000 vehicles/day = 8.0
Annual project PM_{10} concentration = CR (2002) x freeway increment = (0.49)(8.0) = 3.92
Annual PM_{10} Total = annual background + annual project increment = 33.9 + 3.92=37.82≈38
Is project's PM_{10} Total ≤ Annual PM_{10} NAAQS? **YES**, $38\mu g/m_3 \leq 50\mu g/m_3$

- F3.5: Project screened out. End analysis. The project has sufficiently addressed the PM_{10} impact and no further analysis is needed.

Fugitive Dust
PM_{10} emissions from site clearance/grading operations during a peak construction day are based on assumptions and past experience on similar sized projects. The SCAQMD estimates that each acre of graded surface creates about 26.4 pounds of PM_{10} per day during the construction phase of the project, and 21.8 pounds of PM_{10} per hour from dirt/debris pushing per dozer/scraper. The entire site is not expected to be under construction at one time. It is assumed that up to three acres of land would be under construction or exposed on any one day. It is also assumed that at least one dozer/scraper would be used eight hours per day, together with other equipment. Therefore, a maximum of 254 pounds of PM_{10} per day would be generated from soil disturbance without mitigation during the construction phase. This level of dust emission would exceed the SCAQMD threshold of 150 pounds per day during construction.

<u>$PM_{2.5}$ Hot Spot Analysis</u>
The Environmental Protection Agency (EPA) released new $PM_{2.5}$ and PM_{10} hotspot analysis requirements in its March 10, 2006 final transportation conformity rule (71 FR 12468). The 2006 Final Rule supersedes the Federal Highway Administration's (FHWA) existing September 12, 2001, "Guidance for Qualitative Project-Level: Hotspot Analysis in PM_{10} Non-attainment and Maintenance Areas." The following $PM_{2.5}$ Qualitative Hotspot Analysis data was obtained from the Air Quality Analysis for the Interstate 5 (I-5) Corridor Improvement Project Technical Addendum, August 2006.

The new Final Rule establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local air quality impacts in $PM_{2.5}$ and PM_{10} non-attainment and maintenance areas. The proposed project is located in the South Coast Air Basin (Basin), which has been designated as a federal non-attainment area for both $PM_{2.5}$ and PM_{10}; therefore, a hotspot analysis is required for both pollutants.

A hotspot analysis is defined in the Code of Federal Regulations (CFR) (40 CFR 93.101) as an estimation of likely future localized $PM_{2.5}$ or PM_{10} pollutant concentrations and a comparison of those concentrations to the relevant air quality standards. A hotspot analysis assesses the air quality impacts on a scale smaller than an entire non-attainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts. When a hotspot analysis is required, it is included within the project-level conformity determination that is made by the FHWA or the Federal Transit Administration (FTA).

Clean Air Act Section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. Section 176(c)(1)(B) states that federally supported transportation projects must not "cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."

Ambient Air Quality Standards (AAQS). $PM_{2.5}$ nonattainment and maintenance areas are required to attain and maintain two standards:

- 24-hour standard: 65 micrograms per cubic meter ($\mu g/m^3$)
- Annual standard: 15.0 $\mu g/m^3$

The current 24-hour standard is based on a 3-year average of the 98th percentile of 24-hour $PM_{2.5}$ concentrations; the current annual standard is based on a 3-year average of annual mean $PM_{2.5}$ concentrations. A $PM_{2.5}$ qualitative hotspot analysis must consider both standards unless it is determined for a given area that meeting the controlling standard would ensure that Clean Air Act requirements are met for both standards. The interagency consultation process should be used to discuss how the $PM_{2.5}$ qualitative hotspot analysis meets statutory and regulatory requirements for both $PM_{2.5}$ standards, depending on the factors that are evaluated for a given project.

Projects of Air Quality Concern (POAQC)

The first step in the hotspot analysis is to determine whether the project qualifies as a POAQC. The EPA specified in 40 CFR 93.123(b)(1) of the Final Rule that POAQC are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ and PM_{10} State Implementation Plan (SIP) as a localized air quality concern. The Final Rule defines the POAQC that require a $PM_{2.5}$ and PM_{10} hotspot analysis in 40 CFR 93.123(b)(1) as:

i. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

ii. Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that would change to Level-of-Service D, E, or F

because of increased traffic volumes from a significant number of diesel vehicles related to the project;

iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

v. Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

This project clearly meets the criteria of the first item above, as the project proposes adding one or more lanes to the I-5 freeway, resulting in significant increases in traffic including diesel vehicles. Therefore, this project is a POAQC and $PM_{2.5}$ and PM_{10} Hotspots analyses are required.

Types of Emissions Considered

In accordance with "Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas" (Guidance) developed by the EPA in conjunction with the FHWA in March 2006, this hot-spot analysis would be based only on directly emitted $PM_{2.5}$ emissions.

Vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. According to the March 10, 2006 final rule, road dust emissions are only to be considered in $PM_{2.5}$ hot-spot analyses if the EPA or the state air agency has made a finding that such emissions are a significant contributor to the $PM_{2.5}$ air quality problem (40 CFR 93.102(b)(3)). The EPA or the California Air Resources Board (ARB) has not yet made such finding of significance; and therefore, the re-entrained $PM_{2.5}$ is not considered in this analysis.

Secondary particles formed through $PM_{2.5}$ precursor emissions from a transportation project take several hours to form in the atmosphere giving emissions time to disperse beyond the immediate project area of concern for localized analyses; therefore, they would not be considered in this hot-spot analysis. Secondary emissions of $PM_{2.5}$ are considered as part of the regional emission analysis prepared for the conforming RTP and FTIP.

According to the project schedules, the construction would not last more than 5 years, and construction-related emissions may be considered temporary; therefore, any construction-related $PM_{2.5}$ emissions due to this project would not be included in this hot-spot analysis. This project would comply with the South Coast Air Quality Management District (SCAQMD) Fugitive Dust Rules for any fugitive dusts emitted during the construction of this project. Excavation, transportation, placement, and handling of excavated soils would result in no visible dust migration. A water truck or tank would be available within the project limits at all times to suppress and control the migration of fugitive dusts from earthwork operations.

Analysis Method

This Hotspots analysis relies on air quality data from monitoring stations along the length of the proposed project. This data is compared with AAQS and examined for trends in order to predict

future conditions in the project vicinity. Additionally, the impacts of the project are discussed and the likelihood of these impacts interacting with the ambient $PM_{2.5}$ levels to cause hotspots.

Baseline $PM_{2.5}$ Emissions

The monitored $PM_{2.5}$ concentrations at the Anaheim-Pampas Lane Station and at the Los Angeles-North Main St. Station are shown in Table B. These data show that the federal 24-hour $PM_{2.5}$ AAQS (65 µg/m^3) has not been exceeded at the Anaheim Station in the last three years. The Anaheim-Pampas Lane Station shows that the annual average $PM_{2.5}$ concentration fell below the federal annual arithmetic mean standard (15 µg/m^3) in 2005. The annual average $PM_{2.5}$ at the Los Angeles-North Main St. Station was exceeded in all three years; however, as at the Anaheim-Pampas Lane Station, the concentration continues to diminish every year.

Table 3-13.7 – Ambient $PM_{2.5}$ Monitoring Data

	2003	2004	2005
	µg/m^3	µg/m^3	µg/m^3
Anaheim-Pampas Lane AQ Station			
1-year average 98th percentile	51.8	48.2	41.8
3-year average 98th percentile	NA	49	47
Exceeds federal 24-hour standard (65 µg/m^3)?	NA	No	No
National Annual average	17.3	16.8	14.7
Exceeds federal annual average standard (15 µg/m^3)?	Yes	Yes	No
Los Angeles-North Main St. AQ Station			
1-year average 98th percentile	61.3	66.2	54.4
3-year average 98th percentile	NA	NA	NA
Exceeds federal 24-hour standard (65 µg/m^3)?	NA	NA	NA
National Annual average	21.3	19.7	17.8
Exceeds federal annual average standard (15 µg/m^3)?	Yes	Yes	Yes

Source: EPA Web: http://www.epa.gov/air/data/monvals.html?st~CA~California, July 2006.
NA = 3-year average 98th percentile data not available.

While the current levels of $PM_{2.5}$ in the project vicinity are generally below the federal 24-hour standard, indications are that levels in the future would go down even further. To estimate what the background $PM_{2.5}$ concentration would be in the project opening year, 2015, an exponential projection was made of the Anaheim-Pampas Lane 1-year 98th percentile levels (the 2003 AQMP does not have any projections for $PM_{2.5}$ concentrations). This predicts that the $PM_{2.5}$ concentration would be less than 15 µg/m^3, which is approximately 23 percent of the federal 24-hr $PM_{2.5}$ standard. The exponential projection for the Los Angeles levels indicates that the $PM_{2.5}$ concentration would be approximately 32 µg/m^3, which is approximately 49 percent of the federal 24-hr $PM_{2.5}$ standard.

When projected to 2030, the 24-hour and annual average $PM_{2.5}$ concentrations experienced at both stations are significantly lower than the current levels. Based on the historical 24-hour and annual average $PM_{2.5}$ concentrations and their projections, constant decrease is anticipated in the future. This trend is consistent with the ARB's plan to achieve attainment for $PM_{2.5}$ by 2010. The Initial Attainment State Implementation Plan (SIP) submittal to the EPA is anticipated by April 5, 2008.

Transportation and Traffic Conditions
Existing average daily traffic volumes, truck percentage, and average daily truck volumes for I-5 within the project limits are tabulated below.

Table 3-13.8 - Interstate 5 Existing Conditions			
	AADT	**% of Trucks (3 or more Axles)**	**Truck AADT (3 or more Axles)**
I-5 in 2004	430,000	4.6	19,553

Source: Caltrans web site (www.dot.ca.gov/hq/traffops/saferesr/trafdata/) retrieved August 9, 2006.

The table indicates that the facility currently experiences more than 10,000 trucks AADT. In terms of traffic congestion experienced by motorists, the traffic analysis for this project described the facility as operating at LOS F. LOS F indicates that typical motorists would experience traffic congestion for more than 15 minutes but less than 1 hour during peak hours.

Traffic Changes Due to the Proposed Project
The proposed project is a highway expansion project that increases the capacity of I-5. This type of project improves freeway mainline and interchange operations by reducing traffic congestion and improving ingress/egress movements. Table 3-13.9 shows that, based on the Traffic Analysis (LSA Associates, Inc., February 2004), all the Build Alternatives would result in an overall increase in traffic volumes on the I-5; however, the hourly peak number of vehicles per lane would be reduced compared to the No Build Alternative. Thus, the efficiency of the traffic flow would be better for all the Build Alternatives compared to the No Build Alternative. Improved traffic flow efficiency is directly related to vehicle engine operating efficiency, which directly affects pollutant emission rates, including $PM_{2.5}$ and PM_{10}.

Table 3-13.9 – Interstate 5 Peak-Hour Traffic Volumes for 2030		
Roadway Link	**Total**[1]	**Traffic per Lane**[2]
No Build Alternative (3 Lane/4 Lane Mix)	20,793	6,700
4 Lane/1 HOV Alternative	20,857	4,359
4 Lane/2 HOV Alternative	20,918	3,776
5 Lane/1 HOV Alternative	22,064	3,809

Source: LSA Associates, Inc., February 2004.

The Caltrans traffic data shows that the existing traffic on the I-5 between SR-91 and SR-605 was approximately 4.6 percent heavy vehicles (3+ axle trucks). This project is not expected to have any effect on this percentage. The project does not provide additional truck capacity as a design purpose. The project adds HOV lanes, which in the Los Angeles area accommodate primarily gasoline-fueled light duty and alternative-fueled (typically CNG or LNG) transit vehicles. State and local (South Coast Air Quality Management District) transit fleet rules essentially prohibit the acquisition of diesel-powered transit vehicles for use in the South Coast air basin.

Conclusions of $PM_{2.5}$ Qualitative Hotspot Analysis
Transportation conformity is required under CAA section 176(c) to ensure that federally supported highway and transit project activities are consistent with the purpose of the State Air

1 Total hourly traffic for PM peak hour, including all traffic (cars & trucks).
2 Capacity of HOV Lane is 75 percent of capacity of Mixed Flow Lane.

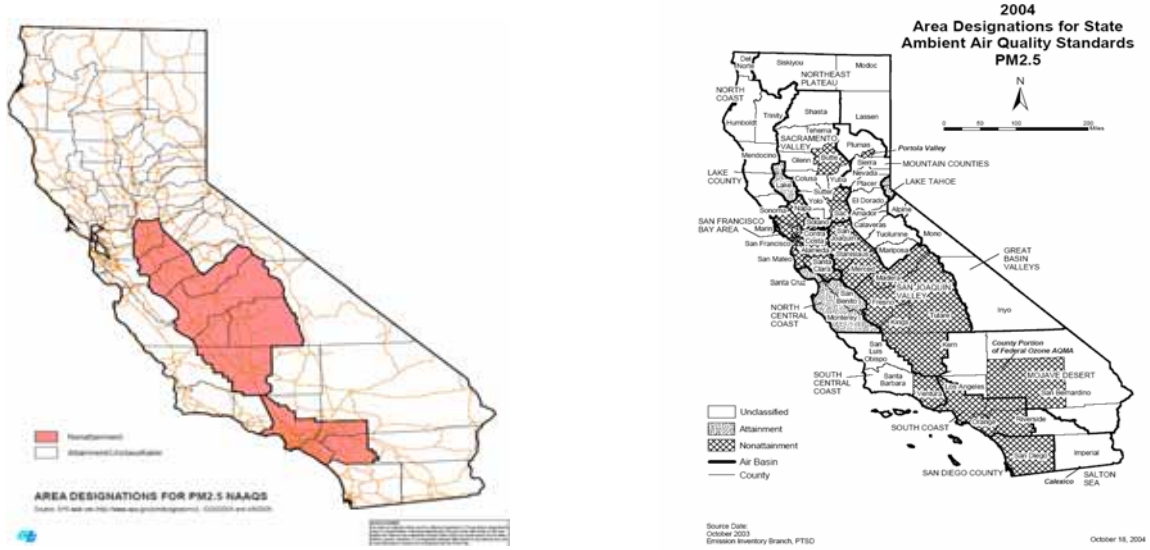
Quality Implementation Plan (SIP). Conformity to the purpose of the SIP means that transportation activities would not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. As required by the March 10, 2006 final rule, this qualitative $PM_{2.5}$ hot-spot analysis demonstrates that this project meets the CAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

It is not expected that changes to $PM_{2.5}$ emissions levels associated with the proposed project would result in a new violation because any increased emissions that might affect concentrations would be offset by the decreasing ambient $PM_{2.5}$ emissions and concentrations at the project location described above. In other words, any increase in the emissions of $PM_{2.5}$ due to increased traffic volumes associated with future growth and the proposed project would be offset by decreases in the background concentrations. Additionally, $PM_{2.5}$ emissions would be reduced due to implementation of the proposed project because the efficiency of the traffic flow would be better for all the Build Alternatives compared to the No Build Alternative.

Federal regulations and the State's Diesel Risk Reduction Plan would require future diesel vehicles to have substantially cleaner engines and to use fuels with lower sulfur contents. Thus, even though the project would have an increase in diesel truck traffic in all future analysis years, the increase would be more than offset by the larger decrease in per-vehicle $PM_{2.5}$ emissions. Therefore, the project would not cause higher $PM_{2.5}$ emissions or a $PM_{2.5}$ hot-spot.

The historical meteorological and climatic data, monitored $PM_{2.5}$ emissions data and their declining trend, current and projected traffic data, and the Federal regulations and the State's Plan, support the assertion that the project would not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS. Activities of this project should, therefore, be considered that they are consistent with the purpose of the SIP and it should be determined that this project conforms to the requirements of the CAA.

Figure 3-13.3 - Federal and State $PM_{2.5}$ Non-attainment Area Maps



Naturally Occurring Asbestos (NOA)

Though not required for project-level air quality analysis, it is routine and an established local practice in the Department's District 7 region to include a discussion pertaining to NOA. This discussion is limited to NOA and the Memorandum Addressing Naturally Occurring Asbestos in CEQA Documents released by the Governor's Office of Planning and Research. Discussions relating to all other types of asbestos are deferred to the Department's hazardous waste or other environmental reports.

The purpose of the discussion is to establish the impact of NOA entrainment during construction. The two common sets of NOA are the serpentine and ultramafic rocks. The project is located in Los Angeles County. Los Angeles County is among the counties listed as containing serpentine and ultramafic rock. However, only the Catalina Island portion of Los Angeles County has been found to contain such rock; hence, it is not found in the project area. Therefore, no potential impacts from naturally occurring asbestos (NOA) during project construction would occur.

Airborne Structural Asbestos

The project involves the construction of an auxiliary lane, off-ramps, and over-crossings. It also involves acquisition and demolition of older buildings or structures that may have asbestos-containing material (ACM). The build alternatives for the proposed project could contribute to cumulative hazardous air pollutants relating to the demolition of ACM. For further details, please refer to the Hazardous Waste Section.

Mobile Source Air Toxics (MSAT)

MSAT Analysis Methodology

The basic procedure for analyzing emissions for on-road MSAT is to calculate emission factors using EMFAC2002, and apply the emission factors to speed and vehicle miles traveled (VMT) data specific to the project. EMFAC2002 is the latest emission inventory model developed by the California Air Resources Board (CARB), which calculates emission inventories for motor vehicles operating on roads in California. The emission factors information used in the MSAT analysis is from EMFAC2002 and is specific to the Los Angeles County portion of the South Coast Air Basin.

The analysis focused on six MSAT pollutants identified by the EPA as being the highest priority MSATs[1]. The six pollutants are diesel particulate matter (DPM), acrolein, acetaldehyde, formaldehyde, benzene, and 1,3-butadiene. EMFAC2002 provides emission factor information for DPM, but does not provide emission factors for the remaining five MSATs. Each of the remaining five MSATs, however, is a constituent of motor vehicle reactive organic gas (ROG) emissions, and EMFAC2002 provides emission factors for ROG. CARB has supplied Caltrans with "speciation factors" for each of the remaining five MSATs not directly estimated by EMFAC2002. Each speciation factor represents the portion of total ROG emissions that is estimated to be a given MSAT. For example, if a speciation factor of 0.03 is provided for benzene, its emissions is estimated to be 3% of total ROG emissions, utilizing the speciation factor as a multiplier once total ROG emissions are known. The analysis used the CARB-supplied speciation factors to estimate emissions of the aforementioned five MSATs as a function of ROG emissions.

1 U.S. Environmental Protection Agency (2001) Control of emissions of hazardous air pollutants from mobile sources: final rule. *Federal Register*, Vol. 66, No. 61, pp. 17230-17273. March 29.

The University of California at Davis (UCD), in cooperation with Caltrans, developed a spreadsheet tool that incorporates EMFAC2002 emission factors, CARB speciation factors, and project-specific traffic activity data such as peak and off-peak hour VMT, speed, travel times and traffic volumes. The spreadsheet tool applies the traffic activity data to the emission factors, and estimates MSAT emissions for base case (with "No-Build" alternative) and "Build" alternative scenarios. Results were produced for the base year (2004), for the first operational year once the project is complete (2013), and for the horizon year consistent with the Southern California Association of Governments' (SCAG's) regional transportation plan (2030). Year 2013 and 2030 analyses compared "No-Build" conditions to expected conditions resulting from implementation of the various "Build" alternatives.

MSAT analysis Results

Traffic activity data have been utilized in performing the analyses. The traffic activity data have been supplemented by available Caltrans data inventory systems for the base year values and also by Caltrans forecast modeling of the corridor for future year values.

As described above, emission factors for DPM and ROG have been obtained for the South Coast Air Basin portion of Los Angeles County, using EMFAC2002. The spreadsheet tool developed by the UCD was then utilized in applying the emission factors, speciation factors from CARB, and the traffic activity data. It should be noted that only Alternatives 4 and 5 have been evaluated for the purpose of this analysis.

Discussion of MSAT Analysis Results

The analysis indicates that a significant decrease in MSAT emissions can be expected for the proposed Alternatives from the base year (2004) levels through future year levels. This decrease is prevalent throughout the highest priority MSATs and the analyzed Alternatives, regardless of the difference in mainline configurations. This decrease is consistent with the aforementioned EPA's study that projects a significant reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2020. Based on the analysis for this project, reductions in MSATs expected by 2030 are: 34 percent of DPM, 83 percent of benzene, 89 percent of 1,3-butadiene, 57 percent of acetaldehyde, 91 percent of acrolein, and 67 percent of formaldehyde. These projected reductions are achieved while total VMTs for the Alternatives increase by approximately 70 percent in 2030.

Difference of varying degrees is noted in the projected individual MSAT emissions. According to the results, all "Build" Alternatives are expected to reduce emissions of DPM well below the "No-Build" Alternative except for the five mixed-flow lanes and one HOV (5+1) lane option in 2013, which are consistently projected to yield greater emissions for the other five priority MSATs than the "No-Build" Alternative. The other "Build" Alternatives are expected to provide comparable or less emissions than the "No-Build" Alternative.

Although the "No-Build" Alternative is expected to accommodate less traffic, its total MSAT emissions are expected to be greater than those of other "Build" Alternatives through 2030, except for the 5+1 lane option in 2013. The greater total MSAT emissions projected for the "No-Build" Alternative despite less traffic are attributable to the congested traffic conditions and breakdown of travel speeds during peak periods. Approximately 3.3 percent of difference in the

total MSAT emissions is expected by 2030 between the "No-Build" Alternative and "Build" Alternatives.

Unavailable Information for Project Specific MSAT Impact Analysis. This EIS includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this EIS. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 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 in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **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. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model--emission factors are projected based on a typical trip of 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 particulate matter, 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 emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

  These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied 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, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. 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 NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also would 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, 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 preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a 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 emissions 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 a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions 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 agency conducted the National Air Toxics Assessment (NATA) in 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. The IRIS database is located at http://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 is taken verbatim from EPA's IRIS database and represents the Agency'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. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures 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 non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway 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 roadways is related to adverse health outcomes -- particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community. 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 us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions 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."

Construction Equipment Exhaust Emissions

The proposed Alternative 1 would not involve significant freeway construction, and Alternatives 2 and 3 have minimal construction, hence the following discussion of construction impacts applies primarily to the Build Alternatives (Alternative 4 and 5).

The construction emission estimate is provided solely for informational purposes and cannot be used to accurately determine emissions. The emissions are proportional to equipment usage. It is the discretion of the construction contractor to determine type and quantity of equipment deployed. The contractor is selected through a competitive bidding process at later stages of project development. At this time, the contractor is unknown and emissions are based on

assumptions provided from prior construction practices, which is not necessarily indicative of the proposed project.

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 activity levels change. The use of construction equipment on site would result in localized exhaust emissions.

Currently, there is no information available regarding the construction operation and schedule for the proposed project. The following construction emissions estimates, summarized in Table 3-13.10, were based on projects with construction activities similar in scope and size to the Build Alternatives.

The SCAQMD has established emissions thresholds for construction activities. As shown, construction equipment emissions would exceed the SCAQMD daily construction thresholds for the criteria pollutant NO_x. Emissions of other criteria pollutants would be below operational standards. Construction equipment exhausts shown in the table assume a peak day operation. Emissions for an average day's construction would be lower, but would still potentially exceed the NO_x threshold. Compliance with Section XI of the SCAQMD's rules and regulations for cutback and emulsified asphalt paving materials (Rules 1108 and 1108.1) shall be abided by during the construction of the proposed project. Additionally, measures listed in Section 7.0 of the Air Quality Analysis should be implemented to further reduce emissions generated from equipment exhaust.

Table 3-13.10 - Peak Day Emissions from Construction Equipment Exhaust[1]

Number and Equipment Type	No. of Hours in Operation	Pollutants (pounds/day)				
		CO	ROC	NO_X	SO_X	PM_{10}
2 Tracked Loader	8	3.2	1.5	13.3	1.2	0.9
2 Tracked Tractor	8	5.6	1.9	20.2	2.2	1.8
6 Scrapers	8	60.0	13.0	184.3	22.1	19.7
1 Wheeled Loader	8	4.6	1.8	15.2	1.5	1.4
1 Wheeled Tractor	8	28.6	1.4	10.2	0.7	1.1
1 Roller	8	2.4	0.5	7.0	0.5	0.4
2 Motor Grader	8	2.4	0.6	11.4	1.4	1.0
4 Miscellaneous	8	21.6	4.8	54.4	4.6	4.5
24 Const. Worker Trips	50 miles/RT[2]	10.3	1.9	3.3	0.6	1.2
TOTAL		**139**	**28**	**319**	**35**	**32**
SCAQMD Threshold		**550**	**75**	**100**	**150**	**150**

Source: LSA Associates, Inc., 2004.

3-13.3 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Operational Mitigation Measures

No mitigation required

[1] Emission factors included in EPA AP-42 Report, September 1985, were used for construction equipment exhaust.
[2] RT: Round-trip

Mitigation of PM_{10} during Construction

The submitted 2004 Particulate Matter SIP contains provisions calling for mitigation of PM_{10} emissions during construction. Pursuant to 40 CFR 93.117, the Department, the project sponsor, is required to stipulate to include, in its final plans, specification, and estimates, control measures that would limit the emission of PM_{10} during construction. Such control plans must be contained in an applicable SIP.

The PM_{10} emissions is a composite of geologic and aerosol varieties. The prime concern during construction is to mitigate geologic PM_{10} that occurs from earth movement such as grading. The agency who sponsored the PM_{10} SIP is SCAQMD with concurrence from the CARB. SCAQMD has amended the 2004 Rule 403 Implementation Handbook in June 2005. It addresses the mitigation for PM_{10} by reducing the ambient entrainment of fugitive dust. Fugitive dust consists of solid particulate matter that becomes airborne due to human activity (i.e. construction) and is a subset of total suspended particulates. Likewise, PM_{10} is a subset of total suspended particulates. The Handbook states that 50% of total particulate matter suspended is comprised of PM_{10}. Hence, in mitigating for fugitive dust, emissions of geologic PM_{10} are reduced.

The Handbook categorizes mitigation of fugitive dust into three sections: Tables 3-13.11, 3-13.12, and 13-3.13 list Best Available Control Measures (BACM), Dust Control, and Contingency Control Measures for Large Operations, respectively. BMACs are applicable to all construction projects within the Basin.

Table 3-13.11 - Best Available Control Measures (Applicable to All Construction Activity Sources)		
Source Category	**Control Measure**	**Guidance**
Backfilling	01-1 Stabilize backfill material when not actively handling; and 01-2 Stabilize backfill material during handling; and 01-3 Stabilize soil at completion of activity.	• Mix backfill soil with water prior to moving • Dedicate water truck or high capacity hose to backfilling equipment • Empty loader bucket slowly so that no dust plumes are generated • Minimize drop height from loader bucket
Clearing and grubbing	02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing; and 02-2 Stabilize soil during clearing and grubbing activities; and 02-3 Stabilize soil immediately after clearing and grubbing activities.	• Maintain live perennial vegetation where possible • Apply water in sufficient quantity to prevent generation of dust plumes
Clearing forms	03-1 Use water spray to clear forms; or 03-2 Use sweeping and water spray to clear forms; or 03-3 Use vacuum system to clear forms.	• Use of high pressure air to clear forms may cause exceedance of Rule requirements
Crushing	04-1 Stabilize surface soils prior to operation of Support equipment; and 04-2 Stabilize material after crushing	• Follow permit conditions for crushing equipment • Pre-water material prior to loading into crusher • Monitor crusher emissions opacity • Apply water to crushed material to prevent dust plumes
Cut and fill	05-1 Pre-water soils prior to cut and fill activities; and 05-2 Stabilize soil during and after cut and fill activities.	• For large sites, pre-water with sprinklers or water trucks and allow time for penetration • Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts
Demolition-Mechanical/ Manual	06-1 Stabilize wind erodible surfaces to reduce dust; and 06-2 Stabilize surface soil where support equipment and vehicles would operate; and 06-3 Stabilize loose soil and demolition debris; and 06-4 Comply with AQMD Rule 1403.	• Apply water in sufficient quantities to prevent the generation of visible dust plumes
Disturbed soil	07-1 Stabilize disturbed soil throughout the construction site; and 07-2 Stabilize disturbed soil between structures	• Limit vehicular traffic and disturbances on soils where possible • If interior block walls are planned, install as early as possible • Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes

Table 3-13.11 - Best Available Control Measures (Applicable to All Construction Activity Sources)		
Source Category	**Control Measure**	**Guidance**
Earth-moving activities	08-1 Pre-apply water to depth of proposed cuts; and 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and 08-3 Stabilize soils once earth-moving activities are complete.	• Grade each project phase separately, timed to coincide with construction phase • Upwind fencing can prevent material movement on site • Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes
Importing/ Exporting of bulk materials	09-1 Stabilize material while loading to reduce fugitive dust emissions; and 09-2 Maintain at least six inches of freeboard on haul vehicles; and 09-3 Stabilize material while transporting to reduce fugitive dust emissions; and 09-4 Stabilize material while unloading to reduce fugitive dust emissions; and 09-5 Comply with Vehicle Code Section 23114.	• Use tarps or other suitable enclosures on haul trucks • Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage • Comply with track-out prevention/mitigation requirements • Provide water while loading and unloading to reduce visible dust plumes
Landscaping	10-1 Stabilize soils, materials, slopes	• Apply water to material to stabilize • Maintain materials in a crusted condition • Maintain effective cover over materials • Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes • Hydroseed prior to rain season
Road shoulder maintenance	11-1 Apply water to unpaved shoulders prior to clearing; and 11-2 Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	• Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs • Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs
Screening	12-1 Pre-water material prior to screening; and 12-2 Limit fugitive dust emissions to opacity and plume length standards; and 12-3 Stabilize material immediately after screening.	• Dedicate water truck or high capacity hose to screening operation • Drop material through the screen slowly and minimize drop height • Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point
Staging areas	13-1 Stabilize staging areas during use; and 13-2 Stabilize staging area soils at project completion.	• Limit size of staging area • Limit vehicle speeds to 15 miles per hour • Limit number and size of staging area entrances/exists

Table 3-13.11 - Best Available Control Measures (Applicable to All Construction Activity Sources)		
Source Category	**Control Measure**	**Guidance**
Stockpiles/ Bulk Material Handling	14-1 Stabilize stockpiled materials. 14-2 Stockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	• Add or remove material from the downwind portion of the storage pile • Maintain storage piles to avoid steep sides or faces
Traffic areas for construction activities	15-1 Stabilize all off-road traffic and parking areas; and 15-2 Stabilize all haul routes; and 15-3 Direct construction traffic over established haul routes.	• Apply gravel/paving to all haul routes as soon as possible to all future roadway areas water trucks and allow time for penetration • Barriers can be used to ensure vehicles are only used on established parking areas/haul routes
Trenching	16-1 Stabilize surface soils where trencher or excavator and Support equipment would operate; and 16-2 Stabilize soils at the completion of trenching activities.	• Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching • Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment
Turf Overseeding	18-1 Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and 18-2 Cover haul vehicles prior to exiting the site.	• Haul waste material immediately off-site
Unpaved roads/parking lots	19-1 Stabilize soils to meet the applicable performance standards; and 19-2 Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	• Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements
Vacant land	20-1 In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Table 3-13.12 - Dust Control Measures For Large Operations	
Fugitive Dust Source Category	**Control Actions**
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR (1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.
Earth-moving: Construction cut areas and mining operations:	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b) Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c) Apply chemical stabilizers within five working days of grading completion; OR (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a) Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (3c) Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 3-13.12 - Dust Control Measures For Large Operations (Continued)	
Fugitive Dust Source Category	**Control Actions**
Unpaved Roads	(4a) Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hours work day]; OR (4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR (4c) Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a) Apply chemical stabilizers; OR (5b) Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR (5c) Install temporary coverings; OR (5d) Install a three-sided enclosure with walls with no more than 50 percent porosity, which extend, at a minimum, to the top of the pile. This option may only be used at aggregate-related plants or at cement manufacturing facilities.
All Categories	(6a) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

Table 3-13.13 – Contingency Control Measures for Large Operation	
Fugitive Dust Source Category	**Control Actions**
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations would not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four time per day; OR (3B) Take the actions specified in Table 2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

SCAQMD requires that at least one best available control measure be implemented for each source of fugitive dust. In addition, Rule 403 requires activities defined as "large operations" to notify the SCAQMD by submitting Form 403N, implement the Rule 403 Table 2 and 3 control actions, and maintain records of control measure implementation. Rule 403 defines large operations as: "any active operations on property which contains in excess of 50 acres of disturbed surface area; or any earth-moving operation which exceeds a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) three times during the most recent 365-day period." In summary, prior to construction, Rule 403 entails the implementation of best available fugitive dust control measures during active operations capable of generating dust.

3-13.4 CUMULATIVE IMPACTS

The cumulative study area for air quality is the South Coast Air Basin (Basin).

Cumulative Air Quality Effects

Implementation of any of the projects in the study area has the potential to result in short-term impacts to air quality associated with construction activity (i.e., CO, NO_X, ROC, and PM_{10}) and some have the potential for long-term effects on air quality due to new vehicle trips, or use, storage, and transport of hazardous substances. The short-term effects are minimized through compliance with SCAQMD rules and regulations during construction. The long-term effects are minimized through mitigation specific to each project. The I-5/Carmenita project is listed in the 2004 Final RTIP (Project ID No. LS0D73B) and therefore conforms to the SIP.

Project Contribution to Cumulative Air Quality Effects

Selection of Alternative 1 (No Build) would not involve construction by Caltrans and would, therefore, not contribute to cumulative effects to air quality impacts. There would be no short-term construction effects or long-term operation effects associated with the No Build Alternative.

Implementation of any build alternatives would contribute cumulatively to the exceedence of SCAQMD daily thresholds for CO and PM10 emission during short-term construction activity. Construction-related air quality impacts would be minimized through compliance with SCAQMD Rules and Regulations during construction.

The Build Alternatives' contribution to cumulative air quality effects is not considered adverse because the Build Alternatives are not anticipated to exceed the one-hour or eight-hour CO standards. The Build Alternatives would not contribute to cumulative effects on quality or toxic air emissions, since the alternatives are not expected to cause a substantial increase of toxic air constituents.

Implementation of any of the build alternatives could contribute to cumulative hazardous air pollutants relating to the demolition of asbestos-containing material (ABM). Compliance with SCAQMD Rules and Regulations for demolition of buildings containing ABM would minimize the potential effects.

Alternative 4 would not contribute to cumulative effects to regional air quality impacts since it is compliant with the State Implementation Plan; however, Alternative 5 would potentially contribute to regional air quality effects because it is not included in the 2004 RTIP. Inclusion and analysis of Alternative 5 in the RTP and RTIP would minimize the cumulative effect on regional air quality impacts since it would be compliant with the State Implementation Plan.

3-14 NOISE

3-14.1 REGULATORY SETTING

Traffic noise abatement requirements of FHWA are based on Title 23, *Code of Federal Regulations*, Part 772 (23 CFR, Part 772), "Procedures for Abatement of Highway Traffic and Construction Noise." Under NEPA, impacts and measures to mitigate adverse impacts must be identified, including the identification of impacts for which no or only partial mitigation is possible, when noise effects of a proposed project would substantially increase the ambient noise levels of adjacent areas. Under CEQA, a substantial increase may result in a significant adverse environmental impact and, if so, must be mitigated or identified as a noise impact for which it is likely that no, or only partial abatement measures are available. Under FHWA regulations, when noise levels approach or exceed the Federal Noise Abatement Criteria (NAC) (Table 3-14.1), noise abatement must be considered, and feasible and reasonable solutions recommended. When the predicted noise levels have substantially increased (12 dBA or greater increase) over the existing peak-noise hour levels, noise mitigation must be considered and feasible solutions recommended.

Table 3-14.1 – Noise Abatement Criteria

Activity Category	Noise Abatement Criteria (dBA) L_{eq}	Description of Activity Category
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 sports 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: 23 CFR Part 772, 2001

The state and federal policies require evaluation and determination to be made whether the proposed project would result in traffic noise impacts, which may also be a significant adverse environmental effect due to a substantial noise increase. If so, noise abatement or mitigation must be considered including identification of impacts for which no or only partial abatement or mitigation is available. Feasible and reasonable abatement or mitigation measures must be implemented for traffic noise impacts even when the changes in existing noise levels are not found to result in a significant impact. For purposes of noise analysis, when the predicted noise level reaches 1 dBA less than the NAC, it is considered to be approaching the NAC for all land use categories.

3-14.2 AFFECTED ENVIRONMENT

Information regarding noise was obtained from the I-5 Major Improvement Project Noise Study Report, March 2003.

Existing land uses are primarily residential. In addition, there is a church/school and two parks in close proximity to the project corridor. There are also commercial land uses that include industrial businesses, hotels, motels, restaurants, and wholesale and retail stores. Existing peak-hour noise levels along the project alignment range from 59 to 77 dBA.

3-14.3 IMPACTS

Operational Impacts

A noise study was conducted to determine the potential noise impacts at sensitive receptors within the boundaries of this project for the Year 2025. This section discusses the future noise environment, predicts impacts, and considers possible abatement/mitigation measures.

Level-of-Service (LOS) C volumes were modeled to ensure the absolute worst-case scenario traffic noise for the future year. The LOS C volumes or limits used for this project are 1,950 vehicles per hour per lane for the mainline and HOV lanes, and 1,000 vehicles per hour per lane for on and off ramps. Since the freeway traffic would be the dominant noise source at receptors located adjacent to the project corridor, no local surface street traffic was considered.

Table 3-14.2 presents the future LOS C traffic volumes, speeds, and traffic distributions used for the noise analysis. Traffic distribution for Interstate 5 was obtained from Caltrans Year 2000 Truck Traffic statistics available on the Caltrans web site. The total truck traffic percentages within the project boundaries were found to be 9%, with 4.3% being medium trucks and 4.7% being heavy trucks.

Table 3-14.2 - Design Year 2025 Peak Hour Traffic Volumes

Lane Type		Peak-Hour Traffic Volume (LOS C)	# of Lanes	Cars Vol (%)		Medium Trucks Vol (%)		Heavy Trucks Vol (%)		Vehicle Speed, km/h / mph
I-5 Northbound										
	General Lanes	9750	5	8873	(91)	419	(4.3)	458	(4.7)	105 / 65
	HOV Lanes	1950	1	1775	(100)	0	(0)	0	(0)	105 / 65
	On and Off Ramps	1000	1	910	(90)	43	(4.3)	47	(4.7)	65 / 40
I-5 Southbound										
	General Lanes	8873	5	8873	(91)	419	(4.3)	458	(4.7)	105 / 65
	HOV Lanes	1775	1	1775	(100)	0	(0)	0	(0)	105 / 65
	On and Off Ramps	910	1	910	(90)	43	(4.3)	47	(4.7)	65 / 40

Notes:
1. LOS C traffic volume/condition has been used to model peak noise hour traffic to obtain the worst case scenario.
2. Truck Percentages for I-5 traffic were obtained from Caltrans 2000 truck traffic data.

The existing peak-hour noise level readings represent the noise generated with freeway LOS F. Since the year 2025 no-build LOS is projected to be worse, and the worst-case noise levels are generated at LOS C, an increase in noise levels for the no-build alternative is not anticipated. Therefore, the projected noise levels for 2025 no-build are the same existing noise levels. The predicted peak-hour noise levels for the design year 2025 are shown in Table 3-14.3 (for the 12-lane Modified MIS Alternative) and Table 3-14.4 (for the 12-lane Value Analysis Alignment). Since alternatives 2 and 3 do not propose improvements to the freeway mainline, noise levels for these alternatives are anticipated to be the same as the as the no-build alternative.

The predicted future noise levels without abatement/mitigation range from 64 to 81 dBA. For both alignments, these future levels exceed the existing peak-hour noise levels at all of the receptor locations, and impacts are anticipated at all receptor sites with the exception of Receptors R72 and R73, which are shielded from the freeway by the elevated southbound Florence Avenue on-ramp.

Layouts in Appendix G depict the existing soundwalls, proposed soundwall, and receptor locations and noise levels on aerial photographs.

It is assumed in this study that all existing soundwalls along the corridor, on both sides of the freeway within the project limits, would be demolished as a result of the proposed project. This is one of the reasons why the future predicted noise levels without abatement/mitigation reflected in the tables are high compared to the existing noise levels that are benefiting from the existing soundwalls. All demolished soundwalls would be replaced per recommendations resulting from this noise study. Where practical, feasible and reasonable, it is recommended that proposed soundwalls shall be constructed prior to the removal of existing soundwalls in the beginning of the project as a mean of minimizing the impact on the sensitive receptors.

Soundwalls are generally not considered for commercial land uses unless they are considered areas of frequent human use where lowered noise levels would be of benefit. None of the commercial land uses adjacent to the project corridor is considered areas of frequent human use where lowered noise levels would be of benefit. There is an outdoor seating area at an In-N-Out Burger restaurant in the area, but it is considered transitory in nature or short –term occupation only and not considered "impacted." At the Extended Stay America hotel, results of the simultaneous indoor/outdoor measurements indicated that the building structure yields at least a 23-dBA attenuation. This attenuation would be sufficient in abating the interior noise levels inside the typical hotel rooms to noise levels that would be below the interior noise limits of the NAC of 52-dBA. This would also hold true for other hotels of similar construction located along side the corridor within the project limits. All hotels were observed to have similar window types and air conditioning. At most of the commercial properties, it is the parking lot that would be located closest to the project corridor.

Table 3-14.3 – Traffic Noise Prediction and Barrier Analysis – Modified MIS Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO. [5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 1A	COMM	71	M1A	74	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	Artesia Blvd. to Carmenita Road
R 1B[9]	COMM	45	M1B	48	E(52)	NONE	--	--	--	--	--	--	--	--	--	--	
R 1C	COMM	74	M1C	76	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1D	COMM	76	M1D	79	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1E	COMM	71	M1E	72	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1	SFR	61	E	76	B(67)	S	74	2	73 [T]	3	72	4	71	5	**70** [R]	6	S48/Shoulder Carmenita Road to Rosecrans Ave.
R 2	SFR	62	M1	79	B(67)	S	75	4	74 [T]	5	72	7	70	9	**69** [R]	10	
R 3	SFR	63	E	79	B(67)	S	75	4	74 [T]	5	72	7	70	9	**69** [R]	10	
R 4	SFR	66	M2	79	B(67)	S	75	4	74 [T]	5	72	7	70	9	**69** [R]	10	
R 5	SFR	64	M3	77	B(67)	S	74	3	73 [T]	4	71	6	70	7	**69** [R]	8	
R 6	SFR	64	E	77	B(67)	S	74	3	73 [T]	4	71	6	70	7	**69** [R]	8	
R 7	SFR	64	E	78	B(67)	S	75	3	74	4	73 [T]	5	71	7	**70** [R]	8	
R 8	SFR	68	M5	77	B(67)	A/E	73	4	72	5	71 [T]	6	69	8	**68** [R]	9	
R 9	COMM	73	E	79	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	Carmenita Road to Rosecrans Ave.
R 10	COMM	74	M28	80	C(72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 11	SFR	71	M6	73	B(67)	A/E	69 [T]	4	69	4	68	5	**67** [R]	6	67	6	S56/Shoulder S64/ROW
R 12	SFR	70	M7	74	B(67)	A/E	69 [T]	6	67	6	66	8	**65** [R]	9	65	9	
R 13	SFR	66	E	72	B(67)	A/E	68	4	67 [T]	5	65	7	**65** [R, 7]	7	64	8	S64/ROW Rosecrans Ave. to Norwalk Blvd.
R 14	SFR	69	M8	71	B(67)	A/E	67	4	66	5	66	5	**65** [R]	6	64	7	
R 15	SFR	67	E	74	B(67)	A/E	70 [T]	4	68	6	67	7	66	8	**65** [R]	9	
R 16	SFR	68	E	78	B(67)	A/E	72 [T]	6	70	8	69	9	68	10	**67** [R]	11	
R 17*	SFR	64	M12B	75	B(67)	A/E	73	2	71 [T]	4	70	5	69	6	**68** [R]	7	
R 18*	SFR	64	E	75	B(67)	A/E	72	3	71 [T]	4	70	5	68	7	**67** [R]	8	
R 19	SFR	64	M15B	75	B(67)	A/E	72	3	71 [T]	4	70	5	69	6	**67** [R]	8	
R 20	SFR	68	M16	80	B(67)	S	71 [T]	9	69	11	68	12	67	13	**66** [R]	14	
R 21	SFR	65	E	75	B(67)	A/E	70 [T]	5	69	6	68	7	67	8	**66** [R]	9	
R 22	SFR	62	E	72	B(67)	A/E	68 [T]	4	67	5	66	6	66	6	**65** [R]	7	
R 23	HTL	69	M17	71	B(67)	A/E	66	5	65	6	**64** [R]	7	64	7	64	7	

Notes:

1 Traffic noise from freeway only; other local noise sources are not included
2 Land Uses: SFR – single family residence, MFR – multi-family residence, SCH – school, COMM – commercial, HTL – hotel
3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Table 3-14.3 (continued) – Traffic Noise Prediction and Barrier Analysis – Modified MIS Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO. [5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 24	SFR	68	E	71	B (67)	A/E	68	3	67	4	67	4	67	4	**66** [R]	5	S65/ROW Rosecrans Ave. to Norwalk Blvd.
R 25	SFR	67	M9B	72	B (67)	A/E	69	3	68 [T]	4	67	5	67	5	**66** [R]	6	
R 26	SFR	64	M10	78	B (67)	S	74	4	73 [T]	5	71	7	70	8	**69** [R]	9	
R 27	SFR	65	M11	79	B (67)	S	75 [T]	4	73	6	71	8	70	9	**69** [R]	10	
R 28	SFR	65	E	79	B (67)	S	75 [T]	4	73	6	71	8	70	9	**69** [R]	10	
R 29	SFR	59	M14	77	B (67)	S	74	3	73 [T]	4	71	6	70	7	**68** [R]	9	
R 30 *	PARK	71	E	77	B (67)	A/E	70 [T]	7	69	8	68	9	67	10	**66** [R]	11	
R 31 *	SCH	69	M18	75	B (67)	A/E	69	6	69 [T]	6	68	7	**67** [R]	8	67	8	S65[8]/S75 Shoulder
R 32	MFR	68	M20	74	B (67)	A/E	70	4	69 [T]	5	68	6	67	7	**66** [R]	8	S76/Shoulder Norwalk Blvd. To Imperial Hwy.
R 33	MFR	61	M23	78	B (67)	S	74	4	73 [T]	5	71	7	70	8	**69** [R]	9	
R 34	SFR	63	E	76	B (67)	S	74	2	72	4	71 [T]	5	69	7	**68** [R]	8	
R 35	SFR	63	M24	76	B (67)	S	74	2	73	3	71 [T]	5	70	6	**69** [R]	7	
R 36	SFR	62	E	74	B (67)	S	72	2	71	3	69 [T]	5	68	6	**67** [R]	7	
R 37	SFR	60	M26	76	B (67)	S	70 [T]	6	69	7	68	8	**67** [R]	9	66	10	
R 38 *	SFR	71	M19	74	B (67)	A/E	69 [T]	5	68	6	66	8	**65** [R]	9	65	9	S75/Shoulder Norwalk Blvd. To Imperial Hwy.
R 39	SFR	71	M21	75	B (67)	A/E	72	3	70 [T]	5	69	6	68	7	**67** [R]	8	
R 40	SFR	72	E	76	B (67)	A/E	73	3	72 [T]	4	70	6	69	7	**68** [R]	8	
R 41 *	SFR	74	M22	78	B (67)	A/E	74	4	72 [T]	6	71	7	69	9	**68** [R]	10	
R 42	SFR	68	E	76	B (67)	A/E	72	4	71 [T]	5	69	7	68	8	**67** [R]	9	
R 43	SFR	59	M25B	72	B (67)	S	69	3	68 [T]	4	67	5	66	6	**65** [R]	7	
R 44	SFR	59	E	73	B (67)	S	70 [T]	3	69	4	68	5	**68** [R, 7]	5	68	5	
R 45	SFR	65	E	74	B (67)	A/E	69 [T]	5	67	7	66	8	**65** [R]	9	65	9	S76/ROW S82[8]/ROW
R 46	SFR	64	M27B	72	B (67)	A/E	67	5	66 [T]	6	65	7	**64** [R, 7]	8	64	8	
R 47 *	SFR	64	E	70	B (67)	A/E	67	3	66	4	**65** [R]	5	64	6	63	7	S82/ROW Imperial Hwy. To Pioneer Blvd.
R 48A	SFR	69	M32	68	B (67)	A/E	66	2	65	3	**65** [R, 7]	3	65	3	65	3	
R 49	SFR	70	M33	72	B (67)	A/E	68 [T]	4	67	5	**66** [R]	6	66	6	66	6	
R 50	SFR	67	E	74	B (67)	A/E	70	4	69	5	**68** [R]	6	67	7	66	8	

Notes:

1 Traffic noise from freeway only; other local noise sources are not included
2 Land Uses: SFR – single family residence, MFR – multi-family residence, SCH – school, COMM – commercial, HTL – hotel
3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Table 3-14.3 (continued) – Traffic Noise Prediction and Barrier Analysis – Modified MIS Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO.[5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 51 [C]	MFR	70	M34	79	B (67)	A/E	73 [T]	6	71	8	70	9	69	10	**68** [R]	11	S92/ ROW Pioneer Blvd. to Florence Ave.
R 52 [C]*	SFR	62	E	77	B (67)	S	73	4	72 [T]	5	71	6	70	7	**69** [R]	8	
R 53 [C]	SFR	63	M38B	78	B (67)	S	75	3	73 [T]	5	72	6	70	8	**69** [R]	9	
R 54 [C]	SFR	63	E	78	B (67)	S	75	3	73 [T]	5	72	6	71	7	**70** [R]	8	
R 55	SFR	61	E	75	B (67)	S	71	4	70 [T]	5	68	7	67	8	**66** [R]	9	
R 56	SFR	64	M41	71	B (67)	A/E	67	4	66	5	66	5	**65** [R]	6	65	6	
R 57	SFR	64	M44	73	B (67)	A/E	68	5	67	6	66	7	**65** [R]	8	65	8	
R 58	SFR	66	M45	75	B (67)	A/E	70 [T]	5	69	6	68	7	**67** [R]	8	66	9	
R 59	SFR	66	M48	73	B (67)	A/E	70	3	69 [T]	4	68	5	**67** [R]	6	67	6	
R 60	SFR	67	M29	73	B (67)	A/E	68 [T]	5	67	6	66	7	66	7	**65** [R]	8	S91/ ROW Imperial Hwy. to Florence Ave.
R 61	SFR	68	M30	76	B (67)	A/E	70 [T]	6	69	7	67	9	67	9	**66** [R, 7]	10	
R 62 [C]*	PARK	77	M31	81	B (67)	A/E	75 [T]	6	73	8	72	9	70	11	**69** [R]	12	
R 63 [C]	SFR	64	E	79	B (67)	S	75	4	74 [T]	5	72	7	71	8	**70** [R]	9	
R 64	SFR	63	M35	77	B (67)	S	74	3	72	5	71 [T]	6	70	7	**69** [R]	8	
R 65	SFR	62	M35A	77	B (67)	S	74	3	72 [T]	5	71	6	70	7	**69** [R]	8	
R 66	SFR	64	M36	78	B (67)	S	74 [T]	4	72	6	71	7	70	8	**69** [R]	9	
R 67	SFR	62	E	75	B (67)	S	72	3	70 [T]	5	69	6	68	7	**67** [R]	8	
R 68	SFR	60	M39A	74	B (67)	S	69 [T]	5	68	6	67	7	66	8	**65** [R]	9	
R 69 *	SFR	63	E	73	B (67)	A/E	68 [T]	5	67	6	66	7	66	7	**65** [R]	8	
R 70	SFR	66	M43	76	B (67)	A/E	73	3	71 [T]	5	70	6	68	8	**67** [R]	9	
R 71	SFR	64	M46	76	B (67)	S	69 [T]	7	68	8	66	10	66	10	**65** [R]	11	
R 72	SFR	62	M47	65	B (67)	NONE	64	1	64	1	64	1	64	1	64	1	
R 73	SFR	61	E	64	B (67)	NONE	64	0	64	0	63	1	63	1	63	1	

Notes:

1 Traffic noise from freeway only; other local noise sources are not included
2 Land Uses: SFR – single family residence, MFR – multi-family residence, SCH – school, COMM – commercial, HTL – hotel
3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Table 3-14.4 – Traffic Noise Prediction and Barrier Analysis – Value Analysis Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO. [5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 1A	COMM	71	M1A	74	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	Artesia Blvd. To Carmenita Rd.
R 1B[9]	COMM	45	M1B	48	E (52)	NONE	--	--	--	--	--	--	--	--	--	--	
R 1C	COMM	74	M1C	76	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1D	COMM	76	M1E	80	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1E	COMM	71	M1D	72	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 1*	SFR	63	E	79	B (67)	S	75 [T]	4	73	6	72	7	70	9	**69** [R]	10	S48/Shoulder Carmenita Rd. to Rosecrans Ave.
R 2	SFR	62	M1	79	B (67)	S	75	4	74 [T]	5	72	7	70	9	**69** [R]	10	
R 3	SFR	63	E	79	B (67)	S	75	4	74 [T]	5	72	7	70	9	**69** [R]	10	
R 4	SFR	66	M2	78	B (67)	S	75	3	74 [T]	4	72	6	70	8	**69** [R]	9	
R 5	SFR	64	M3	77	B (67)	S	74	3	73 [T]	4	71	6	70	7	**69** [R]	8	
R 6	SFR	64	E	77	B (67)	S	74	3	73	4	71 [T]	6	70	7	**69** [R]	8	
R 7	SFR	64	E	78	B (67)	S	75	3	74	4	73 [T]	5	71	7	**70** [R]	8	
R 8	SFR	68	M5	78	B (67)	A/E	74	4	72	6	71 [T]	7	70	8	**69** [R]	9	
R 9	COMM	73	E	79	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	Carmenita Rd. to Rosecrans Ave.
R 10	COMM	74	M28	80	C (72)	A/E	--	--	--	--	--	--	--	--	--	--	
R 11	SFR	71	M6	72	B (67)	A/E	69	3	68 [T]	4	67	5	**67** [R, 7]	5	66	6	S56/ Shoulder S64/ ROW
R 12	SFR	70	M7	73	B (67)	A/E	68 [T]	5	67	6	66	7	**65** [R]	8	65	8	
R 13	SFR	66	E	71	B (67)	A/E	67 [T]	4	66	5	65	6	**64** [R, 7]	7	64	7	S64/ ROW Rosecrans Ave. to Norwalk Blvd.
R 14	SFR	69	M8	72	B (67)	A/E	68 [T]	4	67	5	66	6	**65** [R]	7	64	8	
R 15	SFR	67	E	73	B (67)	A/E	70	3	68 [T]	5	67	6	66	7	**65** [R]	8	
R 16	SFR	68	E	77	B (67)	A/E	72 [T]	5	70	7	69	8	68	9	**67** [R]	10	
R 17[C]*	SFR	71	M12A	80	B (67)	A/E	74 [T]	6	72	8	71	9	70	10	**69** [R]	11	
R 18*	SFR	66	M13	81	B (67)	S	73 [T]	8	71	10	69	12	68	13	**67** [R]	14	
R 19	SFR	64	M15B	75	B (67)	A/E	72	3	71 [T]	4	70	5	68	7	**67** [R]	8	
R 20[C]	SFR	68	M16	81	B (67)	S	74 [T]	7	72	9	71	10	69	12	**68** [R]	13	
R 21	SFR	65	E	74	B (67)	A/E	70	4	69 [T]	5	67	7	67	7	**66** [R]	8	
R 22	SFR	62	E	71	B (67)	A/E	68 [T]	3	67	4	66	5	**65** [R]	6	65	6	
R 23	HTL	69	M17	69	B (67)	A/E	65	4	64	5	**63** [R]	6	63	6	63	6	

Notes:

1 Traffic noise from freeway only; other local noise sources are not included
2 Land Uses: SFR – single family residence, MFR – multi-family residence, SCH – school, COMM – commercial, HTL – hotel
3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Table 3-14.4 (continued) – Traffic Noise Prediction and Barrier Analysis – Value Analysis Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO. [5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 24	SFR	68	E	70	B (67)	A/E	67 T	3	66	4	66	4	**65** R	5	65	5	
R 25	SFR	67	M9B	72	B (67)	A/E	69	3	68 T	4	67	5	**66** R	6	66	6	
R 26	SFR	64	M10	80	B (67)	S	75 T	5	73	7	71	9	70	10	**69** R	11	S65/ ROW Rosecrans Ave. to Norwalk Blvd.
R 27	SFR	65	M11	80	B (67)	S	75	5	73 T	7	71	9	70	10	**68** R	12	
R 28	SFR	65	E	80	B (67)	S	75 T	5	73	7	71	9	70	10	**69** R	11	
R 29	SFR	59	M14	78	B (67)	S	74	4	73 T	5	71	7	70	8	**69** R	9	
R 30*	PARK	71	E	76	B (67)	A/E	70	6	69 T	7	68	8	67	9	**66** R	10	
R 31*	SCH	69	E	75	B (67)	A/E	70	5	69 T	6	**68** R	7	68	7	67	8	S65[8]/ S75 Shoulder
R 32	MFR	68	M20	74	B (67)	A/E	70	4	69 T	5	68	6	67	7	**66** R	8	
R 33	MFR	61	M23	77	B (67)	S	73	4	72 T	5	70	7	69	8	**68** R	9	
R 34	SFR	63	E	76	B (67)	S	72	4	71	5	70 T	6	69	7	**68** R	8	S76/ Shoulder Norwalk Blvd. to Imperial Hwy.
R 35	SFR	63	M24	77	B (67)	S	73	4	72	5	70 T	7	69	8	**68** R	9	
R 36	SFR	62	E	75	B (67)	S	72	3	70	5	69 T	6	68	7	**67** R	8	
R 37	SFR	60	M26	75	B (67)	S	70 T	5	69	6	67	8	**66** R	9	66	9	
R 38*	SFR	71	E	75	B (67)	A/E	70 T	5	69	6	67	8	66	9	**65** R	10	
R 39	SFR	71	M21	75	B (67)	A/E	72	3	71 T	4	69	6	68	7	**67** R	8	
R 40	SFR	72	E	77	B (67)	A/E	74	3	72 T	5	71	6	69	8	**68** R	9	S75/ Shoulder Norwalk Blvd. to Imperial Hwy.
R 41*	SFR	71	E	75	B (67)	A/E	73	2	72 T	3	70	5	69	6	**68** R	7	
R 42	SFR	68	E	77	B (67)	A/E	72 T	5	71	6	69	8	68	9	**67** R	10	
R 43	SFR	59	M25B	73	B (67)	S	69	4	68 T	5	67	6	66	7	**65** R	8	
R 44	SFR	59	E	73	B (67)	S	69 T	4	68	5	**67** R	6	67	6	67	6	
R 45	SFR	65	E	73	B (67)	A/E	69 T	4	67	6	66	7	**65** R	8	64	9	
R 46	SFR	64	M27B	72	B (67)	A/E	68	4	66 T	6	65	7	**64** R	8	63	9	S76/ ROW S82[8]/ ROW S82/ ROW Imperial Hwy. to Pioneer Blvd.
R 47*	SFR	63	E	66	B (67)	A/E	64	2	64	2	**64** R	2	64	2	64	2	
R 48A	SFR	69	M32	70	B (67)	A/E	66	4	66	4	**65** R	5	65	5	64	6	
R 49	SFR	70	M33	73	B (67)	A/E	68 T	5	67	6	67	6	**66** R	7	65	8	
R 50	SFR	67	E	74	B (67)	A/E	70	4	69 T	5	67	7	**66** R	8	66	8	

Notes:

1 Traffic noise from freeway only; other local noise sources are not included
2 Land Uses: SFR – single family residence, MFR – multi-family residence, SCH – school, COMM – commercial, HTL – hotel
3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Table 3-14.4 (continued) – Traffic Noise Prediction and Barrier Analysis – Value Analysis Alignment

REC. NO.	LAND USE [2]	EXISTING/ 2025 No-Build NOISE LEVELS		FUTURE NOISE LEVELS, Leq(h), dBA [1, 3]													BARRIER NO./LOCATION/ SEGMENT
				WITHOUT BARRIER	ACTIVITY CATEGORY AND NAC	IMPACT TYPE (S, A/E, or NONE) [6]	NOISE LEVELS AND BARRIER INSERTION LOSS (I.L.) AT VARIOUS HEIGHTS										
							2.4 m (8 ft)		3.0 m (10 ft)		3.7 m (12 ft)		4.3 m (14 ft)		4.9 m (16 ft)		
		Leq(h) dBA[3, 4]	MEAS. SITE NO. [5]				Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	Leq(h)	I.L.	
R 51[C]	MFR	70	M34	78	B (67)	A/E	73	5	72	6	70[T]	8	69	9	**68**[R]	10	
R 52[C]*	SFR	69	M37	78	B (67)	A/E	72[T]	6	71	7	70	8	69	9	**68**[R]	10	
R 53A[C]	SFR	69	M38A	79	B (67)	A/E	73[T]	6	71	8	70	9	69	10	**68**[R]	11	
R 54[C]	SFR	63	E	78	B (67)	S	75	3	73[T]	5	72	6	71	7	**69**[R]	9	S92/ ROW Pioneer Blvd. to Florence Ave.
R 55	SFR	61	E	75	B (67)	S	71	4	70[T]	5	68	7	67	8	**66**[R]	9	
R 56	SFR	64	M41	71	B (67)	A/E	67	4	66	5	66	5	**65**[R]	6	65	6	
R 57	SFR	64	M44	73	B (67)	A/E	67	6	67	6	66	7	**65**[R]	8	65	8	
R 58	SFR	66	M45	76	B (67)	A/E	70[T]	6	69	7	68	8	**67**[R]	9	66	10	
R 59	SFR	66	M48	73	B (67)	A/E	70	3	69[T]	4	68	5	**67**[R]	6	67	6	
R 60	SFR	67	M29	72	B (67)	A/E	67[T]	5	66	6	66	6	**65**[R]	7	65	7	
R 61	SFR	68	M30	75	B (67)	A/E	69[T]	6	68	7	67	8	**66**[R, 7]	9	66	9	
R 62[C]*	PARK	77	E	81	B (67)	A/E	75[T]	6	73	8	72	9	70	11	**69**[R]	12	
R 63[C]	SFR	64	E	80	B (67)	S	76	4	74[T]	6	73	7	71	9	**70**[R]	10	
R 64	SFR	63	M35	78	B (67)	S	74	4	73[T]	5	71	7	70	8	**69**[R]	9	
R 65	SFR	62	M35A	78	B (67)	S	74	4	73[T]	5	71	7	70	8	**69**[R]	9	
R 66	SFR	64	M36	78	B (67)	S	74[T]	4	72	6	71	7	70	8	**69**[R]	9	S91/ ROW Imperial Hwy. to Florence Ave.
R 67	SFR	62	E	75	B (67)	S	72	3	70[T]	5	69	6	68	7	**67**[R]	8	
R 68	SFR	60	M39A	74	B (67)	S	69[T]	5	68	6	67	7	66	8	**65**[R]	9	
R 69*	SFR	64	M42	67	B (67)	A/E	65	2	65	2	64	3	64	3	**64**[R, 7]	3	
R 70	SFR	66	M43	74	B (67)	A/E	70	4	69	5	68	6	67	7	**66**[R]	8	
R 71	SFR	64	M46	76	B (67)	S	69	7	68	8	67	9	66	10	**65**[R]	11	
R 72	SFR	62	M47	65	B (67)	NONE	65	0	65	0	64	1	64	1	64	1	
R 73	SFR	61	E	64	B (67)	NONE	64	0	64	0	64	0	64	0	64	0	

Notes:

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3 Leq levels are A weighted, eqivilant noise levels are in decibels (dBA re: 20 mPa).
4 Existing noise levels include the benefits of shielding provided by any existing barriers or rows of houses.
5 Noise measurement site number, or estimated existing noise level based on measurements; E = Estimated.
6 S = Substantial Increase (12 dBA or more); A/E = Approach or Exceed NAC.
7 Wall height recommended in order to meet requirements of adjacent receptor(s).
8 The overlapping segment of this barrier has been kept at a constant 2.4 m (8 ft) during the modeling of barrier heights ranging from 3 m (10 ft) to 4.9 m (16 ft).
9 Noise level at M1B measured indoors at Extended Stay America Motel.
C Modeled levels adjusted by calibration of noise model.
T Minimum height required to block the line-of-sight from the receptor to truck exhaust stacks.
R Recommended height to meet feasibiity requirements of Caltrans Noise Analysis Protocol.
* Receptor location differs between Modified MIS Alternative and Value Analysis Alignment.

Insertion Loss (I.L.) is defined as the sound level at a given receiver before the construction of a barrier minus the sound level at the same receiver after the construction of the barrier.

Construction Impacts
Noise due to project construction would be intermittent and the intensity of it would vary. The degree of construction noise impacts may vary for different areas of the project site and depending on the construction activities. Long-term noise exposure descriptors are difficult to quantify due to the intermittent nature of construction noise. Highway construction is accomplished in several different phases. These typical phases and their estimated overall noise levels at the right-of-way can be characterized by the information in Table 3-14.5 (FHWA, 1977).

Table 3-14.5 - Typical Construction Noise

Construction Phase	Leq(h), dBA	
	15 meters (50 feet) from centerline	30 meters (100 feet) from centerline
Clearing and Grubbing	86	83
Earthwork	88	85
Foundation	85	82
Base Preparation	88	85
Paving	89	86

Construction noise impacts can be assessed by comparing the existing noise levels with the expected noise levels produced by various construction activities. More detailed construction noise levels cannot be calculated at this time because some of the necessary data, such as the type of equipment, effective usage factor, and number of each equipment type, are not yet available. During the construction period, some of the sensitive receptors that are close to the freeway may be impacted.

3-14.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

Operational Abatement Measures
Tables 3-14.6 and 3-14.7 provide a summary of the barriers recommended to abate/mitigate noise impacts at noise sensitive receptors located adjacent to proposed project corridor for the two separate alignments, the Modified MIS Alternative and the Value Analysis Alignment, respectively. These summary tables provide the type and number of benefited noise sensitive receptors, barrier location, and height of each of the barriers. The number of benefited residences/receptors was determined by calculating/modeling the noise levels and reductions at various distances and calculating the distance from the freeway that each recommended barrier produces at least a 5-dB reduction or attenuation with distance attenuation and building shielding taken into consideration. Results of simultaneous noise measurements at first and second row residences were also used for this purpose. The numbers of residences that fall within this distance and produce the 5 dB reduction were then counted as benefited.

Future noise levels were predicted at noise sensitive receptors, i.e., residences, schools, and playgrounds, along the freeway to assess potential impacts. Selected sensitive receptor sites included existing first-row and would-be first-row residences since the proposed project involves the displacement of many structures immediately adjacent to the freeway to make room for the freeway expansion.

Soundwalls at optimum location and of appropriate height and length were analyzed and recommended separately for each of the two alternatives considered. Caltrans guidelines and criteria were strictly followed, including the abatement/mitigation "feasibility" and "reasonableness" analysis. The abatement must provide a readily perceptible reduction of at least 5 dBA to be considered feasible. Greater noise reductions are encouraged as long as they can be achieved under the reasonable guidelines. The overall reasonableness of noise abatement is determined by considering a multitude of factors including but not limited to the following:

- Cost of abatement
- Absolute noise levels
- Change in noise levels
- Noise Abatement benefits
- Date of development along the highway
- Life cycle of abatement measures
- Environmental impacts of abatement construction
- Views (opinions) of impacted residents
- Input from the public and local agencies
- Social, economic, environmental, legal, and technological factors

A final decision on the installation of abatement measures would be made upon completion of the design process and the public involvement process.

Table 3-14.6 - Summary of Recommended Barriers – Modified MIS Alignment

Barrier No.	Receptor No.	Type and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height/ Total Length	Reasonable Allowance Cost	
					Per Residence	Per Barrier(s)
S48	R1-R8	49 Single Family Residences	Shoulder/ Northbound	4.9 m (16 ft)/ 890 m (2920 ft)	$43,000	$2,107,000
S56	R11-R12	42 Single Family Residences	Shoulder/ Northbound	4.3 m (14 ft)/ 280 m (919 ft)	$37,000	$5,587,000
S64	R12-R23	109 Single Family Residences	Right-of-Way/ Northbound	3.7 m (12 ft) to 4.9 m (16 ft)/ 1350 m (4429 ft)		
S65	R24-R31	61 Single Family Residences	Right-of-Way/ Southbound	2.4 m (8 ft) to 4.9 m (16 ft)/ 1150 m (3773 ft)	$41,000	$2,501,000
S75	R31, R38-R44	72 Single Family Residences	Shoulder/ Southbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 1140 m (3740 ft)	$37,000	$2,664,000
S76	R32-R37, R45-R46	34 Single Family Residences and 8 Multi Family Residences	Shoulder/ Northbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 940 m (3084 ft)	$41,000	$1,722,000
S82	R45-R50	37 Single Family Residences	Right-of-Way/ Northbound	2.4 m (8 ft) to 3.7 m (12 ft)/ 555 m (1821 ft)	$35,000	$1,295,000
S92	R51-R59	106 Single Family Residences and 1 Multi Family Residence	Right-of-Way/ Northbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 1675 m (5495 ft)	$39,000	$4,173,000
S91	R60-R71	146 Single Family Residences	Right-of-Way/ Southbound	4.9 m (16 ft)/ 2060 m (6759 ft)	$41,000	$5,986,000

Table 3-14.7 - Summary of Recommended Barriers – Value Analysis Alignment

Barrier No.	Receptor No.	Type and No. of Benefited Residences	Barrier Location/ Hwy. Side	Barrier Height/ Total Length	Reasonable Allowance Cost	
					Per Residence	Per Barrier(s)
S48	R1-R8	49 Single Family Residences	Shoulder/ Northbound	4.9 m (16 ft)/ 890 m (2920 ft)	$43,000	$2,107,000
S56	R11-R12	42 Single Family Residences	Shoulder/ Northbound	4.3 m (14 ft)/ 340 m (1116 ft)	$37,000	$6,586,000
S64	R12-R23	136 Single Family Residences	Right-of-Way/ Northbound	3.7 m (12 ft) to 4.9 m (16 ft)/ 1350 m (4429 ft)		
S65	R24-R31	61 Single Family Residences	Right-of-Way/ Southbound	2.4 m (8 ft) to 4.9 m (16 ft)/ 1150 m (3773 ft)	$41,000	$2,501,000
S75	R31, R38-R44	63 Single Family Residences	Shoulder/ Southbound	3.7 m (14 ft) to 4.9 m (16 ft)/ 1170 m (3839 ft)	$39,000	$2,457,000
S76	R32-R37, R45-R46	36 Single Family Residences and 8 Multi Family Residences	Shoulder/ Northbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 940 m (3084 ft)	$43,000	$1,892,000
S82	R45-R50	44 Single Family Residences	Right-of-Way/ Northbound	2.4 m (8 ft) to 4.3 m (14 ft)/ 560 m (1837 ft)	$35,000	$1,540,000
S92	R51-R59	127 Single Family Residences and 1 Multi Family Residence	Right-of-Way/ Northbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 1660 m (5446 ft)	$41,000	$5,248,000
S91	R60-R73	152 Single Family Residences	Right-of-Way/ Southbound	4.3 m (14 ft) to 4.9 m (16 ft)/ 2060 m (6759 ft)	$41,000	$6,232,000

Construction Abatement Measures
The following measures should be implemented in order to minimize noise and vibration disturbances at sensitive receptors during periods of construction:

Equipment Noise Control

- Where practical, feasible and reasonable, proposed soundwalls shall be constructed prior to the removal of existing soundwalls in the beginning of the project as a mean of minimizing any impact on the sensitive receptors.
- Use newer equipment with improved noise muffling and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. Newer equipment would generally be quieter in operation than older equipment. All construction equipment should be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding, etc.).
- Utilize construction methods or equipment that would provide the lowest level of noise and ground vibration impact such as alternative low noise pile installation methods.
- Turn off idling equipment.
- Temporary noise barriers should be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities. Noise barriers can be made of heavy plywood, or moveable insulated sound blankets.

Administrative Measures

- Implement a construction noise and/or vibration monitoring program in or limit the impacts.
- Comply, when possible, with relevant construction noise criteria of affected cities, i.e., Santa Fe Springs, Downey, and Norwalk. The City of Norwalk restricts construction to daytime hours between 7 am and 6 pm. Santa Fe Springs restricts construction activities to daytime hours between 7 am and 7 pm. The City of Downey imposes a maximum sustainable noise limit of 85 dBA, and allows construction activity to occur during daytime hours of 7 am to 7 pm, Monday to Saturday; construction activity is prohibited on Sundays.
- Limit construction activities to daytime hours, if possible. If nighttime construction is absolutely necessary, obtain the proper permits and variances.
- Keep noise levels relatively uniform and avoid impulsive noises.
- Maintain good public relations with the community to minimize objections to unavoidable construction impacts. Provide frequent activity updates of all construction activities and schedules.

A combination of abatement/mitigation techniques with equipment noise control and administrative measures can be selected to provide the most effective means to minimize effects of the construction activity. Application of these abatement/mitigation measures would reduce construction related noise impacts; however, a temporary increase in noise and vibration over the existing ambient levels may still occur.

3-14.5 CUMULATIVE IMPACTS

The cumulative study area for noise includes the projects within 0.8 kilometer (0.5 mile) of the project right-of-way.

Cumulative Noise Effects

Implementation of the projects in the cumulative study area would result in cumulative short-term noise effects to sensitive land uses during construction. Short-term noise impacts are localized and temporary and can be controlled through compliance with local noise ordinances. Implementation of the projects in the study area would contribute to cumulative operational stationary-source and off-site traffic noise impacts. Measures to reduce the impacts were included in the environmental documentation associated with the major projects in the study area noise attenuation measures such as construction of solid walls perimeters and installation of sound minimizing windows to reduce noise impacts were designed for projects that were estimated to exceed interior and exterior noise standards. However, some long-term/operation noise impacts could still exist after mitigation.

Project Contribution to Cumulative Noise Effects

Implementation of any of the build alternatives would contribute to cumulative short-term/ construction noise effects. Alternatives 4 and 5 each involve the addition of lanes to I-5 which would involve longer construction periods, and potentially greater noise impacts than Alternatives 2 and 3. Short-term noise impacts under each alternative (e.g., equipment noise control, administrative measures) would be minimized through implementation of the measures identified.

Implementation of Alternatives 4 and 5 would contribute to cumulative long-term operational noise effects. Inclusion of noise barriers in the project design would reduce the project noise effects and minimize the project's contribution to the cumulative noise impacts on the study; however, some noise levels would continue to exceed federal and State standards.

3-15 ENERGY

3-15.1 REGULATORY SETTING

California Department of Transportation Director's Policy 0-1-2003, Energy Efficiency and Conservation, states that the Department incorporates energy efficiency and conservation measures into its services and products, and implements strategies to improve the performance of transportation facilities, and promote sustainable transportation and lower vehicular emissions.

CEQ Regulation 40 CFR 1502.16(e) requires environmental documents to identify energy requirements and conservation potential of the various alternatives and mitigation measures.

3-15.2 AFFECTED ENVIRONMENT

Energy consumption associated with vehicular movement is almost entirely confined to the consumption of fossil fuel (gasoline and diesel). According to the SCAG 1998 Regional Transportation Plan, in the six-county SCAG region, an estimated 5.5 billion gallons of gasoline and 530 million gallons of diesel fuel were consumed annually in 1990. By the year 2020, these figures are estimated to grow to 7.7 billion gallons of gasoline and 740 million gallons of diesel fuel per year.

3-15.3 IMPACTS

Construction of the 10 or 12 lane alternative would entail a one-time energy expenditure to manufacture building materials, prepare the surface, and construct the roadway and facilities. This expenditure is balanced by the improved system efficiency over the design life of the project.

While renewable natural resources such as lumber would be used in the construction of the project, there would not be an increase in the rate of consumption in the region. Non-renewable resources such as fossil fuels would be used during construction and also used by motorists following construction of the project. However, this use would not cause a substantial depletion in the supplies of these resources.

3-15.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

None Required

3-15.5 CUMULATIVE IMPACTS

Cumulative Energy Effects

Implementation of the projects in the study area would result in a cumulative effect on the consumption of nonrenewable natural resources (i.e., lumber for construction, fossil fuels [gasoline and diesel] used to for equipment operation and vehicle trips to and from construction sites).

Considering a number of projects in the study area are redevelopment projects, it is anticipated that modern energy-conserving fixtures, appliances, etc. would replace inefficient equipment, lessening the use of non-renewable energy sources on-site. The projects are also anticipated to stimulate local economy and may result in a net increase vehicular trips over existing conditions,

particularly the shopping areas. Therefore, implementation of the projects in the study has the potential for increasing demand for energy on energy sources.

Project Contribution to Cumulative Energy Effects

Alternative 1 (No Build) would not contribute to short-term cumulative effects to energy because the project does not include construction on the I-5. There would be no short-term construction or long-term beneficial energy effects associated with the No Build Alternative. With this alternative, existing and projected congestion on the existing I-5 freeway would increase, resulting in increased consumption of gasoline associated with idling during peak periods of congestion.

Implementation of any of the Build Alternatives would contribute to the cumulative short-term since it would require the expenditure of energy resources to construct the proposed improvement. This expenditure would be offset by the energy savings associated reduced congestion as a result of improvements to the I-5 freeway and local intersections.

BIOLOGICAL ENVIRONMENT

3-16 WETLANDS AND OTHER WATERS OF THE UNITED STATES

3-16.1 REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and other waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States 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 Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act 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 would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (ACOE) with oversight by the Environmental Protection Agency (EPA).

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that would 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 would 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 jurisdiction of the ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards 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 Clean Water Act. Please see the Water Quality section for additional details.

3-16.2 AFFECTED ENVIRONMENT

Information regarding wetlands and other waters of the U.S. was obtained from a Water Quality Report, dated June 1998 and a Natural Environment Study Memo, dated December 3, 2002.

There are several flood control channels within the project area, including Fullerton Creek, Coyote and North Fork Coyote Creek and the San Gabriel River. These flood control channels and the San Gabriel River are considered "Other Waters of the United States". There are wetlands within the San Gabriel River, however these are located outside of the project area.

3-16.3 IMPACTS

Construction of the proposed alternatives could affect water quality: 1) from construction activity within the various flood control channels (through erosion of exposed soil within the drainage channels), 2) through storm water discharges from the construction area along I-5, and 3) by reducing the groundwater recharge during construction. Proposed improvements over the San Gabriel River are limited to lane re-striping to match the existing lane configuration north of the project limits.

Since construction of the project would be undertaken in accordance with the applicable NPDES permits, adverse impacts to water quality are not anticipated.

3-16.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

A 1602 Streambed Alteration Agreement from the California Department of Fish and Game would be required for this project. A Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 permit from the California Regional Water Quality Control Board may also be needed for this project.

For areas outside of the flood control channels, construction of the 10 and 12 lane alternatives would require construction of an area greater than 1 acre and would therefore be subject to the National Pollutant Discharge Elimination System (NPDES) permitting process. To address storm water discharges from construction, the permits contain standard provisions that are intended to provide a required level of storm water pollution prevention.

A construction Storm Water Pollution Prevention Plan (SWPPP) would be prepared prior to the start of construction to ensure compliance with existing NPDES permits. The SWPPP would be kept on site during construction and made available upon request to the RWQCB, responsible local agencies, and the public.

The SWPPP would identify potential sources of pollutants, describe erosion and sediment controls, contain non-storm water provisions, describe post-construction storm water management, describe waste management activities, include a maintenance and inspection component, include a list of contractors, incorporate other storm water related plans if applicable, and would list the name of the preparer. Caltrans would conduct additional inspections or analysis if required by the RWQCB, inspect construction sites prior to anticipated storm events and after actual events in order to identify areas contributing to storm water discharge pollutants and evaluate the adequacy of the control measures identified in the SWPPP, certify annually that construction is in compliance with the applicable NPDES permit and SWPPP, and retain the monitoring records for at least three years following completion of construction.

3-16.5 CUMULATIVE IMPACTS

Cumulative Wetlands and Other Waters of the United States Effects
The study area for waters of the U.S. impacts encompasses the geographic boundaries of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs. The study area is mostly built out; there may be isolated wetlands, and the improved flood control channels may be subject to U.S. Army Corps of Engineers (Corps), California Department of Fish and Game (CDFG) and Regional Water Quality Control Board jurisdiction.

Direct impacts on urban wetlands and other waters of the U.S. could occur from development/redevelopment projects in the study area. Existing regulatory requirements, however, ensure that implementation of these projects would not result in cumulative effects on wetlands and other waters of the U.S. Wetlands regulatory requirements include avoidance and minimization of impacts and "no net loss" policies imposed by the Corps and CDFG. Regulatory requirements concerning non-wetland waters of the U.S. require avoidance and minimization of impacts. Section 404 of the federal Clean Water Act has a "no net loss" of wetlands provision; it requires that wetlands lost due to a Section 404-permitted project be replaced at a minimum 1:1 ratio.

Indirect impacts of the cumulative projects, including increases in peak storm flows, wetland inundation, and water quality degradation, can also affect waters of the U.S. Project hydrology is subject to review and minimization measures of the local jurisdiction to prevent downstream flooding. Federal regulations require reduction in pollutant discharges to the "maximum extent practicable." Within Los Angeles and Orange Counties, development/redevelopment projects are subject to stringent requirements with respect to storm water and dry weather discharges. With regulatory minimization measures in place, cumulative effects to waters of the U.S. would not be adverse.

Project Contribution to Cumulative Wetlands and Other Waters of the United States Effects
The project area does not contain any wetlands as documented in the Natural Environment Study Memo. Local jurisdiction transportation improvements would occur within existing facilities; therefore, increases in peak storm flows are not anticipated. Drainage facilities would be upgraded on an as-needed basis to prevent localized flooding; BMPs would be required during construction to minimize impacts to jurisdictional drainages. Construction BMPs and operational site design, source control, and treatment BMPs would be required for parking lots associated with the improvements. The contribution alternatives 1, 2, and 3 to cumulative effects on non-wetland waters of the U.S. cumulative effects would not be substantial.

Alternatives 4 and 5 may result in direct and indirect effects to non-wetland waters of the U.S. Additionally, the surface area of the freeway would be enlarged and increased runoff from the facility itself (with greater runoff produced under Alternative 5) would occur. However, the I-5 Corridor is located within a developed area and the widening would not affect large amounts of undeveloped land. The conversion of developed land to freeway and reuse or landscaping of remnant parcels would result in similar or reduced peak storm flows for the area. These alternatives would be subject to Caltrans requirements for construction BMPs and operational design pollution prevention, treatment, and maintenance BMPs to address pollutants of concern.

Drainage facilities would be upgraded on an as-needed basis to prevent localized flooding; BMPs would be required during construction to minimize impacts to jurisdictional drainages.

In summary, with minimization measures, the contribution of these alternatives to cumulative effects on wetlands and other waters of the U.S. are not considered adverse.

3-17 VEGETATION

3-17.1 REGULATORY SETTING

Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in ecological systems. California Code of Regulations Fish and Game Code Section 1300-1301 and the Federal Wildlife Conservation Act of 1947 Section 1600-1616, state that the protection and conservation of fish and wildlife resources is of utmost public interest. CCR Section 1750, the Native Species Conservation and Enhancement Act, and Section 1801-1802 affirm that it is State policy to encourage preservation, conservation and maintenance of wildlife resources under the jurisdiction and influence of the State. Section 1802 instructs the California Department of Fish and Game to consult with lead agencies and to provide biological expertise to review and comment on environmental documents.

CEQ Regulation 40 CFR 1502.16(f) requires environmental documents to discuss natural resource requirements and conservation potential of various alternatives and mitigation measures. CEQ Regulation 40 CFR 1502.25 requires environmental documents to be integrated with related environmental impact analyses, surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders.

3-17.2 AFFECTED ENVIRONMENT

Information regarding vegetation was obtained from a Biological Resources Report, dated June 1998 and a Natural Environment Study Memo, dated December 3, 2002 and an update to that memo dated September 16, 2005.

Previous biological studies for the project area, layout plans, aerial photos, field visit, and the latest version of California Department of Fish and Game's Natural Diversity Database (NDDB) (July 1, 2005) were evaluated for this project. The U.S. Fish and Wildlife Service and the California Department of Fish and Game were contacted regarding this project to help assess the potential presence of sensitive species within the project area.

Vegetation in the project area is limited to mature landscaping and ruderal, weedy species along the freeway right-of-way. Large areas are completely devoid of vegetation. Common landscape species along the project route include oleander, eucalyptus, bottlebrush, ivy and maple. It occurs in a thin strip along each side of I-5, although larger landscaped areas are located adjacent to some on and off ramps. The only highly vegetated areas adjacent to the freeway (outside Caltrans right-of-way) are two school properties containing large grassy fields with scattered trees.

There is minimal vegetation (duckweed – *Lemna* spp.) within the three drainages crossed by the project. They are all concrete-lined flood control channels and are subject to the periodic removal of sediment and vegetation.

3-17.3 IMPACTS

Because of the length of the project, a large amount of vegetation, including mature trees, would be removed. This would result in the loss of habitat for urban wildlife and nesting birds. The replacement of the bridges over Coyote Creek and North Fork Coyote Creek would require the removal of existing piers and construction of new piers in the channels. These activities have the potential to result in a minor loss of aquatic vegetation. However, the vegetation present in the channels is minimal.

3-17.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

In order to help avoid or minimize impacts to vegetation, the area of disturbance should be kept to the minimum required to construct the project.

New landscaping should be installed in areas where space permits to allow for the re-establishment of wildlife habitat. A large amount of existing landscape vegetation would be removed by this project and would need to be replaced following construction. It is strongly recommended that a minimum of 10 percent of the replacement plantings consist of native species. In addition, no species identified on the California Exotic Pest Plant Council's list of invasive exotic species should be planted anywhere within the project limits.

3-17.5 CUMULATIVE EFFECTS

Cumulative Vegetation Effects

The study area for vegetation impacts encompasses the geographic boundaries of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs. The study area is mostly built out; native species and habitats have been mostly replaced with ornamental landscaping and urban wildlife.

Because the presence of native plant communities is severely limited within the study area, vegetation impacts from development/redevelopment projects are anticipated to be minimal.

Project Contribution to Cumulative Vegetation Effects

The study area is dominated by ornamental landscaping, and the affected landscaping would be replaced as part of the project; therefore, the cumulative contribution to vegetation effects would not be substantial for any of the project alternatives.

3-18 WILDLIFE

3-18.1 REGULATORY SETTING

Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in ecological systems. California Code of Regulations Fish and Game Code Section 1300-1301 and the Federal Wildlife Conservation Act of 1947 Section 1600-1616, state that the protection and conservation of fish and wildlife resources is of utmost public interest. CCR Section 1750, the Native Species Conservation and Enhancement Act, and Section 1801-1802 affirm that it is State policy to encourage preservation, conservation and maintenance of wildlife resources under the jurisdiction and influence of the State. Section 1802 instructs the California Department of Fish and Game to consult with lead agencies and to provide biological expertise to review and comment on environmental documents.

CEQ Regulation 40 CFR 1502.16(f) requires environmental documents to discuss natural resource requirements and conservation potential of various alternatives and mitigation measures. CEQ Regulation 40 CFR 1502.25 requires environmental documents to be integrated with related environmental impact analyses, surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders.

3-18.2 AFFECTED ENVIRONMENT

Information regarding wildlife was obtained from a Biological Resources Report, dated June 1998 and a Natural Environment Study Memo, dated December 3, 2002 and an update to that memo dated September 16, 2005.

Previous biological studies for the project area, layout plans, aerial photos, field visit, and the latest version of California Department of Fish and Game's Natural Diversity Database (NDDB) (July 1, 2005) were evaluated for this project. The U.S. Fish and Wildlife Service and the California Department of Fish and Game were contacted regarding this project to help assess the potential presence of sensitive species within the project area.

The landscaping and ruderal vegetation along the freeway right-of-way supports wildlife habitat that is considered disturbed. There is no evidence to suggest the presence of rare, threatened or endangered species in the project area. Wildlife species occurring in the project area would typically include species adapted to urban environments. This would possibly include small mammals (deer mouse – *Peromyscus maniculatus*, California mouse – *Peromyscus californicus*, house mouse – *Mus musculus*), reptiles (western fence lizard – *Sceloperus occidentalis*, side-blotched lizard – *Uta stansburiana*) and birds (starling – *Sturnus vulgaris*, house sparrow – *Passer domesticus*, rock dove – *Columbia livia*, mockingbird – *Mimus polygolottos*, and house finch – *Carpodacus mexicanus*). Although mallards were observed in Fullerton Creek, there was no evidence that either bats or swallow have utilized the bridges over the three creeks; however, that possibility cannot be discounted.

Because of the highly urbanized area stretching for many miles on either side of I-5, it is not likely that any of the drainages crossing the project would be used as a wildlife corridor.

3-18.3 IMPACTS

Because of the length of the project, a large amount of vegetation, including mature trees, would be removed. This would result in the loss of habitat for urban wildlife and nesting birds. The replacement of the bridges over Coyote Creek and North Fork Coyote Creek would require the removal of existing piers and construction of new piers in the channels. However, the aquatic life in the channels is minimal.

There was no evidence that either bats or swallows utilize the bridges over any of the three channels affected by the project. Although it is not likely, the potential exists for them to be present at the time of construction. If bats or swallows are present, construction would result in a temporary loss of roosting and nesting habitat.

3-18.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

In order to help avoid or minimize impacts to wildlife, the area of disturbance should be kept to the minimum required to construct the project.

The removal of trees and other vegetation should be scheduled to occur between September 16 and March 1 to avoid the bird-nesting season. If this is not possible, a pre-construction survey would be required one to two weeks prior to the vegetation removal. If nesting birds are present, construction activities in the vicinity of the nest (within 500 feet for raptors, 100 feet for other birds) would be delayed until nesting is completed and all young have left the nest.

If work at Coyote Creek and North Fork Coyote Creek is scheduled to begin between March 15 and September 30, periodic surveys of these areas should be conducted between March 15 and the start of construction to determine if bats and/or swallows are present. If there is evidence that roosting/nesting behavior is beginning, removal of partially completed nests or installation of exclusionary devices should be performed to prevent occupation of the bridge. If this is not accomplished, construction would have to be delayed until all roosting/nesting activities are completed.

New landscaping should be installed in areas where space permits to allow for the re-establishment of wildlife habitat. A large amount of existing landscape vegetation would be removed by this project and would need to be replaced following construction. It is strongly recommended that a minimum of 10 percent of the replacement plantings consist of native species. In addition, no species identified on the California Exotic Pest Plant Council's list of invasive exotic species should be planted anywhere within the project limits.

3-18.5 CUMULATIVE EFFECTS

Cumulative Wildlife Effects

The cumulative study area for wildlife impacts encompasses the geographic boundaries of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs. The study area is mostly built out; native species and habitats have been replaced with ornamental landscaping and urban wildlife.

Because the presence of native plant communities and wildlife species is severely limited within the study area, impacts associated with development/redevelopment projects would mostly affect urban wildlife. However, removal of mature trees has the potential to affect nesting migratory birds. Bats and swallows often reside under bridges. In addition, impacts to wetlands and non-wetland waters of the U.S. have the potential to affect migratory birds and aquatic species. Minimization measures that are applicable to the project (construction outside of the roosting/nesting season, replacement of trees and vegetation) are applicable to all development/redevelopment projects within the study area. With these minimization measures in place, cumulative impacts to animal species would not be substantial.

Project Contribution to Cumulative Wildlife Effects

Mature trees that support resident and migratory nesting birds would be removed as part of property acquisition for these alternatives. Extension of freeway bridges could affect roosting bats or nesting swallows. Minimization measures are required to prevent potential impacts to migratory nesting birds and bats during construction. Affected mature trees and vegetation would be replaced consistent with Caltrans requirements, which include native plant species requirements that would support native wildlife. With minimization measures to protect nesting birds and bats during construction and replacement of mature trees and vegetation, the contribution of the project alternatives to cumulative wildlife impacts would not be substantial.

3-19 THREATENED AND ENDANGERED SPECIES

3-19.1 REGULATORY SETTING

Public Resources Code 21083, 21087 and the California Environmental Quality Act Guidelines Section 15126.2(a) require lead agencies to assess the impact of a proposed project by examining alterations in ecological systems. Public Resources Code 21104.2 states that the lead agency shall consult with the California Department of Fish and Game regarding impacts on threatened or endangered species. Threatened and endangered species are protected by Sections 7 and 10 of the Endangered Species Act (16 USC 1536, 1538, 1539) and the California Endangered Species Act (California Fish and Game Code, Sections 2081 and 2090).

CEQ Regulation 40 CFR 1502.16(f) requires environmental documents to discuss natural resource requirements and conservation potential of various alternatives and mitigation measures. CEQ Regulation 40 CFR 1502.25 requires environmental documents to be integrated with related environmental impact analyses, surveys and studies required by the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Historic Preservation Act of 1966 (16 U.S.C. 470 et seq.), the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), and other environmental review laws and executive orders.

3-19.2 AFFECTED ENVIRONMENT

Information regarding threatened and endangered species was obtained from a Biological Resources Report, dated June 1998 and a Natural Environment Study Memo, dated December 3, 2002 and an update to that memo dated September 16, 2005.

The CDFG Natural Diversity Database (NDDB) was searched on July 1,2005 in an effort to identify threatened or endangered species that may inhabit the project area. In addition, the U.S. Fish and Wildlife Service list of endangered or threatened species in the area was reviewed. Both of these lists were checked along with the biology reports from the MIS and Interim HOV Lane Improvement Project. None of these references, when considered with respect to the resources present within the project area, give any indication that sensitive species are likely to be affected by this project. The results of this evaluation, and the rationale for this conclusion, are contained in Table 3-18.1.

3-19.3 IMPACTS

The proposed project is expected to have no effect on any threatened or endangered species or habitat.

3-19.4 AVOIDANCE, MINIMIZATION, AND COMPENSATION MEASURES

None required.

3-19.5 CUMULATIVE EFFECTS

Cumulative Threatened and Endangered Species Effects

The cumulative study area for Threatened and Endangered Species impacts encompasses the geographic boundaries of the Cities of Buena Park, Cerritos, Downey, La Mirada, Norwalk, and

Santa Fe Springs. The study area is mostly built out; native species and habitats have mostly been replaced with ornamental landscaping and urban wildlife.

Project Contribution to Cumulative Threatened and Endangered Species Effects
Because the project alternatives would not impact threatened or endangered species, no cumulative contribution would occur.

Table 3-19.1 – Project Study Area Sensitive Species							
Scientific Name	Common Name	Status	Specific Habitat Description	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale	Potential for Impacts
PLANTS							
Astragalus brauntonii	Braunton's milk vetch	FE, CNPS-1B	Recently burned and disturbed areas; in stiff gravelly clay soils overlying granite or limestone within closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland habitats. 4-640m.	A	A	Suitable habitat is not present within project limits.	None
Berberis nevinii	Nevin's bearberry	FE,SE, CNPS-1B	On steep, north facing slopes or in low grade sandy washes within chaparral, cismontane woodland, coastal sccrub and riparian scrub habitats. 290-1575m.	A	A	Suitable habitat is not present within project limits.	None
Brodiaea filifolia	Thread-leaved brodiaea	FT,SE, CNPS-1B	Usually associated with annual grassland and vernal pools within cismontane woodland, coastal scrub, playas, valley and foothill grassland habitats. Often surrounded by shrubland. 25-860m.	A	A	Suitable habitat is not present within project limits.	None
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	FC,SE, CNPS-1B	Sandy soils within coastal scrub habitats. 3-1035m.	A	A	Suitable habitat is not present within project limits.	None
Orcuttia californica	California Orcutt grass	FE,SE, CNPS-1B	Vernal pools located at elevations from 15 to 660 meters.	A	A	Suitable habitat is not present within project limits.	None
Lasthenia glabrata ssp. Coulteri	Coulter's goldfields	CNPS-1B	Usually found on alkaline soils in playas, sinks and grasslands within coastal salt marshes, valley and foothill grassland and vernal pool habitats. 1-1400m.	A	A	Suitable habitat is not present within project limits.	None
Navarretia prostrata	Prostrate navarretia	CNPS-1B	Alkaline soils in grasslands or vernal pools located in coastal scrub or valley and foothill grassland habitats. 15-700m.	A	A	Suitable habitat is not present within project limits.	None
Phacelia stellaris	Brand's phacellia	CNPS-1B	Open areas within coastal scrub or coastal dune habitats. 5-1515m.	A	A	Suitable habitat is not present within project limits.	None

Table 3-19.1 – Project Study Area Sensitive Species continued							
Scientific Name	Common Name	Status	Specific Habitat Description	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale	Potential for Impacts
Dudleya multicaulis	Many-stemmed dudleya	CNPS-1B	Heavy, often clayey soils or grassy slopes within chaparral, coastal scrub and valley and foothill grassland habitats. 0-790m.	A	A	Suitable habitat is not present within project limits.	None
Sidalcea neomexicana	Salt Spring checkerbloom	CNPS-2	Alkali springs and marshes within alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest and mojavian desert scrub habitats. 0-1500m.	A	A	Suitable habitat is not present within project limits.	None
Abronia villosa var. aurita	Chaparral sand-verbena	CNPS-1B	Sandy areas within chaparral and coastal scrub habitats. 80-1600m.	A	A	Suitable habitat is not present within project limits.	None
Centromadia parryi ssp. Australis	Southern tarplant	CNPS-1B	Marshes, swamps (margins), valley and foothill grassland and vernal pools. Often in disturbed sites near the coast; also in alkaline soils.	A	A	Suitable habitat is not present within project limits.	None
Nama stenocarpum	Mud nama	CNPS-2	Marshes and swampy areas along lake shores, river banks and intermittantly wet areas. 5-500m.	A	A	Suitable habitat is not present within project limits.	None
Atriplex serenana var. davidsonii	Davidson's saltscale	CNPS-1B	Alkaline soils within coastal bluff scrub and coastal scrub habitats. 3-250m.	A	A	Suitable habitat is not present within project limits.	None
Suaeda esteroa	Estuary seablite	CNPS-1B	Clay, silt and sandy substrates in coastal salt marshes.	A	A	Suitable habitat is not present within project limits.	None
Symphyotrichum defoliatum	San Bernardino aster	CNPS-1B	Vernally mesic grassland or near ditches, streams and springs; disturbed areas. In meadows, seeps, marshes, swamps, coastal scrub, cismontane woodland and lower montane coniferous forest habitats.	Ditches are present along some areas of the freeway.	A	Project area is highly urbanized. Only sightings in CNDDB are from 1930s, located several miles from the project and are identified as "probably extirpated."	None
Cordylanthus maritimus ssp. Maritimus	Salt marsh bird's beak	FE,SE, CNPS-1B	Higher zones of salt marsh habitat in coastal salt marshes and coastal dunes. 0-30m.	A	A	Suitable habitat is not present within project limits.	None

Table 3-19.1 – Project Study Area Sensitive Species continued							
Scientific Name	Common Name	Status	Specific Habitat Description	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale	Potential for Impacts
Nemacaulis denudata var. denudata	Coast wooly-heads	CNPS-1B	Coastal dunes. 0-100m.	A	A	Suitable habitat is not present within project limits.	None
INVERTEBRATES							
Branchinecta sandiegonensis	San Diego fairy shrimp	FE	Vernal pools on San Diego and Orange county mesas	A	A	Suitable habitat is not present within project limits.	None
Streptocephalus wootoni	Riverside fairy shrimp	FE	Inhabit seasonally astatic pools filled by winter/spring rains. Endemic to Riverside, Orange and San Diego counties.	A	A	Suitable habitat is not present within project limits.	None
Danaus plexippus	Monarch butterfly	None	Roosts in wind-protected groves of eucalyptus, monterey pine and cypress trees with nearby nectar and water sources along Baja, southern and central California coast.	A	A	Suitable habitat is not present within project limits.	None
Cicindela hirticollis gravida	Sandy beach tiger beetle	None	Clean, dry, light-colored sand in the upper zone adjacent to non-brackish water along the coast from northern Mexico to San Francisco Bay.	A	A	Suitable habitat is not present within project limits.	None
Cincindela senilis frosti	Tiger beetle	None	Dark-colored mud in the lower zone and dried salt pans in the upper zone on marine shoreline. Also found at Lake Elsinore.	A	A	Suitable habitat is not present within project limits.	None
AMPHIBIANS							
Spea (=Scaphiopus) hammondii	Western spadefoot	SSC	Grassland and valley-foothill hardwood woodland habitats. Requires vernal pools for breeding.	A	A	Suitable habitat is not present within project limits.	None
REPTILES							
Phrynosoma coronatum (blainvillei)	Coast (San Diego) horned lizard	SSC	Friable, rocky or shallow sandy soils within coastal sage scrub and chaparral habitats under arid or semi-arid conditions.	A	A	Suitable habitat is not present within project limits.	None
Emys (=Clemmys) marmorata pallida	Southwestern pond turtle	SSC	Inhabits permanent or nearly permanent bodies of water in many habitat types below 6000 ft. Requires basking sites and suitable nesting sites.	A	A	Channelized creeks are present but suitable basking and nesting sites are not present.	None

Table 3-19.1 – Project Study Area Sensitive Species continued							
Scientific Name	Common Name	Status	Specific Habitat Description	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale	Potential for Impacts
BIRDS							
Empidonax traillii extimus	Southwestern willow flycatcher	FE,SE	Nests in riparian woodlands in Southern California.	P	Potentially	Riparian habitat is present within the San Gabriel R..	No work would take place within the San Gabriel R., therefore no impacts would occur.
Haliaeetus leucocephalus	Bald eagle	FT,SE	Nests in large old-growth or dominant live tree w/open branches. Nests and wintersr along ocean shore, lake margins and rivers.	P	Potentially	Trees are present along freeway and adjacent to San Gabriel River.	None. A pre-construction nesting bird survey would be conducted to avoid impacts to all nesting birds.
Polioptila californica californica	Coastal California gnatcatcher	FT	Low, coastal sage scrub in arid washes and on mesas and slopes.	A	A	Suitable habitat is not present within project limits.	None
Vireo bellii pusillus	Least Bell's vireo	FE,SE	Summer resident of Southern California in low riparian growth in vicinity of water or in dry river bottoms, below 2000ft. Usually nests in willow, Baccharis or Mesquite.	P	Potentially	Riparian habitat is present within the San Gabriel R.	No work would take place within the San Gabriel R., therefore no impacts would occur.
Coccyzus americanus occidentis	Western yellow-billed cuckoo	FC,SE	Nests in riparian jungle of willow and cottonwood, w/ understory of blackberry, nettles or wild grape, along broad, lower flood-bottoms of larger river systems.	A	A	Suitable habitat is not present within project limits.	None

Table 3-19.1 – Project Study Area Sensitive Species continued

Scientific Name	Common Name	Status	Specific Habitat Description	Specific Habitat Present/ Absent	Species Presence/ Absence	Rationale	Potential for Impacts
Agelaius tricolor	Tricolor blackbird	SSC	Highly colonial. Requires open water, protected nesting substrate and foraging area with insect prey within a few km of the colony.	A	A	Suitable habitat is not present within project limits.	None
Sterna antillarum browni	California least tern	FE,SE	Colonial breeder on bare or sparsely vegetated flat substrates, sand beaches, alkali flats, land fills or paved areas along CA coast from Baja to San Francisco Bay.	A	A	Suitable habitat is not present within project limits.	None
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE	Nests in Salicornia on and about margins of tidal flats within coastal salt marshes from Santa Barbara County through San Diego County.	A	A	Suitable habitat is not present within project limits.	None
MAMMALS							
Microtus californicus stephensi	South coast marsh vole	SSC	Tidal Marshes in Los Angeles, Orange and southern Ventura counties.	A	A	Suitable habitat is not present within project limits.	None
Sorex ornatus salicornicus	Southern California Satlmarsh shrew	SSC	Requires dense vegetation and woody debris in coastal marshes located in Los Angeles, Orange and Ventura counties.	A	A	Suitable habitat is not present within project limits.	None
Lasiurus xanthinus	Western yellow bat	None	Roosts in trees, particularly palms. Forages over water and among trees. In valley foothill, riparian, desert riparian, desert wash and palm oasis habitats.	P	Potentially	Riparian habitat is present within the San Gabriel R.	No work would take place within the San Gabriel R., therefore no impacts would occur.
HABITATS							
	Southern coastal salt marsh	None		A		Habitat is not present within project limits.	None

Source: Table X contains a list of all sensitive species identified in the letter obtained from the U.S. Fish and Wildlife Service and from the NDDB (Whittier, Anaheim and Los Alamitos quads).

Notes:

Absent [A] means no further work needed. Present [P] means general habitat is present and species may be present.

Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), Federal Species of Concern (FSC); State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC); California Native Plant Society (CNPS), etc.

3-20 THE RELATIONSHIP BETWEEN SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The proposed project involves tradeoffs between obtaining the long-term benefits of traffic and circulation improvements against short-term impacts to the environment. Construction activities would result in a number of temporary impacts that would cease upon completion of the proposed freeway, ramp and arterial improvements. These impacts would include air quality degradation associated with increased emissions of criteria pollutants; noise impacts generated by heavy equipment operation; biological resource impacts caused by removal of mature trees; socioeconomic and community impacts from construction effects; impacts to utility systems caused by relocation and potential service interruption; generation of hazardous materials and waste from construction; and intermittent roadway obstruction and traffic detours. These impacts would be mitigated to minimize the proposed project impacts during the construction phase.

The proposed project would provide future congestion relief to improve traffic flow on the freeway and arterial transportation system; improve the transportation link between Los Angeles and Orange Counties; and improve Interstate 5 to meet functional and safety standards.

Over the long-term, the proposed project would provide for increased vehicular movement and accessibility in the eastern Los Angeles County/western Orange County area. By increasing accessibility and substantially reducing travel time, the proposed project would enhance long-term economic productivity in the region. The Interstate 5 HOV Improvement Project is proposed in response to existing and projected land development in the Southern California Region. As discussed in Section 3-2, the extent of development occurring outside of the project area would create unacceptable levels of service on existing transportation facilities. Since the proposed project would serve to improve traffic conditions in the region. Local short-term adverse impacts resulting from project development are consistent with the enhancement of long-term productivity.

3-21 ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

Implementation of the proposed action involves commitment of a range of natural, physical, human, and fiscal resources. Land dedicated for the construction and subsequent operation of the proposed freeway, ramp, and arterial improvements would constitute a semi-permanent commitment for the life of the transportation facility. However, if a greater need arose for use of the land or if the transportation facility becomes obsolete, the land could be converted to another use. Currently, there is no reason to believe such a conversion would ever be necessary or desirable, given that the project corridor has been used for transportation purposes for over 50 years and would continue to be for the foreseeable future.

Construction and operation of the proposed project would also require consumption of fossil fuels, labor, and construction materials. Additionally, the project would require expenditure of labor, and natural resources would be used in the fabrication and preparation of necessary construction materials. These expenditures would be, for the most part, irrecoverable. However, they are not in short supply, and their use would not have an adverse effect upon continued availability of these resources.

Any construction would also require a substantial one-time expenditure of both federal and local funds, which are not retrievable. The proposed project would also require the use of human resources in the fabrication and preparation of construction materials and in the construction of the new highway facilities. Although the expenditure of labor would not be retrievable, the project would not have an adverse impact upon the continued availability of human resources over the long term.

The commitment of these resources is based on the concept that residents in the immediate area, as well as the region, state, and nation, would benefit from the improved transportation system, as well as roadway safety, in this critical transportation corridor. These benefits would consist of improved accessibility and safety, improved traffic and mass-transit service, savings in time, and greater availability of quality services, which are anticipated to outweigh the commitment of these resources.

3-22 UNAVOIDABLE ADVERSE IMPACTS

No Build Alternative
The No-Build alternative would result in increasing traffic congestion. There are unavoidable indirect effects associated with increased traffic congestion including decreasing air quality, increased fossil fuel consumption, and increasing travel time through the corridor.

Alternatives 2 and 3
The TSM/TDM and Transit Enhancement Alternatives would result in only marginal improvements compared to the No-Build Alternative and therefore, are not likely to result in unavoidable adverse impacts.

Alternatives 4 and 5
Widening the freeway facility would unavoidably impact residents and businesses adjacent to the freeway by requiring acquisition of private real property. There are unavoidable indirect effects of the relocation of residents and businesses including neighborhood disruption, and loss of City revenue from property and sales taxes. Increasing the size of the freeway facility would result in an increase in noise levels that cannot be entirely abated. Temporary and permanent loss of parking would be unavoidable. Overall Alternative 5 would have more substantial adverse impacts in most categories than Alternative 4.

All variations of Alternatives 4 and 5 would result in an unavoidable impact to Orr Park and Norwalk Arts and Sports Center/Norwalk Park. The Modified MIS variations (4A and 5A) result in the smallest amount of parkland needed. Of those two, Alternative 4A requires the least amount of both parks.

During construction, occasional elevated noise levels would be unavoidable. In addition, air emissions (NO_X and PM_{10}) from construction activities would constitute an adverse impact on the affected community. Although the air and noise impacts during construction are unavoidable, they would cease at the completion of the project construction.

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CHAPTER 4 – PROJECTS CONSIDERD FOR CUMULATIVE IMPACT ANALYSIS

4-1 INTRODUCTION

The Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations defines cumulative effects as those effects that result from incremental impacts of a proposed action when added to past, present, and reasonably foreseeable future actions regardless of which agency (federal or nonfederal) or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions that take place over a period of time (40 CFR 1508.7). They are similarly defined in Section 15355 of the California Environmental Quality Act (CEQA) Guidelines (2005) as follows:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> > (a) The individual effects may be changes resulting from a single project or a number of separate projects.
> >
> > (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The process used in this Cumulative Impact Analysis follows the guidelines provided in the publication "Considering Cumulative Effects Under the National Environmental Policy Act," (CEQ, January 1997), and the CEQA Guidelines.

This analysis also uses conclusions found in this I-5 Corridor Improvement Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) (Caltrans 2005) to determine the project's contribution to cumulative impacts. Impacts that result from the proposed project that could contribute to cumulative impacts are analyzed in this report.

Impacts associated with cumulative projects were determined utilizing the conclusions of the certified environmental document prepared for those documents.

Cumulative effects were analyzed using three principal steps: (1) scoping; (2) describing the affected environment; and (3) determining the environmental consequences. The scoping process involved contact and coordination with municipal planners and researching each City and the County's General Plans and internet addresses (URLs)[1] to obtain past, present, and reasonably

[1] Uniform Resource Locator

foreseeable future project information. The majority of the projects had some type of State or federal environmental documentation (i.e., Negative Declaration, Finding of No Significant Impact (FONSI), Environmental Assessment (EA), EIS, and EIR), and others were exempt from environmental review due to their limited environmental effects and did not require environmental analysis. The affected environment is described in Chapter 3 and is the foundation for determining the environmental consequences of the proposed action.

The No Build Alternative (Alternative 1) includes the implementation of the I-5 interim HOV lane improvements. The impacts related to the HOV lane improvements are fully disclosed in the I-5 Interim HOV Lane Improvements Land Use and Socioeconomic Technical Study (August 1998). Therefore, Alternative 1 is not further analyzed in this report.

Project Study Area
The I-5 Corridor is located in northwest Orange County and southeast Los Angeles County in Southern California. The southern limit of the I-5 Corridor is located north of SR-91 in the City of Buena Park, and its northern limit is the Lakewood Boulevard interchange in the City of Downey, south of I-605. The primary study area for the project is the I-5 Corridor right-of-way and ultimate footprint.

Cumulative Impact Study Area
Unless otherwise stated under each environmental topic, the geographic boundary for the cumulative impact study is the boundaries of the Cities adjacent to the Corridor: Buena Park, Cerritos, Downey, La Mirada, Norwalk, and Santa Fe Springs. Some environmental topics entail a larger cumulative impact study area. For example, the air quality cumulative impact study area is the South Coast Air Basin.

Criteria for Selection (Based on list of projects)
The projects selected for inclusion in this cumulative impact study are located in one of the six Corridor cities and have environmental impacts. Due to the fully urbanized nature of the study area, the majority of land within the Corridor has been in a developed condition for over 30 years and is considered part of the environmental baseline condition. This cumulative impact analysis focuses on recent development and redevelopment projects that have the potential to result in environmental impacts. All selected projects are currently under review or have been approved and/or constructed since November 1998.

Cumulative Impact Analysis
The potential cumulative impacts of the I-5 improvements, when considered with the applicable projects listed in this Chapter are discussed within the individual topical resource sections in Chapter 3, as applicable.

4-2 PAST PROJECTS

For this study, projects constructed from approximately seven years ago and to the present time are regarded as past projects. Table 4-1 lists the past projects and indicates the year of completion and documented potential environmental impacts. Figure 4-1 plots the past projects that relate to the evaluated project. There are 37 projects in this category.

Figure 4-1 – Past, Present, and Foreseeable Future Projects Location Map

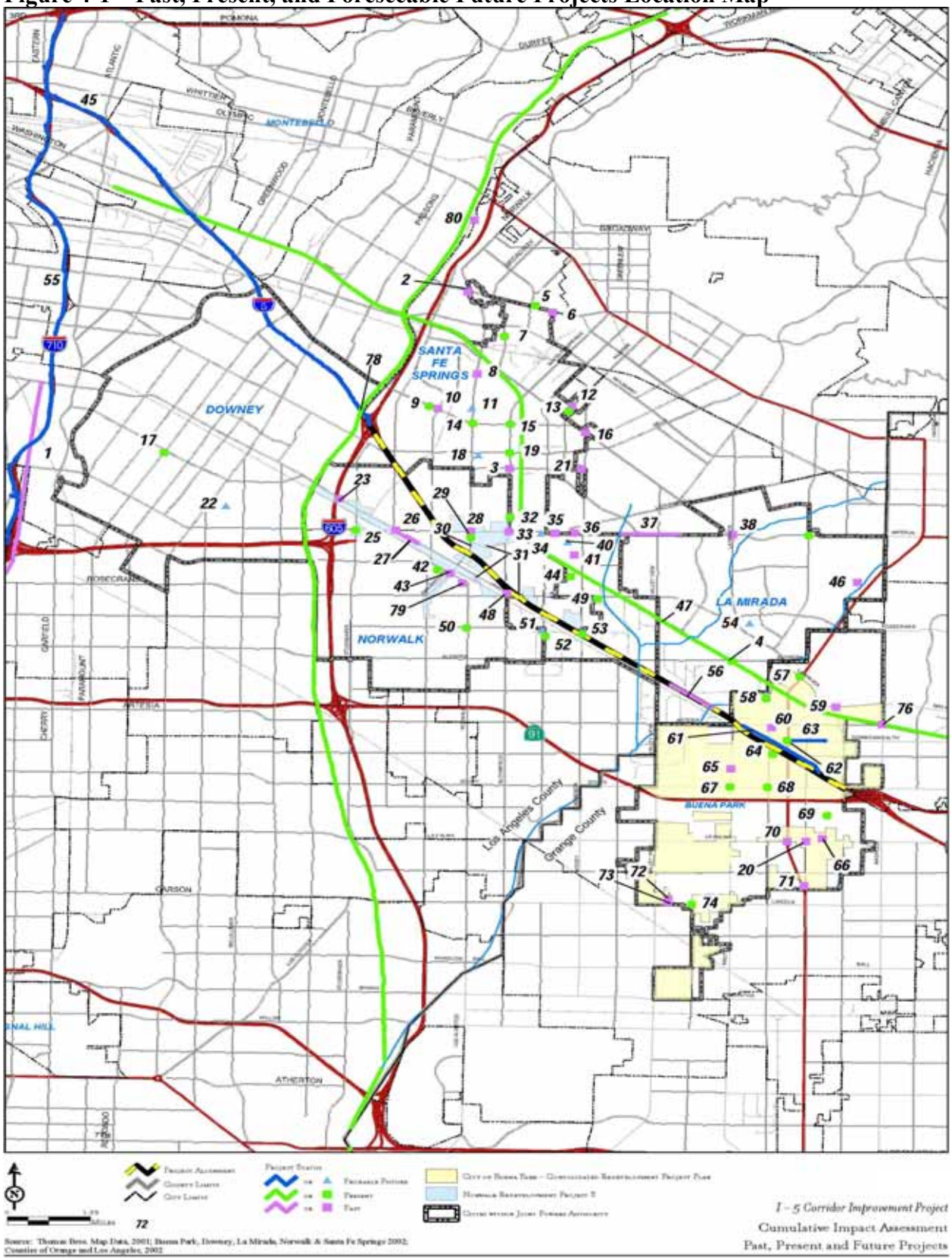

Table 4-1 – Past Projects								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date**[2]**/ Environmental Topics**	**Comments**
Buena Park	Knotts Berry Farm Water Park and New Attraction	4	Construction of Water Park located within Knott's Berry Farm.	Beach Blvd. and Stanton Ave.	15 ac water park	Completed	DEIR: 10/26/99 NOD 02	No significant impacts
Buena Park	Apartments	60	8-unit apartments; existing land use is residential.	5831 Western Ave.	0.37 ac/ 8MFDU	Constructed 2002	No environmental documentation	Previously underutilized property
Buena Park	Single-Family Homes	72	10 single-family homes; existing land use is residential.	8902 Hoffman St.	0.88 ac/ 10 SFDU	Constructed 2002	No environmental documentation	Previously underutilized property
Buena Park	Single-Family Homes	75	10 single-family homes; existing land use is residential.	8912 Hoffman St.	0.88 ac/ 10 SFDU	Constructed 2002	No environmental documentation	Previously underutilized property
Buena Park	Single-Family Homes	70	53 single-family homes; existing land use is residential.	8341 La Palma Ave.	7.50 ac/53 SFDU	Constructed 2002	No environmental documentation	Previously underutilized property
Buena Park	Commerce Center at Buena Park	65	Demolition of existing and construction of new industrial/light industrial uses.	Knott Ave. and Caballero Blvd.	1,394,477 sq ft	Complete	NOP: 3/5/01 DEIR: 7/3/01	Minor clean
Buena Park/Orange County property	University Gables	73	Housing project that goes with Metrolink project	Border of Buena Park and Fullerton	8 ac; 36 attached, 50 detached SF homes	Completed in 2003		No impacts (City 12/04)

1 The Cities of Downey, La Mirada, and Norwalk are in the County of Los Angeles. The Cities of Buena Park and Santa Fe Springs are located in the County of Orange.

2 DEIR = Draft Environmental Impact Report
FEIR = Final Environmental Impact Report
NEG = Negative Declaration
NOD = Notice of Determination
NOP = Notice of Preparation

Table 4-1 – Past Projects continued								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date[2]/ Environmental Topics**	**Comments**
Buena Park	Buena Park Transportation Facility and Residential Community	59	A text amendment to the City's General Plan to allow 25 percent density bonus for projects providing affordable housing for construction of 90 residential units, a Metrolink station, and a day-care center.	Malvern Ave. and Dale St.	14.09 ac	Construction of homes is almost complete. Metrolink station is now another project. (See Table 5.B.)	DEIR: 6/5/00 NOD: 8/25/00	
Buena Park	The District	74	Built behind the J.C. Penney store at the Buena Park Mall.	Buena Park Mall	200,000 sq ft complex	Built approximately 2002	No known impacts (per City)	Part of Buena Park Central
Buena Park	Buena Park Marketplace	75	Redevelopment of the vacant shopping center across from the Buena Park Mall into a Kohl's department store. Future plans for a Michael's, PetSmart, and Office Depot.	La Palma Ave. and Stanton St.		Complete several approximately 2003–early 2004	Neg Dec	
County of Los Angeles	Busby Drain	37	The construction of 5,390 linear feet of reinforced concrete pipe ranging in size from 60 inches or more in diameter and various appurtenant structures, including manholes and catch basins.	Between Marquardt Ave. and Burgess Ave. in the Cities of Santa Fe Springs and La Mirada	5,390 sq ft	Project completed 4/29/02		No significant impacts

Table 4-1 – Past Projects continued								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date[2]/ Environmental Topics**	**Comments**
Downey	DM5; Los Angeles River-Rio Hondo Confluence Project by US Army Corps of Engineers	1	Last phase of Los Angeles River Improvements Project; would provide flood protection with a combination of parapet (protective) walls.	The Los Angeles River and the Rio Hondo downstream of Firestone Blvd. to as far south as Rosecrans Ave.	Less than 7 miles in length	Completed approximately 2003	Supplemental Environmental Assessment: 3/6/00 Construction Related Impacts. Implemented mitigation: X carpooling to site X cars and fuel tanks out of channel X staging areas X stop if winds >25 mph X no idling vehicles >5 minutes X water sprayed on ground	Located approximately three miles from I-5 project
La Mirada	Home Depot	38	Redevelopment of the Crossroads Center by Home Depot Corporation; includes a retail store and a garden center.	La Mirada Blvd./Imperial Hwy.	9.32 ac, 130,890 sq ft	Built in 2001–2002	DEIR: 11/3/00 NOD: 1/10/01	
La Mirada	Emery Hills Planned Development Unit (PUD)	46	Centex Homes builds 132 single family residences, a commercial component, and open space.	Beach Blvd. and Hillsborough Dr.	27.8 ac of development and 24.6 ac of open space. 4 acres of retail	Constructed 2002–2003	DEIR: 1/29/01 NOD: 2/26/01	
La Mirada	North Firestone Widening: Phases 1 and 2	56	Widening from Trojan Way to Residence Inn from 35' to 64' width; part of MetroCenter development.	North Firestone Blvd.		constructed 2002-2003		
Norwalk	Target	29	Construction of a new Target store.	Imperial Hwy. and Norwalk Blvd.		Complete: opened 8/02		
Norwalk	3-D (lube/tune shop) Rental Car	26	Construction of a lube and tune shop.	Firestone Blvd. and Imperial Hwy.		Completed in spring 2001		

Table 4-1 – Past Projects continued								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date[2]/ Environmental Topics**	**Comments**
Norwalk	San Antonio Village	79	Development of a pedestrian-friendly center of community activity, with shops, restaurants, and offices.	Rosecrans Ave., Pioneer Blvd., San Antonio Dr., and Firestone Blvd.		Completed approximately 2001		
Norwalk	Norwalk Transportation and Public Services Facility Upgrade	33	Demolition of the existing buildings; construction of new Administration Building, new Maintenance Facility, and new Public Services Building.	Imperial Hwy. and Bloomfield Ave.	67,653 sq ft of building development and 36,208 sq ft of parking structure	Completed late 2002	NEG: 1999	
Norwalk	Self-Storage	43	Construction of a self-storage facility.	Foster Rd. and San Antonio Dr.		Constructed 2003		Soil issues: remediation (9/02)
Norwalk	Porsche Dealer	23	Construction of a Porsche dealer facility.	Firestone Blvd. and Hoxie Ave.	5,000 sq ft	Construction 2002–2003		
Norwalk	Ramada Inn	48	Construction of a Ramada Inn.	Firestone Blvd. and Bloomfield Ave.	Not available	Built in 2002		
Santa Fe Springs	Golden Springs Bldg. A-1 and A-2	35	Golden Springs Development Project Project Area: Amend #1	13102, 13116, 13128, and 13158 Imperial Hwy.	35,112 and 38,352 sq ft	Complete		
Santa Fe Springs	Golden Springs Bldg. J through Q	41	Golden Springs Development Project Project Area: Amend #1	13000 block of Orden Dr.	10.10 ac/ 219,759 sq ft, 13.01 ac/ 280,208 sq ft, 8.90 ac/ 188,864 sq ft	Complete		
Santa Fe Springs	Crippled Children's Soc.	21	Oil Field Residential	13331 Lakeland Rd.	0.68 ac/ 25 units	Completed 2001		
Santa Fe Springs	Stadium Properties	80	Storage Unit Facility	Off Pioneer, between River and 605	5.76 ac/ 106,150 sq ft	Completed 2002		

Table 4-1 – Past Projects continued								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date[2]/ Environmental Topics**	**Comments**
Santa Fe Springs	Mission Clay	12	Mixed-use Development	Painter Ave. and Barton Ave.	10.50 ac/ 25,646; 52,522; 82,133; 8,881; 11,017; 9,593; and 8,169 sq ft (Spec.)	Completed early 2002		
Santa Fe Springs	Cingular Communications	10	Collocation of Cell Facility; Business at Pioneer and Telegraph Rd.	11921 Telegraph Rd.	cellular site	Completed 2002		
Santa Fe Springs	AT&T Wireless Services	8	Collocation on Oil Field Residential	9500 Norwalk Blvd.	cellular site	Completed 2002		
Santa Fe Springs	AT&T Wireless Services	4	cell site in the Washington project area (TGP.676-G-6)	11038 Washington Blvd.	61 ft Wireless Tower	Completed 2002		
Santa Fe Springs	McDonald's	16	Business (Amend #1 project area), Gateway Plaza	Telegraph Rd. and Carmenita	0.96 ac/ 3,000 sq ft	Completed 2002		
Santa Fe Springs	Sav-On	16	Business (Amend #1 project area), Gateway Plaza	Telegraph Rd. and Carmenita	1.32 ac/ 14,884 sq ft	Completed 2002		
Santa Fe Springs	Salvation Army	6	Use existing buildings for administrative/counseling, ministry, and 35 units of transitional housing.	12000 E. Washington Blvd.	3.22 ac/ 35 Dwelling Unit Capacity	Completed 1997		
Santa Fe Springs	Golden Springs Bldg. B-1	36	Golden Springs Development Project Project Area: Amend No. 1	13238-13248 Imperial Hwy.	6.62 ac/ 6,286	Completed 2002		
Santa Fe Springs	Golden Springs Bldg. B-2	40	Golden Springs Development Project Project Area: Amend No. 1	12610-12618 Leffingwell Rd.	5.62 ac/ 7,086 sq ft	Completed 2002		
Santa Fe Springs	Zucker Family Trust	51	Project Area: Oil Field	10506 Shoemaker Ave.	4.66 ac/ 101,000 sq ft	Completed 2002		
Santa Fe Springs	Clark Management (two buildings)	18	Project Area: Oil Field	12220 Florence Ave.	2.97 ac/ 26,850 and 36,100 sq ft	Completed 2002		

Table 4-1 – Past Projects continued								
Jurisdiction[1]	**Project Name**	**Project Number**	**Description**	**Location**	**Size of Project**	**Construction Status**	**Environmental Document Date[2]/ Environmental Topics**	**Comments**
Santa Fe Springs	Sares-Regis Project (CENCO)	20	Project Area: Oil Field Office/Wholesale	SEC Bloomfield Ave. and Lakeland	21.30 ac	Completed 2002		
Santa Fe Springs	Farmer Boys	5	Restaurant	11808 Washington Blvd.	0.52 ac/ 2,600 sq ft	Constructed		
Santa Fe Springs	Reinhold Industries	34	East Imperial Hwy.	12827 Imperial Hwy.	7.45 ac/ 49,408 sq ft	Constructed in 2002		
Santa Fe Springs	Fry Steel Co., Inc.	52		13325 Molette St.	2.42 ac/ 44,746 sq ft	Constructed in 2002		

4-3 PRESENT, REASONABLE FORESEEABLE, AND PROBABLE FUTURE PROJECTS

Present and probable future projects within each City and the County are listed in Table 4-2 and shown on Figure 4-1. The project numbers on Tables 4-1 and 5-1 are plotted on Figure 4-1.

Table 4-2 – Present and Foreseeable Future Projects								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Orange County	Orange County Facilities Master Plan Program EIR/Orange County Water District		The PEIR would provide a description of the District's existing storage and recharge facilities and address the potential impacts resulting from the implementation of projects identified in the LTFP plan including: (1) modification or expansion of existing recharge facilities; (2) development of new recharge facilities; (3) water supply projects to divert, store and/or recharge additional surface water; (4) projects or operational practices that would modify management of the groundwater basin; and (5) projects that enhance water quality.	Buena Park		Future	NOP distributed on 8/17/04	
Buena Park	Consolidated Redevelopment Project Plan	Identified as an area on Figure 5.1	Consolidate four project areas into a single redevelopment project area; renovate and rehabilitate aging commercial and residential areas of the City. One big planning area.	I-5 and SR-91; Beach Blvd.; Western Ave.; Knott Ave.; Valley View Ave.; Orangethorpe Ave.	3,940 ac	Proposed	SCH No. 2001051065 DEIR: 10/17/01 FEIR 2002 NOD: 5/9/02	

1 The Cities of Downey, La Mirada, and Norwalk are in the County of Los Angeles. The Cities of Buena Park and Santa Fe Springs are located in the County of Orange.

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Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Buena Park	Consolidated Redevelopment Project Plan	Identified as an area on Figure 5.1	Consolidate four project areas into a single redevelopment project area; renovate and rehabilitate aging commercial and residential areas of the City. One big planning area.	I-5 and SR-91; Beach Blvd.; Western Ave.; Knott Ave.; Valley View Ave.; Orangethorpe Ave.	3,940 ac	Proposed	SCH No. 2001051065 DEIR: 10/17/01 FEIR 2002 NOD: 5/9/02	
Buena Park	Buena Park Central Project	69	Remodel of the Buena Park Mall; demolition and reconstruction of commercial area.	South side of La Palma Ave. between Dale St. and Stanton St.	175,850 sq ft	Almost complete as of 12/04	SCH No. 2000121062 DEIR: 7/6/01 NOD: 9/28/01	
Buena Park	Commonwealth Avenue Widening	63	Widening from 84 to 100 feet and various improvements to Commonwealth Ave., including right-turn lanes at intersections; otherwise, two lanes in each direction.	Commonwealth Ave. from Beach Blvd. to Indiana Ave.	100 ft wide	Almost complete as of 12/04	NEG: 7/3/01	
Buena Park	Metrolink	59	Metrolink Station at Malvern Ave. and Dale St. (This is part of the Buena Park Transportation Facility project. See Buena Park Transportation Facility, Table 5.A).	Malvern Ave. and Dale St.	(see Table 5.A)	Construction is pending completion of Third Main Track (below). Proposed construction completion in August 2005.	DEIR: 6/5/00	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Buena Park	Auto Center Specific Plan	61	Development of office and business uses; existing use is mostly auto dealerships. Underutilized businesses are converted to auto sites. Possible future sites: (1) Northwest corner of Orangthorpe Ave. and Western Ave., (2) Northwest corner of Commonwealth Ave. and Beach Blvd., and (3) Knott St. and Orangethorpe Ave., just off the southwest corner	Along Manchester Ave., 6000 to 6800 Manchester Ave., and three satellite areas (see comments)	53.0 ac	Proposed Some dealerships have been built. As anticipated, more to be constructed in the future.	Specific Plan – Sept. 1998	
Buena Park	Lincoln Ave. Planned Development	74	Redevelopment into a residential use. Old farmland/nursing.	Lincoln Ave. and Holder St.	51.1 ac	Very early stages of planning. No applications pending		
Buena Park	Big "T" Development/City of Buena Park	57	117 single-family homes and common area including 7.5 acres preserved for future commercial development within the planned development zone. Conversion of an old golf course.	La Mirada Blvd. at Beach Blvd.	26.5 ac	Started early November 2004	SCH No. 2002091118 DEIR: 3/03 FEIR: 12/03 NOD: 3/15/04 Approval of a Master Plan, Conditional Use Permit, and Tentative Tract Map to develop a +/- 26.5-acre parcel into residential and future commercial	

Table 4-2 – Present and Foreseeable Future Projects continued

Jurisdiction[1]	Project Name/Lead Agency	Project Number	Description	Location	Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])	Construction Status	Environmental Document[2]/Date/ Environmental Topics	Comments
Burlington Northern Santa Fe Railroad Company	Third Main Track and Seven Grade Separations Project, BNSF/Caltrans District 7	47	Construction of railroad track improvements (a new third main track and supporting infrastructure) and seven graded separations.	Burlington North Santa Fe Railway Company's East–West Main Line Railroad Track in Buena Park, Commerce, Fullerton, La Mirada, Norwalk	14.7-mile segment	Under construction 12/2004 (per City inspector)	SCH No. 2002041111 NOP: 4/19/02 DEIR: 4/4/03 NOD: 1/6/04 Final (EIR): 1/13/04	
Caltrans District 7 (project in Norwalk)	I-5 at Carmenita Interchange Improvements Project	53	Caltrans is proposing a project to replace the existing interchange on I-5 at Carmenita Road, in the Cities of Norwalk and Santa Fe Springs, Los Angeles County. The proposed project would include realigning the on- and off-ramps and extending the overcrossing to include a railroad grade separation 100 meters south of the freeway. The proposed project would require acquisition of new State right-of-way.	City of Norwalk, I-5, and Carmenita Rd.	Interchange replacement	Project approved 5/3/02 Currently in final design	SCH No. 2001071004 DEIS NOD: 5/3/02	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
County of Los Angeles, Department of Public Works	Maintenance clearing of engineered earth-bottom flood-control channels project; various waters within Los Angeles County	31	Annual vegetation clearing in channels and minor grading.	Los Angeles County channels (around 100 channels)	San Gabriel River Channel	Ongoing	NEG Wetland/Riparian (10.97 ac) in Reaches Nos. 43 and 44; least Bell's vireo found north of Whittier Boulevard (listed as State and federally endangered)	The project does not include the Coyote Creek Channel.
Downey	Downey Landing Specific Plan and EIR	22	Redevelopment of a former NASA site to mixed uses; would include a retail center, film/television production studios, a hospital/medical office complex, and a business park.	Lakewood Blvd./SR-19/Stewart and Gray Rd.; approximately two miles from the I-5 project site	160 ac; maximum development of 3.7 million sq ft		SCH No. 2001031096 DEIR: 8/1/01 Specific Plan: 2/15/02 Final Program EIR: 3/02 Downey Landing Specific Plan (approved by City council)	The movie studios are built and in use (2004).
Downey/ Commerce Unincorp. L.A. County	I-5 Widening (I-605 to I-710)/Caltrans	45	Evaluating widening from 10 to 12 lanes				EIR/EIS	Preliminary design and environmental document is not funded
La Mirada	Biola University Master Plan	54	Increases the amount of development permitted on campus to 1,839,444 sq ft; new building footprints.	La Mirada Blvd. and Rosecrans Ave.	1,839,444 sq ft	Phased out over 20 years	DEIR: 1/31/01 NOD: 7/9/01	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
La Mirada	Alonda Redevel. Project	4	Potential for conversion of existing retail to housing under consideration by City staff. No specific development applications filed.	Alondra and Escalona	N/A	N/A	TBD	
La Mirada	Marshall Center Redevelopment Project	39	Potential for redeveloped/intensification of existing retail centers under consideration by City staff. No specific development application filed.	SEC of Imperial and Santa Gertrudes	N/A	N/A	TBD	
La Mirada	Crossroads Center Redevelopment Project	38	Potential for redeveloped/intensification of existing retail centers under consideration by City staff. No specific development application filed.	La Mirada/ Telegraph/ Imperial	N/A	N/A	TBD	
Various	I-710 Major Corridor Study/ LACMTA	55	Potential for redeveloped/ intensification of existing retail centers under consideration by City staff. No specific development application filed.					Planning level analysis to identify selected alt. for further analysis.

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Norwalk	Norwalk Redevelopment Project Area No. 3 Adoption, Amendment, and Merger	Identified as an area on Figure 5.1	The project involves the adoption of a proposed Redevelopment Plan for Norwalk Redevelopment Project Area No. 3, amendment of the two existing Redevelopment Plans for the two existing project areas to extend certain time limits, and the merger of all three project areas. The primary purpose of the Redevelopment Plan continues to be the elimination of physical and economic blighting conditions that hinder the full development of the Project Areas.	Pioneer, Firestone Blvd., Norwalk Ave., Alondra Blvd., San Antonio Dr., Excelsior Dr., Studebaker Rd.	677 ac	The re-development plan does not specifically result in construction. It only identified a project area	DEIR: 9/14/01	No impacts. The continued implementation of the existing Redevelopment Plan, as well as the proposed Redevelopment Plan, is expected to facilitate commercial, industrial/manufacturing, and residential development in the project areas in conformance with the Norwalk General Plan; to address various environmental issues; and to mitigate existing public infrastructure system deficiencies.
Norwalk	Church	3	Construction of a new church.	12366 Rosecrans Ave. (at Helwig Ave.)	19,962 sq. ft.	Under construction as of 12/04	The project was exempt. Notice of exemption: 11/14/03,CUP No. 822	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Norwalk	Vacant	25	Underutilized area with a Food for Less, retail and fast food store to be developed; zoned for general commercial use.	Imperial Hwy. and Studebaker Rd.	5 buildings	Nothing is currently proposed, project on hold	Exempt	Project was denied by staff and never adopted by the Planning Commission
Norwalk	Vacant	50	Former USAF fuel storage facility to be developed; zoned for low-density residential use.	Norwalk Blvd. and Excelsior Dr.	50 acre tank farm	No project is proposed yet, nor in the near future according to City planner 12/04	Unknown	Site requires extensive remediation due to the fuel storage facility
Norwalk	Civic Center	28	Opportunity to develop a major civic facility with new office buildings and cultural facilities.	Norwalk Blvd. and Imperial Hwy. Large open area in front of city hall		No current plans for development (12/04)	None	
Santa Fe Springs	Heritage Springs Phase 3	14	Project Area: Norwalk Blvd.	SWC Norwalk Blvd. and Telegraph Rd.	4.60 ac	Plans approved	Unknown	Ongoing; more than 15 buildings
Santa Fe Springs	J&R Investments	44	Project Area: Amend No. 1	13609 Rosecrans Ave.	2.09 ac/ 21,100 sq ft	Plans approved	Unknown	
Santa Fe Springs	O'Donnell Group (three buildings)	29	Project Area: Norwalk Blvd.	10607 Norwalk Blvd.	8.52 ac/ 197,718 sq ft	Plans approved	Unknown	
Santa Fe Springs	Mail Will (Office Addition)	44	Project Area: N/A	13341 Cambridge St.	9.68 ac/ 7,060 sq ft	Pending	Unknown	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Santa Fe Springs	Cascade Pump Company	11	Project Area: Oil Field	10107 S. Norwalk Blvd.	4.58 ac/ 34,156; 10,803; 14,789; and 12,246 sq ft	Plans approved/ More pending	Unknown	
Santa Fe Springs	Breitburn Development Company	15	Business in Norwalk	Telegraph Rd. and Santa Fe Springs Rd.	20.68 ac/ 21,400; 24,360; 25,870; 46,790; 107,896; 150,160; and 28,77 sq ft (spec.)	Pending building review	Unknown	
Santa Fe Springs	City Church	13	Church near Washington Blvd. area	10135 Painter Ave.	1.86 ac/ 17,136 sq ft	Pending building review	Unknown	
Santa Fe Springs	Western Realco	32	Business	12320 Bloomfield Ave.	121,362 sq. ft. building	Plans approved; awaiting permits	Unknown	
Santa Fe Springs	Wal-Mart with a McDonalds	16	Business (Amend No. 1 project area)	Telegraph Rd. and Carmenita Rd.	12.50 ac/ 141,996 sq ft	Plans approved	Unknown	Gateway Plaza
Santa Fe Springs	Santa Fe Springs Town Center Housing	9	53 townhomes, combined with upgrade of existing shopping center on site.	Telegraph Rd.	3.80 ac/ 53 DU capacity	Plans approved	Buffering and screening from industrial uses; soil testing due to prior industrial uses.	Building Dept. does not know of this; never came to pass?
Santa Fe Springs	Townhomes	7	24 townhomes on abandoned railroad right-of-way.	Burke St. and Dice Rd.	2.20 ac/ 24 DU capacity	Proposed	Unknown	

Table 4-2 – Present and Foreseeable Future Projects continued								
Jurisdiction[1]	**Project Name/Lead Agency**	**Project Number**	**Description**	**Location**	**Size of Project (i.e., dwelling units [DU], acres [ac], or square feet [sq ft])**	**Construction Status**	**Environmental Document[2]/Date/ Environmental Topics**	**Comments**
Santa Fe Springs	Proposed update of the Santa Fe Springs Consolidated Redevelopment Project	19	A subsequent EIR is needed to update the Redevelopment Project EIR of 1981. It would provide the required update to the environmental database and impact assessment.	Florence Ave. and Bloomfield Ave.	Unknown	Proposed	Unknown	No impact data

CHAPTER 5 – CALIFORNIA ENVIRONMENTAL QUALITY ACT EVALUATION

5-1 DETERMINING SIGNIFICANCE UNDER CEQA

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Department is the lead agency under CEQA and the FHWA is lead agency under NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or some lower level of documentation, would be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require EIRs to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

5-2 DISCUSSION OF SIGNIFICANT IMPACTS

Section 15382 of the *State CEQA Guidelines* defines significant effect as "… as substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical and aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant." Section 15064 of the *State CEQA Guidelines* states that: "An ironclad definition for significant effect is not possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban setting may be significant in a rural area."

5-2.1 Significant Environmental Effects of the Proposed Project

The following impacts are considered significant under CEQA, but are considered less than significant with the implementation of proposed mitigation measures.

Aesthetics

Under CEQA, the following would be considered a significant effect on the environment:

- Creation of a new source of substantial light or glare which would adversely affect day or nighttime views of the area (Section 3-7.3)

Air Quality

Under CEQA, the following would be considered significant effects on the environment:

- Conflict with or obstruct implementation of the applicable air quality plan (Section 3-13.1)
- Expose sensitive receptors to substantial pollutant concentrations (Section 3-13.2)

Geology and Soils

Under CEQA, the following would be considered significant effects on the environment:

- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking (Section 3-11.2)
- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction(Section 3-11.2)

Hazards and Hazardous Materials

Under CEQA, the following would be considered significant effects on the environment:

- Creation of 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 (Section 3-12.2)
- Project location 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 (Section 3-12.2)
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Section 3-5.3)

Hydrology and Water Quality

Under CEQA, the following would be considered significant effects on the environment:

- Violation of any water quality standards or waste discharge requirements (Section 3-10.3)
- Creation or contribution to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (Section 3-10.3)
- Otherwise substantially degrade water quality (Section 3-10.3)

Public Services

Under CEQA, the following would be considered significant effects on the environment:

- The project would 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 fire protection (Section 3-5.3)

- The project would 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 police protection (Section 3-5.3)
- The project would 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 parks (Section 3-5.3)

Transportation/Traffic

Under CEQA, the following would be considered significant effects on the environment:

- Temporary inadequate emergency access (Section 3-5.3)
- Temporary inadequate parking capacity

Utilities and Service Systems

Under CEQA, the following would be considered significant effects on the environment:

- Exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board (Section 3-5.3)
- 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 (Section 3-5.3)

5-2.2 Unavoidable Significant Environmental Effects

The following impacts are considered significant under CEQA and would remain significant with implementation of proposed mitigation measures.

Land Use and Planning

Under CEQA, the following would be considered significant effects on the environment:

- Physical division of established communities (Section 3-4.2)
- 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 (Section 3-1.3)

Noise

Under CEQA, the following would be considered significant effects on the environment:

- 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 (Section 3-14.3)
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (Section 3-14.3)

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (Section 3-14.3)
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project (Section 3-14.3)

Population and Housing
Under CEQA, the following would be considered significant effects on the environment:
- Displacement of substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere (Section 3-4.1)
- Displacement of substantial numbers of people, necessitating the construction of replacement housing elsewhere (Section 3-4.1)

Transportation/Traffic
Under CEQA, the following would be considered significant effects on the environment:
- 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) (Section 3-6.3)
- Exceedance, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways (Section 3-6.3)

Mandatory Findings of Significance
Under CEQA, the following would be considered significant effects on the environment:
- The proposed project would have environmental effects, which would cause substantial adverse effects on human beings either directly or indirectly (Sections 3-4.1, 3-4.2, 3-6.3, and 3-14.3)

5-2.3 Significant Irreversible Environmental Changes

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement that provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Please refer to Section 3-20 regarding the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity. Please refer to Section 3-21 regarding any irreversible and irretrievable commitments of resources which would be involved in the proposed project.

5-2.4 Mitigation Measures for Significant Impacts Under CEQA

Mitigation measures for significant impacts under CEQA can be found in Chapter 7, which contains a Mitigation Monitoring and Reporting Record.

CHAPTER 6 – SUMMARY OF PUBLIC/AGENCY INVOLVEMENT PROCESS/NATIVE AMERICAN COORDINATION

6-1 PUBLIC OUTREACH

The environmental scoping process was initiated with the preparation and distribution of a Notice of Preparation (NOP) and the publication of a Notice of Intent (NOI) in the Federal Register. The NOP was circulated to public agencies and other interested parties to inform public agencies and the general public about the project and the environmental review process. In addition, a Notice of Scoping/Initiation of Studies was circulated to organizations, businesses, and residents notifying these interested parties of the scoping process being undertaken and the dates of the scoping meetings. An environmental scoping notice and a news release for the public scoping meetings were sent to several newspapers in the region. Information about the project has been available on an ongoing basis via the Internet at www.dot.ca.gov/dist07/. The Web site provides comprehensive information about the planning process, including the proposed alternatives. The Web site provides an opportunity for the public to e-mail comments and questions directly to the Department of Transportation, District 7.

6-2 FALL 2001 SCOPING MEETINGS

Two sets of public scoping meetings were held in two different locations within the study area in December, 2001. The first set of meetings was held at the La Mirada Activity Center in the City of La Mirada on Monday, December 3, and the second set of meetings was held at the Norwalk Arts and Sports Complex in the City of Norwalk on Wednesday, December 5. The meetings were held from 3:00-5:00 p.m. and 6:00-8:00 p.m. in public facilities to give the agencies and the general public a variety of time and location options. The first meeting on each day was held for local, regional, State, and federal agencies, followed by a second meeting each day for the general public. The meetings were attended by approximately 150 people. Each meeting provided participants with an opportunity to discuss the project, the alternatives being considered, and environmental/community concerns.

The scoping meetings were conducted in an exhibit/presentation/question & answer format. As participants entered the meetings, they were given informational materials on the project and a comment card for the submittal of written comments and questions about the project and the proposed alignments. Several display boards provided information, including an aerial photograph of the proposed alternatives. Representatives of the Department of Transportation, FHWA, JPA, and the project consultants were able to answer individual questions. After allowing sufficient time for participants to review the display boards, participants were invited to be seated for a presentation providing project background, a project overview including alternatives, environmental issues, and schedule, and a question and answer session. After the question and answer period, the meeting was closed, and participants were invited to submit additional comments using the comment cards provided.

Comments made at the scoping meetings and written responses to the Notice of Preparation (NOP) identified a number of key issues to be addressed in the Draft EIR/EIS. A separate

Scoping Summary Report (LSA, 2002) describes comments in detail. A general summary of the key issues to be addressed in the Draft EIR/EIS is provided below.

- Identification of transit improvements to complement any freeway widening
- Displacement of homes and businesses and the schedule for relocation and property values of remaining properties
- Provision for adequate pedestrian safety across the facility, including access to schools
- Indirect effects to existing land uses, including noise, air quality, vibration, visual, and property access
- Existing flooding conditions south of the I-5/605 interchange
- Extension of the study limits to include the area between I-605 and I-710.

Results from these meetings and correspondence from community officials reflect community attitudes about the proposed action and alternative alignments.

6-3 NOTICE OF PREPARATION AND NOTICE OF INTENT

A Notice of Preparation was prepared and submitted to the California State Office of Planning and Research State Clearinghouse pursuant to CEQA. The public review period for the NOP commenced November 16, 2001 and ended January 7, 2002.

A Notice of Intent (NOI) was prepared and issued by the Federal Highway Administration (FHWA) on November 16, 2001. The NOI was published in the Nation Register on November 23, 2001.

6-4 NATIVE AMERICAN CONSULTATION

A letter was sent to the Native American Heritage Commission requesting a check of the Sacred Lands Inventory. In a response letter dated May 26, 2005, the Commission stated that there are no known Native American cultural resources in the immediate project area. Letters have been sent to area Native American Groups describing the proposed action. A response from the Native American Heritage Commission has been received declaring that there is no indication of the presence of Native American cultural resources in the immediate project area.

6-5 NEWSLETTERS

The public outreach program includes preparation of a newsletter to notify the public of major issues and upcoming milestones related to the I-5 Corridor Improvement Project. The newsletter explains the environmental review process, provides information on community concerns related to the proposed alternatives, provides a schedule for the proposed project, gives general updates from the Joint Powers Authority (JPA), and provides contact information for questions and/or concerns related to the I-5 Project. The distribution of the newsletter is based upon a mailing list that includes attendees to the scoping meetings, local public officials, interested parties, local libraries, and stakeholders identified by each city within the study area. The first newsletter was distributed in November 2002. State budget problems in 2003 temporarily suspended activities on the CEQA/NEPA public outreach process, however, they commenced again with the second newsletter distributed in November 2005. Newsletters would continue to be distributed periodically throughout the development process.

CHAPTER 7 – MITIGATION AND MONITORING COMMITMENTS

MITIGATION REPORTING PLAN FOR THE INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT MITIGATION MONITORING PROGRAM

INTRODUCTION

In accordance with section 21081.6 of the California Environmental Quality Act (CEQA), Caltrans Division of Environmental Planning (DEP) adopted a Mitigation Monitoring Program (MMP). The MMP is to ensure implementation of measures that would avoid or mitigate significant effects of the project. This Reporting Plan builds on the MMP, it provides a systematic method by which Caltrans DEP can document the implementation of each mitigation measure that has been monitored and completed during the associated stage of the project. The reporting Plan also includes mitigation measures, which have been developed during the CEQA/National Environmental Policy Act (NEPA) certification. These measures include those, which were described in the Final Initial Study/Environmental Assessment (IS/EA), March 2002.

The Reporting Plan creates a simple procedure with minimal paperwork that would provide concise yet sufficient documentation that all mitigation measures have been implemented. Its simple steps would result in the production of **one reporting form for each mitigation measure and a summary table for all measures**, as described below.

STEP 1: DESIGNATE PROGRAM COORDINATOR

Given that a number of people would be involved in the mitigation monitoring process, it is important to designate one person, however the DEP would have ultimate responsibility for ensuring that all mitigation measures are monitored and that a complete, updated report documenting such activities is filled. For purposes of this plan the designated person would be the Project Manager. The Project Manager would have a central role in the activities described in the following steps.

STEP 2: ASSEMBLE TEAM OF MONITORS

The first task of the Project Manager would be to assemble the personnel capable of monitoring all mitigation measures included in the MMP. Monitors may include Resident Engineer, Design Engineer, Landscape Architect, and other members of the departments or contractors, etc. responsible for overseeing specific mitigation measures.

The Project Manager should assign specific mitigation measures to each of the monitors. The monitoring activities provided in the attached summary table should be self-explanatory. However, the Project Manager should make sure the monitors understand what is required.

STEP 3: ONGOING REPORTING

During the course of the design, construction, and operational stages of the project, the Project Manager would maintain contact with the monitors to ensure that their activities have been completed at the appropriate time.

Monitors would fill out a **Mitigation Monitoring Report** form for each of their assigned mitigation measures as these measures are monitored and completed. A sample of this form is attached. The form summarizes the monitoring activities undertaken and documents that the mitigation measure was or was not carried out. To support the conclusion on this form references to other project documents, such as engineering drawings or contract documents, may be made. Typically, this report would be filled out when the mitigation measure is implemented. However, there may be some cases where a mitigation measure was not implemented, for example if the mitigation measure applied to a contingency situation that did not occur. There may be other cases in which reports would be required on a periodic basis, until such time as the measure is completed. It is important that a form be filled out for all measures, completed or not.

The Environmental Planner would collect and review the reporting forms for each mitigation measure, keep a file of all reporting forms and supporting documentation, and update a summary table for all mitigation measures. A summary log for this project's mitigation measures is attached. This log assigns a name to each mitigation measure required for the project in order to assist in tracking the monitoring process; lists monitoring activities and frequencies for each mitigation measure; the last column provides a space to be filled in upon completion of the reporting forms. As each form is completed, its completion date can be entered in this column, providing a master log or summary of the status of all mitigation measures.

STEP 4: REPORT PROGRESS TO DEP

The Division of Environmental Planning should be updated as to the progress of the mitigation monitoring and reporting on a regular basis. This can be done at regular scheduled meetings.

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Water	Party Responsible for Mitigation Monitoring: Design Engineer, RE, & Maintenance	
Required Monitoring/Reporting Frequency: 65 & 90%PS&E, Construction & Operation	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: For both short-term (construction) and long-term (operational) water quality impacts, temporary, as well as permanent Best Management Practices (BMPs) would be identified during the project's final design stage, when there is sufficient engineering details available to warrant competent analysis. Caltrans is committed to implementing cost-effective temporary and permanent BMPs as identified during final design.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.		
Name/Title/Agency of Person Completing Report:		
Signature:	Date:	
Signature of Project Manager:	Date:	
Environmental Oversight:	Date:	

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Land Use	Party Responsible for Mitigation Monitoring: Design Engineer & RE	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Prior to and during construction, Caltrans staff would contact and interview individual businesses potentially affected by construction activities. Information gathered from these interviews would be used to develop the construction traffic control plans and alternate access routes to maintain critical business activities. Caltrans staff would inform the public of its progress in implementing the measures selected through periodic project newsletters sent to businesses, residents, and property owners within close proximity to the project. Prior to and during construction, ongoing coordination between Caltrans and the Joint Powers Authority (JPA)/individual cities would minimize any General Plan/Redevelopment Plan inconsistencies that may result during implementation of the proposed project. Parcels subject to full acquisition shall be reconfigured or combined with adjacent parcels to allow for development commensurate with previous land uses. Commercial and industrial land uses subject to partial acquisitions should be reconfigured on site in such a manner as to remain in operation.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.		
Name/Title/Agency of Person Completing Report:		
Signature:	Date:	
Signature of Project Manager:	Date:	
Environmental Oversight:	Date:	

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Community Impacts - Relocations	Party Responsible for Mitigation Monitoring: Right-of-Way RAP	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Public agencies responsible for the acquisitions are required to provide relocation assistance to displaced residents and businesses and compensate the property owners for the sale of the property in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1974, revised effective January 1, 1991 (Public Law 91-646 & 49 CFR Part 24) (see Appendix D). To minimize the impact on cities due to loss of property and sales tax, efforts would be made to find suitable replacement housing or business locations within the community if the displacees desire to remain.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.		
Name/Title/Agency of Person Completing Report:		
Signature:	Date:	
Signature of Project Manager:	Date:	
Environmental Oversight:	Date:	

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Community Impacts: Community Character & Cohesion	Party Responsible for Mitigation Monitoring: Design Engineer, RE	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:

Neighborhood Disruptions:
Pedestrian access points to businesses within the construction area would be maintained throughout the construction period. If usual access points are lost, provisions for alternative access to the affected parcels would be made. Appropriate signage would be placed to inform pedestrians of access to local businesses. Temporary sidewalks, if necessary, would be installed during the construction phase. Disabled access shall be maintained during construction where feasible. During construction, Caltrans staff would establish one or more information field office(s) near the construction site(s). Information and field office telephone numbers would be available to provide community members and businesses a means of direct communication regarding construction activities.

Construction Impacts:
Advance notification of temporary parking loss and, where necessary, identification of temporary replacement parking or alternative adjacent parking would be made. Where possible, temporary parking could be provided on either or both ends of the immediate construction areas to serve adjacent uses. If parking areas are sufficiently distant from businesses, shuttle service may be provided. Caltrans would coordinate with the local jurisdictions to mitigate parking losses to businesses. Caltrans would consult with those businesses whose parking would be affected during construction. If space is available in another location, alternative parking spaces may be provided as mitigation. To mitigate the temporary closure of the Silverbow Avenue pedestrian over-crossing, special busses or similar shuttle service would have to be provided to transport students who normally use the Silverbow Avenue pedestrian overcrossing to get to and from school. Prior to and during construction, Caltrans staff would contact and interview individual businesses potentially affected by construction activities. Information gathered from these interviews would be used to develop the construction traffic control plans and alternate access routes to maintain critical business activities. Caltrans staff would inform the public of its progress in implementing the measures selected through periodic project newsletters sent to businesses, residents, and property owners within close proximity to the project. Staff would be assigned to work directly with the public to provide project information and resolve construction-related problems.

Mitigation Monitoring Action Performed:	
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.	
In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.	
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Signature:	Date:
Signature of Project Manager:	Date:
Environmental Oversight:	Date:

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Environmental Justice	Party Responsible for Mitigation Monitoring: Right-of-Way, RE, Design Engineer, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Short-term construction-related air quality impacts would be mitigated by adhering to South Coast Air Quality Management District rules and regulations and Department Standard Construction Specifications for equipment emission and fugitive dust. Temporary noise impacts would be mitigated through implementation of Department Standard Construction Specifications for noise. Standard relocation assistance (as detailed in Appendix D) would be provided to all displacees, in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Any increase in noise above the Noise Abatement Criteria (NAC) would be minimized by implementing mitigation measures such as noise barrier construction.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Utilities & Emergency/Community Services	Party Responsible for Mitigation Monitoring: Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Utility infrastructures that are impacted by project construction would be relocated before construction, relocated during construction, protected in place, or abandoned. Those utilities that must be relocated as a part of project construction would be relocated in such a manner as to minimize any disruption of service those utilities provide. The impact to fire, police and emergency services response times would be minimized by implementation of a traffic management plan (TMP) that would contain detailed plans of access routes and detours during construction. The TMP should be reviewed and approved by the County Fire Department and any potentially affected fire or law enforcement agency. Caltrans would maintain contacts with the community, police and fire protection services through public outreach during the construction phase.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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Environmental Oversight:	Date:	

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Traffic & Transportation/Pedestrian & Bicycle Facilities	Party Responsible for Mitigation Monitoring: Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:

Freeway and HOV Segments:
In the 2013 horizon, almost every freeway segment is forecast to operate at LOS F in the No Build Condition (two segments are forecast to operate at LOS E). With implementation of the 4 + 2 and 5 + 1 Alternatives, every freeway and HOV segment would operate at LOS E or better. With the 4 + 1 Alternative, one freeway and one HOV segment would continue to operate at LOS F. However, the duration of time that LOS F would occur would be reduced when compared to the No-Build Alternative. In the 2030 horizon, every freeway segment is forecast to operate at LOS F in the No Build condition. Implementation of the 4 + 1 Alternative would result in eight segments and seven HOV segments operating at LOS F. The 4 + 2 Alternative is forecast to result in three freeway segments and no HOV segments operating at LOS F. The 5 + 1 Alternative would result in two freeway and three HOV segments operating at LOS F. Again, the duration of time that LOS F would occur would be reduced when compared to the No-Build Alternative.

Ramp Meters:
The overall maximum queue for all alternatives on the on-ramp is approximately seven vehicles except at Valley View Avenue, where the queue is forecast to increase throughout the peak period. Valley View Avenue has a total of two on-ramp lanes, one metered lane, and one HOV bypass lane. To avoid impacts to the downstream intersection due to the ramp meter at the Valley View Avenue on-ramp, the meter rate should be increased from 900 vehicles per hour to at least 1,150 vehicles per hour; or, the HOV bypass lane should be converted to a metered lane, resulting in two metered on-ramp lanes.

Intersections:
Direct project impacts to ramp terminals and adjacent intersections for each scenario in the 2013 and 2030 horizons have been shown in Tables 3-6.11 and 3-6.16 respectively. To mitigate these impacts, intersection improvements have been investigated at these intersections to achieve LOS D or better operations where feasible. Even with implementation of the project alternatives and intersection capacity improvements, a substantial number of intersections would operate unsatisfactorily. To achieve satisfactory LOS at these locations, signal coordination and optimization should be considered. Signal coordination and optimization can provide substantial benefits to the study area intersections within the I-5 corridor. Caltrans

shall, in coordination with local municipalities, plan and implement a signal coordination program, such as a simple TRANSYT 7-F application or a complex ATSAC system, as indicated by future progression analysis to improve future traffic flow and reduce congestion and delay attributable to both growth in regional traffic volumes and any effects of the freeway widening project. Pedestrian/Bicycle Access: The pedestrian overcrossing that is removed at Silverbow Avenue would be replaced and an additional pedestrian overcrossing would be constructed at Buell Street/Cecilia Street. To mitigate the temporary closure of the Silverbow Avenue pedestrian over-crossing, special busses or similar shuttle service would have to be provided to transport students who normally use the Silverbow Avenue pedestrian overcrossing to get to and from school. The Southeast Area Bicycle Master Plan includes several Class II bike routes within the project corridor. Currently, there is insufficient room on the existing arterial overcrossings to accommodate the planned bike routes. To improve the safety of both motorists and bicyclists, the designed overcrossings and undercrossings at Valley View Avenue, Bloomfield Avenue, Pioneer, and Florence Avenues, for all of the build alternatives, have cross section widths to accommodate Class II the proposed regional bike routes. In most cases, this involves a striped 1.5 m bike lane including a gutter or a striped 1.2 m bike lane without a gutter in the shoulder area.	
Mitigation Monitoring Action Performed:	
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.	
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Cultural Resources	Party Responsible for Mitigation Monitoring: Environmental Planning, RE	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design (Construction) Operation	
Mitigation Measure: None Required. However, should buried cultural materials be encountered during construction, it is Caltrans policy that work in that area must stop until a qualified archaeologist can evaluate the nature and significance of the find (Environmental Handbook, Volume 2, Chapter 7, Section 7-8).		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Visual/Aesthetics	Party Responsible for Mitigation Monitoring: Design engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: In order to minimize the adverse visual impact, landscaping would be important in providing screen, buffer and visual interest for viewers. A comprehensive aesthetic treatment and design plan covering soundwalls, median barriers and structures would help improve visual impact. Remaining properties after acquisition should be absorbed by adjacent properties or zoning variance should be obtained to allow redevelopment to occur.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Hydrology & Floodplains	Party Responsible for Mitigation Monitoring: Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Appropriate drainage and/or pumping systems would be incorporated into the design of the project to control localized flooding or ponding on the freeway. In areas of shallow groundwater, the placing of subdrains or utilizing groundwater pumps would drain freestanding water. Construction activities in flood control channels would only be scheduled to occur during the dry season (April 1-October 31). If construction during that time is not possible, a suitable water diversion plan must be developed and implemented to minimize impact to water quality. Permits would be obtained prior to construction in the channels. A 1601 Streambed Alteration Agreement would be obtained from CDFG. In addition, a 404 permit from the U.S. Army Corps of Engineers and a 401 Certification/Waiver from the Regional Water Quality Control Board may be required. For engineering purposes, groundwater can be mitigated by adoption appropriate foundation design practices for the new structures (retaining wall, tunneling, extension of the existing structure, etc). For construction purposes, any intercepted groundwater flow would require the construction of a system to collect and dispose of the water in an appropriate and approved way.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Water Quality & Storm Water Run-Off	Party Responsible for Mitigation Monitoring: Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: For areas outside of the flood control channels, construction of the 10 and 12 lane alternatives would require construction of an area greater than 5 acres and would therefore be subject to the NPDES permitting process. To address storm water discharges from construction, the permits contain standard provisions that are intended to provide a required level of storm water pollution prevention. A construction SWPPP would be prepared prior to the start of construction to ensure compliance with existing NPDES permits. Caltrans would conduct additional inspections or analysis if required by the RWQCB, inspect construction sites prior to anticipated storm events and after actual events in order to identify areas contributing to storm water discharge pollutants in order to evaluate the adequacy of the control measures identified in the SWPPP, certify annually that construction is in compliance with the applicable NPDES permit and SWPPP, and retain the monitoring records for at least three years following completion of construction.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Geology/Soils	Party Responsible for Mitigation Monitoring: Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: To mitigate against liquefaction, new piles required for structural support would be placed to a depth below the zones of potential liquefaction to protect structures from liquefaction. Insufficiently compacted native material in the immediate area of construction would be removed and re-compacted to 90 percent in cut areas and replaced with an imported sub-base in structural sections. In fill areas above natural ground, the natural material would be removed until dense material is reached and replaced as a compacted fill. It is recommended that fill slopes be treated immediately after construction with planting, hydroseeding or paving to reduce erosion.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Aerially Deposited Lead	Party Responsible for Mitigation Monitoring: Hazardous Waste, Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: If excavated soil at the site is to be reused within the Caltrans rights-of-way, any portion of the upper 0.9m of soil should be placed under pavement and at least 1.5m above the maximum groundwater elevation in accordance with the DTSC Lead Variance. If any portion of the upper 0.9m of soil excavated at the site is to be disposed, it should be handled as a hazardous material with respect to total and soluble lead content. Caltrans would notify contractors performing the construction activities that hazardous concentrations of lead may be present in on-site soil and that appropriate health and safety measures should be taken to minimize exposure to lead		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Hazardous Waste/Materials	Party Responsible for Mitigation Monitoring: Hazardous Waste, Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Project construction would be conducted with a contingency plan in place in the event that unidentified underground storage tanks, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes are unexpectedly encountered during construction. This contingency plan would address underground storage tank decommissioning, field screening and materials testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers. In addition, all structures that would be demolished as part of construction would undergo an evaluation for the presence of asbestos-containing materials and lead-based paint prior to demolition. Solid waste and litter control would be carried out as an extension of existing maintenance procedures.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Asbestos and Lead Paint	Party Responsible for Mitigation Monitoring: Hazardous Waste, Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:
Barrier railing shims and thread sealant on bridges 53-1658 and 53-1657 should be treated as Category II, non-friable asbestos-containing material. It is recommended that a licensed and certified asbestos abatement contractor remove and dispose of the barrier rail shims and thread sealant prior to any activities that would disturb the material.

Structures 53-631, 53-630 and 53-214 and 53-1015 had peeling/flaking paint that should be removed and disposed of as hazardous waste prior to planned retrofit or demolition activities.

Mitigation Monitoring Action Performed:

Mitigation Complete? Yes ❑ No ❑
If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable.
If no, itemize outstanding mitigation and reasons why measures were not implemented.

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Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Construction Air Quality	Party Responsible for Mitigation Monitoring: RE, Contractor	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design (Construction) Operation	

Mitigation Measure:

To reduce fugitive dust emissions the construction contractor shall adhere to the requirements of SCAQMD Rule 403. The Best Available Control Measures (BACMs) and Reasonably Available Control Measures (RACMs) specified in SCAQMD's Rule 203 Implementation Handbook shall be incorporated into the project construction.

In addition to the SCAQMD standard measures to reduce construction emissions, Caltrans Standard Construction Specifications shall be adhered to in order to reduce emissions. The following is a list of Caltrans standard measures provided to reduce the emission of fugitive dust.

A. All disturbed areas, including storage piles, that are not being actively utilized for construction purposes shall 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 shall 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 shall be effectively controlled for fugitive dust emissions by utilizing applications of water or by presoaking.

D. When materials are transported off site, all material shall be covered or effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.

E. All operations shall 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 shall be effectively stabilized for fugitive dust emissions utilizing sufficient water or chemical stabilizers/suppressants.

G. Traffic speeds on unpaved roads shall be limited to 24 kph (15 mph).

H. Sandbags or other erosion control measures shall 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 shall be installed, or all trucks and equipment shall be washed off before leaving the site.

J. Wind breaks shall be installed at windward side(s) of construction areas.

K. Excavation and grading activity shall be suspended when winds exceed 32 kph (20 mph).

L. Area subject to excavation, grading, and other construction activity shall be limited at any one time.

The following measures are recommended for implementation to reduce air pollutants generated by vehicle and equipment exhaust during the project construction phase:

- The construction contractor shall select the construction equipment used on site based on low emission factors and high energy efficiency. The construction contractor shall ensure that construction grading plans include a statement that all construction equipment would be tuned and maintained in accordance with the manufacturer's specifications.
- The construction contractor shall utilize electric or diesel powered equipment in lieu of gasoline powered engines where feasible.
- The construction contractor shall ensure that construction grading plans include a statement that work crews would shut off equipment when not in use.
- The construction contractor shall time the construction activities so as not to interfere with peak hour traffic and to minimize obstruction of through traffic lanes adjacent to the site; if necessary, a flagperson shall be retained to maintain safety adjacent to existing roadways.

The construction contractor shall support and encourage ridesharing and transit incentives for the construction crew.

Mitigation Monitoring Action Performed:

Mitigation Complete? Yes ❑ No ❑
If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable.
If no, itemize outstanding mitigation and reasons why measures were not implemented.

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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Operational Noise Abatement	Party Responsible for Mitigation Monitoring: Design Engineer, RE	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	
Mitigation Measure: Soundwalls shall be constructed according to the I-5 Corridor Improvement Project Noise Study Report and Section 3-14 of the EIR/EIS. A final decision on the installation of abatement measures would be made upon completion of the design process and the public involvement process.		
Mitigation Monitoring Action Performed:		
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.		
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Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Construction Noise	Party Responsible for Mitigation Monitoring: Design Engineer, RE	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:

Equipment Noise Control

- Where practical, feasible and reasonable, proposed soundwalls shall be constructed prior to the removal of existing soundwalls in the beginning of the project as a mean of minimizing any impact on the sensitive receptors.
- Use newer equipment with improved noise muffling and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine enclosures, and engine vibration isolators intact and operational. Newer equipment would generally be quieter in operation than older equipment. All construction equipment should be inspected at periodic intervals to ensure proper maintenance and presence of noise control devices (e.g., mufflers and shrouding, etc.).
- Utilize construction methods or equipment that would provide the lowest level of noise and ground vibration impact such as alternative low noise pile installation methods.
- Turn off idling equipment.
- Temporary noise barriers should be used and relocated, as needed, to protect sensitive receptors against excessive noise from construction activities. Noise barriers can be made of heavy plywood, or moveable insulated sound blankets.

Administrative Measures

- Implement a construction noise and/or vibration monitoring program in or limit the impacts.
- Comply, when possible, with relevant construction noise criteria of affected cities, i.e., Santa Fe Springs, Downey, and Norwalk. The City of Norwalk restricts construction to daytime hours between 7 am and 6 pm. Santa Fe Springs restricts construction activities to daytime hours between 7 am and 7 pm. The City of Downey imposes a maximum sustainable noise limit of 85 dBA, and allows construction activity to occur during daytime hours of 7 am to 7 pm, Monday to Saturday; construction activity is prohibited on Sundays.
- Limit construction activities to daytime hours, if possible. If nighttime construction is absolutely necessary, obtain the proper permits and variances.
- Keep noise levels relatively uniform and avoid impulsive noises.
- Maintain good public relations with the community to minimize objections to unavoidable construction impacts. Provide frequent activity updates of all construction activities and schedules.

A combination of abatement/mitigation techniques with equipment noise control and administrative measures can be selected to provide the most effective means to minimize effects of the construction activity. Application of these abatement/mitigation would reduce construction related noise impacts; however, a temporary increase in noise and vibration over the existing ambient levels may still occur.

Mitigation Monitoring Action Performed:	
Mitigation Complete? Yes ❑ No ❑ If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable. If no, itemize outstanding mitigation and reasons why measures were not implemented.	
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INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Wetlands	Party Responsible for Mitigation Monitoring: RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:
A Section 404 permit from the U.S. Army Corps of Engineers may be required prior to project construction. A Section 401 permit from the California Regional Water Quality Control Board would be needed for this project. For areas outside of the flood control channels, construction of the 10 and 12 lane alternatives would require construction of an area greater than 1 acre and would therefore be subject to the NPDES permitting process. To address storm water discharges from construction, the permits contain standard provisions that are intended to provide a required level of storm water pollution prevention. A construction SWPPP would be prepared prior to the start of construction to ensure compliance with existing NPDES permits. The SWPPP would be kept on site during construction and made available upon request to the RWQCB, responsible local agencies, and the public. The SWPPP would identify potential sources of pollutants, describe erosion and sediment controls, contain non-storm water provisions, describe post-construction storm water management, describe waste management activities, include a maintenance and inspection component, include a list of contractors, incorporate other storm water related plans if applicable, and would list the name of the preparer. Caltrans would conduct additional inspections or analysis if required by the RWQCB; inspect construction sites prior to anticipated storm events and after actual events in order to identify areas contributing to storm water discharge pollutants in order to evaluate the adequacy of the control measures identified in the SWPPP, certify annually that construction is in compliance with the applicable NPDES permit and SWPPP, and retain the monitoring records for at least three years following completion of construction.

Mitigation Monitoring Action Performed:

Mitigation Complete? Yes ❑ No ❑
If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable.
If no, itemize outstanding mitigation and reasons why measures were not implemented.

In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.	
Name/Title/Agency of Person Completing Report:	
Signature:	Date:
Signature of Project Manager:	Date:
Environmental Oversight:	Date:

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Vegetation	Party Responsible for Mitigation Monitoring: Environmental Planning, RE, Maintenance, Design Engineer	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:
In order to help avoid or minimize impacts to vegetation, the area of disturbance should be kept to the minimum required to construct the project. The removal of trees and other vegetation should be scheduled to occur between September 16 and March 1 to avoid the bird nesting season. If this is not possible, a pre-construction survey would be required one to two weeks prior to the vegetation removal. If nesting birds are present, construction activities in the vicinity of the nest (within 500 feet for raptors, 100 feet for other birds) would be delayed until nesting is completed and all young have left the nest. New landscaping should be installed in areas where space permits to allow for the re-establishment of wildlife habitat. A large amount of existing landscape vegetation would be removed by this project and would need to be replaced following construction. It is strongly recommended that a minimum of 10 percent of the replacement plantings consist of native species. In addition, no species identified on the California Exotic Pest Plant Council's list of invasive exotic species should be planted anywhere within the project limits.

Mitigation Monitoring Action Performed:

Mitigation Complete? Yes ❑ No ❑
If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable.
If no, itemize outstanding mitigation and reasons why measures were not implemented.

In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.

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Signature of Project Manager:	Date:
Environmental Oversight:	Date:

INTERSTATE 5 CORRIDOR IMPROVEMENT PROJECT
MITIGATION MONITORING REPORT

Project/Component: Interstate 5 Corridor Improvement Project	**EA:** 2159A	**PM:** LA 0.0/6.3 ORA 42.2/44.4
Mitigation Log Name: Wildlife	Party Responsible for Mitigation Monitoring: Environmental Planning, Landscape Designer, Design Engineer, RE, Maintenance	
Required Monitoring/Reporting Frequency:	**Implementation/Monitoring Phase:** (circle) Design Construction Operation	

Mitigation Measure:
The removal of trees and other vegetation should be scheduled to occur between September 16 and March 1 to avoid the bird-nesting season. If this is not possible, a pre-construction survey would be required one to two weeks prior to the vegetation removal. If nesting birds are present, construction activities in the vicinity of the nest (within 500 feet for raptors, 100 feet for other birds) would be delayed until nesting is completed and all young have left the nest. If work at Coyote Creek and North Fork Coyote Creek is scheduled to begin between March 15 and September 30, periodic surveys of these areas should be conducted between March 15 and the start of construction to determine if bats and/or swallows are present. If there is evidence that roosting/nesting behavior is beginning, removal of partially completed nests or installation of exclusionary devices should be performed to prevent occupation of the bridge. If this is not accomplished, construction would have to be delayed until all roosting/nesting activities are completed. New landscaping should be installed in areas where space permits to allow for the re-establishment of wildlife habitat. A large amount of existing landscape vegetation would be removed by this project and would need to be replaced following construction. It is strongly recommended that a minimum of 10 percent of the replacement plantings consist of native species. In addition, no species identified on the California Exotic Pest Plant Council's list of invasive exotic species should be planted anywhere within the project limits.

Mitigation Monitoring Action Performed:

Mitigation Complete? Yes ❑ No ❑
If yes, reference any supporting documentation such as engineering drawings, contract documents, or other reports as applicable.
If no, itemize outstanding mitigation and reasons why measures were not implemented.

In accordance with the California Public Resources Code Section 21081.1, I hereby certify under penalty that the information contained herein is true and correct to the best of my knowledge.

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Signature of Project Manager:	Date:
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Garrett Damrath – Associate Environmental Planner; BA Environmental Studies, BA Geography, California State University San Bernardino; 8 years experience in environmental document preparation; Responsible for EIR/EIS preparation and environmental project management.

Diaa Yassin – Project Manager; MS Civil Engineering, California State University Sacramento, BS Civil Engineering, California State University Long Beach; 15 years experience in civil engineering including 5 years experience in project management; Responsible for project management and document review.

Jason Roach – Associate Environmental Planner; BS Environmental Science, University of California at Riverside; 8 years experience in transportation environmental planning; Responsible for consultant coordination, document review, circulation preparation.

Diane Jacobs – PE Transportation Engineer; BA, Brown University, BS, California State University Los Angeles; 7 years experience with microsimulation; Responsible for traffic data coordination.

Karl Price – Senior Environmental Planner; BS Biological Sciences, California State Polytechnic University Pomona; 8 years experience in environmental planning and biological impact assessment; Responsible for Natural Environment Study Report preparation and resource agency coordination.

Gustavo Ortego – Caltrans District Geologist; BS Geology National Polytechnic Institute Mexico City; MS Geology National Polytechnic Institute Mexico City, 20 years experience in geological engineering; Prepared Geotechnical Report.

Haiching Pan – Landscape Architect; MS Landscape Architecture, Cal Poly Pomona; 25 years experience in landscape architecture; Responsible for Visual Impact Study preparation.

Lorna Foster – Associate Right-of-way Agent, MPA, University of Southern California; 15 years experience in transportation; Responsible for Draft Relocation Impact Study preparation.

Ralph Sasaki – Senior Transportation Engineer; BS, Civil Engineering, Washington State University Pullman; 26 years experience in hydraulics engineering; Responsible for Location Hydraulics Study preparation.

Claudia Harbert – Associate Environmental Planner, Architectural Historian; MA Architectural History, University of Pennsylvania; 8 years experience in transportation environmental planning; Responsible for Historic Property Survey Report and Environmental Document review.

Alex Kirkish – Associate Environmental Planner, Archaeologist; MA Archaeology, University of California Riverside, BA Archaeology, University of California Santa Barbara; 25 years experience in archaeology; Responsible for Archaeology Survey Report preparation.

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Steve Healow – Transportation Engineer PE; MS Civil Engineering, University of Nevada Reno, BS Civil Engineering, Coast Guard Academy; 24 years experience in civil engineering, 5 years experience in project development and environmental analysis; Responsible for document review for Federal compliance with NEPA.

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Andrea Zullo – Environmental Planner; BS Geography/Anthropology, California State Polytechnic University, Pomona; 6 years experience in environmental planning; Responsible for Cumulative Impact Assessment preparation.

Edward Alegre – Senior Transportation Planner; BA, Environmental Analysis and Design, BA, Sociology (Minor: Urban and Regional Planning) University of California at Irvine; 3 years experience in traffic and transportation analysis; Assisted in the preparation of the Traffic and Transportation Study.

Keith Lay – Senior Air Quality/Noise Specialist; BS, Civil Engineering, University of Manitoba; 7 years experience preparing air quality and noise studies; Assisted in the preparation of the air quality study.

Les Card – CEO LSA Associates, Inc.; Degree(s), School(s); years experience in field; Responsible for Traffic and Transportation Study preparation.

Lisa Williams – Senior Environmental Specialist; BS Biological Sciences University of California Irvine, MS Environmental Studies California State University Fullerton; 13 years experience; Responsible for Cumulative Impact Report.

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Norwalk, CA 90650

Mr. & Mrs. James and Tammy Etier
13403 Markdale Avenue
Norwalk, CA 90650

Mr. Juvenal Barrios
13213 Markdale Avenue
Norwalk, CA 90650

Mr. James K. Martin
12335 Arlee Avenue
Norwalk, CA 90650-2402

Mr. John Windle
Chevron
14240 Firestone Blvd.
La Mirada, CA 90638

Mr. Joel Sharin
Vend Catering Supply
13560 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. Jim Newton
Fugi Trucolor Photo
13320 E. Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. Jessie Burke
11645 Hercules Street
Norwalk, CA 90650

Mr. & Mrs. Jesse & Mary Luera
Luera's Cleaners
12836 Rosecrans Avenue
Norwalk, CA 90650

Mr. Jesse Smith
12008 Mondon Avenue
Norwalk, CA 90650

Ms. Diana Rosas
13504 Delavan Avenue
Norwalk, CA 90650

Mr. Keith Gawith
13531 Markdale Avenue
Norwalk, CA 90650

Property Manger
12732 Paddison Ave
Norwalk, CA 90650

Mr. Donney Chaney
Kosmo Investment Corp.
10821 Orr & Day Road
Santa Fe Springs, CA 90670

Andrew and Jessica Sanchez
12317 Arlee Avenue
Norwalk, CA 90650

Resident
12419 Arlee Avenue
Norwalk, CA 90650

Ms. Alice Clark
11442 Cresson Street
Norwalk, CA 90650

Mr. Alex Lynn
Material Handling Supply Inc.
12900 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. Ken Ryan
Statewide Environmental Chair
Sierra Club
484 Lake Park Avenue, Suite 282
Oakland, CA 94610

Mr. & Mrs. Bob & Barbara Duncan
11358 Cecilia Street
Norwalk, CA 90650

Property Owner
14626 Firestone Blvd.
La Mirada, CA 90638

Mr. Carlos Martin
11414 Buell Street
Santa Fe Springs, CA 90670

Property Manager
12732 Paddison Ave
Norwalk, CA 90650

Mr. Lawrence Bruenecke
President
Ideal Engraving Co.
15401-A Carmenita Road
Santa Fe Springs, CA 90670

Mr. David Frederickson
PM
General Motors World Wide Real Estate
515 Marin Street, Suite 211
Thousand Oaks, CA 91360

Occupant
16700 Valley View Blvd., #160
La Mirada, CA 90638

General Manager
Norwalk Marriott Hotel
13111 Sycamore Drive
Norwalk, CA 90650

Mr. Bob Brenvza
Director of Facility Development
BN&SF Railway Company
740 East Carnegie
San Bernardino, CA 92408

Mr. George A. Ray
CEO
Le Fiell Manufacturing Co.
13700 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. John R. Zeigler
Senior Transportation Engineer
Automobile Club of Southern California
P.O. Box 25001
Santa Ana, CA 92799-5001

Claudia Monterrosa
11558 Tina Street
Norwalk, CA 90650

Ms. Marina Recendez
13223 Markdale Avenue
Norwalk, CA 90650

Ms. Dawn Walsh
11403 Cecilia Street
Santa Fe Springs, CA 90670

Mr. Daryl McCullough
Innovation Quality Center (Smurfit & Stone)
13833 Freeway Drive
Santa Fe Springs, CA 90670

Daniel R. & Charles F. Moothart
P.O. Box 4528
Laguna Beach, CA 92651

Mr. & Mrs. Daniel H & Diana J Traen
13060 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. Daniel Walker
Sierra Club, Angeles Chapter Transportation Committee
7416 W. 82nd Street
Los Angeles, CA 90045

Bhula Bhai & Kamuben B Patel
13530 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. & Mrs. Clint & Elizabeth Meche
11409 Buell Street
Santa Fe Springs, CA 90670

Ms. Diane Plotkin
Karney Management Co.
12011 San Vicente Blvd., #700
Los Angeles, CA 90049

Ms. Cindy Salry
13433 Markdale Avenue
Norwalk, CA 90650

Mr. Chris Brown
13715 Markdale Avenue
Norwalk, CA 90650

Mr. & Mrs. Charles Pierce
13711 Bechard Al
Norwalk, CA 90650

Ms. Catherine Cardona
11422 Mondon Avenue
Norwalk, CA 90650

Ms. Carolyn Young
Norwalk Village
12737 Rosecrans Avenue
Norwalk, CA 90650

Mr. Carmen R Diaz
13625 Excelsior Drive
Santa Fe Springs, CA 90670

Ms. Carmen Padilla
912 Summitview Court
Walnut, CA 91789

Ms. Cristina La Borde
McDowell-Craig Mfg. Co.
13146 Firestone Blvd
Norwalk, CA 90650

Industrial Threaded Products I
13580 Firestone Blvd.
Santa Fe Springs, CA 90670

Norwalk United Methodist Church
12111 Olive Street
Norwalk, CA 90650

National Engineering Tech.
14320 Firestone Blvd. #100
La Mirada, CA 90638

Mike Thompson Recreational Vehicle
13846 Firestone Blvd.
Santa Fe Springs, CA 90670

Mack Sales Of So. California
14800 Firestone Blvd.
La Mirada, CA 90638

Lowe's Home Improvement
14809 Carmenita Rd
Norwalk, CA 90650

Owner
La Fiell Manufacturing Co
13770 Firestone Blvd
Santa Fe Springs, CA 90670

Mr. Margo Scott
11702 Mondon Avenue
Norwalk, CA 90650

Innovation Quality Center (Smurfit & Stone)
13833 Freeway Drive
Santa Fe Springs, CA 90670

Outback Steakhouse
12850 Norwalk Blvd.
Norwalk, CA 90650

Home Furnishing Centers
14575 Firestone Blvd.
La Mirada, CA 90638

Hayes Lemmerz Intl.
14500 Firestone Blvd.
La Mirada, CA 90638

Glendon Company, Inc.
14670 Firestone Blvd.
La Mirada, CA 90638

Furniture Gallery
14447 Firestone Blvd.
La Mirada, CA 90638

Fujita Calif. Partner III (Komatsu Forklifts)
14131 Freeway Drive
Santa Fe Springs, CA 90670

Foodmarket Inc.
13369 E. Firestone Blvd.
Norwalk, CA 90650

Inter Satellite Productions Inc.
14111 E. Freeway Drive
Santa Fe Springs, CA 90670

Southwest Industrial Properties
13525 Freeway Drive
Santa Fe Springs, CA 90670

Occupant
14104 E. Firestone Blvd.
Santa Fe Springs, CA 90670

Norwalk Resident
12820 Zeus Avenue
Norwalk, CA 90650

Owner
Warehouse
13539 Freeway Dr
Santa Fe Springs, CA 90670

Volvo Trucks
13443 Freeway Drive
Santa Fe Springs, CA 90670

Owner
Vista Metropolitan Media
14400 Firestone Blvd
La Mirada, CA 90638

The Piano Wholesale
14849 Firestone Blvd. #101
La Mirada, CA 90638

Norwalk Village Corp
13030 Firestone Blvd.
Santa Fe Springs, CA 90670

Southwest Industrial Properties
13525 Freeway Drive
Santa Fe Springs, CA 90670

Nu-Line Industries
14535 Firestone Blvd.
La Mirada, CA 90638

SIF FREEWAY DRIVE LLC
13767 Freeway Drive
Santa Fe Springs, CA 90670

Schork Family Partnership
12818 Firestone Blvd.
Santa Fe Springs, CA 90670

Owner
Ryder Truck Rental
13650 Firestone Blvd
Santa Fe Springs, CA 90670

Paintball Players Club
14525 Firestone Blvd.
La Mirada, CA 90638

Pacific Gear/PTO Sales
14815 Firestone Blvd.
La Mirada, CA 90638

Outbreak Graphics
14652 Firestone Blvd.
La Mirada, CA 90638

Countrywide Commerce Inc.(Denny's #6982)
14300 Firestone Blvd.
La Mirada, CA 90638

Texaco
14210 Firestone Blvd.
La Mirada, CA 90638

Otilia Trujillo
11466 Cresson Street
Norwalk, CA 90650

Elephant Bar & Restaurant
14303 Firestone Blvd.
La Mirada, CA 90638

Mr. & Mrs. Robert E & Sharon F Cox
SUNSET BUS SALES
12940 Firestone Blvd.
Santa Fe Springs, CA 90670

Mr. Robert Tillman
Lowe's Home Improvement Warehouse
14873 Carmenita Road
Norwalk, CA 90650

Mr. Richard Balderrama
11412 Mondon Avenue
Norwalk, CA 90650

Mr. Richard Russell
Newport Federal
4425 Jamboree Road, Suite 250
Newport Beach, CA 92660

Mr. Ralph Robles
13303 Markdale Avenue
Norwalk, CA 90650

Mr. Ron Casin
Center Line Wheel
13521 Freeway Dr.
Santa Fe Springs, CA 90670

Mr. & Mrs. Paul & Joseph Garrett Trust
12011 Adorea Street
Norwalk, CA 90650

Ms. Rosie Rojas
14638 Gracebee Avenue
Norwalk, CA 90650

Ms. Norma Arellanes
13501 Delavan Avenue
Norwalk, CA 90650

Mr. & Mrs. Ning & Yean Yen
14655 Firestone Blvd.
La Mirada, CA 90638

Mr. Muhammad Sharif
Union 76
14960 Carmenita Rd.
Norwalk, CA 90650

Mr. Mike Sacry
13433 Markdale Avenue
Norwalk, CA 90650

Mr. & Mrs. Michael R. & Ligaa A. Sultze
13103 San Antonio Drive
Norwalk, CA 90650

Mr. Michael N. Diamond
13113 San Antonio Drive
Norwalk, CA 90650

Mr. & Mrs. Mark R. & Teresa J. Consiglio
12136 Union Street
Norwalk, CA 90650

Mr. & Mrs. Paul and Marilyn Johnson
12915 Firestone Blvd.
Norwalk, CA 90650-5126

Mr. Victor Starow
Starow Metal
14334 E. Firestone Blvd.
La Mirada, CA 90638

Occupant
11329 Muller Street
Downey, CA 90241

Clearman's North Woods Inn
14305 Firestone Blvd.
La Mirada, CA 90638

Choc Thrift Stores
13635 Freeway Dr.
Santa Fe Springs, CA 90670

Property Owner
Carmenita Ford Truck Sales
13407 Freeway Drive
Santa Fe Springs, CA 90670

Career Staff Unlimited
14241 Firestone Blvd. #220
La Mirada, CA 90638

Camping World, Inc.
14900 Firestone Blvd.
La Mirada, CA 90638

Mr. Rogelio Granady
13223 Markdale Avenue
Norwalk, CA 90650

Mr. Victor Soto
11847 East Lyndora Street
Norwalk, CA 90650

El Pollo Loco, Inc. El Pollo Loco #5542
12551 Rosecrans Avenue
Norwalk, CA 90650

Mr. & Mrs. Trinidad H. Vargas
13645 Markdale Avenue
Norwalk, CA 90650

Thania Soto
13723 Markdale Avenue
Norwalk, CA 90650

Tess Santiago
12639 Zeus Avenue
Norwalk, CA 90650

Stuart A. Harvey
1049 N. Glenhaven Ave.
Fullerton, CA 92835

Mr. Sergio Cruz
13625 Markdale Avenue
Norwalk, CA 90650

Ms. Sandra Vargas
11232 Orr and Day Road
Norwalk, CA 90650

Mr. & Mrs. Rudy and Jenny Cano
12857 Firestone Blvd.
Norwalk, CA 90650

Auto Club of Southern California
18642 S. Gridley Road
Norwalk, CA 90650

Resident
11226 Orr And Day Road
Norwalk, CA 90650

Resident
11903 Lyndora Street
Norwalk, CA 90650

Resident
11522 Thomas Pl.
Norwalk, CA 90650

Resident
11541 Dollison Drive
Norwalk, CA 90650

Resident
11531 Dollison Drive
Norwalk, CA 90650

Resident
11516 Dollison Drive
Norwalk, CA 90650

Resident
11515 Dollison Drive
Norwalk, CA 90650

Resident
11476 Elizabeth Street
Norwalk, CA 90650

Resident
11354 Cecilia Street
Norwalk, CA 90650

Resident
11406 Asmusen Avenue
Norwalk, CA 90650

Resident
12313 Arlee Avenue
Norwalk, CA 90650

Resident
11238 Orr And Day Road
Norwalk, CA 90650

Resident
11244 Orr And Day Road
Norwalk, CA 90650

Resident
11454 Cresson Street
Norwalk, CA 90650

Resident
13505 Markdale Avenue
Norwalk, CA 90650

Resident
12884 Sycamore Drive
Norwalk, CA 90650

Resident
12109 Adoree Street
Norwalk, CA 90650

Resident
12601 Zeus Avenue
Norwalk, CA 90650

Resident
11461 Elizabeth Street
Norwalk, CA 90650

Resident
11837 Lyndora Street
Norwalk, CA 90650

Resident
12413 Arlee Avenue
Norwalk, CA 90650

Resident
12409 Arlee Avenue
Norwalk, CA 90650

12117 Adoree St.
Norwalk, CA 90650

11265 Quinn Street
Downey, CA 90241

13767 Freeway Drive
Santa Fe Springs, CA 90670

Mr. & Mrs. Serrata
11402 Mondon Avenue
Norwalk, CA 90650

Resident
12009 Dollison Dr.
Norwalk, CA 90650

Resident
11554 Tina Street
Norwalk, CA 90650

Resident
12122 Union Street
Norwalk, CA 90650

Resident
14652 Maryton Avenue
Norwalk, CA 90650

Resident
11899 Lyndora Street
Norwalk, CA 90650

Resident
12802 Zeus Avenue
Norwalk, CA 90650

Resident
12816 Zeus Avenue
Norwalk, CA 90650

Resident
11841 Lyndora Street
Norwalk, CA 90650

Resident
11851 Lyndora Street
Norwalk, CA 90650

Resident
11857 Lyndora Street
Norwalk, CA 90650

Resident
11895 Lyndora Street
Norwalk, CA 90650

Resident
11554 Beaty St.
Norwalk, CA 90650

Resident
11342 Mondon Avenue
Norwalk, CA 90650

Resident
13323 Markdale Avenue
Norwalk, CA 90650

Resident
13219 Markdale Avenue
Norwalk, CA 90650

Resident
11818 Mondon Avenue
Norwalk, CA 90650

Resident
11728 Mondon Avenue
Norwalk, CA 90650

Resident
11810 Mondon Avenue
Norwalk, CA 90650

Resident
11604 Bayla Street
Norwalk, CA 90650

Resident
12435 Arlee Avenue
Norwalk, CA 90650

Resident
11348 Mondon Avenue
Norwalk, CA 90650

Resident
11338 Mondon Avenue
Norwalk, CA 90650

Resident
11332 Mondon Avenue
Norwalk, CA 90650

Resident
13733 Markdale Avenue
Norwalk, CA 90650

Resident
13729 Markdale Avenue
Norwalk, CA 90650

Resident
12431 Arlee Avenue
Norwalk, CA 90650

Resident
12648 Rexton Street
Norwalk, CA 90650

Resident
12116 Union Street
Norwalk, CA 90650

Resident
12425 Arlee Avenue
Norwalk, CA 90650

Resident
11406 Mondon Avenue
Norwalk, CA 90650

Resident
11657 Gem Street
Norwalk, CA 90650

Resident
12453 Arlee Avenue
Norwalk, CA 90650

Resident
12447 Arlee Avenue
Norwalk, CA 90650

Resident
11326 Mondon Avenue
Norwalk, CA 90650

Resident
12623 Zeus Avenue
Norwalk, CA 90650

Resident
12644 Rexton Street
Norwalk, CA 90650

Resident
12021 Dollison Drive
Norwalk, CA 90650

Resident
12003 Dollison Drive
Norwalk, CA 90650

Resident
11646 Hercules Street
Norwalk, CA 90650

Resident
11831 Dollison Drive
Norwalk, CA 90650

Resident
11812 Jersey Avenue
Norwalk, CA 90650

Resident
14595 Firestone Blvd.
La Mirada, CA 90638

Resident
11822 Mondon Avenue
Norwalk, CA 90650

Resident
11616 Allard Street
Norwalk, CA 90650

Resident
11615 Allard Street
Norwalk, CA 90650

Resident
11841 Dollison Drive
Norwalk, CA 90650

Resident
11835 Dollison Drive
Norwalk, CA 90650

Resident
11913 Dollison Drive
Norwalk, CA 90650

Resident
11363 Lakeland Street
Norwalk, CA 90650

Inco Commercial Broker
14700 Firestone Blvd., #111
La Mirada, CA 90638

In-N-Out Burgers #105
14341 Firestone Blvd.
La Mirada, CA 90638

International Multifoods
16424 Valley View Blvd.
La Mirada, CA 90638

J & J America
14130 Firestone Blvd., Ste B
Santa Fe Springs, CA 90670-5845

Owner
J.E. Shull & Son Mfg Reps
14152 Firestone Blvd
Santa Fe Springs, CA 90670

JRJ Express, Inc.
14849 Firestone Blvd. #202
La Mirada, CA 90638

JJJJQ, LLC Quetzalcoatl Insurance Marketing
12840 Rosecrans Avenue
Norwalk, CA 90650

Owner
Howard Koenig Plumbing
14182 Firestone Blvd
Santa Fe Springs, CA 90670

Extended Stay America #3
14775 Firestone Blvd.
La Mirada, CA 90638

Kimeco
14849 Firestone Blvd. #202
La Mirada, CA 90638

Kim's Furniture Gallery
14447 Firestone Blvd.
La Mirada, CA 90638

Kimeprint
14849 Firestone Blvd. #202
La Mirada, CA 90638

Paul Davis Restoration
14670 Firestone Blvd.
La Mirada, CA 90638

Owner
Hose-Man
14142 Firestone Blvd
Santa Fe Springs, CA 90670

Holiday Inn
14299 Firestone Blvd.
La Mirada, CA 90638

Holbrook Construction
14730 Firestone Blvd., #309
La Mirada, CA 90638

H & R Block Premium
16700 Valley View Blvd., #162
La Mirada, CA 90638

Group Ex Financial Corp.
14849 Firestone Blvd. #202
La Mirada, CA 90638

GJB Remainder LLC
13412 Excelsior Drive
Santa Fe Springs, CA 90670

Extra Hands Advertising
14700 Firestone Blvd., #104/105
La Mirada, CA 90638

Expert Calsun, Inc
14770 Firestone Blvd., #203
La Mirada, CA 90638

Excel Plus Professional
14700 Firestone Blvd., #110
La Mirada, CA 90638

Excel Plus Home Health
14700 Firestone Blvd., #110
La Mirada, CA 90638

King Express Travel
14849 Firestone Blvd. #202
La Mirada, CA 90638

Montgomery Investment Company
13221 Arctic Cir.
Santa Fe Springs, CA 90670

ESA 0355 INC.
14775 Firestone Blvd.
La Mirada, CA 90638

El Pollo Loco
16410 Valley View Blvd.
La Mirada, CA 90638

G.F. Galaxy Corporation
600 Wilshire Blvd., Suite 1410
Los Angeles, CA 90017

Met-Co-Aire
14656 1/2 Firestone Blvd.
La Mirada, CA 90638

American Controls
14770 Firestone Blvd., #207
La Mirada, CA 90638

Eagle Properties
14849 Firestone Blvd. #201
La Mirada, CA 90638

Panacea, Inc
14700 Firestone Blvd., #118
La Mirada, CA 90638

Pacific Pioneer Ins.
16700 Valley View Blvd. #Pent
La Mirada, CA 90638

Orange Coast Title Co
14320 Firestone Blvd. #300
La Mirada, CA 90638

Occupant
15055 Spring Avenue
Santa Fe Springs, CA 90670

Nikou Ltd.
434 S. Euclid
Norwalk, CA 92802

Nikon Inc.
19601 Hamilton Ave.
Torrance, CA 90502

New Continental Auto
14640 Firestone Blvd.
La Mirada, CA 90638

Music Information System
14730 Firestone Blvd., #318
La Mirada, CA 90638

MSI International
16702 Valley View Blvd.
La Mirada, CA 90638

Mike Thompson Recreational Vehicle
14000 Firestone Blvd.
Santa Fe Springs, CA 90670

Mike Thompson Recreational Vehicle
13910 Firestone Blvd.
Santa Fe Springs, CA 90670

Owner
Metrology Labs
14096 Firestone Blvd
Santa Fe Springs, CA 90670

L.A. County Fire Dept. Station 49
13820 La Mirada Blvd.
La Mirada, CA 90638

Metal Depot, Inc.
14334 Firestone Blvd.
La Mirada, CA 90638

Mejico Express
14849 Firestone Blvd. #202
La Mirada, CA 90638

Mechanic Refrigeration
14770 Firestone Blvd., #211
La Mirada, CA 90638

Mayako Japanese Restaurant
16560 Valley View Blvd.
La Mirada, CA 90638

Owner
Mako Company
14120 Firestone Blvd
Santa Fe Springs, CA 90670

Magic Store Fixture Inst
14770 Firestone Blvd., #206
La Mirada, CA 90638

Loftus Land Company
13601 Whittier, #211
Whittier, CA 90608

Owner
Linear Logic, Inc.
14072 Firestone Blvd
Santa Fe Springs, CA 90670

Liberty Vegetable Oil Co
P.O. Box 4207
Cerritos, CA 90703

Lens Technology
14256 Firestone Blvd.
La Mirada, CA 90638

LC Industries LLC
14949 Firestone Blvd.
La Mirada, CA 90638

L.F.G. Construction
14640 Firestone Blvd.
La Mirada, CA 90638

Mike Thompson Recreational
13940 Firestone Blvd.
Santa Fe Springs, CA 90670

Allen-Fry Steel Company
13325 Molette Street
Santa Fe Springs, CA 90670

Owner
Barbecues Galore
14040 Firestone Blvd
Santa Fe Springs, CA 90670

B & H Distributors
14655 Firestone Blvd.
La Mirada, CA 90638

Owner
Atlas Safe Co.
14106 Firestone Blvd
Santa Fe Springs, CA 90670

Atlantic Richfield Co
13460 Firestone Blvd.
Santa Fe Springs, CA 90670

Picture Perfect Video
14670 Firestone Blvd., #405
La Mirada, CA 90638

API Properties Associates I
11444 W. Olympic Blvd., #10Fl
Los Angeles, CA 90064

Unico Insurance Agency
16700 Valley View Blvd. #Pent
La Mirada, CA 90638

Owner
American Blinds & Carpets
14086 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
Alpha Laser-Laser Engineering
14164 Firestone Blvd
Santa Fe Springs, CA 90670

Alpha Electric Service
14730 Firestone Blvd., #304
La Mirada, CA 90638

Alondra Library
11949 E. Alondra Blvd.
Norwalk, CA 90650

ASAP Services
14670 Firestone Blvd., #414
La Mirada, CA 90638

Alloy Tool Steel
13525 Freeway Drive
Santa Fe Springs, CA 90670

Buena Park Library
7150 La Palma Avenue
Buena Park, CA 90622

All Star Systems Inc.
14700 Firestone Blvd., #113
La Mirada, CA 90638

Ajit S. Randahava & Assoc.
16700 Valley View Blvd., #270
La Mirada, CA 90638

Owner
Adair Office
14078 Firestone Blvd
Santa Fe Springs, CA 90670

Action Power Service
14730 Firestone Blvd., #304
La Mirada, CA 90638

3D Auto Club
14210 Firestone Blvd.
La Mirada, CA 90638

Mr. William Ferguson
The Ferguson Group
1130 Connecticut Ave., N.W. Suite 300
Washington, DC 20036

Mr. Wes Lefler
Ryder Truck
13630 Firestone Blvd.
Santa Fe Springs, CA 90760

Mr. Wayne Yamano
CB Richard Ellis, Inc.
990 W. 190th Street, Suite 100
Torrance, CA 90502

Mr. Wahbah Wahbah
W.W. Mobil Service, Inc.
12800 Rosecrans Avenue
Norwalk, CA 90650

Mr. Virgil A. Rogers
Cal Labs
14747 Artesia
La Mirada, CA 90638

Uka Solanki
Uka's Big Saver Foods
12832 Rosecrans Avenue
Norwalk, CA 90650

Mr. Tung Nguyen
Pioneer Nail & Hair
11831 Imperial Hwy.
Norwalk, CA 90650

All-Tex Inks Corp.
14650 1/2 Firestone Blvd.
La Mirada, CA 90638

Cheng Hsin Investment, Inc.
2595 Lombardy Road
San Marino, CA 91108

Dolex Dollar Express
12832 Rosecrans Avenue
Norwalk, CA 90650

Diamond Construction
14620 Firestone Blvd.
La Mirada, CA 90638

Denny's , Inc. Denny's Restaurant #1300
12616 Pioneer Blvd.
Norwalk, CA 90650

Defense Contract Audit
16700 Valley View Blvd., #300
La Mirada, CA 90638

D Estrin Enterprises
14670 Firestone Blvd., #410
La Mirada, CA 90638

Coyle Reproductions Inc
14949 Firestone Blvd.
La Mirada, CA 90638

Cook Chevron Food Mart
14240 Firestone Blvd.
La Mirada, CA 90638

Consensus Planning Group, Inc.
444 S. Flower Street, Suite 1300
Los Angeles, CA 90071

Con's Beauty Salon
12838 1/2 Rosecrans Avenue
Norwalk, CA 90650

Owner
Compose International, Inc.
14130 Firestone Blvd
Santa Fe Springs, CA 90670

Communications World
14700 Firestone Blvd., #102
La Mirada, CA 90638

CLP Resources, Inc.
9221 Venice Blvd.
Los Angeles, CA 90034

BJO Partners
15215 Marquardt Avenue
Santa Fe Springs, CA 90670

CHINA Pac Foods Inc
13660 Excelsior Drive
Santa Fe Springs, CA 90670

Borden Chemical
14700 Firestone Blvd., #107
La Mirada, CA 90638

Century Paving, Inc.
14630 Firestone Blvd.
La Mirada, CA 90638

CB Richard Ellis
16700 Valley View Blvd.
La Mirada, CA 90638

Castillo's Crankshaft
14654 Firestone Blvd.
La Mirada, CA 90638

Owner
Carmenita Office Park, LLC
13353 Alondra Blvd., Suite 200L
Santa Fe Springs, CA 90670

California Wildlife Federation
PO Box 1527
Sacramento, CA 95812

California Portland Cement Co.
13846 Firestone Blvd.
Santa Fe Springs, CA 90670

California Ink Printing
14730 Firestone Blvd., #313
La Mirada, CA 90638

C.M.T. Precision
P.O. Box 1321
Norwalk, CA 90651

Owner
C&E Laboratory
14148 Firestone Blvd
Santa Fe Springs, CA 90670

Buso Constructors, Inc
14700 Firestone Blvd., #103
La Mirada, CA 90638

Buena Park Lincoln/Mercury/Isuzu
6692 Manchester Blvd.
Buena Park, CA 90621

Dynasty Suites
13500 Firestone Blvd.
Santa Fe Springs, CA 90670

Owner
Clean Tex Industries
14174 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14102 Firestone Blvd
Santa Fe Springs, CA 90670

Ultimate Source
14700 Firestone Blvd., #112
La Mirada, CA 90638

Owner
14156 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14154 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14140 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14138 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14136 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14128 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14124 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14098 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14094 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14114 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14112 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14160 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14108 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14162 Firestone Blvd
Santa Fe Springs, CA 90670

Owner
14100 Firestone Blvd.
Santa Fe Springs, CA 90670

Owner
11267 Ringwood Avenue
Santa Fe Springs, CA 90670

Owner
14141 Alondra Blvd
Santa Fe Springs, CA 90670

Occupant
13201 Arctic Cir.
Santa Fe Springs, CA 90670

Occupant
14106 Firestone Blvd.
Santa Fe Springs, CA 90670

Occupant
14146 Firestone Blvd.
Santa Fe Springs, CA 90670

Occupant
14150 Firestone Blvd.
Santa Fe Springs, CA 90670

Occupant
14070 Firestone Blvd.
Santa Fe Springs, CA 90670

Occupant
14134 Firestone Blvd
Santa Fe Springs, CA 90670

Occupant
14132 Firestone Blvd
Santa Fe Springs, CA 90670

Occupant
14068 Firestone Blvd
Santa Fe Springs, CA 90670

Occupant
13031 San Antonio Drive #220
Norwalk, CA 90650

Owner
14110 Firestone Blvd
Santa Fe Springs, CA 90670

Property Owner
14770 Firestone Blvd., #209
La Mirada, CA 90638

13767 Freeway Drive
Santa Fe Springs, CA 90670

Resident
11766 Mondon Avenue
Norwalk, CA 90650

Resident
13620 Excelsior Drive
Santa Fe Springs, CA 90670

Resident
15636 Clanton Cir.
Santa Fe Springs, CA 90670

Resident
13207 Markdale Avenue
Norwalk, CA 90650

Resident
13369 Firestone Blvd.
Norwalk, CA 90650

Resident
11603 Pantheon Street
Norwalk, CA 90650

Resident
11707 Gem Street
Norwalk, CA 90650

Resident
12661 Zeus Avenue
Norwalk, CA 90650

Resident
12023 Adoree Street
Norwalk, CA 90650

Owner
14158 Firestone Blvd
Santa Fe Springs, CA 90670

Property Owner
14780 Firestone Blvd.
La Mirada, CA 90638

Occupant
12791 Western Ave., Suite J
Garden Grove, CA 92841

Property Owner
14730 Firestone Blvd., #306
La Mirada, CA 90638

Property Owner
14730 Firestone Blvd., #317
La Mirada, CA 90638

Property Owner
14730 Firestone Blvd., #316
La Mirada, CA 90638

Property Owner
14700 Firestone Blvd., #126
La Mirada, CA 90638

Property Owner
14700 Firestone Blvd., #101
La Mirada, CA 90638

Property Owner
14700 Firestone Blvd., #127
La Mirada, CA 90638

Property Owner
14700 Firestone Blvd., #109
La Mirada, CA 90638

Property Owner
14670 Firestone Blvd., #412
La Mirada, CA 90638

Property Owner
14670 Firestone Blvd., #404
La Mirada, CA 90638

Property Owner
14670 Firestone Blvd.
La Mirada, CA 90638

Property Owner
14650 Firestone Blvd.
La Mirada, CA 90638

Property Owner
14351 Firestone Blvd.
La Mirada, CA 90638

Property Owner
11729 Imperial Hwy.
Norwalk, CA 90650

Samsung America Inc.
14251 Firestone Blvd. #200
La Mirada, CA 90638

Owner
System Group Company
14172 Firestone Blvd
Santa Fe Springs, CA 90670

Star Scrap Metal Co.
14372 Firestone Blvd.
La Mirada, CA 90638

Staples The Office Super
14345 Firestone Blvd.
La Mirada, CA 90638

St. Joseph Heritage Heal
14241 Firestone Blvd.
La Mirada, CA 90638

Spherion
16550 Valley View Blvd.
La Mirada, CA 90638

Spectra Dyestuffs Inc.
14700 Firestone Blvd., #124
La Mirada, CA 90638

Sparre Williams Doroty
13560 Firestone Blvd.
Santa Fe Springs, CA 90670

Southwest Forest Industries Inc.
15300 Marquardt Avenue
Santa Fe Springs, CA 90670

Shangri La Apartments
16985 Sausalito Drive
Whittier, CA 90603

Service Kraft
5650 Dolly Avenue
Buena Park, CA 90621

Owner
Scooter Landscape
14170 Firestone Blvd
Santa Fe Springs, CA 90670

SAV-MOR Thrift
16500 Valley View Blvd.
La Mirada, CA 90638

Occupant
13031 San Antonio Drive #116
Norwalk, CA 90650

Samsung Pacific Construction
14251 Firestone Blvd. #101
La Mirada, CA 90638

The Major Assoc. Partnership
13635 Freeway Drive
Santa Fe Springs, CA 90670

Sam's Texaco
14220 Firestone Blvd.
La Mirada, CA 90638

Safia Sambos Investment Co.
13500 Firestone Blvd.
Santa Fe Springs, CA 90670

Saddleback Rv Inc.
14850 Firestone Blvd.
La Mirada, CA 90638

S & G Vending, Inc.
14849 Firestone Blvd.
La Mirada, CA 90638

Rotary Club
P.O. Box 5423
Buena Park, CA 90620

Richie's Installations
14670 Firestone Blvd.
La Mirada, CA 90638

RHS Properties LLC
15125 Marquardt Avenue
Santa Fe Springs, CA 90670

Owner
Retail Mgmt Systems
14116 Firestone Blvd
Santa Fe Springs, CA 90670

Residence Inn By Marriott
14419 Firestone Blvd.
La Mirada, CA 90638

Red Robin
14299 Firestone Blvd.
La Mirada, CA 90638

Recycling Center
14334 Firestone Blvd.
La Mirada, CA 90638

RECO Investors
13201 Arctic Cir.
Santa Fe Springs, CA 90670

Sanchez Machine Co.
14654 Firestone Blvd.
La Mirada, CA 90638

Occupant
13541 Alondra Blvd
Santa Fe Springs, CA 90670

Precision Risk Mgmt.
16700 Valley View Blvd. #Pent
La Mirada, CA 90638

Occupant
16700 Valley View Blvd. #130
La Mirada, CA 90638

Occupant
16700 Valley View Blvd. #250
La Mirada, CA 90638

Occupant
16700 Valley View Blvd. #140
La Mirada, CA 90638

Occupant
16700 Valley View Blvd.
La Mirada, CA 90638

Occupant
16610 Valley View Blvd.
La Mirada, CA 90638

Occupant
16570 Valley View Blvd.
La Mirada, CA 90638

Occupant
16550 Valley View Blvd.
La Mirada, CA 90638

Occupant
14770 Firestone Blvd., #201
La Mirada, CA 90638

Occupant
14770 Firestone Blvd., #209
La Mirada, CA 90638

Occupant
14700 Firestone Blvd., #128
La Mirada, CA 90638

Occupant
14655 Firestone Blvd.
La Mirada, CA 90638

Texaco Express Auto
14220 Firestone Blvd.
La Mirada, CA 90638

Occupant
12411 Slauson Ave
Whittier, CA 90606

The Astrup Company
13137 Arctic Cir.
Santa Fe Springs, CA 90670

Occupant
10811 Orr & Day Road
Santa Fe Springs, CA 90670

Vons Companies Inc.
12801 Excelsior Drive
Norwalk, CA 90650

Von Arland Inc.
15310 Spring Avenue
Santa Fe Springs, CA 90670

Valley View Medical
16700 Valley View Blvd.
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University of Phoenix
14320 Firestone Blvd. #150
La Mirada, CA 90638

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16420 Valley View Blvd.
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12605 Rosecrans Avenue
Norwalk, CA 90650

Tosco Corp.
14960 Carmenita Road
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