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STATE ROUTE 22 / WEST ORANGE COUNTY CONNECTION

FINAL

Environmental Impact Statement
and
Environmental Impact Report
Volume I

Prepared for:
Orange County Transportation Authority
California Department of Transportation, District 12
United States Department of Transportation, Federal Highway Administration, California Division

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STATE ROUTE 22/WEST ORANGE COUNTY CONNECTION PROJECT: LOCATED BETWEEN INTERSTATE 605 AND STATE ROUTE 55 WITHIN THE JURISDICTION OF ORANGE COUNTY, AND THE CITIES OF LOS ALAMITOS, SEAL BEACH, GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE, AND TUSTIN, STATE OF CALIFORNIA

FINAL ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL IMPACT REPORT and FINAL 4(f) EVALUATION

SUBMITTED PURSUANT TO:
California Environmental Quality Act (Division 13, Public Resources Code) and National Environmental Policy Act; 42 U.S.C. 4332(2)(C) Section 4(f); 49 U.S.C. 303

U.S. Department of Transportation – Federal Highway Administration;

State of California – Department of Transportation; and

California Transportation Commission (CTC)
(Responsible Agency Under CEQA)

Orange County Transportation Authority
(Responsible Agency Under CEQA)

3-26-03
DATE

for GARY HAMBY
Division Administrator
Federal Highway Administration

3-12-03
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CINDY QUON
District Director, District 12
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ABSTRACT: State Route 22 (SR-22) is one of two east/west freeways in Orange County, connecting five major freeways: Interstate 605 (I-605), Interstate 405 (I-405), Interstate 5 (I-5), State Route 57 (SR-57), and State Route 55 (SR-55). The purpose of the proposed SR-22/West Orange County Connection project is to improve mobility and enhance safety within the corridor, while minimizing environmental and economic impacts. Under existing conditions, SR-22 does not meet the capacity needs of the area. To provide a higher level of operation for existing and anticipated traffic volumes, the alternatives for the proposed SR-22/West Orange County Connection improvements include incorporating up-to-date technological traffic control systems, enhancing interchanges and ramp configurations, improving auxiliary highway lanes and adjacent arterials, providing high-occupancy-vehicle (HOV) lanes and allowing additional travel mode choices. The alternatives studied in the Draft EIR/EIS included the No Build, TSM/Expanded Bus Service, Reduced Build, and Full Build. The alternatives studied in this Final EIS/EIR include the (Enhanced) Reduced Build, No Build, TSM/Expanded Bus Service, and Full Build. The identified Preferred Alternative is the (Enhanced) Reduced Build Alternative. Potential impacts include those related to cultural and biological resources, community cohesion, residential and non-residential displacements, transportation and circulation, noise, parks, and visual resources. Comments should be sent to Leslie Manderscheid at the address shown above by

_____.

ERRATA Sheet: FHWA-EIS-CA-01-04-F

The following include minor corrections to sections of the SR-22/West Orange County Connection March 2003 Final Environmental Impact Statement/Report (FEIS/EIR):

Executive Summary, Page IX: second paragraph, first sentence, should read: "In refining the engineering plans and with the availability of more detailed design level surveys, a total of seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Executive Summary, Page XIV: last paragraph, first sentence, should read: "In refining the engineering plans and with the availability of more detailed design level surveys, a total of seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Executive Summary, Page XVIII: last paragraph, first sentence, should read: "In refining the engineering plans and with the availability of more detailed design level surveys, a total of seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Section 2.0, Page 2-8: second paragraph, first sentence should read: "In refining the engineering plans and with the availability of more detailed design level surveys, a total of seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Section 2.0, Page 2-17: first paragraph, second sentence should read: "As a result, seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Section 2.0, Page 2-28: last paragraph, first sentence should read: "In refining the engineering plans and with the availability of more detailed design level surveys, a total of seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Section 2.0, Page 2-30: second paragraph, second sentence should read: "As a result, seventeen new residential parcels have been identified for partial acquisition in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS."

Section 4.5, Page 4.5-1: paragraphs 3 – 5 should read: "During the development of the FEIS/EIR, 17 new residential properties were identified for partial acquisitions, and two properties were identified as displacements that were included in the August 2001 DEIR/EIS. The 17 acquisitions, not previously identified in the August 2001 DEIR/EIS, were due to refined engineering analysis. However, these 17 residential properties are within the limits of the original Area of Potential Effect (APE). This alternative would also require two residential displacements for a total of 19 properties."

"All of the 19 residential properties impacted have been included in either the HPSR/HASR or Supplemental HASR. The State Historic Preservation Officer (SHPO) has concurred that none of these properties are eligible for listing on the National Register of Historic Places (NRHP). Please refer to SHPO letters in Volume IV of the FEIS/EIR, Appendix B."

"Of the 19 total residential properties identified for displacements and partial acquisitions, six had previously been identified (two full displacement and four partial residential acquisitions) in the HASR Memorandum of Understanding Short Form (Appendix D) for properties that are pre-1945, and determined not to be eligible for listing on the NRHP."

SUMMARY

S.0 SUMMARY

S.1 INTRODUCTION

This Final Environmental Impact Statement/Environmental Impact Report (FEIS/EIR) identifies the purpose and need for the State Route 22/West Orange County Connection Project (SR-22/WOCC). This document describes the alternatives that were considered, and identifies a Preferred Alternative. The proposed project would widen and construct high occupancy vehicle (HOV) lanes on SR-22 from the Interstate 405/605 (I-405/605) interchange to SR-55, along with other improvements. The other improvements include direct HOV connectors to the I-405/605 and SR-22/I-405. The ranges of improvements were examined through two build alternatives. The impacts of the alternatives are presented. This document was prepared pursuant to the National Environmental Policy Act (NEPA), Section 4(f), and California Environmental Quality Act (CEQA). This FEIS/EIR is divided into four volumes: Volume I, which includes the analyses, Volumes II & III, which include the comments received during the public review period of the August 2001 Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS) and the responses to them, and Volume IV, which includes comments and their responses that were received after October 30, 2001, and documentation of public notices and other appendices that are part of the supplemental technical reports. The technical reports are under separate covers and are available for review at the same locations as the FEIS/EIR (See Table of Contents in this FEIS/EIR).

S.2 SUMMARY OF CHANGES TO THE PROJECT FOLLOWING CIRCULATION OF THE DEIR/EIS

The following sections briefly describe the changes that have been made to the project as a result of comments received on the DEIR/EIS and other refinements to the project features.

S.2.1 (Enhanced) Reduced Build Alternative

The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. For more information, see Section S.6.3.1 and 2.2 (A).

S.2.2 Changes in Right-of-Way Acquisitions

The following displacements/acquisitions previously identified in the August 2001 DEIR/EIS would now be AVOIDED. These changes are from either the Reduced Build or Full Build alternatives as presented in the DEIR/S resulting in the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative:

Residential Displacements
11032 Trask Avenue (Garden Grove)
11062 Trask Avenue (Garden Grove)
*12841 Lewis St. (Garden Grove)
12771 Lewis St. (Garden Grove)
*13401 El Prado Ave. (Garden Grove)
3541 Rose Circle (Seal Beach)
3510 Oleander St (Seal Beach)
3521 Pansy Circle (Seal Beach)
3520 Pansy Circle (Seal Beach)
3531 Primrose Circle (Seal Beach)
3530 Primrose Circle (Seal Beach)

Residential Partial Acquisitions
11801 Martha Ann Dr. (Rossmoor)
11821 Martha Ann Dr. (Rossmoor)
11831 Martha Ann Dr. (Rossmoor)
11841 Martha Ann Dr. (Rossmoor)
11861 Martha Ann Dr. (Rossmoor)
11871 Martha Ann Dr. (Rossmoor)
9141 Enloe Way (Garden Grove)
9151 Enloe Way (Garden Grove)
9161 Enloe Way (Garden Grove)
9171 Enloe Way (Garden Grove)

*These two addresses have been changed to partial acquisitions under the Full Build, and it was added to the (Enhanced) Reduced Build Alternative, under partial acquisitions.

Non-Residential Displacements
13511 Euclid St (Garden Grove)
13512 Euclid St (Garden Grove)

Non-Residential Partial Acquisitions
3101 Seal Beach Blvd. (Seal Beach)
13261 Garden Grove Blvd. (Garden Grove)

10932 Trask Ave. (Garden Grove)
10932 Trask Ave. (Garden Grove)
11162 Trask Ave. (Garden Grove)
11162 Trask Ave. (Garden Grove)
11088 Trask, Ste. 100 (Garden Grove)
11088 Trask, Ste. 210A (Garden Grove)
11088 Trask, Ste. 106 (Garden Grove)
11088 Trask, Ste. 106 (Garden Grove)
11088 Trask, Ste. 200 (Garden Grove)
11088 Trask, Ste. 206 (Garden Grove)
11088 Trask, Ste. 210B (Garden Grove)
11088 Trask, Ste. 210C (Garden Grove)
11088 Trask, Ste. 210D (Garden Grove)
11088 Trask, Ste. 210E (Garden Grove)
11088 Trask, Ste. 210F (Garden Grove)
11088 Trask, Ste. 210G (Garden Grove)
11122 Trask Ave. (Garden Grove)

The following are NEW acquisitions that have been identified in this FEIS/EIR. They are applicable to the Full Build and (Enhanced) Reduced Build Alternatives:

Residential Displacements
None

Residential Partial Acquisitions
8692 Gloria Ave. (Garden Grove)
8802 Trask Ave. (Garden Grove)
13452 Sorrell Dr. (Garden Grove)
13332 Dunklee Ave (Garden Grove)
13322 Dunklee Ave (Garden Grove)
13312 Dunklee Ave (Garden Grove)
13306 Dunklee Ave (Garden Grove)
13302 Dunklee Ave (Garden Grove)
13292 Dunklee Ave (Garden Grove)
13282 Dunklee Ave (Garden Grove)
13272 Dunklee Ave (Garden Grove)
13262 Dunklee Ave (Garden Grove)
13252 Dunklee Ave (Garden Grove)
13242 Dunklee Ave (Garden Grove)
13421 El Prado Ave (Garden Grove)
*13401 El Prado Ave (Garden Grove)
*12841 Lewis St. (Garden Grove)
*These two addresses have been changed to partial acquisitions under the Full Build, and it was added to the (Enhanced) Reduced Build Alternative, under partial acquisitions.

Non-Residential Displacements
595* City Dr, Ste. 201 (Garden Grove)
595* City Dr, Ste. 205 (Garden Grove)
595* City Dr, Ste. 206 (Garden Grove)

Non-Residential Partial Acquisitions
SCE Substation (Garden Grove)
SCE Substation (Garden Grove)
3400 Metropolitan Dr. (Orange)
Bixby/Montecito Channel (Los Alamitos)
U.S. Naval Weapons Station (Seal Beach)

*Addresses listed as 505 City Dr. in the August 2001 DEIR/EIS Reduced and Full Build alternatives were erroneously listed. They should be 595 City Dr., as shown in this FEIS/R. Also, Suites 201, 205, and 206 should have been listed in the August 2001 DEIR/EIS, but they were also erroneous left out.

See tables S.6-2 and S.6-3, and Section 4.6 for more information regarding right-of-way acquisition requirements.

S.2.3 Other Project Changes

Following the public comment period, modifications were made to the design plans and they led to changes to some project elements.

S.2.3.1 Pearce Street Overcrossing

The DEIR/EIS stated that the overcrossing would be replaced in-kind. The FEIS/EIR proposes to replace the overcrossing approximately 360 ft. (110 meters) east of the existing structure, with a structure that is compliant with the Americans with Disabilities Act. See Section 2.2 (A) for more information.

S.2.3.2 I-405/605 HOV Connector

In response to public comments, the alignment of the connector has been shifted south, and the height of the connector has been reduced. See Section 2.2 (A) for more information.

S.2.3.3 Access Changes at Trask Avenue/Sorrell Drive Intersection

Design refinements show that the widening of the SR-22 overcrossing of Trask Avenue would require additional bridge columns in the median of Trask Avenue, through the intersection with Sorrell Drive. Extension of the existing median on Trask Avenue westerly to protect the new columns would result in limiting access at Sorrell Drive. See Section 2.2 (A) for more information.

S.3 PROJECT DESCRIPTION

SR-22 is an existing six-lane freeway in the north and central Orange County region that provides connections to five major freeways: Interstate 605 (I-605), Interstate 405 (I-405), Interstate 5 (I-5), State Route 57 (SR-57) and State Route 55 (SR-55). Built in the 1960s, SR-22 is one of only two east/west freeways in Orange County. As a result of its unique orientation, it crosses most of the major north/south arterial corridors in the central county and has consequently become a vital link in providing mobility to Orange County residents, workers and visitors.

The SR-22/WOCC project length is approximately 21 kilometers (13 miles) and extends from I-405 to approximately SR-55. The SR-22/WOCC passes through seven jurisdictions. From west to east along SR-22, these jurisdictions are: Los Alamitos, Orange County (unincorporated community of Rossmoor), Seal Beach, Westminster, Garden Grove, Santa Ana, and Orange. The study area is also located immediately adjacent to the City of Tustin.

The following are the locations of the proposed SR-22 WOCC project study area (See Figures 2.2-3 & 2.2-6 for the location map of each build alternative):

Location shown as Freeway Kilopost (Postmile)	Location in General Terms
12 ORA-5 KP/(PM) R53.6/54.5(33.32/33.85)	I-5 and SR-22 interchange
12 ORA-22 KP/(PM) R1.1/21.2(0.66/13.17)	SR-22 from Valley View to approx. SR-55
12 ORA-55 KP/(PM) R20.5/22.0(12.71/13.70)	SR-22 and SR-55 interchange
12 ORA-405 KP/(PM) R33.1/38.6(20.56/23.98)	I-405 from SR-22 junction to I-405/I-605 junction
12 ORA-605 KP/(PM) R0.0/1.6(0.0/1.0)	I-605 and I-405 interchange

The lead agencies for this environmental document are the Federal Highway Administration (FHWA) for the NEPA documentation (EIS) and the California Department of Transportation (the Department) for the CEQA documentation (EIR). The Orange County Transportation Authority (OCTA) is a responsible agency under CEQA, and is a co-applicant with the Department for Transportation Congestion Relief Program (TCRP) funding. In addition, OCTA has contributed with Measure M local funds for the Mainline HOV portion of the proposed project.

The SR-22/WOCC build alternatives involve transportation improvements to the SR-22 corridor, including portions of I-405 and I-605. During the early phases of the planning process, a Major Investment Study

(MIS) was initiated by OCTA to identify numerous ways to best alleviate traffic congestion on SR-22. After preliminary review of these alternatives and options, three alternatives were carried forward from the MIS process for detailed analysis in the administrative internal version of the DEIR/EIS. The three alternatives under initial consideration were: No Build Alternative, Transportation System Management/Expanded Bus Service Alternative, and the Build Alternative. In January 2000, prior to publicly releasing the DEIR/EIS for comments, the impacts to residential and non-residential properties, as well as potential economic impacts from the Build Alternative, were recognized as potential adverse impacts to the surrounding communities. Consequently, a fourth alternative was added. The Build Alternative became the Full Build and the newly identified alternative was named the Reduced Build Alternative. The publicly circulated DEIR/EIS included the four alternatives for consideration: No Build Alternative, Transportation System Management/Expanded Bus Service Alternative, Full Build Alternative, and Reduced Build Alternative. The August 2001 DEIR/EIS and the FEIS/EIR are available on the web at: www.dot.ca.gov/dist12, Department and OCTA Headquarters offices, and various libraries. See the Table of Contents for their physical locations.

After public circulation of the DEIR/EIS and extensive input from the public, other agencies, and groups, the local communities, and the Project Development Team, the Preferred Alternative was identified. The identified Preferred Alternative is the (Enhanced) Reduced Build Alternative. Section 2.0 of this document provides further detail on the identification of the Preferred Alternative and briefly describes all of the alternatives considered in the DEIR/EIS. Table S.7-1 summarizes the impacts and their proposed mitigation measures. After public circulation/review of the FEIS/EIR, the Record of Decision/Notice of Determination (ROD/NOD) will identify the Selected Alternative.

S.4 CURRENT OPERATING HOV FACILITIES IN ORANGE COUNTY

HOV lanes are currently available on portions of all freeways in Orange County with the exception of SR-22.

In November 1985, SR-55 became the first freeway in Orange County to dedicate one lane of traffic in each direction to high occupancy vehicles (HOVs). The HOV lanes extend 18.7 Km (11.6 miles) in each direction for a total of 36.4 Km (22.6 miles) on SR-55.

On SR-57, there are a total of 37.7 Km (23.4 miles) of dedicated HOV lanes, which were opened in two phases. The portion extending from the I-5/SR-22/SR-57 interchange to Lambert Road opened in June 1992. In August 1997 the HOV lanes in each direction were extended to the Los Angeles County Line.

On I-405, four phases of HOV lanes have been opened over a span of nine years. The first segment from I-5 to SR-73 opened in May 1989. Three months later, the second segment from SR-73 to the I-405/I-605 separation opened. By the time the fourth segment was completed in October 1998, a total of 78.2 Km (48.6 miles) of HOV lanes had been added to I-405.

In October 1992, drivers of HOV vehicles began taking advantage of HOV lanes on I-5. A seven-mile HOV lane in each direction remained the only segment on the Interstate for four years until subsequent segments opened in May and July 1996. Two more segments followed and the HOV lanes were completed in September 2000. I-5 has a total of 112.0 Km (69.6 miles) of HOV lanes.

S.5 PURPOSE AND NEED FOR THE PROJECT

The purpose of the proposed project, the SR-22/WOCC, is to improve both existing and future mobility and enhance safety throughout the corridor while minimizing environmental and economic impacts. The study area includes SR-22 bounded by SR-55 and the Los Angeles County line, and the interchanges between SR-22 and the connecting freeways within these same boundaries.

Under existing conditions, SR-22 does not meet either the existing or projected (Year 2020) capacity needs of the area. Congestion, high accident rates and reduced travel speeds currently experienced on SR-22 are a result of several contributing factors. The most significant causative factors stem from the limited number of lanes to handle vehicle volumes, closely spaced on-and off-ramps, merging of multiple

freeways, non-standard lane and shoulder widths, and non-standard weaving distances/auxiliary lanes. Five key areas of concern are: 1) limited lane availability on SR-22 and the lack of continuity between HOV and non-HOV facilities; 2) inadequate weaving distances along the freeway due to the close proximity of on/off-ramps along the mainline; 3) high traffic volumes at the interchange where the I-5, SR-57 and SR-22 meet; 4) an outdated four-quadrant cloverleaf interchange configuration at Beach Boulevard that creates a low-speed, low-capacity condition with short weave sections; and 5) non-standard lane and shoulder widths at spot locations along the corridor. In addition, there is little incentive or opportunity for individual drivers to switch from single-occupancy vehicles (SOVs) to carpooling or transit without dedicated facilities for this purpose.

The project seeks to accomplish the following goals:

- Improve mobility and reduce congestion in the SR-22/WOCC study area
- Maximize cost-effectiveness of the SR-22/WOCC improvements
- Minimize adverse and maximize beneficial environmental impacts to SR-22/WOCC communities
- Minimize negative and maximize positive economic impacts to SR-22/WOCC communities

Currently, the SR-22 corridor has insufficient capacity on both the freeway and major adjacent surface streets to handle existing and projected 2020 travel demand between the SR-55 interchange and the Los Angeles County line, and to and from destinations within the proposed project area. The situation is aggravated by a lack of continuous parallel arterial routes and available arterial/intersection capacity, with the exception of Westminster Avenue/2nd Street at the extreme western end of the project study area. There is little incentive or opportunity for individual drivers to switch from single-occupancy vehicles (SOVs) to carpooling or transit without dedicated facilities for this purpose. That is, if SOV drivers cannot decrease their commute times because there are no dedicated lanes for high-occupancy vehicles (HOVs) or buses only, they are more likely to forego carpooling or using transit in favor of driving alone. In addition, there are no other major programs in the SR-22 corridor to implement Transportation System Management (TSM), Transportation Demand Management (TDM) and Intelligent Transportation System (ITS) strategies.

With projected population and employment growth trends indicating increased transportation volumes, this situation is expected to worsen. The proposed SR-22/WOCC improvements are anticipated to provide a higher level of operation for existing and forecast traffic volumes by incorporating up-to-date technological traffic control systems and other transportation improvements, and offering additional travel mode choices. Section 1.0 of this document includes additional information about the SR-22/WOCC purpose and need.

S.6 PROJECT ALTERNATIVES

S.6.1 Alternatives Presented in the August 2001 DEIR/EIS

During the Major Investment Study (MIS) process for the SR-22/WOCC project, a broad number and variety of potential transportation strategies for addressing the project's purpose and needs were evaluated and screened until the remaining four alternatives were carried forward for analysis in the August 2001 DEIR/EIS. These four alternatives are briefly described below and are described in more detail in Section 2.0 of the August 2001 DEIR/EIS, which also covers the alternative screening process. The entire alternative screening process is documented in the MIS (available at Caltrans, OCTA, and major libraries).

S.6.1.1 No Build Alternative

Both CEQA and NEPA require environmental documents to consider a no-action or no-project alternative. This alternative represents the status quo, or what would happen if none of the project elements included in the other alternatives were implemented. The No Build Alternative for the SR-22/WOCC project represents the future baseline condition in the year 2020. The No Build Alternative encompasses only improvements to the transportation network that have already been approved and funded. No capital improvements for SR-22 are included under this alternative.

S.6.1.2 TSM/Expanded Bus Service Alternative

The TSM/Expanded Bus Service Alternative includes all of the improvements in the No Build Alternative (outlined In Chapter 2 of this FEIS/EIR), such as OCTA's *FastForward* Long-Range Transportation Plan (FFTP) Baseline Scenario. In conjunction with these improvements, the TSM/Expanded Bus Service Alternative incorporates additional TSM and transit service strategies in the SR-22 corridor, such as more buses, extended routes, and shorter headways (less time between buses). The TSM alternative represents implementation of lower-cost capital improvements, such as increased bus service with associated arterial improvements. The TSM/Expanded Bus Service Alternative does not include any capital improvements to SR-22.

S.6.1.3 Full Build Alternative

The Full Build Alternative includes all of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives, as well as specific elements that address HOV system connectivity. This alternative would add an HOV lane in each direction on SR-22. This alternative would also provide an additional HOV lane in each direction on I-405 between I-605 and SR-22. It would provide direct freeway-to-freeway HOV connectors between I-605 and I-405, between I-405 and SR-22, between SR-22 and I-5, and between SR-22 and SR-55. HOV connectors would allow the system to accommodate long distance travel for carpools and buses, while enabling the smooth flow of vehicles between freeways to avoid chokepoints at major interchanges. The Full Build Alternative would also construct a new arterial in the former Pacific Electric right-of-way in Garden Grove and Santa Ana, on right-of-way currently owned by OCTA. This arterial, which would connect SR-22 with both Santa Ana Boulevard and Civic Center Drive, would provide direct access to and from SR-22 and downtown Santa Ana. The Full Build Alternative also includes selected design improvements to enhance the operational characteristics of the SR-22 facility in certain locations that currently create bottlenecks for motorists. Under the Full Build Alternative, the freeways within the SR-22/WOCC project would be improved to full geometric design standards with some exceptions, such as interchange spacing, weaving lengths, lane widths, shoulder widths, and median widths, that must be approved by the Department.

S.6.1.4 Reduced Build Alternative

The Reduced Build Alternative includes all of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives, as well as some of the elements of the Full Build Alternative. The Reduced Build Alternative was created by eliminating certain elements of the Full Build Alternative from the project design. These elements were eliminated to reduce environmental impacts related primarily to right-of-way acquisition. The Reduced Build Alternative would include adding an HOV lane in each direction on SR-22, and it would also provide an additional HOV lane in each direction on I-405 between I-605 and SR-22. It would provide direct freeway-to-freeway HOV connectors between I-605 and I-405, and between I-405 and SR-22. The HOV connectors allows the system to accommodate long distance travel for carpools and buses, while enabling the smooth flow of vehicles between freeways to avoid chokepoints at major interchanges. The Reduced Build Alternative also includes selected design improvements to enhance the operational characteristics of the SR-22 facility in certain locations as described in the Full Build Alternative.

S.6.2 Concerns Raised During the DEIR/EIS Process

The public comment/review period for the DEIR/EIS afforded the opportunity for governmental agencies and concerned citizens to provide feedback on ways to improve and/or express their concerns on environmental impacts resulting from the proposed SR-22/WOCC project. Approximately 1,100 comment letters were received during the 60-day public comment/review period of the DEIR/EIS; about half of the comments were non-duplicative. The comments consisted of a range of concerns for environmental impacts resulting from the project, including air quality, noise, right-of-way, traffic and visual. The comments along with the Department's responses are attached as Appendix A (Volumes II & III). The comments and their responses that were received after October 30, 2001 are included in Volume IV.

Comments were received from various governmental agencies such as the United States Environmental Protection Agency (USEPA); County of Orange; Cities of Garden Grove, Orange, Seal Beach and Tustin; school districts; and concerned citizens from the cities along the SR-22 corridor. The comments consisted of a range of concerns for environmental impacts resulting from the project. These included air quality, noise, potential depreciation of property values, right-of-way, traffic and visual impacts. Many residents were concerned with air quality and noise impacts to sensitive receptors such as schools, loss of property value due in part to the project proposal to extend the freeway closer to their communities, potential acquisitions, and visual impacts.

The majority of the comments were drawn from the western portions of the project limits such as the Los Alamitos/Community of Rossmoor and the City of Seal Beach. The primary concerns of citizens in the Los Alamitos/Rossmoor area were the proposed I-405/I-605 direct HOV connector and the environmental impacts associated with it. Comments received from residents in the Los Alamitos/Community of Rossmoor included exploring the option to shift the I-405/I-605 HOV connector to west of the I-605 near the Los Alamitos Channel and the San Gabriel River. To address these and other concerns, multiple sections of the EIR/EIS were reanalyzed to investigate ways to minimize harm. Among them, the air quality, Historic Property Survey Report/Historic Architectural Survey Report (HPSR/HASR), noise, relocation impacts, traffic and visual impact sections were reanalyzed to avoid and minimize environmental impacts to the surrounding communities along the SR-22 corridor. Please see Section 4.0 (Environmental Consequences) to review the appropriate sections.

The City of Seal Beach's residents were primarily concerned with the proposed displacements of six residential properties along Almond Avenue. Many had requested shifting the centerline to south of I-405 towards the United States Naval Weapons Station. Prior to September 11, 2001, the United States Department of the Navy allowed periodic public tours of the Seal Beach Wildlife Refuge, which is located in the military base. Due to the events of September 11, 2001, the United States Department of the Navy tightened security and temporarily ceased public tours of the Wildlife Refuge, but has since resumed the tours as of October 26, 2002. A portion of the Naval Weapons Station was leased to a private entity for use as farmland. The Navy contracts with entities to conduct farming activities in the outer perimeter of the weapons station to provide a safety shield to the public. As a result of farming activities the area south of I-405 was designated as prime farmland; however, the primary purpose of the farming activities is to provide and maintain the safety shield area for public safety, and prevention of fires, and rodents. Due to the overwhelming number of comments pertaining to the shifting of the centerline towards the United States Naval Weapons Station, the Department solicited comments from the Department of the Navy requesting permission to use this option to avoid impacts to the City of Seal Beach. Other comments also received from residents in the City of Seal Beach included exploring the option to shift the I-405/I-605 HOV connector to west of the I-605 Los Alamitos Channel and the San Gabriel River. The City of Seal Beach also sent comments regarding the SR-22 WOCC proposed project. The City hired a consultant firm to review the DEIR/EIS, and it resulted in approximately 180 pages of comments.

The residents from the City of Garden Grove were primarily concerned with SR-22 freeway noise and its impacts to school children. Approximately 188 petitions were received regarding the area near Euclid Street and the need for noise barriers to reduce the noise levels at nearby elementary schools.

Since the Full and Reduced Build Alternatives were the only two build options with potential right-of-way impacts, they were both analyzed during the final environmental documentation phase. In refining the engineering plans, some of the proposed right-of-way displacements and acquisitions were avoided. The refined engineering plans also helped to determine the location of possible landscaping and preliminary determination of noise barriers.

The Federal Highway Administration (FHWA), the Department and its partnering agency, the Orange County Transportation Authority (OCTA), researched various methods to operationally improve the corridor and enhance safety. This effort resulted in the addition of minor features to the Reduced Build Alternative. The Reduced Build Alternative, together with these minor operational features, was renamed the "(Enhanced) Reduced Build Alternative."

S.6.3 Modifications to the Build Alternatives After Circulation of August 2001 DEIR/EIS

The following are discussions on the modifications to the build alternatives that occurred following the public circulation of the August 2001 DEIR/EIS. A summary of the changes, including the impacted areas, is provided (for more detailed information, refer to Section 4 of this FEIS/EIS) for each respective impacted area. A more detailed description of the alternatives can be found in Section 2 of this FEIS/EIR. The modifications to the build alternatives are shown in Table S.6-1 with added detail. Also, see Table S.6-2 for a summary of the August DEIR/EIS and March 2003 FEIS/EIR residential displacements and partial acquisitions addresses by alternative, and Table S.6-3 for a summary of the August 2001 DEIR/EIS and March 2003 FEIS/EIR non-residential displacements and partial acquisitions addresses by alternative.

S.6.3.1 Identified Preferred Alternative/(Enhanced) Reduced Build Alternative

The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section of the SR-22/SR-55 direct HOV connector from the Full Build Alternative, without the freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction (approximately 1.8 Km [1.1 mile]). The extended portion of the Mainline is approximately 1.9 Km (1.2 miles) at the eastern terminus of the project limits, which was analyzed as part of the Full Build Alternative. Further, the geometrics of the project plans for the (Enhanced) Reduced Build Alternative were refined as a result of the comments generated during the public review and comment period of the DEIR/EIS, resulting in reduced impacts throughout the project limits. The added feature to the (Enhanced) Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the modification of the Reduced Build Alternative.

Note, the modifications in the project limits to create the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts because all of the improvements are within the existing roadway. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) in the August 2001 DEIR/EIS and determined not to be substantial. See Figure 2.2.3 for the (Enhanced) Reduced Build Alternative map.

The (Enhanced) Reduced Build Alternative is divided into three segments for analysis purposes:

- I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles) [Modified from original proposed alignment]
- I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles)
- SR-22 Mainline – Valley View Street east to approximately Glassell Street, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles). [Refer to the previous text regarding extension to SR-55]

During the development of the final document, and comments received on the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Reduced Build Alternative, as presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions at the following locations:

- The partial acquisitions of six homes along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area further to the south;
- The I-405/605 HOV connector was realigned and lowered from the original DEIR/EIS proposal to reduced impacts to the communities of Rossmoor and City of Seal Beach;
- The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south;

- The full acquisitions of six homes along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing noise barriers were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the S405/E22 connector gore (divergence point) area further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405;
- The partial acquisitions of four homes along Enloe Way in the City of Garden Grove were avoided by shifting the ramp alignment closer to the freeway mainline and shifting the gore area (convergence point) further to the west; and
- The displacements of two residential units (along Trask Avenue) and eighteen businesses (along Euclid and Trask Avenue) at the Euclid interchange in the City of Garden Grove are no longer necessary due to design refinements.

In refining the engineering plans and with the availability of more detailed design level surveys, a total of nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions at Yockey Bridge, along Dunklee Avenue on the north side of the freeway, and at El Prado Avenue on the south side of the freeway in the City of Garden Grove. A comprehensive listing of displacements and partial acquisitions can be found Section 4.6. Please see Figure 2.2-6 for the Full Build Alternative features, as presented in this FEIS/EIR and Figure 2.2-7 for the Full Build Alternative features, as presented in the August 2001 DEIR/EIS.

In addition, further engineering studies identified potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. One involves Sorrel Drive in the City of Garden Grove local streets. As result, the traffic team met with the City of Garden Grove to discuss these issues.

Due to further design refinements following the August 2001 DEIR/EIS, it was noted that the widening of the existing SR-22 overcrossing of Trask Avenue, west of Harbor Boulevard, would require additional bridge columns in the median of Trask Avenue. These additional columns in the median supporting the westerly bridge widening will extend through the intersection of Sorrell Drive. Sorrell Drive, a north-south residential street, one block long, presently forms a “T-intersection” with Trask Avenue, an east-west arterial. Extension of the existing median on Trask Avenue westerly through the intersection to protect the new columns will result in limiting access at Sorrell Drive. Access would be limited to westbound right turns from Trask to Sorrell, and southbound right turns from Sorrell to Trask. At this time, the Department is recommending a right-turn only access from Sorrell Drive to westbound Trask Avenue design; a final decision will be made at the design stage. A public meeting was held at the City of Garden Grove City Hall with the City Traffic Engineer and one of his assistants to solicit public input on how best to modify Sorrel Drive. The Department and OCTA will continue its coordination with the City and the affected residents.

I-405/605 HOV connector

The I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the proposed connector occurred at approximately 95 ft. (29 meters) high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one design solution significantly reduced the height of the HOV connector by shifting the previous alignment southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment occurs at approximately 72 ft. (22 meters) high where the minimum vertical clearance is required over the eastbound SR-22 connector. See Figure 2.2-1 for more detail on the I-405/605 HOV connector realignment.

Pearce Street Pedestrian Overcrossing

Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Street pedestrian overcrossing is in need of replacement since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. The August 2001 DEIR/EIS assumed the Pearce Street pedestrian overcrossing would be replaced in-kind at the same location as the existing facility. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be 110 meters (360 ft.) east of the existing overcrossing. Please refer to Figure 2.2-2 b for a schematic of the replacement proposal.

S.6.3.2 Full Build Alternative

The Full Build Alternative, the "build" alternative identified by the OCTA Board on November 9, 1998, includes all of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives, as well as specific elements that address HOV system connectivity. This alternative would provide HOV lanes on SR-22, thus furthering the countywide HOV system and fulfilling an important transportation goal. The SR-22 HOV connectors were added in September 1997 with the expansion of the project, which included the West Orange County Connection. This element was incorporated in response to public outreach, which identified completion of the HOV system as a high priority. In particular, HOV connectors were perceived as important, especially in regards to the safety and efficiency of the system. The HOV connectors allow the system to accommodate long distance travel for carpools and buses, while enabling the smooth flow of vehicles between freeways and avoiding chokepoints at major interchanges. The Full Build Alternative's route was divided into six segments for analysis purposes. This was done to enable separate consideration of the impacts of each segment and facilitate subsequent planning and implementation decisions. These segments are as follows:

1. I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles) [Modified from original proposed alignment]
2. I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles)
3. SR-22 Mainline – Valley View Street east to Glassell Street, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles)
4. I-5/SR-22 Connector – SR-22 and The City Drive to I-5 and Broadway, a distance of 2.3 kilometers (1.4 miles)
5. SR-22/SR-55 Connector – SR-22 and Glassell Street to SR-55 and Chapman Avenue to the north and Fairhaven Street to the south, a distance of 3.9 kilometers (2.4 miles)
6. Pacific Electric Arterial – Taft Avenue at SR-22, southeast to where it joins Santa Ana Boulevard at Raitt Street, a distance of 5.1 kilometers (3.2 miles)

In addition to the improvements outlined in the No Build and TSM/Expanded Bus Service Alternatives, the Full Build Alternative includes the elements listed in Table 2.2-4.

During the final documentation phase, and as a result of comments received during the public review and comment of the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Full Build Alternative, as presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions at the following locations:

- The partial acquisitions of six homes along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area (divergence point) further to the south;
- The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south;
- The I-405/605 HOV connector has been realigned and lowered from the DEIR/EIS proposal to reduce impacts to the community of Rossmoor and the City of Seal Beach (Please refer to Figure 2.2-1 for the modified plan);
- The full acquisitions of six homes along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing soundwalls were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the southbound I-405 to eastbound SR-22 connector gore area (divergence point) further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405; and
- The partial acquisitions of four homes along Enloe Way in the City of Garden Grove were avoided by shifting the SR-22 eastbound Magnolia on-ramp alignment closer to the freeway mainline and shifting the gore area (convergence point) further to the west.

S.6.4 Identification of the Preferred Alternative

The formulation of the identified Preferred Alternative took into consideration multiple forms of feedback: 1) refined engineering for the project plans; 2) comments received during the public review period of the DEIR/EIS from Federal and local agencies, community associations, and concerned citizens; and 3) planning analysis to determine operational and cost effectiveness of the alternatives under consideration. With modifications to maximize operational and cost efficiency, the (Enhanced) Reduced Build Alternative was identified as the Preferred Alternative. See Section 2.1.3 for further discussion on the formulation and identification of the Preferred Alternative.

As discussed in S.4.1, the two "build" alternatives along with the no build and TSM/Expanded Bus Service alternatives were considered in the DEIR/EIS and were the subject of the public review and comment process. Additional analyses were conducted on the "build" options along with the TSM/Expanded Bus Service Alternative to determine the maximum benefits to the SR-22 corridor while reducing the environmental and economic impacts to the surrounding communities. Through these analyses, the Reduced Build Alternative was determined to meet this criterion.

During the final documentation phase, and as a result of comments received during the public review and comments of the DEIR/EIS, the Department re-analyzed multiple sections of the SR-22 corridor to refine right-of-way limits for the proposed project. Since the Full and Reduced Build Alternatives were the only two build options with potential right-of-way impacts, they were both analyzed. In refining the engineering plans, some of the proposed right-of-way displacements and acquisitions were avoided. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers.

During the development of the final environmental document, additional planning efforts were utilized in the process to find the best solution in alleviating traffic congestion and improving safety on the SR-22 corridor. The Department, and its partnering agency, the OCTA, in conjunction with the Federal Highway Administration (FHWA), examined various methods to operationally improve the corridor and enhance safety. These methods included incorporating a component of the SR-22/SR-55 direct HOV connector, which was previously analyzed under the Full Build Alternative during the August 2001 DEIR/EIS. The SR-22/SR-55 direct HOV connector feature of the Full Build Alternative included the extension of HOV lanes on the Mainline (in both directions) from Glassell Street to the eastern terminus of SR-22 at Tustin Avenue/SR-55. The added feature to the Reduced Build Alternative extends the improvements (in both directions) from Glassell Street to approximately SR-55, resulting in the (Enhanced) Reduced Build Alternative. In addition, there are other improvements that were made to the (Enhanced) Reduced Build Alternative: these include realignment of the I-405/605 HOV connector, replacement/realignment of the Pearce Street pedestrian overcrossing to comply with the Americans with Disabilities Act (ADA) standards, and modifications of Sorrel Street. Please refer to Section 2.2 for a discussion on the

identified Preferred Alternative, (Enhanced) Reduced Build Alternative, and the Full Build Alternative for specific discussion on how they affect each of the build alternatives.

The identified Preferred Alternative, (Enhanced) Reduced Build Alternative, was determined to be the environmentally preferred option due to its lessened impacts to residential and non-residential properties, the local economy, and preservation of a historic resource. Specifically, the (Enhanced) Reduced Build Alternative has fewer right-of-way impacts, when compared to the Full Build Alternative. The identification of the (Enhanced) Reduced Build as the Preferred Alternative would result in fewer right-of-way impacts, when compared to the Full Build. The large number of right-of-way impacts for the Full Build Alternative can be attributed to the Pacific Electric Arterial and direct HOV connector features at I-5 and SR-55. Due to fewer right-of-way acquisitions, the local economy would not be as negatively impacted with the (Enhanced) Reduced Build Alternative. This would result in the affected jurisdictions' ability to retain existing property and sales tax revenues, when compared to the Full Build Alternative. With the proposed Pacific Electric Arterial included as a feature of the Full Build Alternative, the former Pacific Electric Bridge (eligible for listing on the National Register of Historic Places) would be eliminated.

The absence of HOV lanes on the SR-22 freeway is a missing link in the Orange County HOV system. The (Enhanced) Reduced Build Alternative would provide for HOV system continuity and connectivity, tying to I-605 and I-405, thereby helping to improve congestion locally. The traveling public has little incentive or opportunity to switch from single-occupancy vehicles to carpooling or transit, as there are no dedicated facilities for this purpose on SR-22. The identified Preferred Alternative, by providing connectivity for the HOV system while meeting the goals and objectives of the project, would provide the infrastructure needed to encourage high vehicle occupancy on the region's roads. This would indirectly relieve traffic congestion in the region, both by removing HOVs from general-purpose lanes and by encouraging single occupant vehicles ("SOV") to shift their modal choice from drive-alone to carpool.

Table S.6-1 Description of Alternatives	
(Enhanced) Reduced Build Alternative **(Identified Preferred Alternative)**	The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section of the SR-22/SR-55 direct HOV connector from the Full Build Alternative, without the freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction (approximately 1.8 Km [1.1 mile]). The extended portion of the Mainline is approximately 1.9 Km (1.2 miles) at the eastern terminus of the project limits, which was analyzed as part of the Full Build Alternative. Further, the geometrics of the project plans for the (Enhanced) Reduced Build Alternative were refined as a result of the comments generated during the public review and comment period of the DEIR/EIS, resulting in reduced impacts throughout the project limits. The added feature to the (Enhanced) Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the modification of the Reduced Build Alternative. Note, the modifications in the project limits to create the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts because all of the improvements are within the existing roadway. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) in the August 2001 DEIR/EIS and determined not to be substantial. See Figure 2.2.3 for the (Enhanced) Reduced Build Alternative map. As presented in the DEIR/EIS, the Reduced Build Alternative was created by eliminating the following elements of the Full Build Alternative from the project design: the new arterial in the former Pacific Electric right-of-way, the HOV connectors between SR-22 and I-5, and the HOV connectors between SR-22 and SR-55. These dismissed features, if included, would have resulted in substantial right of way, costs, and adverse operational impacts to I-5 and SR-55 absent additional capital improvements on these freeways to relieve added traffic demand. Thus, these features would not meet the goals and objectives of the proposed WOCC project. All of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives are included in the (Enhanced) Reduced Build Alternative. This alternative also includes design features to improve the operational characteristics of the SR-22 facility in certain locations, such as interchange spacing, shoulder widths and median widths that must be approved by the Department. The Reduced Build Alternative also includes the following design modifications to improve the operational characteristics of the facility in certain locations that currently create bottlenecks (choke-points) for motorists: • Continuous lane in each direction from Beach Boulevard to I-5. • Auxiliary lanes between interchanges at various locations • Interchange improvements at Beach Boulevard and Brookhurst Street • A collector/distributor road along the eastbound SR-22 at the SR-22/I-5/SR-57 confluence

Table S.6-1 (continued) Description of Alternatives	
(Enhanced) Reduced Build Alternative (continued) **(Identified Preferred Alternative)**	The (Enhanced) Reduced Build Alternative is divided into three segments for analysis purposes: • I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles) [Modified from original proposed alignment] • I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles) • SR-22 Mainline – Valley View Street east to approximately Glassell Street, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles). [Refer to the previous text regarding extension to SR-55] During the development of the final document, and as a result of comments received during the public review and comment of the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Reduced Build Alternative, as presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions at the following locations: • The partial acquisitions of six homes along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area further to the south; • The I-405/605 HOV connector was realigned and lowered from the original DEIR/EIS proposal to reduced impacts to the communities of Rossmoor and City of Seal Beach; • The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south; • The full acquisitions of six homes along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing noise barriers were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the S405/E22 connector gore area further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405; • The partial acquisitions of four homes along Enloe Way in the City of Garden Grove were avoided by shifting the ramp alignment closer to the freeway mainline and shifting the gore area further to the west; and • The displacements of two residential units (along Trask Avenue) and eighteen businesses (along Euclid and Trask Avenue) at the Euclid interchange in the City of Garden Grove are no longer necessary because the Pacific Electric connection would not be part of this alternative, and the ramp alignments would be shifted toward the freeway mainline. In refining the engineering plans and with the availability of more detailed design level surveys, a total of nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions at Yockey Bridge, along Dunklee Avenue on the north side of the freeway, and at El Prado Avenue on the south side of the freeway in the City of Garden Grove. A comprehensive listing of displacements and partial acquisitions can be found Section 4.6. Please see Figure 2.2-6 for the Full Build Alternative features, as presented in this FEIS/EIR and Figure 2.2-7 for the Full Build Alternative features, as presented in the August 2001 DEIR/EIS.

Table S.6-1 (continued)

(Enhanced) Reduced Build Alternative (continued) **(Identified Preferred Alternative)**	In addition, further engineering studies identified potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. One involves Sorrel Drive in the City of Garden Grove local streets. As result, the traffic team met with the City of Garden Grove to discuss these issues.

Table S.6-1 (continued)	
(Enhanced) Reduced Build Alternative (continued) **(Identified Preferred Alternative)**	**Pearce Street Pedestrian Overcrossing** Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Street pedestrian overcrossing is in need of replacement since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. The August 2001 DEIR/EIS assumed the Pearce Street pedestrian overcrossing would be replaced in-kind at the same location as the existing facility. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 360 ft. (110 meters) east of the existing overcrossing. Please refer to Figure 2.2-2 b for a schematic of the replacement proposal.
No Build Alternative	The National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) require environmental documents consider a no-action or no-project alternative. This alternative represents the status quo, or what would happen if none of the project elements included in the other alternatives were implemented. The No Build Alternative for the SR-22/W OCC project represents the future baseline condition in the 2020 planning year. No new capital improvements for SR-22 are included under this alternative. The OCTA 1998 *FastForward* Long-Range Transportation Plan (FFTP) Baseline Scenario also includes the 1995 Combined Transportation Funding Program (CTFP) data. In addition, the No Build Alternative includes all city or developer projects not in the 1995 CTFP that have been approved and funded. Throughout this document, the other project alternatives are compared to this No Build Alternative as a baseline condition. [1]
TSM/Expanded Bus Service	The TSM/Expanded Bus Service Alternative includes all of the improvements outlined in the No Build Alternative, such as OCTA's FFTP Baseline Scenario. In conjunction with these improvements, the TSM/Expanded Bus Service Alternative incorporates additional TSM and transit service strategies in the SR-22 corridor, such as more buses, extended routes, and shorter headways (less time between buses). The TSM alternative represents implementation of lower-cost capital improvements such as increased bus service with associated arterial improvements. The TSM/Expanded Bus Service Alternative does not include any capital improvements to SR-22.

[1] Both the FFTP and CTFP are available at OCTA.
[2] The Full Build Alternative is referred to as the "Build Alternative" in the technical reports, which were prepared before the development of the Reduced Build Alternative. The Reduced Build Alternative is addressed in addenda to each technical report.

Table S.6-1 (continued)	
Full Build Alternative	[2]The Full Build Alternative, the "build" alternative identified by the OCTA Board on November 9, 1998, includes all of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives, as well as specific elements that address HOV system connectivity. This alternative would provide HOV lanes on SR-22, thus furthering the countywide HOV system and fulfilling an important transportation goal. The SR-22 HOV connectors were added in September 1997 with the expansion of the project, which included the West Orange County Connection. This element was incorporated in response to public outreach, which identified completion of the HOV system as a high priority. In particular, HOV connectors were perceived as important, especially in regards to the safety and efficiency of the system. The HOV connectors allow the system to accommodate long distance travel for carpools and buses, while enabling the smooth flow of vehicles between freeways and avoiding chokepoints at major interchanges. The Full Build Alternative's route was divided into six segments for analysis purposes. This was done to enable separate consideration of the impacts of each segment and facilitate subsequent planning and implementation decisions. These segments are as follows: 7. I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles) [Modified from original proposed alignment] 8. I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles) 9. SR-22 Mainline – Valley View Street east to Glassell Street, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles) 10. I-5/SR-22 Connector – SR-22 and The City Drive to I-5 and Broadway, a distance of 2.3 kilometers (1.4 miles) 11. SR-22/SR-55 Connector – SR-22 and Glassell Street to SR-55 and Chapman Avenue to the north and Fairhaven Street to the south, a distance of 3.9 kilometers (2.4 miles) 12. Pacific Electric Arterial – Taft Avenue at SR-22, southeast to where it joins Santa Ana Boulevard at Raitt Street, a distance of 5.1 kilometers (3.2 miles) In addition to the improvements outlined in the No Build and TSM/Expanded Bus Service Alternatives, the Full Build Alternative includes the elements listed in Table 2.2-4. During the final documentation phase, and as a result of comments received during the public review and comment of the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Full Build Alternative, as presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions at the following locations: • The partial acquisitions of six homes along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area further to the south; • The I-405/605 HOV connector realigned and lowered from the DEIR/EIS proposal to reduced impacts to the communities of Rossmoor and City of Seal Beach;

Table S.6-1 (continued)	
Full Build Alternative (continued)	• The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south; • The full acquisitions of six homes along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing soundwalls were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the S405/E22 connector gore area further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405; • The partial acquisitions of four homes along Enloe Way in the City of Garden Grove were avoided by shifting the ramp alignment closer to the freeway mainline and shifting the gore area further to the west; and Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Street pedestrian overcrossing is in need of replacement since it would conflict with the proposed widening of the SR-22/WOCC project just west of the Haster Street exit. The original Preliminary Engineering Plans assumed it would be replacement in kind, however, since the existing Pearce Street pedestrian overcrossing is not Americans with Disabilities Act (ADA) compliant, it may require different access points. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. In refining the engineering plans and with the availability of more detailed design level surveys, a total of nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions at Yockey Bridge, along Dunklee Avenue on the north side of the freeway, and at El Prado Avenue on the south side of the freeway in the City of Garden Grove. Please see Figure 2.2-4 for the features of the Full Build Alternative.

Table S.6-1 (continued) Description of Alternatives	
Full Build Alternative (continued)	In addition, further engineering studies identified potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. One involves Sorrel Drive in the City of Garden Grove local streets. As result, the traffic team met with the City to discuss these issues.

Table S. 6-2
Summary of Addresses of Residential Displacements & Partial Acquisitions*
By Alternative

City	Reduced Build (August 2001)		Full Build (August 2001)		(Enhanced) Reduced Build** (March 2003)		Full Build (March 2003)	
	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition
Garden Grove	11831 Trask Ave. 11032 Trask Ave. 11062 Trask Ave.	9141 Enloe Way 9151 Enloe Way 9161 Enloe Way 9171 Enloe Way	11831 Trask Ave 12841 Lewis St 12771 Lewis St 13401 El Prado Ave 13582 Taft St 11032 Trask Ave 13521 Lanning St 11262 Trask Ave 11302 Lanning St 11282 Trask Ave 13512 Barnett Way 13592 Libby Lane 13601 Havenwood Dr 13582 Havenwood Dr 13512 Lanning St 13592 Lanning St 13582 Barnett Way 11272 Trask Ave 13511 Barnett Way 13581 Barnett Way *** 11062 Trask Ave 13581 Libby Lane 11242 Trask Ave 13591 Lanning St	9141 Enloe Way 9151 Enloe Way 9161 Enloe Way 9171 Enloe Way 13421 El Prado Ave. 705 Lewis St.	11831 Trask Ave	8692 Gloria Ave. 8802 Trask Ave. 13452 Sorrell Dr. 13332 Dunklee Ave 13322 Dunklee Ave 13312 Dunklee Ave 13306 Dunklee Ave 13302 Dunklee Ave 13292 Dunklee Ave 13282 Dunklee Ave 13272 Dunklee Ave 13262 Dunklee Ave 13252 Dunklee Ave 13242 Dunklee Ave 13421 El Prado Ave 13401 El Prado Ave 12841 Lewis St.	11831 Trask Ave. 13582 Taft St. 13521 Lanning St. 11262 Trask Ave. 11302 Lanning St. 11282 Trask Ave. 13512 Barnett Way 13592 Libby Lane 13601 Havenwood Dr 13582 Havenwood Dr 13512 Lanning St. 13592 Lanning St. 13582 Barnett Way 11272 Trask Ave. 13511 Barnett Way 13591 Barnett Way *** 13581 Libby Lane 11242 Trask Ave. 13591 Lanning St.	705 Lewis St. 8692 Gloria Ave. 8802 Trask Ave. 13452 Sorrell Dr. 13332 Dunklee Ave. 13322 Dunklee Ave. 13312 Dunklee Ave. 13306 Dunklee Ave. 13302 Dunklee Ave. 13292 Dunklee Ave. 13282 Dunklee Ave. 13272 Dunklee Ave 13262 Dunklee Ave. 13252 Dunklee Ave. 13242 Dunklee Ave. 13421 El Prado Ave. 13401 El Prado Ave. 12841 Lewis St.
Santa Ana	None	None	802 N. Fairview St. 2901 N. Bristol St. 1033 Sherwood Lane 1029 Sherwood Lane 1025 Sherwood Lane 1019 Sherwood Lane 1015 Sherwood Lane 1011 Sherwood Lane 1005 Sherwood Lane 1001 Sherwood Lane 955 Sherwood Lane 949 Sherwood Lane 945 Sherwood Lane 1047 Sherwood Lane 1043 Sherwood Lane 1037 Sherwood Lane 2944 Fernwood Drive	None	None	None	802 N. Fairview St. 2901 N. Bristol St. 1033 Sherwood Lane 1029 Sherwood Lane 1025 Sherwood Lane 1019 Sherwood Lane 1015 Sherwood Lane 1011 Sherwood Lane 1005 Sherwood Lane 1001 Sherwood Lane 955 Sherwood Lane 949 Sherwood Lane 945 Sherwood Lane 1047 Sherwood Lane 1043 Sherwood Lane 1037 Sherwood Lane 2944 Fernwood Dr.	None

Table S. 6-2
Summary of Addresses of Residential Displacements & Partial Acquisitions*
By Alternative

City	Reduced Build (August 2001)		Full Build (August 2001)		(Enhanced) Reduced Build** (March 2003)		Full Build (March 2003)	
	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition
			802 N. Fairview St.				802 N. Fairview St.	
Orange	592 S. Devon Rd.	None	3821 W. Park Balboa 3825 W. Park Balboa 3811 W. Park Balboa 3815 W. Park Balboa 3803 W. Park Balboa 3807 W. Park Balboa 3743 W. Park Balboa 3747 W. Park Balboa 3735 W. Park Balboa 3739 W. Park Balboa 3725 W. Park Balboa 3729 W. Park Balboa 3717 W. Park Balboa 3721 W. Park Balboa 3707 W. Park Balboa 3711 W. Park Balboa 3647 W. Park Balboa 3701 W. Park Balboa 3639 W. Park Balboa 3643 W. Park Balboa 3629 W. Park Balboa 3633 W. Park Balboa 3621 W. Park Balboa 3625 W. Park Balboa 3611 W. Park Balboa 3615 W. Park Balboa 3603 W. Park Balboa 3607 W. Park Balboa 3543 W. Park Balboa 3547 W. Park Balboa 3531 W. Park Balboa 3533 W. Park Balboa 592 S. Devon Road 2026 E. Fairway Dr. 2024 E. Fairway Dr. 2022 E Fairway Dr. 2041 Palmyra Ave. 2043 Palmyra Ave 2045 Palmyra Ave 1925 E. La Veta Ave Units 22A-38,	334 S. Jennifer Lane 350 S. Jennifer Lane 358 S. Jennifer Lane 372 S. Jennifer Lane 380 S. Jennifer Lane 394 S. Jennifer Lane 404 S. Jennifer Lane 416 S. Jennifer Lane 426 S. Jennifer Lane 438 S. Jennifer Lane 450 S. Jennifer Lane 458 S. Jennifer Lane 2144 Deborah Lane	592 S. Devon Rd.		3821 W. Park Balboa 3825 W. Park Balboa 3811 W. Park Balboa 3815 W. Park Balboa 3803 W. Park Balboa 3807 W. Park Balboa 3743 W. Park Balboa 3747 W. Park Balboa 3735 W. Park Balboa 3739 W. Park Balboa 3725 W. Park Balboa 3729 W. Park Balboa 3717 W. Park Balboa 3721 W. Park Balboa 3707 W. Park Balboa 3711 W. Park Balboa 3647 W. Park Balboa 3701 W. Park Balboa 3639 W. Park Balboa 3643 W. Park Balboa 3629 W. Park Balboa 3633 W. Park Balboa 3621 W. Park Balboa 3625 W. Park Balboa 3611 W. Park Balboa 3615 W. Park Balboa 3603 W. Park Balboa 3607 W. Park Balboa 3543 W. Park Balboa 3547 W. Park Balboa 3531 W. Park Balboa 3533 W. Park Balboa 592 S. Devon Rd. 2026 E. Fairway Dr. 2024 E. Fairway Dr. 2022 E Fairway Dr. 2041, 2043 & 2045 Palmyra Ave. Units 22A-38, 1925 E. La Veta Ave.	334 S. Jennifer Lane 350 S. Jennifer Lane 358 S. Jennifer Lane 372 S. Jennifer Lane 380 S. Jennifer Lane 394 S. Jennifer Lane 404 S. Jennifer Lane 416 S. Jennifer Lane 426 S. Jennifer Lane 438 S. Jennifer Lane 450 S. Jennifer Lane 458 S. Jennifer Lane 2144 Deborah Lane

Table S. 6-2
Summary of Addresses of Residential Displacements & Partial Acquisitions*
By Alternative

City	Reduced Build (August 2001)		Full Build (August 2001)		(Enhanced) Reduced Build** (March 2003)		Full Build (March 2003)	
	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition
Los Alamitos/ Rossmoor	None	11801 Martha Ann Dr. 11821 Martha Ann Dr. 11831 Martha Ann Dr. 11841 Martha Ann Dr. 11861 Martha Ann Dr. 11871 Martha Ann Dr.	None	11801 Martha Ann Dr. 11821 Martha Ann Dr. 11831 Martha Ann Dr. 11841 Martha Ann Dr. 11861 Martha Ann Dr. 11871 Martha Ann Dr.	None	None	None	None
Seal Beach	3541 Rose Circle 3510 Oleander St 3521 Pansy Circle 3520 Pansy Circle 3531 Primrose Circle 3530 Primrose Circle	None	3541 Rose Circle 3510 Oleander St 3521 Pansy Circle 3520 Pansy Circle 3531 Primrose Circle 3530 Primrose Circle	None	None	None	None	None

Note: *Some of the Displacements and Partial Acquisitions from the August 2001DEIR/S are no longer applicable in this March 2003 FEIS/R due to design refinements and/or in response to comments received from the DEIR/S. Refer to Section 4.6 for details.
**The (Enhanced) Reduced Build is the identified Preferred Alternative. Please refer to S.4.3.1 for discussions on the identified Preferred Alternative.
***13591 Barnett Way was erroneously listed as 13581 Barnett Way in the August 2001 DEIR/EIS

Table S. 6-3
Summary of Addresses of Non-Residential Displacements & Partial Acquisitions
By Alternative

City	Reduced Build (August 2001)		Full Build (August 2001)		(Enhanced) Reduced Build[5] (March 2003)		Full Build (March 2003)	
	Displacement	**Partial Acquisition**	Displacement	**Partial Acquisition**	Displacement	**Partial Acquisition**	Displacement	**Partial Acquisition**
Garden Grove	13511 Euclid St 13512 Euclid St 10932 Trask Ave. 10932 Trask Ave. 11162 Trask Ave. 11162 Trask Ave. 11088 Trask, Ste. 100 11088 Trask, Ste. 210A 11088 Trask, Ste. 106 11088 Trask, Ste. 106 11088 Trask, Ste. 200 11088 Trask, Ste. 206 11088 Trask, Ste. 210B 11088 Trask, Ste. 210C 11088 Trask, Ste. 210D 11088 Trask, Ste. 210E 11088 Trask, Ste. 210F 11088 Trask, Ste. 210G 11122 Trask Ave.	13311 Garden Grove Blvd. 13261 Garden Grove Blvd.	13511 Euclid St 10932 Trask Ave. 10932 Trask Ave. 11162 Trask Ave. 11162 Trask Ave. 11088 Trask, Ste. 100 11088 Trask, Ste. 210A 11088 Trask, Ste. 106 11088 Trask, Ste. 106 11088 Trask, Ste. 200 11088 Trask, Ste. 206 11088 Trask, Ste. 210B 11088 Trask, Ste. 210C 11088 Trask, Ste. 210D 11088 Trask, Ste. 210E 11088 Trask, Ste. 210F 11088 Trask, Ste. 210G 11122 Trask Ave.	13311 Garden Grove Blvd. 13261 Garden Grove Blvd.	None	13311 Garden Grove Blvd. Lewis Channel	13511 Euclid St. 10932 Trask Ave. 10932 Trask Ave. 11162 Trask Ave. 11162 Trask Ave. 11088 Trask, Ste. 100 11088 Trask, Ste. 210A 11088 Trask, Ste. 106 11088 Trask, Ste. 106 11088 Trask, Ste. 200 11088 Trask, Ste. 206 11088 Trask, Ste. 210B 11088 Trask, Ste. 210C 11088 Trask, Ste. 210D 11088 Trask, Ste. 210E 11088 Trask, Ste. 210F 11088 Trask, Ste. 210G 11122 Trask Ave.	13311 Garden Grove Blvd. Lewis Channel
Santa Ana	None	3020 N Hesperian 3022 N Hesperian	802 N. Fairview St. 802 N. Fairview St. 720 N. Fairview St. 720 N. Fairview St. 2941 N. Bristol, Ste. A 2941 N. Bristol, Ste. B 2940 N. Bristol St. 2415 W. Fifth St.	3020 N. Hesperian 3022 N. Hesperian 2308 W. Fifth St. 730 N. Fairview St. MainPlace Dr. MainPlace Dr. MainPlace Dr.	None	3020 N. Hesperian St. 3022 N. Hesperian St.	802 N. Fairview St. 802 N. Fairview St. 720 N. Fairview St. 720 N. Fairview St. 2941 N. Bristol St Ste. A 2941 N. Bristol St Ste. B 2940 N. Bristol St 2415 W. Fifth St	3020 N. Hesperian 3022 N. Hesperian 2308 W. Fifth St. 730 N. Fairview St. MainPlace Dr MainPlace Dr MainPlace Dr
Orange[3]	561 City Dr[4] 591 City Dr[4] 505 City Dr, Ste. 200 505 City Dr, Ste. 202	4000 W. Metropolitan Dr. 3901 W. Metropolitan Dr.	561 City Dr[4] 591 City Dr[4] 505 City Dr, Ste. 200 505 City Dr, Ste. 202	4000 W. Metropolitan Dr. 3901 W. Metropolitan Dr.	561 City Dr[4] 591 City Dr[4] 595 City Dr, Ste. 100 595 City Dr, Ste. 200	4000 W. Metropolitan 3901 W. Metropolitan 1 City Blvd. W #1010 1 City Blvd. W #1010	561 City Dr[4] 591 City Dr[4] 595 City Dr, Ste. 100 595 City Dr, Ste. 200	4000 W. Metropolitan Dr 3901 W. Metropolitan Dr

Table S. 6-3
Summary of Addresses of Non-Residential Displacements & Partial Acquisitions
By Alternative

City	Reduced Build (August 2001)		Full Build (August 2001)		(Enhanced) Reduced Build[5] (March 2003)		Full Build (March 2003)	
	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition	Displacement	Partial Acquisition
Orange[3]	505 City Dr, Ste. 203 505 City Dr, Ste. 204 505 City Dr, Ste. 100	1 City Blvd W. #1010 1 City Blvd W. #1010 601 S. Lewis St.	505 City Dr, Ste. 203 505 City Dr, Ste. 204 505 City Dr, Ste. 100 700 S. Tustin St Ste. C 700 S. Tustin St Ste. D 700 S. Tustin St Ste. A 700 S. Tustin St Ste. E 700 S. Tustin St Ste. B	1 City Blvd. W. #1010 1 City Blvd. W. #1010 601 S. Lewis St	595 City Dr, Ste. 201 595 City Dr, Ste. 202 595 City Dr, Ste. 203 595 City Dr, Ste. 204 595 City Dr, Ste. 205 595 City Dr, Ste. 206	601 S. Lewis St. 3400 W. Metropolitan Dr. SCE Substation SCE Substation	595 City Dr, Ste. 201 595 City Dr, Ste. 202 595 City Dr, Ste. 203 595 City Dr, Ste. 204 595 City Dr, Ste. 205 595 City Dr, Ste. 206 700 S. Tustin St Ste. C 700 S. Tustin St Ste D 700 S. Tustin St Ste. A 700 S. Tustin St Ste. E 700 S. Tustin St Ste. B	1 City Blvd. W. #1010 1 City Blvd. W. #1010 601 S. Lewis Street 3400 W. Metropolitan Dr. SCE Substation SCE Substation
Los Alamitos/ Rossmoor	None	None	None	None	None	Bixby Channel/ Montecito Channel	None	Bixby Channel/ Montecito Channel
Seal Beach	None.	3101 Seal Beach Blvd.	None	3101 Seal Beach Blvd.	None	U.S. Naval Weapons Station[2]	None	U.S. Naval Weapons Station[2]

Note: 1. Some of the Displacements and Partial Acquisitions from the August 2001DEIR/S are no longer applicable in this March 2003 FEIS/R due to design refinements and/or in response to comments received from the DEIR/S. Refer to Section 4.6 for details.
2. The U.S. Naval Weapons Station is shown because the proposed project would require a utility easement on their property.
3. Addresses listed as 505 City Dr. in the August 2001 DEIR/EIS Reduced and Full Build alternatives were erroneously listed. They should be 595 City Dr., as shown in this FEIS/R. Also, Suites 201, 205, and 206 should have been listed in the August 2001 DEIR/EIS, but they were also erroneous left out.
4. 561 & 591 City Dr. were listed as "The City Drive South" in the August 2001 DEIR/EIS.
5. The (Enhanced) Reduced Build is the identified Preferred Alternative. Please refer to S.4.3.1 for discussions on the identified Preferred Alternative.

S.7 PROJECT IMPACTS/MITIGATION

Table S.7-1 summarizes the potential environmental impacts anticipated for the identified Preferred Alternative, organized by topic. The impacts discussed in this Table are meant as a quick reference guide, these topics are fully discussed in Sections 3.0 and 4.0, and in the technical analyses. The proposed SR-22/West Orange County Connection project has potential impacts, including those related to cultural and biological resources, community cohesion, residential and non-residential displacements, transportation and circulation, noise, parks, and visual resources. The community impacts would generally be addressed with relocation assistance. Noise barriers are proposed to abate the impacts of increased highway traffic noise. The removal of existing vegetation would be associated with visual impacts, and all efforts would be made to preserve existing landscaping. Where possible, new landscaping would be placed where it can be sufficiently maintained and irrigated. These impacts and their mitigation measures are further discussed in Section 4.0 of the FEIS/EIR and the technical reports for the identified Preferred Alternative.

The other alternatives not identified as the Preferred Alternative are briefly summarized, and they are discussed in detail in Section 4.0 of the August 2001 DEIR/EIS. Additional supplemental analyses that accompany this FEIS/EIR are air quality, historical properties, initial site assessment, natural environment study report, noise, traffic, relocation and visual impacts. These supplemental reports are summarized in Section 4.0 of the FEIS/EIR.

S.8 PERMITS/COORDINATION WITH RESOURCE AGENCIES

During the early phase of the SR-22/WOCC proposed project, the Department initiated coordination with several resource agencies to determine the possible required permits. The regulatory agencies were contacted as part of the coordination and consultation efforts:

A. U.S. Fish and Wildlife Service (USFWS): As part of the coordination and consultation efforts, in June 2000 the Department contacted USFWS requesting information on sensitive/listed species that may occur within the limits of the SR-22/WOCC study area. The "Federally Listed and Proposed Species and Critical Habitat" list provided by USFWS was used as an inventory list for surveying the project study area to determine if any of these species were present. Upon surveying the project study area, it was determined that none of these species was present at the time of the surveys.

B. California Department of Fish and Game (CDFG): A Section 1601 Streambed/Lake Alteration Agreement from CDFG will be required if there is diversion or obstruction in the natural flow or change of the bed, channel or bank of any river, stream or lake, or use of any material from a streambed designated by CDFG as an existing fish or wildlife resource. The appropriate permit, if required, would be obtained following approval of the FEIS/EIR by the lead agency.

C. U.S. Army Corps of Engineers (ACOE): the Department, OCTA and the SR-22/WOCC consultants have informally consulted with the Corps regarding permitting for the various project elements. Specifically, a draft NEPA/Section 404 Permit Process Determination Preliminary Information Package was prepared. The Section 404 Memorandum of Understanding (MOU) process was not applied because of the anticipated applicability of a Nationwide 404 permit.

D. State Historic Preservation Office (SHPO): the Department has provided the Historic Property Survey Report (HPSR), Historic Architectural Survey Report (HASR), and the Negative Archaeological Survey Report to FHWA for transmittal to the State Historic Preservation Officer (SHPO). The SHPO concurrence on the HPSR and Determination of Effect Finding of Adverse Effect (DOE/FOE) documentation is as follows:
   - SHPO concurs that the Reduced Build Alternative, if selected as the Preferred Alternative, would have no effect on properties eligible for listing on the National Register of Historic Places. SHPO <u>also</u> concurred with the finding that the Full Build Alternative (with the

proposed Pacific Electrical Arterial component) would have an adverse effect on the Pacific Electric/Santa Ana River Bridge.

- As part of the (Enhanced) Reduced Build Alternative, a Supplemental Historic Property Survey Report (HPSR) was prepared to ensure all of the properties identified in the FEIS/EIR are not eligible for listing on the National Register of Historic Places. The potential displacement of properties (residential and non-residential) will not be finalized until the approval of final design. The properties identified in the FEIS/EIR are preliminary and are subject to change. SHPO concurs that the (Enhanced) Reduced Build Alternative properties are not eligible for listing on the National Register of Historic Places. See Appendix B (Volume IV) of the FEIS/EIR to review the SHPO concurrence letter.

E. During the public review period of the DEIR/EIS, the California Air Resources Board was solicited for comments on the environmental document. Although not required by the California Environmental Quality Act (CEQA), a letter was sent to CARB on October 22, 2001 in accordance with Chapter 3, section 21104 (b) of the CEQA Statute: "the state lead agency shall consult with, and obtain comments from, the State Air Resources Board in preparing an environmental impact report on a highway or freeway project, as to the air pollution impact of the potential vehicular use of the highway or freeway." However, no comments were received from CARB on the SR-22/ WOCC proposed project's DEIR/EIS.

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Geology & Soils	Potential for seismic hazards and ground shaking activities	No Impact	No Impact	Potential for seismic hazards and ground shaking activities	• Hinge restrainers to hold together superstructure elements • Heavy keys to limit movement • Increased reinforcement in column sections	Less than significant
	Potential for liquefaction activities	No Impact	No Impact	Potential for liquefaction activities	Detailed geotechnical studies which include: • Precise location of potential liquefaction areas • Borings • Establishment of engineering criteria for ground acceleration • Small structures will be strengthened • Soils will be stabilized • Appropriate foundation types and depths will be designed	Less than significant
	Potential for expansive soils	No Impact	No Impact	Potential for expansive soils	• Replacement of soil, treatment with lime, or supporting of structures on deep foundation	Less than significant
	Potential for soil erosion	No Impact	No Impact	Potential for soil erosion, disturbance of soil in riverbeds, and redesigning of drainage which may result in slope erosion	• Erosion control measures such as replacement of soil, treatment with lime, or supporting of structures on deep foundations • Excavating and appropriately disposing of excess soil • Construction work will be limited within riverbeds when water is present • Roadway and bridge deck drainage will outlet under bridge abutments onto energy dissipaters	Less than significant
Hydrology, Floodplains, & Water Quality	Potential storm water and surface water pollution	No Impact	No Impact	Potential storm water and surface water pollution	• Conform to the requirements of the Caltrans statewide and general NPDES Storm Water Permit • Develop a SWPPP and approve prior to construction • Implement temporary and permanent BMPs	Less than significant
	Potential impacts on groundwater availability	No Impact	No Impact	Potential impacts on groundwater availability	Implement temporary and permanent BMPs	Less than significant
	Potential for new/enlarged structures	No Impact	No Impact	Potential for new/enlarged structures	Design structures such that they will not be allowed to result in a 0.3-meter or greater impact in floodplain elevation	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Biology	Impacts to streambeds and associated habitat	No Impact	No Impact	Impacts to streambeds and associated habitat	Comply with provisions of 1600 (DFG), 404 (ACOE), and 401 (RWQCB)	Less than significant
	Impacts to existing native trees	No Impact	No Impact	Impacts to existing native trees	• Avoid removing native trees • Replacement of native trees	Less than significant
	Impacts to construction in Santiago Creek	No Impact	No Impact	Impacts to construction in Santiago Creek	• Invasive weed removal • If feasible, no vegetation will be removed during bird nesting season • If not, conduct pre-construction surveys • Measures would be in place to minimize harm to bats such as pre-construction surveys by a qualified bat biologist	Less than significant
	Potential spread of invasive species in the Santa Ana River and Santiago Creek	No Impact	No Impact	Potential spread of invasive species in the Santa Ana River and Santiago Creek	• Invasive plant removal prior to seed set • If not possible, removal measures will include methods to prevent the spread of seeds i.e., bags placed over plant prior to removal	Less than significant
	Impacts to bats, nesting swifts, swallows and other migratory birds	No Impact	No Impact	Impacts to bats, nesting swifts, swallows and other migratory birds	• If feasible, no vegetation will be removed during bird nesting season • If not, conduct pre-construction surveys for nesting birds • Conduct pre-construction surveys on bridge structures for birds and bats • Exclude bats and nesting birds from bridge structure at appropriate time • For swallows, no work to be performed during the bird nesting season, if not feasible other appropriate prevention mechanism to keep construction swallow free • For bat habitat, structural modifications or minor superficial attachments may be needed. If so, appropriate resource agencies will be contacted.	Less than significant
Wetlands & Waters of the U.S.	Erosion and runoff may affect wetlands and waters of the US	No Impact	No Impact	Erosion and runoff may affect wetlands and waters of the US	• Implementation of appropriate erosion and runoff controls will be designed which include berms to channel runoff to a collection area • Appropriate permits required by resource agencies will be obtained which may include invasive weed removal • Mitigation efforts must be coordinated with other mitigation projects including but not limited to those by the City of Orange • Access routes in the creek area will be limited to designated routes	Less than significant
Cultural Resources	Potential unearthing of unknown buried cultural materials	No Impact	No Impact	Potential unearthing of unknown buried cultural materials	• Monitor earth moving activities • Work will be halted if cultural materials are encountered • Further mitigation would be in accordance of 36 CFR 800.13	Less than significant for the Preferred Alt. Potentially significant for Full Build (along the P.E. Arterial)
	Potential disturbance of human remains and associated artifacts	No Impact	No Impact	Potential disturbance of human remains and associated artifacts	Follow provisions of PL-101-601, Section 5097.98 and .99 of the Public Resources Code, and Section 7050 of the Health and Safety Code will be followed	Less than significant
	No Impact	No Impact	No Impact	Potential damage to historic properties listed after ROD/NOD	Coordinate with local agency/sponsor for listed properties	Significant for Full Build
	No Impact	No Impact	No Impact	Removal of the Pacific Electric Santa Ana Bridge	Execute MOA and follow measures required in the MOA	Significant for Full Build

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Community Cohesion	Loss of 472 on-site parking spaces at four locations	No Impact	No Impact	Loss of 571 on-site parking spaces at six locations	Replacement parking	Significant for the Preferred Alt. Significant for Full Build Alt
	Incompatible with local land use zoning	No Impact	No Impact	Incompatible with local land use zoning	Noise barriers and landscaping and aesthetics treatments	Less than significant for Preferred Alt. Significant for Full Build Alt
	No Impact	Inconsistent with some Land Use Plans and Policies	Inconsistent with some Land Use Plans and Policies	No Impact	None available	Significant for No Build & TSM/Expanded Bus Service
	2 residential units and 10 non-residential units displacements	No Impact	No Impact	144 residential units and 39 non-residential units displacements	Relocation Assistance Program	Less than significant for the Preferred Alt. Significant for Full Build Alt
	54 residential and 14 non-residential partial acquisitions	No Impact	No Impact	69 residential and 19 non-residential partial acquisitions. Change in Sherwood Lane Community.	Compensation for acquisition of properties in accordance with the State and Federal uniform relocation act. The affected property owner(s) would be compensated at fair market value.	Less than significant for the Preferred Alt.Less than significant for Full Build Alt
	No Impact	No Impact	No Impact	Use of former Pacific Electric right-of-way for motorized vehicles would be inconsistent with local land use	None available	Significant for Full Build
Transportation & Circulation	1 intersection impacted	No Impact	No Impact	3 intersections impacted	Additional lanes required	Less than significant
	No Impact	No Impact	No Impact	SR-22/SR-55 connector would increase demand on SR 55 north	None feasible	Significant for Full Build
Air Quality	Would not exceed the SIP budget for criteria pollutants	Would not exceed the SIP budget for criteria pollutants	Would not exceed the SIP budget for criteria pollutants	Would not exceed the SIP budget for criteria pollutants	None proposed	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Noise	Substantial noise increases	No Impact	No Impact	Substantial noise increases	Noise barriers	Less than significant
	Potentially significant noise impacts inside school classrooms	No Impact	No Impact	Potentially significant noise impacts inside school classrooms	Noise abatement	Less than significant
	Conflict with local noise ordinances	No Impact	No Impact	Conflict with local noise ordinances	Comply with local noise ordinances and regulate the hours for construction activity	Less than significant
	Construction noise	No Impact	No Impact	Construction noise	• Natural and artificial barriers • Noise barriers and noise barrier additions required for long-term noise abatement/mitigation will be constructed • Where pile driving would occur near sensitive receptors use alternate methods • Comply with Caltrans Standard Specifications, Sound Control Requirements and all local sound-control and noise level rules • Use mufflers for internal combustion engines • Hold community meetings • Noise barrier for Rossmoor area	Less than significant
	No Impact	No Impact	No Impact	Noise impacts at commercial properties with outdoor uses	Noise barriers	Less than significant
	No Impact	No Impact	No Impact	Noise impacts from multiple reflections between parallel noise barriers	Additional study would be required during final design to recommend measures which may include providing a sound absorptive finish to the traffic side of each barrier	Less than significant
Parks & Recreation	Break in continuity of Santa Ana River Trail	No Impact	No Impact	Break in continuity of Santa Ana River Trail	Grade separations will be provided at all crossings of Santa Ana River Trail. This facility will remain open during construction; a temporary detour plan will be provided in coordination with the City of Orange.	Less than significant
	No Impact	No Impact	No Impact	Preclusion of Pacific Electric right-of-way trail	None available	Significant for Full Build
Utilities	Potential disruption of utility service	No Impact	No Impact	Potential disruption of utility service	• Comply with standard construction practices and procedures • Comply with provisions of PUC general order No. 131-D • Final plans will be made available to affected utility purveyors • Provide signed final plans and revisions to the Gas Company	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Hazardous Materials/Waste	Encountering hazardous material during construction	No Impact	No Impact	Encountering hazardous material during construction	• Conduct ISA and if there is potential for contamination a site investigation would be conducted • If necessary Phase II or Phase III may be conducted • During construction the contractor would implement the health and safety plan, site-specific management plans, removal of storage tanks, and a contingency plan	Less than significant
	Safety impacts for construction workers and third parties	No Impact	No Impact	Safety impacts for construction workers and third parties	Prepare Health and Safety plan by a certified industrial hygienist	Less than significant
	Potential solid and groundwater contamination	No Impact	No Impact	Potential solid and groundwater contamination	Implement a soils and groundwater contaminant management plan	Less than significant
	Aboveground and underground storage tank removal	No Impact	No Impact	Aboveground and underground storage tank removal	Removal of storage tanks following procedures including sampling procedures	Less than significant
	Unidentified hazardous materials	No Impact	No Impact	Unidentified hazardous materials	Prepare contingency plan and notify National Response Center to coordinate clean up.	Less than significant
	Asbestos, lead-based paint and aerially deposited lead	No Impact	No Impact	Asbestos, lead-based paint and aerially deposited lead	• Prior to demolition, structures would be evaluated for presence of asbestos, ADL, or LBP • For asbestos, an EPA/AHERA-certified building inspector will collect samples and would be analyzed per EPA Interim Method and McCrone Research Institute's The Asbestos Particle Atlas using PLM. Classifications and determinations of ACM is based on current regulatory information • If LBP is discovered, proper disposal procedures will be enacted • If soils with ADL is present less than 50mg/liter it can be reused with restrictions and if soils does not meet these restrictions they must be disposed of at Class 1 site.	Less than significant
	Hazards from radon and methane gas	No Impact	No Impact	Hazards from radon and methane gas	• Prior to demolition, areas would be tested for presence of radon and methane gas • If present measures would be taken to reduce risk	Less than significant
	Potential hazards related to hazards materials used	No Impact	No Impact	Potential hazards related to hazards materials used	• Materials used would be evaluated prior to their use for their level of hazard • Manufacture's directions and warnings will be followed	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Visual Resources	Reduction of visual quality in residential neighborhoods from loss of homes and landscaping	No Impact	No Impact	Reduction of visual quality in residential neighborhoods from loss of homes and landscaping	Landscaping would be designed to provide a buffer	Less than significant
	Loss of freeway landscaping	No Impact	No Impact	Loss of freeway landscaping	• Preserve landscaping within state ROW as much as possible • Landscaping will be replaced at a one-to-one ratio	Potentially significant for Preferred Alt. & Full Build
	Replacement of landscaping with hard surfaces such as soundwalls and structures	No Impact	No Impact	Replacement of landscaping with hard surfaces such as soundwalls and structures	• Use of vines, trees, or shrubs • Graffiti-resistant surfaces shall be used	Potentially significant Preferred Alt. & Full Build
	Potential conflict with policy requiring California native wildflowers	No Impact	No Impact	Potential conflict with policy requiring California native wildflowers	California wildflowers will be included	Less than significant
	Impacts to trail continuity	No Impact	No Impact	Impacts to trail continuity	Grade separations will be provided at Santa Ana River crossings	Less than significant for Preferred Alt. and Significant for Full Build Alt (Class 1, Pacific Electric Trail)
	Reduced visual quality in views from and of freeway	No Impact	No Impact	Reduced visual quality in views from and of freeway	Objectionable views shall be screened and replacement planting could be used	Less than significant
	Inconsistency with Caltrans visual policy	No Impact	No Impact	Inconsistency with Caltrans visual policy	• Select planting that provides long-term benefits, use plant materials that require minimum irrigation and maintenance, and follow the Highway Design Manual. • Execute cooperative agreements • Coordinate with local governments	Less than significant
	Loss of freeway-oriented signage	No Impact	No Impact	Loss of freeway-oriented signage	Signage's removed will be appropriately placed within view from freeway and replaced signage will be placed according to local zoning ordinances. Removed boards would be compensated in accordance of the California Constitution	Less than significant
	No Impact	No Impact	No Impact	Potential conflict with Orange County's master Plan of Freeway and Transit corridor Enhancements	Incorporate the Historic Agriculture/Orchard design theme and the Coastal design theme	Less than significant
	No Impact	No Impact	No Impact	Loss of open space in former Pacific Electric ROW	Screening vegetation will be used; landscaping will be consistent with plans of City of Santa Ana	Potentially significant for Full Build
	No Impact	No Impact	No Impact	New sources of light/levels in the former Pacific Electric ROW	Limit lighting and direct lighting away from adjacent properties	Potentially significant for Full Build
	Views of the proposed I-405/I-605 direct HOV Connector	No Impact	No Impact	Views of the proposed I-405/I-605 direct HOV Connector	Use of tall, fast growing trees or shrubs	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

Table S.7-1
Summary of Impacts and Proposed Mitigation Measures

Impact Category	Alternatives				**Mitigation Measures	Significance for CEQA Thresholds
	*(Enhanced) Reduced Build Alternative	No Build Alternative	TSM/Expanded Bus Service	Full Build Alternative		
Energy	No Impact	No Impact	No Impact	No Impact	None	
Construction-related Impacts	Potential impacts from shallow groundwater lenses and potential pollution of runoff during dewatering operations	No Impact	No Impact	Potential impacts from shallow groundwater lenses and potential pollution of runoff during dewatering operations	Dewatering measures will be used, disposal of excess water will comply with applicable NPDES permit and Caltrans Standards	Less than significant
	Potentially impacts from temporary construction easements	No Impact	No Impact	Potentially impacts from temporary construction easements	Supplemental environmental analysis and documentation will be required	Less than significant
	Views of construction staging areas	No Impact	No Impact	Views of construction staging areas	Locate construction staging areas inconspicuously	Potentially Significant
	Traffic disruption during construction	No Impact	No Impact	Traffic disruption during construction	Establish and implement a TMP	Less than significant
	Traffic disruption during construction affect school bus and emergency response routes	No Impact	No Impact	Traffic disruption during construction affect school bus and emergency response routes	Provide a copy of the proposed construction schedule and detour information	Less than significant
	Impacts on capacity of landfills due to demolition	No Impact	No Impact	Impacts on capacity of landfills due to demolition	Integrate recycling programs into their bid proposals	Less than significant
	Potential earthquake damage during construction	No Impact	No Impact	Potential earthquake damage during construction	• Use of shoring and falsework to support structures • Limiting access to dangerous areas	Less than significant

*The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative
**The proposed Mitigation Measures are a synopsis of the potential environmental impacts analyzed & discussed in Section 4.0 (Environmental Consequences and Mitigation Measures)

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Air Quality Technical Report & Air Quality Technical Report Reduced Build Alternative Addendum (January 2001) & Air Quality Technical Report Reduced Build Alternative (Revised) Addendum (June 2002)

Draft Relocation Impact Report & Reduced Build Addendum (December 2000) & Final Relocation Impact Report (Enhanced) Reduced Build Alternative (March 2003)

Floodplain Evaluation Report & Floodplain Evaluation Report Reduced Build Addendum (December 2000)

Initial Site Assessment & Initial Site Assessment Reduced Build Alternative Addendum (June 2002) & Supplemental Initial Site Assessment (Enhanced) Reduced Build Alternative (December 2002)

Natural Environmental Study Report & Natural Environmental Study Report Reduced Build Addendum (December 2000) & NES Reduced Build Alternative (Revised) Addendum (December 2002)

Traffic/Circulation Impact Report & Traffic/Circulation Impact Report Reduced Build Alternative Addendum (May 2001)

Traffic Noise Impact Report & Traffic Noise Impact Report Reduced Build Alternative Addendum (Parsons Brinckerhoff, December 2000) & Traffic Noise Impact Report Reduced Build Alternative (Revised) Addendum (December 2002)

Visual Impact Assessment & Visual Impact Assessment Reduced Build Alternative Addendum (December 2000) & Visual Impact Assessment Reduced Build Alternative (Revised) Addendum (December 2002)

*NOTE: If the reader is interested in obtaining copies of the FEIS/EIR (Volumes I-IV) and technical reports, copies are available for reviewing at the following locations:

Caltrans District 12 Office
3347 Michelson Drive Suite 100
Irvine, CA 92612
(949) 724-2089

Orange County Transportation Authority
550 South Main Street
Orange, CA 92863
(714) 560-5923

Seal Beach – Mary Wilson Public Library
707 Electric Avenue
Seal Beach, California 90740
(562)431-3584

The Los Alamitos/Rossmoor Branch Library
12700 Montecito
Seal Beach, CA. 90740
(562) 430-1048

Garden Grove Branch Library
11200 Stanford Avenue
Garden Grove, California 92840
(714) 530-0711

Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, California 92701
(714) 647-5250

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The engineering document and the MAJOR INVESTMENT STUDY EVALUATION REPORT are also available for review at the same location as the FEIS/EIR & DEIR/EIS.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Leslie Manderscheid, 3337 Michelson Drive, Suite 380, Irvine CA 92612; (949) 724-2122 Voice, or use the California Relay Service TTY number, (530) 741-4509.

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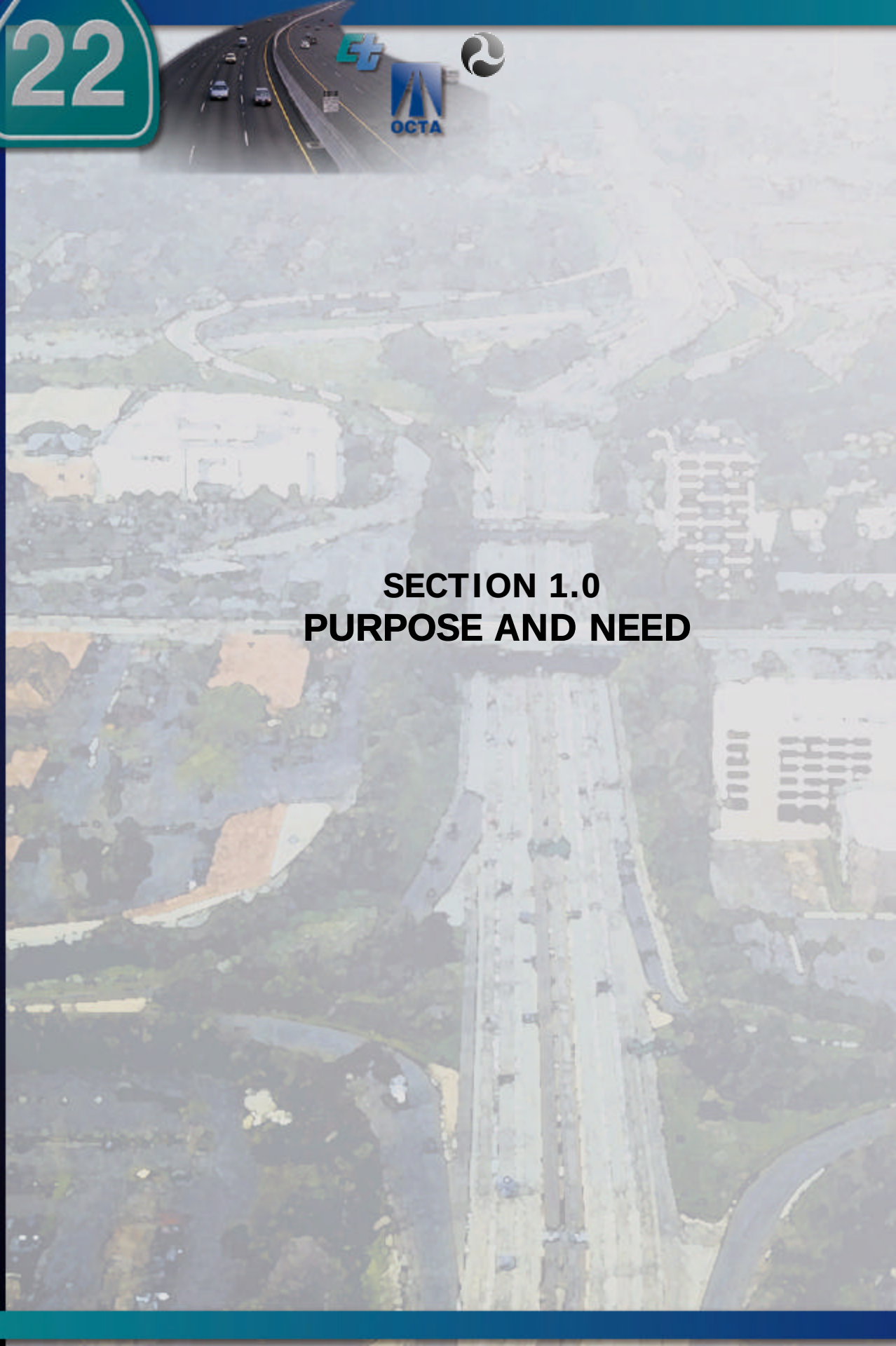


SECTION 1.0
PURPOSE AND NEED

1.0 PURPOSE AND NEED

1.1 PURPOSE OF PROJECT

The purpose of the proposed SR-22/West Orange County Connection (SR-22/WOCC) project is to improve both existing and future mobility and enhance safety throughout the corridor while minimizing environmental and economic impacts. Currently, the traffic conditions on many segments of SR-22 are operating at a poor level of service and are expected to worsen in the future. In addition, there are areas of SR-22 which experience higher accident rates, which could be improved operationally with the implementation of the SR-22/WOCC proposed project. The study area includes SR-22, bounded east by SR-55 and the Los Angeles County line to the west, including the interchanges between SR-22 and the connecting I-405, I-605, and I-5 freeways within these same boundaries (see Figure 1.2-2, Project Study Area Map). SR-22 represents a major link to other freeway systems within the Orange County area and is an important component of the county's transportation system (see Figure 1.2-1, Regional Location Map).

In addition to standardizing features on the SR-22 corridor and addressing the capacity deficiency problems, the SR-22/WOCC proposed project would adhere to the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP) to reduce the criteria pollutants in the South Coast Air Basin by providing HOV lanes and connectors, allowing for higher speeds and reduced congestion, which have been demonstrated to reduce pollutants. The project would thus comply with the criteria pollutants standards set forth by the United States Environmental Protection Agency and the California Air Resources Board (CARB). By providing another means of connecting the HOV network in the region, the proposed project would also provide an incentive for commuters to utilize alternate travel modes. With projected population and employment growth trends indicating increased transportation volumes, implementing the identified Preferred Alternative would help to alleviate the current and projected congestion and operational deficiencies.

The proposed SR-22/WOCC project would provide standard features to the extent possible on the SR-22 corridor and address the capacity deficiency problem to help reduce congestion-related accidents. Operational improvements include geometric improvements that provide standard lane widths and shoulder widths, on-and-off ramp improvements, resurfacing or new pavements, and upgrading existing roadways. These can help reduce congestion-related accidents and result in improved safety on the freeways mainlines and ramps. For instance, geometric improvements to the freeway and freeway ramps are generally expected to reduce run-off-the-road and hit-fixed-object type accidents. These fixed objects include Metal Beam Guard Rails (MBGR), headwalls and call boxes. Furthermore, upgrading the existing facilities could help reduce accidents by improving lighting, lane delineation, merging and sight distances, and driver visibility.

Major Investment Study (MIS) Process

To address congestion and meet future traffic demand, the following set of project goals were established during the Major Investment Study (MIS) process by the Orange County Transportation Authority (OCTA), the California Department of Transportation (Caltrans), and the SR-22/West Orange County Connection Steering Committee. Throughout the rest of this document, Caltrans will be referred to as "the Department." The SR-22/WOCC seeks to accomplish the following goals:

- Improve mobility and enhance safety in the SR-22/WOCC study area
- Maximize cost-effectiveness of the SR-22/WOCC improvements
- Minimize adverse and maximize beneficial environmental impacts to SR-22/WOC C communities
- Minimize negative and maximize positive economic impacts to SR-22/WOCC communities. (Further discussion of the MIS process is provided in Section 10 of this document.)

1.2 NEED FOR PROJECT

1.2.1 Existing Facilities and Services

The SR-22 corridor is a freeway with six general-purpose lanes (three in each direction) that provides connections to five major freeways: Interstate 605 (I-605), Interstate 405 (I-405), Interstate 5 (I-5), State Route 57 (SR-57) and State Route 55 (SR-55). Built in the 1960s, SR-22 is one of only two east/west freeways in Orange County. SR-22 extends 21 kilometers (13 miles) from just west of I-405 eastward to SR-55, providing accessibility for commuters between Orange and Los Angeles Counties, and access to major arterial corridors in central Orange County. Consequently, SR-22 has become a vital link in providing mobility to residents, workers, and visitors. Figure 1.2-1, Regional Location Map, provides the regional location of the SR-22/WOCC. Figure 1.2-2, Project Study Area Map, shows the SR-22/WOCC study area, including portions of SR-55, SR-57, I-5, I-405 and I-605 in Orange County.

SR-22 has fenced right of way and is access controlled, with access limited to on and off ramps, while crossing traffic uses grade separated undercrossings and overcrossings. There is no pedestrian or bicycle access to SR-22. The freeway does not include dedicated facilities for transit. Bus service on city arterials within the study area is provided by OCTA. SR-22 is one of few freeways in Orange County that lack HOV facilities such as "carpool lanes." HOV lanes are in place on other freeways (SR-55, SR-57, I-5, I-405, I-605) in the County.

Currently, SR-22 does not have sufficient capacity to meet the demands of the area. Congestion, high accident rates and reduced travel speeds currently experienced on SR-22 are a result of several contributing factors. The most significant causative factors stem from the limited number of lanes to handle vehicle volumes, closely spaced on-and off-ramps, merging of multiple freeways, non-standard lane and shoulder widths, non-standard weaving distances and the lack of auxiliary lanes. Key areas of concern are: 1) limited lane availability on SR-22 and the lack of continuity between HOV and non-HOV facilities; 2) inadequate weaving distances along the freeway due to the close proximity of on/off-ramps along the mainline; 3) high traffic volumes at the interchange where the I-5, SR-57 and SR-22 meet; 4) an outdated four-quadrant cloverleaf interchange configuration at Beach Boulevard that creates a low-speed, low-capacity condition with short weave sections; and 5) non-standard lane or shoulder widths at several locations along the corridor; 6) lack of connectivity between HOV lanes on adjacent freeways via direct connectors causing interrupted flow of non-HOV traffic due to HOV lane users having to weave through several lanes.

1.2.2 Existing Capacity Problems

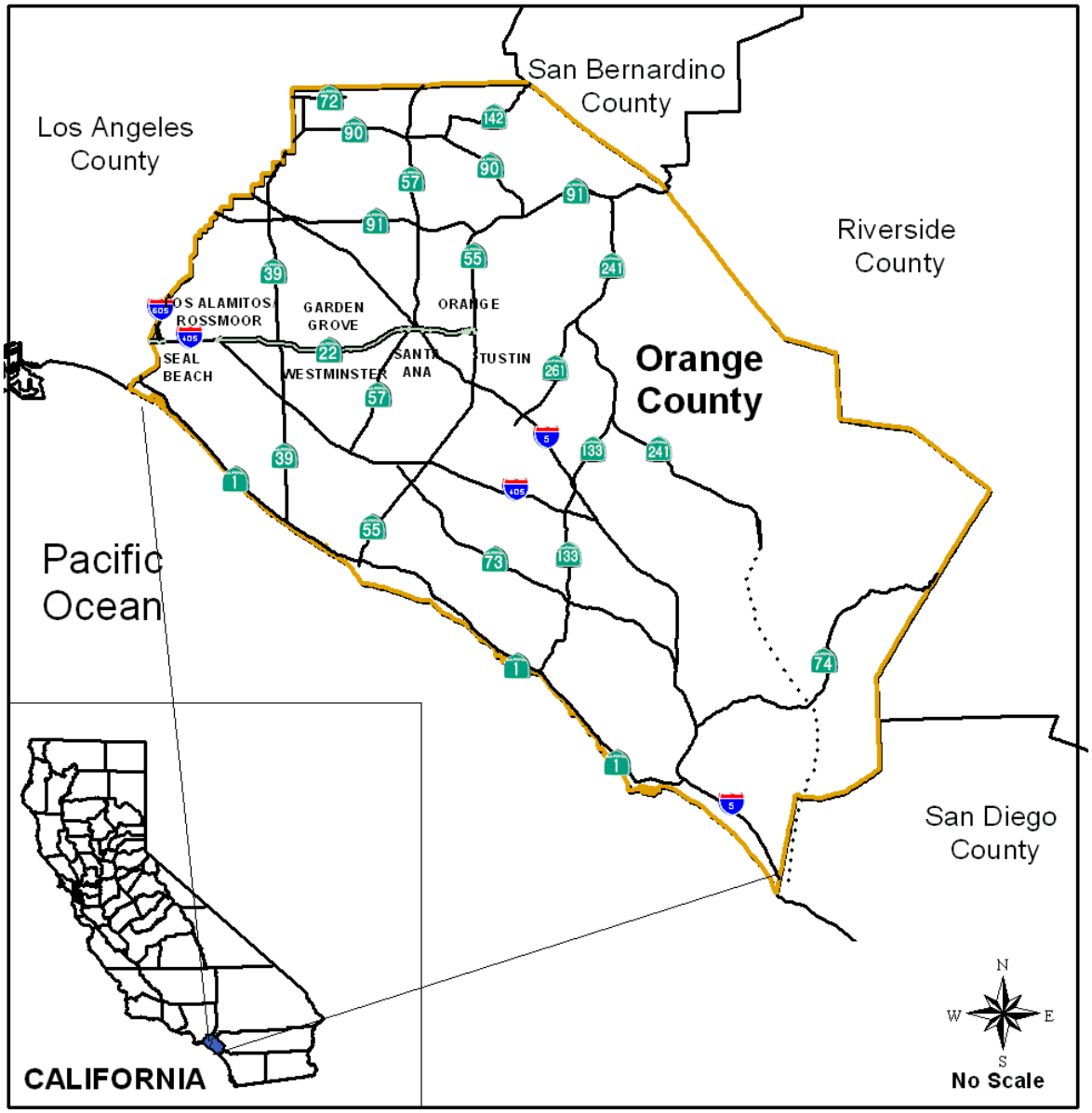
The ability of a highway to accommodate traffic is typically measured in terms of levels of service (LOS). Based on the ratio of traffic volume to the design capacity of the facility, LOS is expressed as a range from LOS A (free traffic flow with low volumes and high speeds resulting in low densities) to LOS F (traffic volumes exceed capacity and result in forced flow operations at low speeds resulting in high densities). Refer to Figure 1.2-3 for a pictorial representation of the six levels of service.

The Department's Office of Traffic Data analysis indicates 1996 traffic volumes experienced on SR-22 range from 135,000 to 206,000 vehicles daily[1]. The 1996 average daily traffic (ADT) on other freeway facilities include 327,000 along I-405, 166,000 on I-605, and 245,000 vehicles on SR-55. Current peak-hour operating conditions along SR-22 are at LOS D to F (very high congestion levels, very low mobility) in each direction of travel throughout most of the freeway's length.

There is insufficient capacity with the SR-22 corridor on the freeway and major adjacent arterial streets to accommodate the existing and projected 2020 travel demands between the SR-55 interchange and the Los Angeles County line at I-405 and I-605. The corridor is also inadequate to accommodate travel to and from destinations within the proposed project area. The situation is aggravated by a lack of continuous parallel arterial routes and available arterial/intersection capacity. Currently, there are no major programs for the SR-22 corridor to implement Transportation System Management (TSM),

[1] Available at the Department of Transportation, District 12

Transportation Demand Management (TDM), and Intelligent Transportation System (ITS) strategies. TSM refers to traffic management through system enhancements, such as ramp meters to space on-ramp merging volume thus reducing freeway slow downs and changeable message signs to divert traffic from accidents or breakdowns. TDM seeks to reduce congestion by reducing the demand on the system, primarily by encouraging other modes (transit, carpooling, etc.). ITS refers to "high-tech" strategies used by both management approaches, although most commonly TSM. SR-22 is the only freeway in central Orange County that has not been the subject of a recent corridor-specific planning effort and is one of the few freeways in Orange County without HOV facilities.



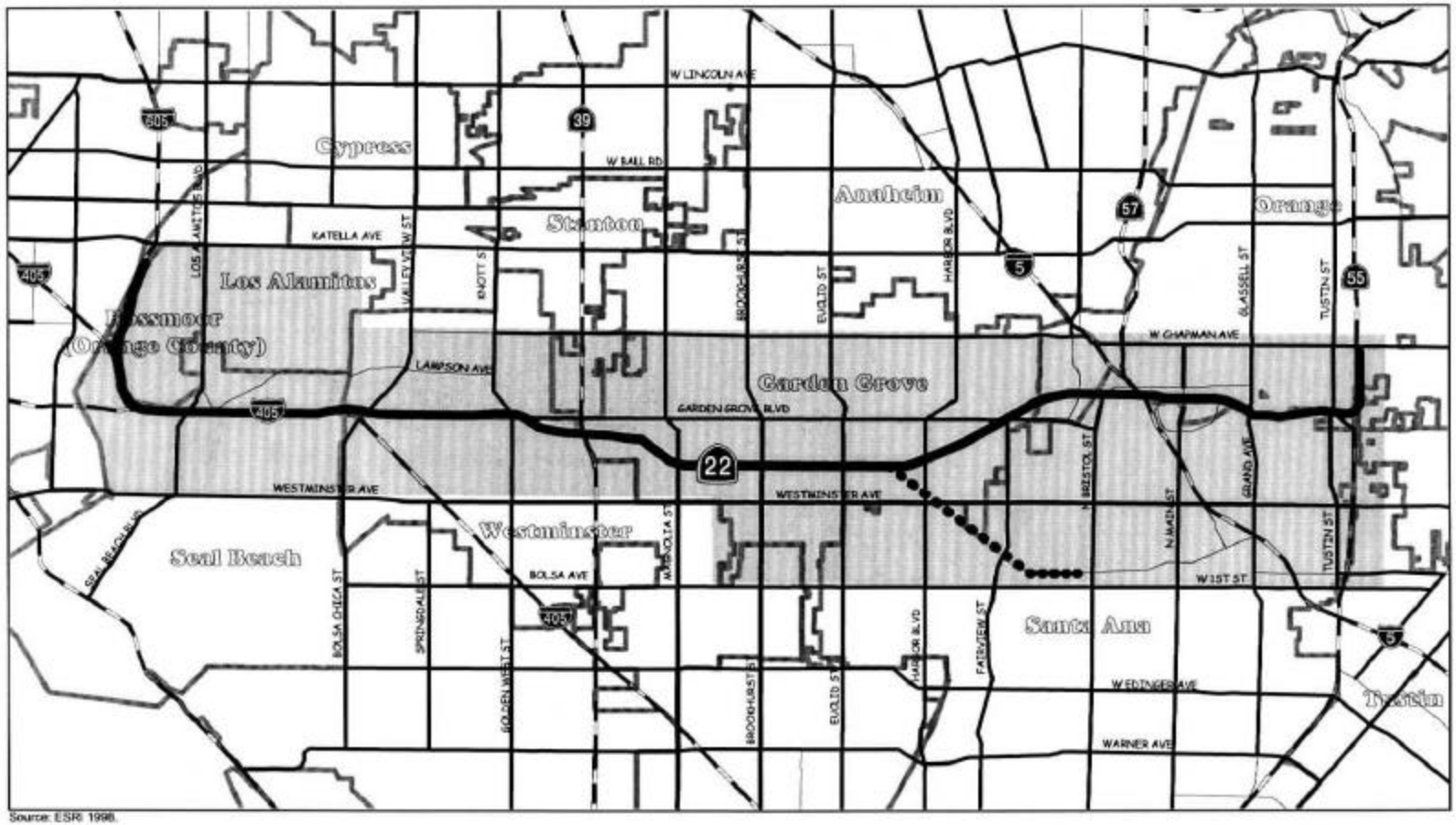
LEGEND

- Orange County
- County Boundary
- SR-22/ WOCC Project
- Proposed Toll Road
- Major Roads
- Interstate Highway
- State Route

SR-22/ West Orange County Connection Project (SR-22/ WOCC)

Regional Location Map

Figure 1.2-1



Source: ESRI 1998.

LEGEND

- Freeway Improvements
- Pacific Electric Right-of-way
- Federal or State Highway
- Primary Arterial
- City Boundary
- Study Area

1 0 1 2 Miles

1 0 1 2 Kilometers

SR-22 / West Orange County Connection Project

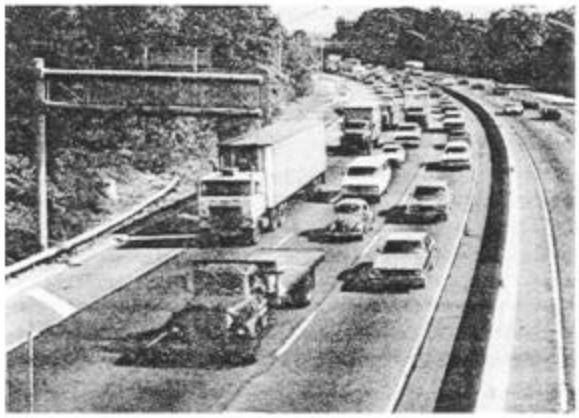
Project Study Area Map

Figure 1.2-2

LOS A

LOS D

LOS B



LOS E

LOS C

LOS F

SR-22 / West Orange County Connection Project

Levels of Service

Figure 1.2-3

1.2.3 Projected Traffic Demands

A. POPULATION GROWTH TRENDS

Population growth trends within the study area were analyzed using 1980, 1990 and 2000 U.S. Census data and the 1996 Orange County Projections (up to 2020) (OCP 96)[2]. The population projections for the study area sum up the population counts for each city along the SR 22/ WOCC corridor. The annual growth rate indicates the percent change per year in the population averaged between decades. For example, the change in population in the City of Seal Beach between 1980 and 1990 is -0.34 percent per year. In other words, the annual growth rate is –0.34% and the City of Seal Beach experienced a progressive decrease in population during this decade. The population data are presented in Table 1.2-1.

Table 1.2-1
POPULATION PROJECTIONS AND GROWTH TRENDS

Jurisdiction	1980[a]	1990[a]	2000[a]	2010[b]	2020[b]
Seal Beach	25,975	25,098	34,455	32,969	32,964
Annual Growth Rate	—	*-0.34%*	*3.73%*	*-0.43%*	*0.00%*
Westminster	71,133	78,118	88,207	95,302	106,895
Annual Growth Rate	—	*0.98%*	*1.29%*	*0.47%*	*1.22%*
Garden Grove	123,307	143,050	165,196	169,588	171,116
Annual Growth Rate	—	*1.60%*	*1.55%*	*0.34%*	*0.09%*
Santa Ana	203,713	293,742	337,977	361,631	372,943
Annual Growth Rate	—	*4.42%*	*1.51%*	*0.32%*	*0.31%*
Orange	91,788	110,658	128,821	153,564	157,124
Annual Growth Rate	—	*2.06%*	*1.64%*	*0.58%*	*0.23%*
Tustin	32,317	50,689	67,504	87,507	89,641
Annual Growth Rate	—	*5.68%*	*3.32%*	*1.93%*	*0.24%*
Study Area	**548,233**	**701,355**	**822,160**	**900,561**	**930,683**
Annual Growth Rate	—	*2.79%*	*1.72%*	*0.95%*	*0.33%*
Orange County	**1,932,709**	**2,410,556**	**2,865,828**	**3,105,324**	**3,224,062**
Annual Growth Rate	—	*2.47%*	*1.89%*	*0.84%*	*0.38%*

Note: Unincorporated area of Rossmoor is included in Seal Beach totals.
Sources: [a] 1980, 1990, and 2000 U.S. Census of Population and Housing
[b] Orange County Projections, 1996

Historic population figures documented between 1980 and 1990 reveal that the cities of Tustin and Santa Ana had annual growth rates significantly higher than the overall Orange County average of 2.47 percent (5.68 and 4.42 percent, respectively). Annual population growth rates in all of the other cities within the project study area were below the county average, ranging from -0.34 to 2.06 percent.

Between 2000 and 2020, the population in the study is predicted to grow by 13.2 percent while Orange County's population as a whole is expected to grow by 12.6 percent. The population estimates through 2020 show that, although Orange County as a whole will continue to grow, annual population growth rates will begin to slow down. In most of the corridor cities, the annual rate of growth peak in either 1990 or 2000, and then growth is expected to slow over the next 20 years. A few cities (Garden Grove, Orange, Santa Ana and Tustin) show reduced annual growth rates in 2000. Table 1.2-3 shows that the annual growth rate between 2000 and 2010 for the majority of the corridor cities drop by more than 50 percent. The same pattern is expected to occur between 2010 and 2020.

[2] Available at OCTA.

B. EMPLOYMENT TRENDS

Employment trends within the study area were analyzed using the 1996 Orange County Projections (OCP 96). The employment projections for the study area sum up the population counts for each city along the SR 22/ WOCC corridor. The annual growth rate indicates the average percent change per year in the number of people employed between time periods. For example, the change in employment in the City of Los Alamitos between 1995 and 2000 is 6.09 percent per year. In other words, the annual growth rate is 6.09% and the City of Los Alamitos experienced a growth in the number of people employed between 1995 and 2000. The employment projections are presented in Table 1.2-2.

According to OCP 96, the 1995 total employment in Orange County was 1,241,897 persons (Table 1.2-2). The corridor cities had a total employment of 396,474 in 1995. Over the next 20 years, annual growth in Orange County employment is projected to range from 2.25 to 2.43 percent, while the aggregate employment growth in the corridor cities will range from 2.00 to 2.50 percent, annually. This represents an increase in employment of 53.2 percent for the county as a whole and 44.6 percent for the corridor cities. However, by 2020, cities within the corridor are predicted to have nearly the same rate of employment growth as the county as a whole. Redevelopment efforts on the part of some of the corridor cities are a contributing factor to this employment trend.

Table 1.2-2
EMPLOYMENT PROJECTIONS

Jurisdiction	1995	2000	2010	2020
Los Alamitos	10,211	10,833	12,023	12,676
Growth Rate	—	*6.09%*	*10.98%*	*5.43%*
Seal Beach	7,781	8,166	8,946	10,443
Growth Rate	—	*4.95%*	*9.55%*	*16.73%*
Westminster	24,357	26,414	33,960	37,730
Growth Rate	—	*8.45%*	*28.57%*	*11.10%*
Garden Grove	42,901	45,320	47,297	49,637
Growth Rate	—	*5.64%*	*4.36%*	*4.95%*
Santa Ana	182,631	193,099	232,843	307,197
Growth Rate	—	*5.73%*	*20.58%*	*31.93%*
Orange	86,100	94,267	109,996	128,586
Growth Rate	—	*9.49%*	*16.69%*	*16.90%*
Tustin	42,493	47,785	58,864	69,631
Growth Rate	—	*12.45%*	*23.19%*	*18.29%*
Sum of Corridor Cities	**396,474**	**425,884**	**503,929**	**615,900**
Growth Rate	—	*7.42%*	*18.33%*	*22.22%*
Orange County	**1,241,897**	**1,381,692**	**1,717,280**	**2,116,560**
Growth Rate	—	*11.26%*	*24.29%*	*23.25%*

Source: Orange County, 1996

C. FUTURE OPERATION LEVELS

According to OCP 96 projections, population is expected to grow by 22 percent (despite slowing growth rates) and employment by 70 percent between 1995 and 2020. (Note: OCP 96 uses 1995 as the base year for calculating growth.) This projected increase in future economic growth will result in increased traffic and congestion, causing reduced travel speeds and longer commute times. With the anticipated county growth, future transportation systems are expected to experience an increase in travel delays of 114 percent and work-related travel durations will increase by 15 minutes.

Traffic forecasts for 2020 in the study area indicate that daily traffic volumes are expected to increase by 8.1 to 19.8 percent along the freeway. Peak-hour LOS in 2020 is forecast at LOS F in 15 of 30 segments studied, LOS E in six segments, and acceptable (LOS D or better) in the

other nine segments. For more information on traffic, refer to Sections 3.7 and 4.7 of this document.

Year 2020 Traffic forecasts for SR-22, performed as part of OCTA's *The Corridor Major Investment Study (MIS) Final Evaluation Report* (June 1997), indicate that traffic volumes are expected to increase approximately 8 to 20 percent along most segments. Other freeway facilities would also experience an increase in weekday traffic, ranging from an increase in ADT of two percent on I-405 to an increase of 24 percent on SR-55. *The Corridor Major Investment Study Final Evaluation Report* is available at the Department, OCTA and libraries (see Table of Contents for the list of libraries).

1.2.4 Safety Issues

Currently, portions of SR-22 do not conform to recommended Federal and State highway design standards (although they are within the range of acceptable deviations from the standard). Existing shoulder widths and vertical clearances, for example, are non-standard in various areas. Narrow lanes reduce clearance in adjacent lanes that cause drivers to reduce speed, resulting in a reduction in speed and capacity. Furthermore, congestion-related accidents are linked to these problems. Other portions of the freeway are old and could be improved through installation of more up-to-date technology.

The Traffic Accident Surveillance and Analysis System (TASAS) Accident Rate Summary provides information for SR-22 for a three-year period, from January 1, 1995 to December 30, 1997. Information compiled by the Department's TASAS Table C – High Accident Concentration Locations shows the areas where the incidence of accidents is high compared to the statewide average. These data reveal fifteen areas of high accident concentrations, spanning from 15 percent above the expected rate of accidents (at Post Mile 2.58) to 486 percent above the expected rate of accidents at the eastbound on-ramp at Beach Boulevard. This is a clear indication that portions of the freeway experience periods of operation that do not meet the average operational levels for similar facilities. Areas defined as High Accident Concentration Locations are mostly near interchanges, many in the vicinity of The City Drive. Freeway congestion, weaving difficulties and high volumes along the mainline are factors contributing to the higher than average accident rates at these locations. From a corridor perspective, the SR-22 average accident rate compares favorably with similar facilities statewide.

1.2.5 Local Access

Improving interchange efficiency would provide a higher level of operation and throughput for entering and exiting traffic along SR-22 and local streets. Short sight lines or ramps with insufficient storage can result in accidents and congestion on the freeway and surface streets..

1.2.6 Regional Access

SR-22 provides an east/west connection to the primary north/south freeways in the region – I-5, I-405, I-605 (via I-405), SR-55 and SR-57. Only State Route 91 provides a similar east/west connection in Orange County. The lack of HOV facilities on SR-22 and HOV direct connectors at crossing freeways causes a discontinuity for regional HOV traffic. Vehicles using the HOV lanes on the connecting freeways must exit the HOV facilities and use general-purpose lanes on SR-22, I-405 or I-605. There is little incentive or opportunity for individual drivers to switch from single-occupancy vehicles (SOVs) to carpooling or transit without dedicated facilities for this purpose. If SOV drivers cannot decrease their commute times because there are no dedicated lanes for HOVs or buses only, they are more likely to forego carpooling or using transit in favor of driving alone. In addition, there are no existing or future programs in the SR-22 corridor to implement TSM, TDM, and ITS strategies, other than those currently planned as part of the SR-22/WOCC project. See Figure 1.2-4, HOV system map.

Regional transit is available in the area. Metrolink and Amtrak provide rail service. Metrolink connects Orange County with Los Angeles, Riverside, San Bernardino, Ventura, and San Diego Counties. Amtrak provides some duplication of this service (especially to Los Angeles County), but, more importantly, more distant access to the remainder of California and throughout the United States. There is no rail within the SR-22/WOCC study area.

Bus service provided by OCTA is available within cities along the SR-22 corridor, but it is limited by the lack of HOV facilities on SR-22.

1.2.7 Project Status/Project History

In September 1989, a Project Study Report (PSR) (SR-22 HOV and General Purpose Lane Improvements Final Report; DKS Associates, August 3, 1989) was approved. The PSR proposed increasing freeway capacity and reducing congestion and passenger delay through expansion of the "triangular" network of HOV lanes located on adjacent routes. Improvement alternatives for SR-22 included options for mixed flow and HOV lanes. Direct freeway-to-freeway HOV connectors were not evaluated in the PSR.
In July 1997, the Orange County Transportation Authority (OCTA) initiated a Major Investment Study (MIS) as a first step toward evaluating a variety of alternatives for the SR-22 transportation corridor to improve mobility in the SR-22/WOCC study area. In coordination with affected Federal, State, and local agencies, OCTA formed a Steering Committee to assist in guiding the development of the study to address the transportation needs and problems in the study area.

On August 10, 1998, the OCTA Board met to review the process and consider the next actions in the environmental compliance and preliminary engineering for the study alternatives. The Board agreed to proceed with preparation of the draft environmental document and preliminary engineering. This decision was based on recommendations from OCTA staff. There were ten original alternatives that were examined. These were refined to a set of six (see Section 2.1.2 for details). On November 9, 1998, the OCTA Board recommended three of the MIS alternatives to be carried forward as the "build alternative" for further study, along with the No Build Alternative and the TSM/Expanded Bus Service Alternative.

In January 2000, during technical analyses for the internal administrative draft of the DEIR/EIS, the identification of potential environmental impacts associated with the Full Build Alternative (then known as the Build Alternative) led to the decision to study an additional build alternative in an attempt to avoid or minimize right-of-way and environmental impacts, thereby bringing the total number of alternatives for the DEIR/EIS phase of project analysis to four: the No Build Alternative, the TSM/Expanded Bus Service Alternative, the Full Build Alternative, and the Reduced Build Alternative.

As presented in the DEIR/EIS, the Reduced Build Alternative was created by eliminating the following elements of the Full Build Alternative from the project design: the new arterial in the former Pacific Electric right-of-way, the HOV connectors between SR-22 and I-5, and the HOV connectors between SR-22 and SR-55. These dismissed features, if included, would have resulted in significant right of way, costs, and adverse operational impacts to I-5 and SR-55 absent additional capital improvements on these freeways to relieve added traffic demand. Thus, these features would not meet the goals and objectives of the proposed SR-22/WOCC project.

On February 12, 2001, SCAG released a Letter of Completion for the SR-22/WOCC Final MIS. According to the SCAG letter, "the range of alternatives studied in the SR-22 West Orange County Connection Final MIS Evaluation Report is sufficient to meet the requirements of the regionally significant transportation investments study (RSTIS) guidelines (per FHWA). Adequate public involvement was utilized in the planning process through workshops and public hearings. Moreover, public agency involvement was facilitated through numerous meetings and RSTIS Peer Review Group Meetings." (MIS available at the Department and OCTA)

The OCTA Board also requested that the Southern California Association of Governments (SCAG) include improvements to the study area in the 1998 Regional Transportation Plan (RTP). As a result, the SCAG 1998 RTP includes the addition of HOV lanes on SR-22 between Valley View Street (near I-405) and SR-55. The direct HOV connectors at SR-22/I-405 and I-405/I-605 are also included in the RTP, as separate items. Figures 4.8-2 through 4.8-5 show the project's inclusion in the RTP. Regional environmental analysis of the proposed project were evaluated at the project level in the Final Master Environmental Impact Report (FMEIR) of April 1998.

The current adopted 2001 Regional Transportation Plan (RTP) includes all elements of the SR-22/WOCC. These include construction of HOV lanes along the eastbound and westbound lanes of SR-22/WOCC (Mainline) HOV, as well as the HOV connectors at I-405/I-605 and SR-22/I-405, all of which

are features of the identified Preferred Alternative. The goals for the 2001 RTP[3] include transit restructuring, providing HOV lanes, mixed-flow lanes, increased Metrolink service, park-and-ride facilities, and the preservation and management of regional and local roadways.

The 2001 RTP environmental document is titled "Update Program Environmental Impact Report (PEIR)". According to this PEIR, significant environmental impacts identified for the 2001 RTP project include: population, employment and housing, land use, transportation, air quality, noise, aesthetics and views, biological resources, cultural resources, energy, and public services and utilities. For instance, there is the potential to disrupt and displace residences and businesses which would remain a significant impact as improvements to smart streets, interstate highways (including SR-22, SR-57, and SR-73) and transit (Centerline project) could require acquisition of rights-of-way thus displacing businesses or residences. However, under the no project option for freeway improvements such as SR-22, traffic conditions would worsen (2001 RTP PEIR, 124). For more information on the 2001 RTP FEIR, please visit the SCAG website at http://www.scag.ca.gov/publications/. A hard copy of the document is available upon request from SCAG, at (213) 236-1800.

The West Orange County Connection portion of the study was evaluated for system connectivity and included the portion of I-405 between I-605 and SR-22 and the portion of I-605 between I-405 and Katella Avenue. The complexity of the highway system (the number of freeways and choices for travel) in the western part of the county makes travel difficult for unfamiliar drivers. More direct traffic flow can be realized by capitalizing on opportunities to improve connectivity among the HOV lanes on these freeways, thus reducing congestion due to HOV users having to weave across mixed flow lanes to switch to and from HOV lanes.

The benefits of utilizing a former rail transit corridor, the former Pacific Electric right-of-way, to relieve congestion on existing facilities and improve mobility in the central part of the county were also considered in the MIS. The former Pacific Electric right-of-way extends south of SR-22 in a southeast direction toward central Santa Ana. Access to governmental offices, including the county seat and many federal government offices in central Santa Ana is currently hindered by a lack of direct routes from the many surrounding freeways. Redevelopment of the former Pacific Electric right-of-way as a transportation facility would provide an opportunity for a direct link between the state highway system and a major destination / employment center. Use of this corridor as an arterial to downtown Santa Ana was included in the Full Build Alternative analysis. No right-of-way has yet been acquired for the project. OCTA owns the former Pacific Electric right-of-way.

1.3 PLANNING CONTEXT

The purpose of this section is to provide information regarding the relationship between state, regional, and local transportation plans and the proposed facility improvements. How well the proposed facility improvements would operate in conjunction with these plans and how they would serve to complement goals identified within the plans can be facilitated by a description of these plans.

1.3.1 Air Quality Management Plan

The South Coast Air Quality Management District (SCAQMD) is a regional regulatory agency with the primary responsibility for improving air quality in the South Coast Air Basin, which includes multi-county jurisdictions such as Orange and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SCAQMD is a co-lead agency, along with the Southern California Association of Governments (SCAG), in preparing the Air Quality Management Plan (AQMP), which identifies a number of air pollution reduction goals and policies and emission-control measures. The AQMP is required to meet the requirements of the federal Clean Air Act (CAA) and the air quality planning requirements of the California Clean Air Act (CCAA) for attaining federal and state ambient air quality standards (AAQS). The AQMP is part of the State Implementation Plan (SIP), which demonstrates that AAQS would be met by 2020. The CAA contains provisions to ensure that transportation plans, programs, and projects approved or funded by Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) in air quality non-attainment or maintenance areas are in conformity with the SIP.

[3] Available at OCTA.

Implementation of the AQMP requires a cooperative partnership between governmental agencies at the Federal, State, regional, and local levels. At the federal level, the Environmental Protection Agency (EPA) is responsible for oversight of state air quality planning and implementation to meet CAA requirements. On the state level, the California Air Resources Board (CARB) is responsible for regulating mobile source emissions and fuels, oversight of local and regional air quality planning and implementation, and CAA planning for state air quality requirements. The SCAQMD directly regulates stationary sources of pollution, plans for mobile and area source emissions reductions, and ensures regional air quality plan conformance. SCAG, as the regional Metropolitan Planning Organization (MPO), is responsible for developing a Regional Transportation Plan (RTP) that identifies how the AQMP's transportation and land use emissions reduction budget targets will be met.

The 1997 AQMP,[4] adopted by the SCAQMD Governing Board on November 15, 1996, incorporates a combination of technical and policy provisions developed in cooperation with the EPA, CARB, and SCAG. Air pollutant emission control strategies outlined within the AQMP include a number of transportation-related measures. Two of the measures contained in the AQMP that directly relate to the proposed SR-22 improvements are the introduction of HOV lanes and HOV connectors to help improve traffic flow. Improved traffic flow, in turn, increases vehicle engine efficiencies and emissions characteristics, improving air quality at both the regional and local scales.

The 1997 AQMP also addresses notable regulatory rules promulgated since the preparation of the 1994 Plan. These include the implementation of Phase II reformulated fuels in 1996, the replacement of Regulation XV rideshare program with an equivalent emission reduction program, and new incentive programs for generating emission credits. Other highlights of the 1997 Plan are noted below.

- Use of the most current air quality information (1995), including special particulate matter data from the PM_{10} Technical Enhancement Program;
- Improved emissions inventories; especially for motor vehicles, fugitive dust, and ammonia sources;
- A similar, but fine tuned overall control strategy with continuing emphasis on flexible, alternative approaches including intercredit trading;
- A determination that certain control measures contained in the 1994 AQMP, are infeasible, most notably the future indirect source measures;
- Enhanced modeling for particulates;
- Separate analyses for the desert portions within the District's jurisdiction: the Coachella Valley within the newly designated Salton Sea Air Basin; and the Antelope Valley within the Mojave Desert Air Basin;
- Attainment to the federal Post-1996 Rate-of-Progress Plan and the Federal Attainment Plans for ozone and carbon monoxide;
- A maintenance plan for nitrogen dioxide; and
- An attainment demonstration and State Implementation Plan Revision for PM_{10}.

In 1999, the ozone plan portion of the 1997 AQMP was amended in conjunction with a settlement of litigation by environmental groups challenging the 1997 plan to provide the following:

- Greater emission reductions in the near-term than would occur under the 1997 AQMP;
- Earlier adoption of the measures that would otherwise be contained in the next three years update of the AQMP; and
- Additional flexibility relative to substituting new measures for infeasible measures and recognition of the relevance of cost effectiveness in determining feasibility.

In April 2000, U.S. EPA approved the 1999 ozone SIP to the 1997 plan. The 1999 Amendment in part addressed the State's requirements for a triennial plan update.

Under existing conditions, the South Coast Air Basin is in non-compliant status with several criteria pollutants. They include: carbon monoxide (CO), ozone (O_3), and particulate matter (PM_{10}). The Basin is designated as a serious nonattainment area for carbon monoxide by both USEPA and ARB. The Basin is designated by both the USEPA and the ARB as an extreme ozone nonattainment area. For PM10, EPA designates the Basin as serious nonattainment while ARB designates the Basin as simply nonattainment.

[4] Available at OCTA.

Implementation of the WOCC proposed project could aid to improve the Basin's AQMP to comply with these criteria pollutants.

1.3.2 SCAG Regional Transportation Plan

As the federally designated MPO for a major portion of Southern California, SCAG adopts and periodically updates a long-range RTP for Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties. The CAA and federal transportation statutes require the SCAG RTP. It is part of the AQMP, providing detailed planning information for transportation project implementation. The RTP is revised on a periodic basis for inclusion in AQMP revisions. Pursuant to 23 C.F.R. §450.322(a), the RTP must be reviewed and updated by the designated MPO at least once every three years in order to confirm its validity and its consistency with current and expected transportation and land use conditions and trends, and to extend its forecast period.

Goals for the 2001 RTP[5] include transit restructuring, providing HOV and mixed-flow lanes, increased Metrolink service, park-and-ride facilities, and the preservation and management of regional and local roadways. All features of the SR-22/WOCC proposed project are included in the 2001 adopted SCAG RTP. Construction of the direct HOV connectors is specifically included in the RTP Constrained Project/Program.

1.3.3 OCTA – 1998 *FastForward* Plan

In 1998, OCTA's Board of Directors approved a long-range transportation plan called *FastForward: Transportation Solutions for the Next Generation* (*FastForward*).[6] Two of *FastForward*'s eight goals were:

- To create a balanced and integrated transportation system that enhances mobility for a growing population employment base
- To develop and maintain an effective street and freeway network to support the efficient movement of people and goods

In addition, several overarching policies were adopted:

- Provide transportation choices
- Optimize the present transportation system
- Link land use and transportation planning
- Meet intercounty travel needs
- Address expanded tourism and recreational travel

FastForward also identified what travel would be like in the year 2020 if investment were limited to only improvements included in the short-term Regional Transportation Improvement Program (RTIP). This was called the Baseline Scenario. In 1998, baseline assumptions included:

- Measure M Transportation Improvements
  - Freeway projects on I-5, State Route 91 (SR-91), and SR-57
  - Regional street and road projects
  - Local street and road projects
  - Transit projects

- OCTA Board-adopted Corridor Locally Preferred Strategy (LPS)
  - Forty-nine-percent increase in weekday fixed route bus service by 2015
  - One thousand more commuter rail seats
  - Street improvements to support expanded bus service
  - Study of a future urban rail system

[5] Available at the Department & OCTA.
[6] Available at OCTA.

- OCTA ACCESS paratransit service to meet the mandates of the Americans with Disabilities Act (ADA)

The Baseline Scenario assumed the following projects would be completed:
- Combined Transportation Funding Program projects
- Widening of I-5 northward to SR-91 and adding HOV lanes northward to the Los Angeles County line
- An HOV system along SR-91 and SR-57 to the Los Angeles County line
- Widening SR-55 from 17th Street to SR-91
- I-405/SR-55 transitway
- I-405/State Route 73 (SR-73) freeway-to-freeway connectors
- SR-55/SR-73 freeway-to-freeway connectors
- Widening Laguna Canyon Road north of El Toro Road
- Foothill, Eastern, and San Joaquin Hills Transportation Corridors
- Beach Boulevard, Moulton Parkway, Imperial Highway, and Katella Avenue Smart Streets

This constrained Baseline Scenario revealed that, by 2020, average peak-period travel speeds would decline and it would take an average 13 more minutes to make a one-way work trip. SR-22 would be especially congested.

The *FastForward* long-range plan included projects and services to meet goals. Among the improvements were HOV lanes along SR-22. *FastForward* also called for an analysis of direct HOV-lane connectors at freeway-to-freeway interchanges on SR-22, and of a direct-access expressway from SR-22 at Newhope Street to the Santa Ana Civic Center, using the OCTA-owned former Pacific Electric right-of-way. The results of these studies are part of the Major Investment Study, approved on November 9, 1998 by the OCTA Board of Directors.

1.3.4 OCTA – Master Plan of Arterial Highways

The purpose of the *1995 Master Plan of Arterial Highways* (MPAH)[7] is to effectively serve existing and projected traffic demands throughout Orange County by establishing a comprehensive network of arterial highway systems. Originally part of Orange County's Advance Planning Program (General Plan) Transportation Element, the MPAH is now administered by OCTA. As part of the county's general plan, the MPAH was supported by text and information necessary to comply with statutory requirements for general plans. Under OCTA's administration, the policies and procedures of the MPAH are communicated through the *Guidance for the Administration of the Master Plan of Arterial Highways* (OCTA, 1995).

As a key component of Orange County's transportation policy, the MPAH provides classification and definition of countywide circulation systems. These systems play a major role in regional travel by connecting to and complementing the state highway system and local street network. The MPAH map depicts a network of major thoroughfares comprising freeways, transportation corridors, and five main arterial highway classifications. The MPAH classifications are a statement of policy intended to reserve adequate right-of-way for future highway improvements. Consistency with the MPAH is necessary to maintain the integrity of the regional highway network.

Improvements identified on the MPAH for the SR-22 study area include the following:
- A proposed primary arterial to downtown Santa Ana along the former Pacific Electric right-of-way
- Build-out of Metropolitan Avenue in the City of Orange
- Beach Boulevard eight-lane Smart Street designation
- Upgrades to major arterials: Los Alamitos Boulevard, Seal Beach Boulevard, Valley View Street, Brookhurst Street, Harbor Boulevard, Fairview Street, Bristol Street, Main Street, Grand Avenue (south of SR-22), and Tustin Avenue
- Upgrades to primary arterials: Knott Street, Beach Boulevard, Magnolia Street, Euclid Street, Haster Street, The City Drive, Grand Avenue (north of SR-22), Garden Grove Boulevard, La Veta Avenue, and Westminster Boulevard

[7] Available at OCTA.

1.3.5 Other Projects Proposed

See Table 2.2-2 (OCTA's *Fastforward* Long-Range Transportation Plan) and Section 2.5 (Status of Other Projects and Proposals within the Area) for a full list of other projects planned within the limits of Orange County.

1.3.6 Local Planning Context

Local jurisdictions (cities and counties) have sole jurisdiction over land use and zoning. They support regional transportation plans through local implementation programs. Local governments participate in the Clean Cities program, acting to include air quality considerations in their local decision-making whenever possible. Individual cities also provide support in developing and implementing the transportation control measures outlined in the AQMP. SCAG is responsible for helping local governments coordinate their efforts and for ensuring that the region's transportation projects, programs, and plans conform to the AQMP. Local jurisdictions provide fair share reduction of vehicle pollution through adoption of a series of optimal Transportation Control Measures (TCMs). TCMs include such capital-based actions as HOV lanes, transit improvements, and traffic flow improvements.

Local transportation-related planning decisions, as well as improvements outlined in the general plan circulation elements of local cities, generally recognize the related transportation needs and planning activities of the surrounding county, region, and state, and provide support to these plans through implementation of transportation improvement-based goals and policies. The following is a list of some of the relevant policies in local planning documents:

- The circulation system shall be implemented in a manner that achieves the established traffic level of service policy (County of Orange, *Transportation Element,* August 1995).
- Comprehensive traffic improvement programs shall be established to ensure that all new development provides necessary transportation facilities and intersection improvements as a condition of development approval (County of Orange, *Transportation Element,* August 1995).
- The county shall take all actions possible to ensure that the implementation of the general plan is consistent with the provisions of the Measure M Countywide Growth Management Program in order to bring about improved regional coordination in the areas of growth management, traffic improvements, and public service (County of Orange, *Land Use Element,* March 1995).
- Consider development of freeways and/or rapid transit systems and endorse such proposals when it is considered to be in the community's best interest (City of Seal Beach, *General Plan, Circulation Element,* 1997).
- Utilize TDM measures, where appropriate, to discourage the single-occupant vehicle, particularly during the peak hours. Potential TDM policies include, but are not limited to: ridesharing, carpooling and vanpooling, flexible work schedules, and telecommuting (City of Westminster, *General Plan*, 1996).
- Investigate all Federal, State, and OCTA programs that may be beneficial to the City of Westminster (City of Westminster, *General Plan*, 1996).
- Coordinate with the Department, and all other appropriate jurisdictions, to evaluate and implement feasible freeway crossing and access improvements (City of Westminster, *General Plan*, 1996).
- Use the former Pacific Electric right-of-way in a beneficial manner that does not preclude the use of the property for alternative transportation purposes in the future (*Garden Grove General Plan Land Use Element*, 1995).
- Coordinate roadway improvements with applicable regional, state and federal transportation plans and proposals (*Tustin General Plan*, 1994).
- Support the completion of the Orange County MPAH (*Tustin General Plan*, 1994).
- Support capacity and noise mitigation improvements such as HOV lanes, general-purpose lanes, auxiliary lanes and noise barriers on the I-5 and SR-55 freeways (*Tustin General Plan*, 1994).
- Monitor and coordinate with the Department freeway work as it affects Tustin's roadway and require modifications as necessary (*Tustin General Plan*, 1994).

Section 4.6.1 of this document includes an analysis of each project alternative's consistency with land use plan and polices within the study area.[8]

1.4 CONCLUSIONS

As previously discussed, the purpose of the proposed SR-22/WOCC project is to improve mobility (both existing and future) and enhance safety, while minimizing environmental and economic impacts. SR-22 represents a major link to other freeway systems within the Orange County area and is an important component of the county's transportation system.

As one of eight key transportation facilities in central Orange County, SR-22 is included in the goals and policies of the various jurisdictions within the study area. Most of these are general policies such as the following:

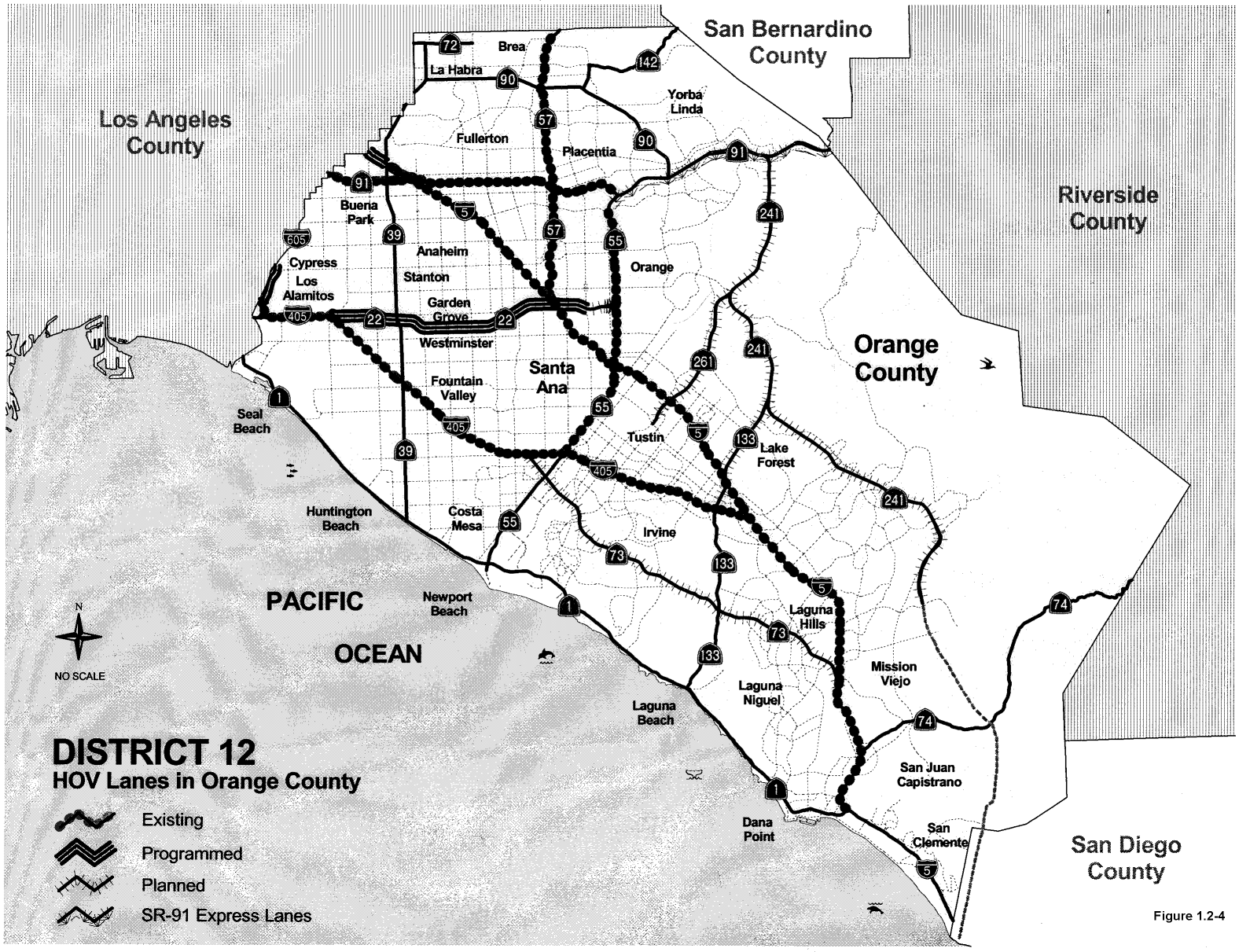
- Promoting the safe and efficient movement of people and goods
- Establishing comprehensive traffic-improvement programs
- Working with the local and regional agencies to facilitate freeway improvements
- Coordinating local improvements with regional plans

These policies, as they relate to SR-22 and proposed transportation improvements, are further discussed throughout this document in Section 3.6.2, Land Use and Development, and Section 4.6, Community Impact Assessment.

Under existing conditions, the SR-22 and its major adjacent arterial streets do not meet the transportation goals and policies of the various jurisdictions within the study area. In addition, the SR-22 does not meet the capacity needs of the area. It is one of the few freeways in Orange County without HOV facilities and the only freeway in central Orange County that has not been the subject of a recent corridor-specific planning effort. The lack of major programs for the SR-22 corridor to implement Transportation System Management (TSM), Transportation Demand Management (TDM), and Intelligent Transportation System (ITS) strategies has further contributed to congestion problems. With projected population and employment growth trends indicating increased transportation volumes, SR-22 can be expected to experience worsening operational conditions.

The following section (Section 2.0) presents the alternatives proposed to address the purpose of and need for the SR-22/WOCC project. Section 3 describes the existing corridor environmental setting, and the adverse environmental impacts of each of the alternatives are addressed in Section 4.0.

[8] The local planning documents cited herein are available at OCTA.


San Bernardino County
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Riverside County
Orange County
San Diego County
Brea
La Habra
Yorba Linda
Fullerton
Placentia
Buena Park
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Cypress
Los Alamitos
Stanton
Garden Grove
Westminster
Santa Ana
Orange
Fountain Valley
Seal Beach
Tustin
Lake Forest
Huntington Beach
Costa Mesa
Irvine
PACIFIC
OCEAN
Newport Beach
Laguna Hills
Mission Viejo
Laguna Niguel
Laguna Beach
San Juan Capistrano
Dana Point
San Clemente
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NO SCALE
DISTRICT 12
HOV Lanes in Orange County
Existing
Programmed
Planned
SR-91 Express Lanes

Figure 1.2-4

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SECTION 2.0
ALTERNATIVES

2.0 ALTERNATIVES

2.1 DEVELOPMENT OF THE IDENTIFIED PREFERRED ALTERNATIVE

The formulation of the identified Preferred Alternative took into consideration multiple forms of feedback: 1) refined engineering for the project plans; 2) comments received during the public review period of the DEIR/EIS from Federal and local agencies, community associations, and concerned citizens; and 3) planning analysis to determine operational and cost effectiveness of the alternatives under consideration. With modifications to maximize operational and cost efficiency, the (Enhanced) Reduced Build Alternative was identified as the Preferred Alternative. See the discussion in Section 2.1.3 on the formulation and identification of the Preferred Alternative.

2.1.1 Alternatives Formulation Process

The formulation of alternatives for this analysis involved extensive coordination with public agencies and the general public over a five-year period. To develop a set of conceptual alternatives to improve mobility and safety on SR-22, a Major Investment Study (MIS) was developed for the SR-22/West Orange County Connection project, leading to the final set of four conceptual alternatives that were evaluated in the August 2001 DEIR/EIS, and to selection of the (Enhanced) Reduced Build Alternative as the identified Preferred Alternative. The MIS process was initiated in July 1997 by the Orange County Transportation Authority (OCTA) to evaluate the different mode choices to meet the mobility needs of the study area. The MIS process was that prescribed by the federal government.

The MIS Steering Committee was formed in July 1997 as a forum for affected local agencies to provide input to the study. The study's base information, developed under Steering Committee guidance, includes the following:

- Transportation need/problem statement
- Study goals
- Study objectives to meet the goals
- An initial list of conceptual alternatives (provided in Section 2.1.2)
- A series of evaluation criteria
- A public involvement plan
- Resource agency notification and coordination letters

Three public workshops were held in December 1997, along with professionally conducted opinion polls to obtain public input. Following the workshops, a summary of public input was presented to the OCTA Board of Directors in January 1998, and the Board approved further evaluation of improvements in the study area.

The next stage was the screening of alternatives against the evaluation criteria. The results of that analysis are presented in detail in Section 4.0 of the MIS report. The results of the *MIS Evaluation Report* were presented to the public at the scoping meeting described below, to the Steering Committee, and to the Southern California Association of Governments (SCAG's) MIS Peer Review Group.

Additional public input was obtained during the scoping process pursuant to the National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) and the public review period of the Draft Environmental Impact Report/Statement (DEIR/EIS). The Notice of Intent (NOI) was published in the *Federal Register* on June 3, 1998; the Notice of Initiation of Studies (NOIS) was sent out on May 1, 1998, and the Notice of Preparation (NOP) was released May 29, 1998. Written responses were received to these notifications. In addition, an open house/public scoping meeting was held on June 23, 1998 to obtain public and agency input. Two discussion session forums were held in September 1997 and June 1998 for elected officials to inquire on the proposed project and provide input on the study.

On August 10, 1998, the OCTA Board met to review the process and consider the next actions in the environmental compliance and preliminary engineering stages for the study alternatives. The Board agreed to proceed with preparation of the draft environmental document and preliminary engineering. On November 9, 1998, the OCTA Board recommended one of the MIS alternatives be carried forward as the "build alternative" for further study, along with the No Build Alternative and the Transportation Systems Management (TSM)/Expanded Bus Service Alternative.

In January 2000, during technical analysis for the DEIR/EIS, the identification of potential environmental impacts associated with the Full Build Alternative (then known as the Build Alternative) led to the decision to study an additional build alternative in an attempt to avoid or minimize certain impacts. This discussion led to the total number of alternatives for the DEIR/EIS phase of project analysis to four: the No Build Alternative, the TSM/Expanded Bus Service Alternative, the Full Build Alternative, and the Reduced Build Alternative.

Section 2.1.2 summarizes the full range of transportation alternatives that were developed very early in the project analysis, including the key steps used to narrow and refine the full range of transportation alternatives to the final four (see MIS Evaluation Report for complete details). The MIS technical evaluation, along with public input and policy considerations, provided the basis for the selection of the final set of transportation alternatives described in Section 2.2. The alternatives that were withdrawn from further study upon completion of the MIS phase of the project are summarized in Section 2.3.

On February 12, 2001, SCAG released a Letter of Completion for the SR-22/WOCC Final MIS. According to the SCAG letter, "the range of alternatives studied in the SR-22 West Orange County Connection Final MIS Evaluation Report is sufficient to meet the requirements of the regionally significant transportation investments study (RSTIS) guidelines. Adequate public involvement was utilized in the planning process through workshops and public hearings. Moreover, public agency involvement was facilitated through numerous meetings and RSTIS Peer Review Group Meetings." For further discussion on the public involvement process, refer to Section 10 of this FEIS/EIR.

2.1.2 Description of Conceptual Alternatives

The following provides a brief synopsis of the full range of transportation alternatives that was developed during the planning stages of the project to address the purpose and need for transportation improvements in the SR-22 corridor study area. These transportation improvements, including the technical evaluation conducted as part of the alternatives development and refinement process, are described in detail in the SR-22/West Orange County Connection MIS Evaluation Report.

The initial set of conceptual alternatives were further refined to a smaller set of alternatives based on their ability to meet the project's purpose and need, and other criteria such as cost factors and limitations on funding sources. These will be further discussed in Section 2.3 and 2.4 for each specific alternative explored during the MIS process. See Table 2.4-1 for a summary of the alternative evaluation results.

Through both technical analysis and public input, the features of the conceptual alternatives have continued to evolve. This is typical for the planning and early environmental phases of project development as the transportation benefits, costs, environmental impacts, and policy implications associated with the various design concepts are evaluated and understood.

A. INITIAL SET OF CONCEPTUAL ALTERNATIVES

The MIS Steering Committee developed an initial set of ten conceptual alternatives at the beginning of the MIS evaluation process. This initial set of conceptual alternatives included:

- Initial Alternative 1: No Build
- Initial Alternative 2: TSM/Expanded Bus Service
- Initial Alternative 3: General-Purpose Lane on SR-22
- Initial Alternative 4: Alternative 3, plus former Pacific Electric right-of-way (as general-purpose arterial)

- Initial Alternative 5: Rail
- Initial Alternative 6: HOV Lane on SR-22 (as reflected in the SCAG 1998 RTP)
- Initial Alternative 7: Alternative 6, plus former Pacific Electric right-of-way (as HOV/high-occupancy/toll [HOT] arterial)
- Initial Alternative 8: Alternative 7, plus SR-22/ I-405 HOV Connector
- Initial Alternative 9: Alternative 8, plus Four-Lane HOV on I-405 between SR-22 and I-605, with I-405/I-605 HOV Connector
- Initial Alternative 10: Alternative 9, plus SR-22/SR-55 HOV Connector

B. REFINED SET OF CONCEPTUAL ALTERNATIVES

Upon further consideration, the Steering Committee determined that the initial ten conceptual alternatives were not sufficiently distinct from each other. For example, Alternatives 6 through 10 were considered to be variations of the same basic alternative. They were combined to form one alternative for analysis. The Steering Committee revised the conceptual alternatives list to incorporate all of the individual components into the following list containing six refined conceptual alternatives. These refined alternatives included:

- Refined Alternative 1: No Build
- Refined Alternative 2: TSM/Expanded Bus Service
- Refined Alternative 3: Fixed Guideway
- Refined Alternative 4: General-Purpose Lanes (consisting of sub-alternatives 4A and 4B)
- Refined Alternative 5: HOV Lanes on SR-22 (as reflected in the SCAG 1998 RTP)
- Refined Alternative 6: HOV Lanes Full System (consisting of sub-alternatives 6A, 6B, and 6C)

C. FINAL SET OF CONCEPTUAL ALTERNATIVES

The six refined alternatives were analyzed in detail during the technical evaluation conducted for the MIS Evaluation Report. This technical evaluation, along with public input and policy considerations, resulted in OCTA Board approval of a “final” set of three conceptual alternatives for study in this DEIR/EIS. These alternatives incorporated the following transportation elements: Highway, HOV, Bus, and Advanced Transportation Systems (ATS). The three alternatives carried forward were as follows:

- No Build Alternative
- TSM/Expanded Bus Service Alternative
- Build Alternative

D. ADDITIONAL ALTERNATIVE

Early in the DEIR/EIS documentation process, it became apparent that the environmental impacts would result from the “build alternative” would be more substantial than expected. Thus, another smaller-scale build alternative that could potentially result in fewer environmental impacts was identified and added to the project analysis.

The “build” alternative was renamed the Full Build Alternative when the Reduced Build Alternative was added in January 2000. The four alternatives carried forward for evaluation in the DEIR/EIS are (described in Section 2.2):

- No Build Alternative
- TSM/Expanded Bus Service Alternative
- Full Build Alternative
- Reduced Build Alternative

2.1.3 IDENTIFICATION OF THE PREFERRED ALTERNATIVE PROCESS

As discussed above, the two "build" alternatives along with the no build and TSM/Expanded Bus Service alternatives were considered in the DEIR/EIS and were the subject of the public review and comment process. Additional analyses were conducted on the "build" options along with the TSM/Expanded Bus Service Alternative to determine the maximum benefits to the SR-22 corridor while reducing the environmental and economic impacts to the surrounding communities. Through these analyses, the Reduced Build Alternative was determined to meet this criterion, as outlined in the MIS.

During the final documentation phase, and as a result of comments received during the public review and comments of the DEIR/EIS, the Department re-analyzed multiple sections of the SR-22 corridor to refine right-of-way limits for the proposed project. Since the Full and Reduced Build Alternatives were the only two build options with potential right-of-way impacts, they were both analyzed. In refining the engineering plans, some of the proposed right-of-way displacements and acquisitions were avoided. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers.

The public comment/review period for the DEIR/EIS afforded the opportunity for governmental agencies and concerned citizens to provide feedback on ways to improve and/or acknowledge their concerns on environmental impacts resulting from the proposed SR-22/WOCC project. Approximately 1,100 comments were received during the 65-day public comment/review period of the DEIR/EIS; about half of the comments were non-duplicative. Comments were received from various governmental agencies such as the United States Environmental Protection Agency (USEPA), County of Orange, Cities of Garden Grove, Orange, Seal Beach, Tustin, school districts, and concerned citizens from the cities along the SR-22 corridor. The comments consisted of a range of concerns for environmental impacts resulting from the project including air quality, noise, right-of-way, traffic, and visual. The majority of the comments were drawn from the western portions of the project limits such as the Community of Rossmoor and the City of Seal Beach. The primary concern for the citizens in these areas was the proposed I-405/605 direct HOV connector and the environmental impacts associated with this structure. Other concerns regarding the proposed SR-22/WOCC project came from the citizens in the City of Garden Grove, focusing primarily on noise issues. To address these and other concerns, multiple sections of the EIR/EIS were reanalyzed. The air quality, Historic Property Survey Report/Historic Architectural Survey Report (HPSR/HASR), Initial Site Assessment, Natural Environmental Study, noise, relocation impacts, traffic and visual impact sections were reanalyzed to avoid and minimize environmental impacts to the surrounding communities along the SR-22 corridor. Please see Section 4.0 (Environmental Consequences) to review the appropriate sections. The comments along with their responses are attached as Appendix A (Volumes II and III), and those comments that were received after October 30, 2001 are included in Volume IV.

At this junction in the environmental process, the project "identifies" a Preferred Alternative for inclusion in the Final Environmental Impact Statement/Report (FEIS/R). Once the Record of Decision (ROD) is adopted, and the Notice of Determination (NOD) filed, the identified Preferred Alternative is then considered "selected".

During the preparation of the final environmental document, additional planning efforts were utilized in the process to find the best solution in alleviating traffic congestion and improving safety on the SR-22 corridor. The Department, and its partnering agency, the OCTA, in conjunction with the Federal Highway Administration (FHWA), examined various methods to operationally improve the corridor and enhance safety. These methods included incorporating a component of the SR-22/SR-55 direct HOV connector, which was previously analyzed under the Full Build Alternative during the August 2001 DEIR/EIS. The SR-22/SR-55 direct HOV connector feature of the Full Build Alternative included the extension of HOV lanes on the Mainline (in both directions) from Glassell Street to the eastern terminus of SR-22 at Tustin Avenue/SR-55. The added feature to the Reduced Build Alternative extends the improvements (in both directions) from Glassell Street to approximately SR-55, resulting in the (Enhanced) Reduced Build Alternative. In addition, there were other improvements that were made to the (Enhanced) Reduced Build Alternative. These additions include: realignment of the I-405/605 HOV connector (See Figure 2.2-1a-c), replacement/realignment of the Pearce Street pedestrian overcrossing (See Figures 2.2-2a & b) to

comply with the Americans with Disabilities Act (ADA) standards, and modifications of Sorrel Street (for further details, refer to Section 2.2). Please refer to Section 2.2 for a discussion on the identified Preferred Alternative, (Enhanced) Reduced Build Alternative, and the Full Build Alternative for specific discussion on how they affect each of the build alternatives. Below is a synopsis of reasons why the (Enhanced) Reduced Build is the identified Preferred Alternative.
The identified Preferred Alternative, (Enhanced) Reduced Build Alternative, was determined to be the environmentally preferred option due to its lessened impacts to residential and non-residential properties, the local economy, and preservation of a historic resource. Specifically, the (Enhanced) Reduced Build Alternative has fewer right-of-way impacts, when compared to the Full Build Alternative. The identification of the (Enhanced) Reduced Build as the Preferred Alternative would result in fewer right-of-way impacts, when compared to the Full Build. The large number of right-of-way impacts for the Full Build Alternative can be attributed to the Pacific Electric Arterial and direct HOV connector features at I-5 and SR-55. Due to fewer right-of-way acquisitions, the local economy would not be as negatively impacted with the (Enhanced) Reduced Build Alternative. This would result in the affected jurisdictions' ability to retain existing property and sales tax revenues, when compared to the Full Build Alternative. With the proposed Pacific Electric Arterial, included as a feature of the Full Build Alternative, the former Pacific Electric Bridge (eligible for listing on the National Register of Historic Places) would be removed from its existing location.

The absence of HOV lanes on the SR-22 freeway is a missing link in the Orange County HOV system. The (Enhanced) Reduced Build Alternative would provide for HOV system continuity and connectivity, tying to I-605 and I-405, thereby helping to improve congestion in the study area. The traveling public has little incentive or opportunity to switch from single-occupancy vehicles to carpooling or transit, as there are no dedicated facilities for this purpose on SR-22. The identified Preferred Alternative, by providing connectivity for the HOV system while meeting the goals and objectives of the project, would provide the infrastructure needed to encourage high vehicle occupancy on the region's roads. This would indirectly relieve traffic congestion in the region, both by removing HOVs from general-purpose lanes and by encouraging single occupant vehicles (SOV) to shift their modal choice from drive-alone to carpool.

2.2 ALTERNATIVES UNDER CONSIDERATION

Three action alternatives and a no build alternative described below were identified for study in the Draft Environmental Impact Report/Statement (DEIR/EIS). This section of the Final Environmental Impact Statement/Report (FEIS/EIR) will focus on the identified Preferred Alternative, which is the (Enhanced) Reduced Build Alternative. For the purposes of consistent analysis for all of the alternatives under study in the DEIR/EIS, the other alternatives previously reviewed will be under a different subsection.

A. IDENTIFIED PREFERRED ALTERNATIVE

(Enhanced) Reduced Build Alternative

The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative. One is the freeway mainline section (HOV lanes in each direction from Glassell to approximately SR-55) without the HOV freeway to freeway connecting structure. Another feature is an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction (approximately 1.77 km [1.1 miles]). The extended portion of the Mainline, approximately 1.93 km (1.2 miles) at the eastern terminus of the project limits, was analyzed as part of the Full Build Alternative in the August 2001 DEIR/EIS. The added feature to the Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the creation of the (Enhanced) Reduced Build Alternative.

As a result of the comments received on the DEIR/EIS, and the process of refining the engineering plans, including the availability of more detailed design level surveys that revealed

the exact location of the existing right-of-way line in relation to the proposed roadway improvements, impacts were generally reduced throughout the project limits.

The modifications in the project limits to create the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts because all of the improvements are within the existing roadway. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) in the August 2001 DEIR/EIS. Therefore, the impacts and proposed mitigation measures for this added portion would be similar to those of the Full Build Alternative. See Figure 2.2-3 for the features of the (Enhanced) Reduced Build Alternative, including the proposed right-of-way impacts.

As presented in the DEIR/EIS, the Reduced Build Alternative was created by eliminating the following elements of the Full Build Alternative from the project design: the new arterial in the former Pacific Electric right-of-way, the HOV connectors between SR-22 and I-5, and the HOV connectors between SR-22 and SR-55. These dismissed features, if included, would have resulted in substantial right-of-way impacts, additional costs, and adverse operational impacts to I-5 and SR-55. These facilities lack additional capital improvements to relieve added traffic demand from SR-22. See Figure 2.2-4 for the features of the Reduced Build Alternative, as presented in the August 2001 DEIR/EIS, including the proposed right-of-way impacts.

All of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives are included in the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative also includes the following design features to improve the operational characteristics of the facility in certain locations that currently experience congestion, resulting from bottlenecks (choke-points):

- Continuous lane in each direction from Beach Boulevard to I-5.
- Auxiliary lanes between interchanges at various locations
- Interchange improvements at Beach Boulevard and Brookhurst Street
- A collector/distributor road along the eastbound SR-22 at the SR-22/I-5/SR-57 confluence

The (Enhanced) Reduced Build Alternative's route is divided into three segments for analysis purposes:

1. I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles). The alignment of this connector has been modified from the original design. See the discussion for the I-405/605 HOV connector in the latter part of this section.
2. I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles)
3. SR-22 Mainline – Valley View Street east to approximately SR-55, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles). [Refer to previous text regarding extension of the mainline]

The (Enhanced) Reduced Build Alternative, discussed above, is the identified Preferred Alternative for the following reasons:

- Meets the purpose and need of the project;
- Reduces congestion, considers both existing and future traffic demands, and improves safety;
- Provides HOV connectivity to other major freeways in central Orange County (I-405/I-605);
- Is the most cost-effective build alternative;
- Provides multi-modal choices (e.g. HOV, TSM, expanded bus service, etc.); and
- Is the least environmentally damaging practicable build alternative.

Furthermore, implementation of the (Enhanced) Reduced Build Alternative would provide improved operational efficiency on SR-22. Under the original proposal for the Reduced Build

Alternative (as presented in the August 2001 DEIR/EIS), the Mainline segment of the project was from approximately Valley View to Glassell Street. Under the (Enhanced) Reduced Build Alternative, SR-22 would be three lanes at the eastern terminus once the HOV lane ceases at Glassell Street. With the added features, this Alternative would add an extra lane.

Figure 2.2-3 shows the proposed (Enhanced) Reduced Build Alternative route map and locations of the proposed capital improvements. The (Enhanced) Reduced Build Alternative cross sections (i.e. lane, median, shoulder, and buffer widths) are illustrated on Figure 2.2-5 (A, B, & C). Under the (Enhanced) Reduced Build Alternative, the freeways within the SR-22/WOCC project would be improved to full geometric design standards with the exception of the following:

- Non-standard inside shoulder on I-605 and I-405 at transition areas to join to an existing non-standard shoulder. Also on I-405 and SR-22 at spot locations where California Highway Patrol (CHP) enforcement areas are recommended.
- Non-standard lane widths 10.8 to 11.8 ft. (3.3 to 3.6 meters) on I-605 northbound and southbound north of the HOV connector, and on Brookhurst Street dual left turn and lanes No. 1 and 2 at eastbound SR-22 ramp.
- Non-standard median widths on I-605 north of the HOV connector, on I-405 at I-605, and on I-405 at SR-22

The following nonstandard features would remain unmodified in the (Enhanced) Reduced Build:

- non-standard weaving sections on I-605/I-405 and I-405/SR-22 interchanges, and on SR-22 between Haster Street and Glassell Street
- 15 ft. (4.6-meter) clearance at Main Street
- various existing interchange spacing deficiencies along SR-22 at Valley View, Golden West/Beach Boulevard, The City Drive/Bristol Street, I-5/The City Drive, I-5/Bristol Street, I-5/Main Street, and Glassell Street/Tustin Avenue.

During the final documentation phase, and as a result of comments received during the public review and comments on the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Reduced Build Alternative, as originally presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions and reduction of impacts at the following locations:

- The partial acquisitions of six properties along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area further to the south;
- The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south;
- The I-405/605 HOV connector has been realigned and lowered from the DEIR/EIS proposal to reduce impacts to the community of Rossmoor and the City of Seal Beach (Please refer to Figure 2.2-1a-c for the modified plans);
- The full acquisitions of six properties along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing soundwalls were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the southbound I-405 to eastbound SR-22 connector gore area (divergence point) further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405;
- The partial acquisitions of four homes properties along Enloe Way in the City of Garden Grove were avoided by shifting the SR-22 eastbound Magnolia on-ramp alignment closer to the freeway mainline and shifting the gore area (convergence point) further to the west; and
- The displacements of two residential units (along Trask Avenue) and eighteen businesses (along Euclid and Trask Avenue) at the Euclid interchange in the City of Garden Grove are no longer necessary because the Pacific Electric connection would not

be part of this alternative, and the ramp alignments would be shifted toward the freeway mainline.

Refined engineering plans and the availability of more detailed design level surveys have identified the Pearce pedestrian overcrossing to be replaced since it would conflict with the proposed footing of the SR-22/WOCC project just west of the Haster Street exit. The Pearce Pedestrian Overcrossing is an existing pedestrian overcrossing that is not Americans with Disabilities Act (ADA) compliant.

In refining the engineering plans and with the availability of more detailed design level surveys, a total of nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions on Dunklee Avenue and Sorrell Drive on the north side of the freeway and on El Prado Avenue on the south side of the freeway in the City of Garden Grove. Please see Figure 2.2-3 for the (Enhanced) Reduced Build Alternative features, as presented in this FEIS/EIR, and Figure 2.2-4 for the Reduced Build Alternative features, as presented in the August 2001 DEIR/EIS.

I-405/605 HOV Connector Synopsis

The I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the alignment as shown in the August 2001 DEIR/EIS of the proposed connector structure occurred at approximately 95 ft. (29 meters) high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one preferred design solution has been identified that reduces the height of the HOV connector by shifting the alignment of the proposed HOV connector southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment shown in the FEIS/EIR is approximately 72 ft. (22 meters) high where the connector crosses over the eastbound SR-22 connector (approximately 2300 ft. [700 meters] east of the previously identified peak elevation point). See Figures 2.2-1 a, b, and c for more detail on the I-405/605 HOV connector realignment.

Pearce Street Pedestrian Overcrossing Synopsis

Refined engineering plans and the availability of more detailed design level surveys have identified the Pearce Street pedestrian overcrossing to be replaced since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans in the August 2001 DEIR/EIS for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind at the same location as the existing facility. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately eight feet (2.4 meters) wide. The refined engineering plans enable the Department to determine the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 360 ft. (110 meter) east of the existing overcrossing. Please refer to Figure 2.2-2 b for a schematic of the replacement proposal.

In order to determine the usage of the Pearce Street pedestrian overcrossing, surveys were sent to residents within a half-mile radius of the pedestrian overcrossing. During the development of the FEIS/EIR, the proposed ADA compliant pedestrian overcrossing identified three residential displacements that were not previously identified during the DEIR/EIS. As part of the environmental documentation process, the Department's right-of-way staff contacted these three potential displacees. This led to concerns raised by the displacees. Due to the concerns, the Department elected to survey the usage of the pedestrian overcrossing and hold a public meeting. A Public Meeting was held on December 17, 2002 to present to the community the different plans to replace the existing Pearce Street pedestrian overcrossing. The purpose of the Public Meeting was to supplement the survey by sharing information with the community and to solicit their input on the replacement of the pedestrian overcrossing. Approximately 50 residents in the community attended the meeting. Comment Forms were available at the meeting and 42 of them were received. The Pearce Street pedestrian overcrossing user survey results, as well as the Public Meeting, and the Comment Form are summarized in Section 2.2 of this chapter. The three potential displacements have been avoided by redesigning and relocating the overcrossing east of the existing location (Please see Figure 2.2-2 b for the modified proposed design of the overcrossing). Additional discussions are in Section 10.5.3, Comments and Coordination.

Summary of Pearce Street Pedestrian Survey

On December 4, 2002, 2389 surveys were sent to residents within a half-mile radius of the Pearce Street pedestrian overcrossing. The survey was available in English and Spanish, and was sent out by a mailing services company. Upon discovering that the mailing services company inadvertently omitted the Bahia Village Mobile home Park (less than 0.40 Km [0.25 mile] away from pedestrian overcrossing), 177 additional surveys were hand-carried to this mobile home park. The questions in the survey solicited information such as whether the respondent uses the pedestrian overcrossing, their purpose for using it, their age, their destination, and if they would have other means of transportation if the pedestrian overcrossing were removed. A total of 263 (11.01%) surveys were returned, forty-seven respondents (17.87%) indicated that they use the pedestrian overcrossing, and 216 respondents (82.13%) indicated that they do not use the pedestrian overcrossing. Forty-six surveys were returned by the Postmaster as undeliverable due to properties that are vacant. Please see Figure 2.2-2a for a summary map of the Pearce Street pedestrian overcrossing survey results.

Summary of December 17, 2002 Pearce Street Public Meeting

On December 17, 2002, approximately 50 interested parties attended the Public Meeting. The materials at the Public Meeting included visual representations of preliminary proposals for replacement of the Pearce Street pedestrian overcrossing. There were eight proposals, including an "elimination" option that would eliminate the Pearce Street pedestrian overcrossing. The seven "build" options included variations of where the new pedestrian overcrossing was proposed. A comment form was available at the Public Meeting to solicit input from the attendees.

Recommended Design for Replacement of Pearce Street Pedestrian Overcrossing

Based on input from various stakeholders, the Department elected to proceed with Pearce POC Alternative 5B, as shown in Figure 2.2-2b which utilizes a sliver of the existing maintenance road alongside the maintenance access road of the Wintersburg Channel. The Wintersburg Channel is under the jurisdiction of the Orange County Flood Control District (OCFCD). Alternative 5B utilizes the existing entrance/exit point at Flagstone Place (north side) and it proposes a new entrance/exit point at Pearce Street (south side), where the new entrance/exit point is parallel to Wintersburg Channel. Please See Figure 2.2-2 b for a schematic of Alternative 5B.

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NOTE: FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	605, 405, 22	0.0/1.6 33.1/38.6 1.1/21.2	16	63

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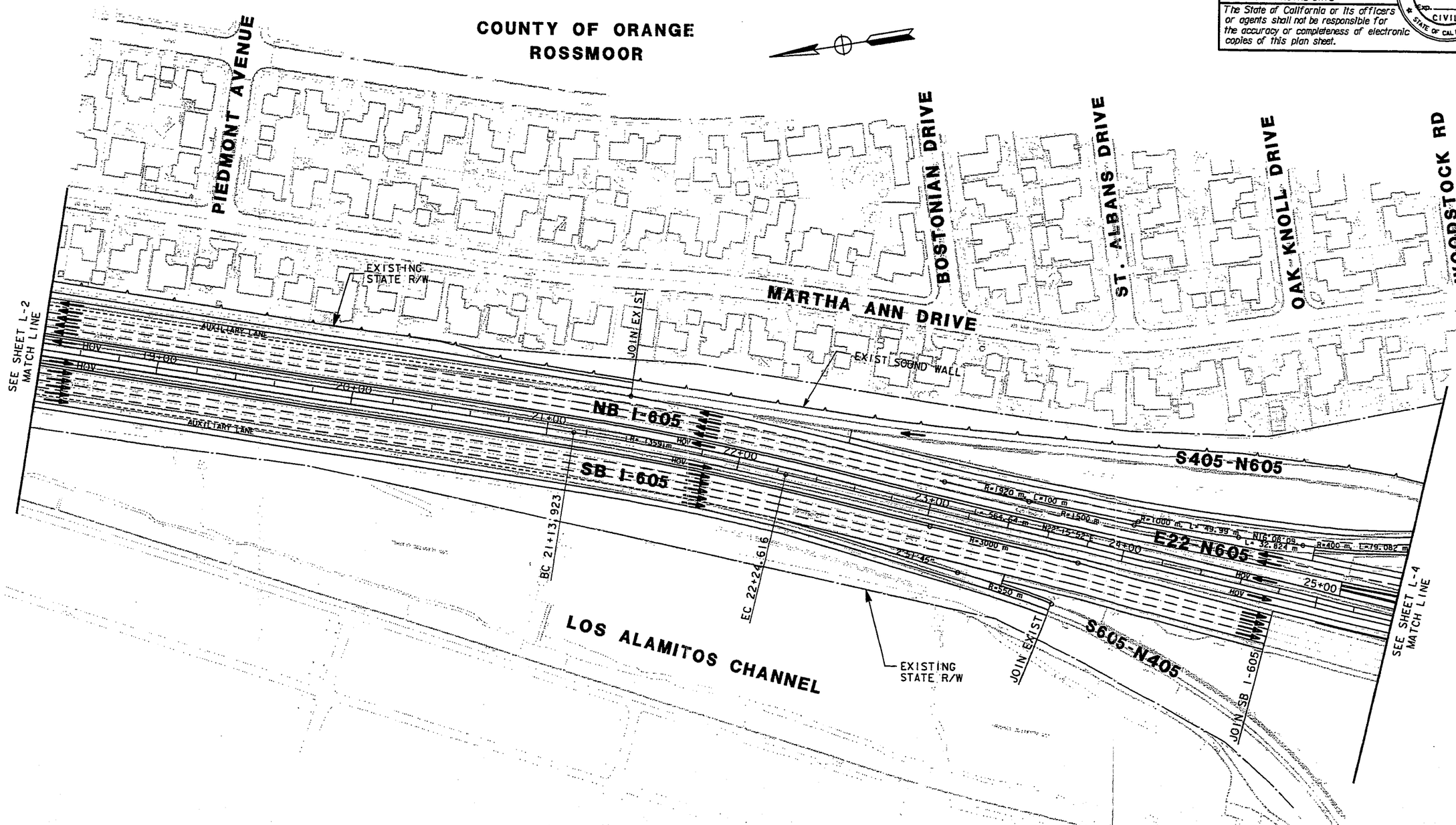

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Figure 2.2-1 a

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Caltrans DESIGN BRANCH B

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LAST REVISION | DATE PLOTTED => 21 FEB 2003

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	605, 405, 22	0.00/1.60 33.08/38.58 1.06/21.19		

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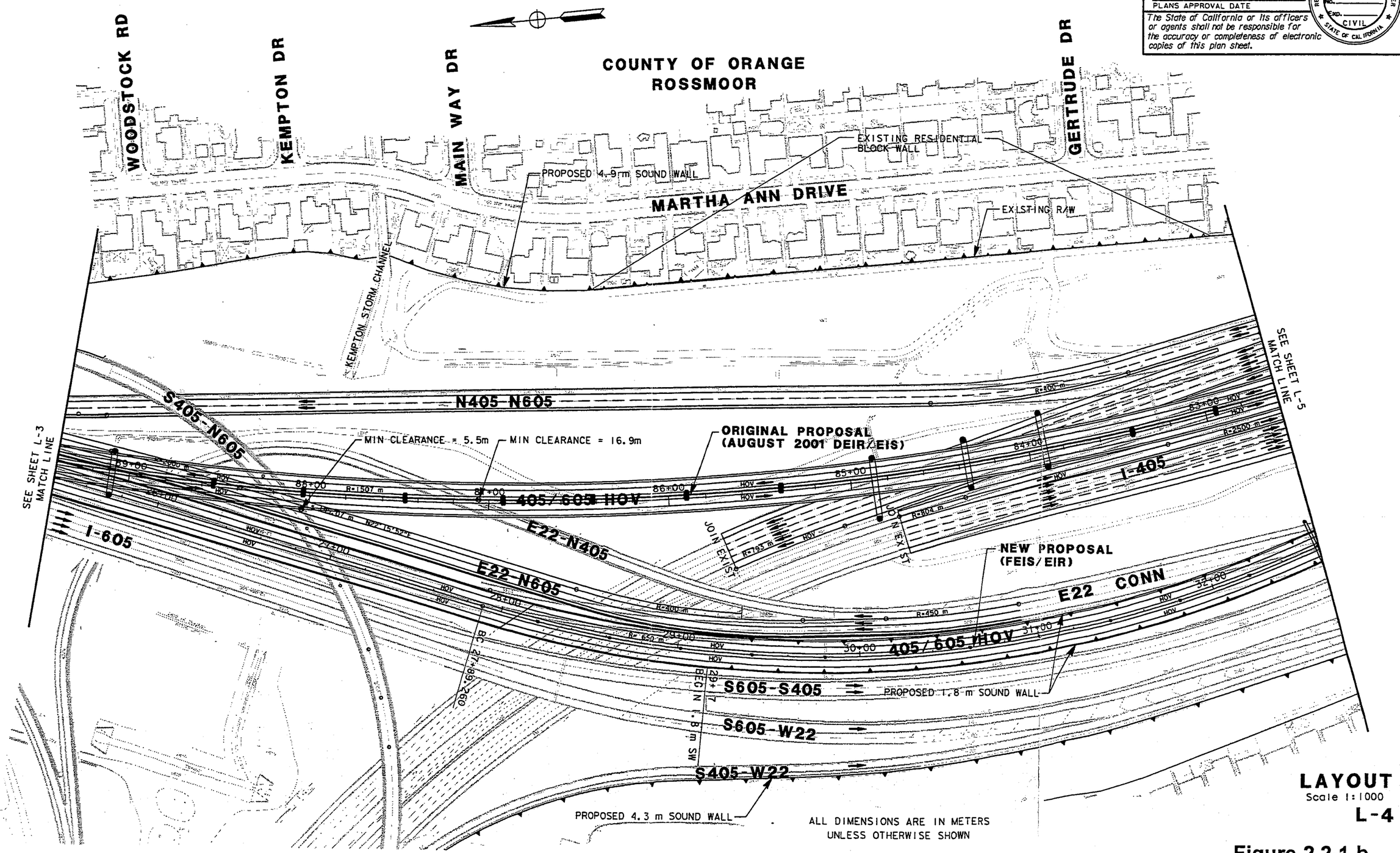

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Figure 2.2-1 b

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN BRANCH B

PROJECT ENGINEER | CALCULATED/DESIGNED BY | CHECKED BY | DATE | REVISED BY | DATE REVISED

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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
12	Ora	605, 405, 22	0.0/1.6 33.1/38.6 1.1/21.2	18	63

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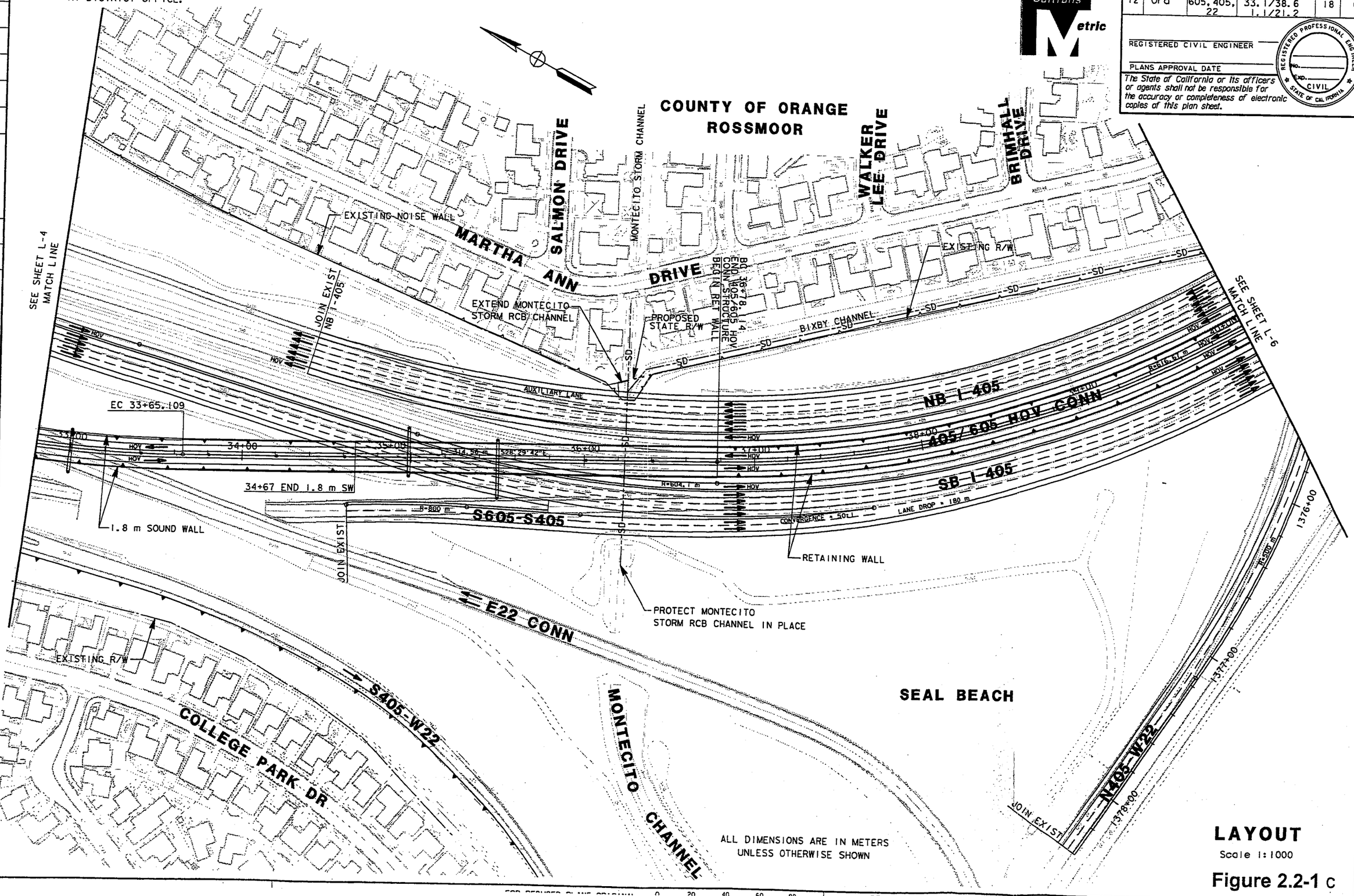

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Figure 2.2-1 c

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State Route 22
West Orange County Connection
Pearce Street
Pedestrian Overcrossing Survey
December 2002

2,566 surveys were sent to residents approx. within a half-mile (0.5 mile) radius of the Pearce St. Pedestrian Overcrossing (POC) in the City of Garden Grove. The purpose of the survey was to estimate the usage of the POC. About 10% (262 responses) of the surveys were returned. Negative responses indicated no use of the overcrossing while positive responses indicated POC usage.

SURVEY RESULTS

	Responses	(%)
Negative Response*	216	(82.13)
Positive Response	47	(17.87)
TOTAL**	263	(100)

*Six negative responses were returned by residents along Cypress St. (west of the intersection of Harbor Blvd/Trask Ave.), which is beyond the 0.5 mile radius. Therefore, these responses are not shown on the map.

**58 surveys (all negative responses) were returned without an address indicated. Therefore, these responses are not shown on the map.

LEGEND

- Negative Response
- Positive Response
- Public Schools
- Pearce Street Pedestrian Overcrossing
- Local Streets
- State Route 22
- Survey Area

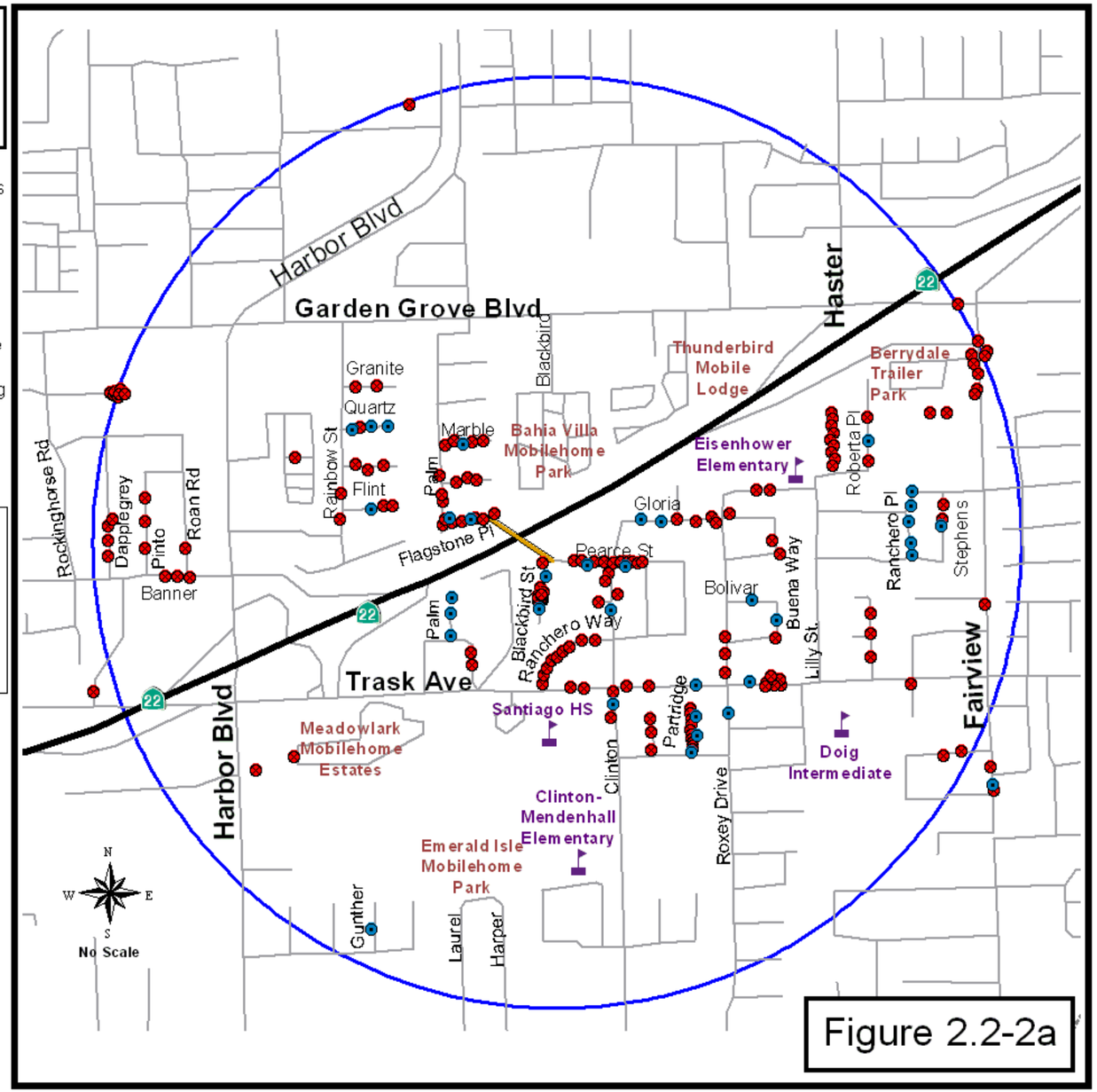

Figure 2.2-2a

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS

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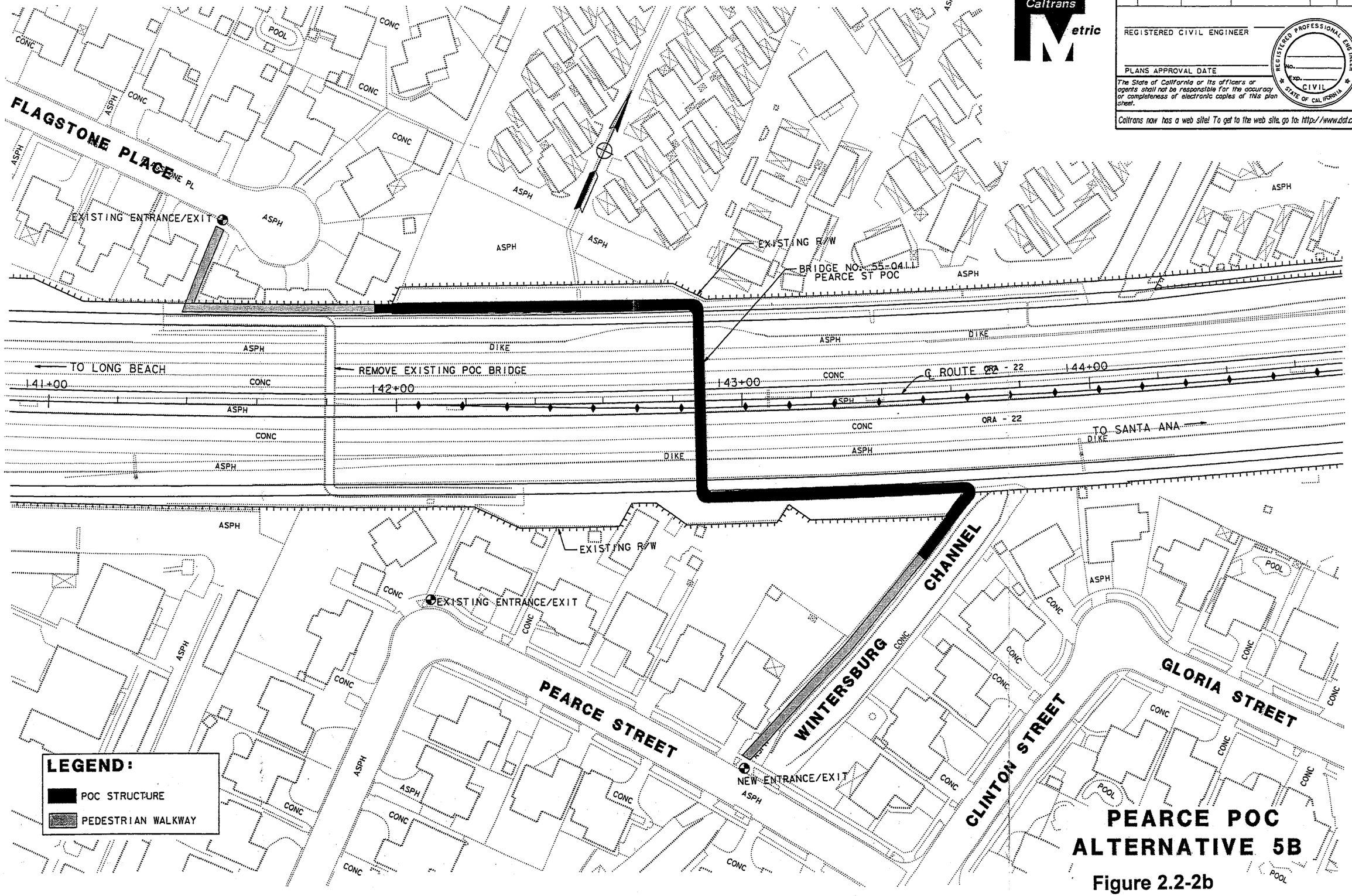

PEARCE POC ALTERNATIVE 5B

Figure 2.2-2b

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Partial Acquisitions

The process of refining the engineering plans, including the availability of more detailed design level surveys, revealed the exact location of the existing right-of-way line in relation to the proposed roadway improvements. As a result, nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions on Dunklee Avenue and Sorrell Drive on the north side of the freeway and on El Prado Avenue on the south side of the freeway in the City of Garden Grove. Please see Table 4.6-4 in Section 4.6 of this FEIS/EIR for a comprehensive listing of displacements and partial acquisitions. Also, see Figure 2.2-3 for the (Enhanced) Reduced Alternative features, as presented in this FEIS/EIR, and Figure 2.2-4 for the Reduced Build Alternative features, as presented in the August 2001 DEIR/EIS.

Eastern Terminus of Mainline

In the process of identifying a Preferred Alternative, a segment of the Full Build Alternative from Glassell Street to the SR-55 (without the HOV direct connector) was incorporated into the Reduced Build Alternative to improve its overall operational efficiency to the public utilizing the SR-22 corridor. The proposed improvements in this segment consist of two components: 1) the HOV lanes on the mainline in both directions from Glassell Street to SR-55; and 2) an auxiliary lane in the eastbound direction from Glassell Street to Tustin Avenue. Thus, this added segment extends the improvements of the Reduced Build Alternative previously proposed to end at Glassell Street to SR-55, and resulting in the (Enhanced) Reduced Build Alternative. Please see Figure 2.2-3 for the features of the (Enhanced) Reduced Build Alternative.

Trask Avenue/Sorrell Drive Synopsis

Background

The structures design team, when reviewing the SR-22 Project plans, identified several locations where there could be potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. As most of the potential conflicts involved City of Garden Grove local streets, the traffic team met with the City to discuss these issues.

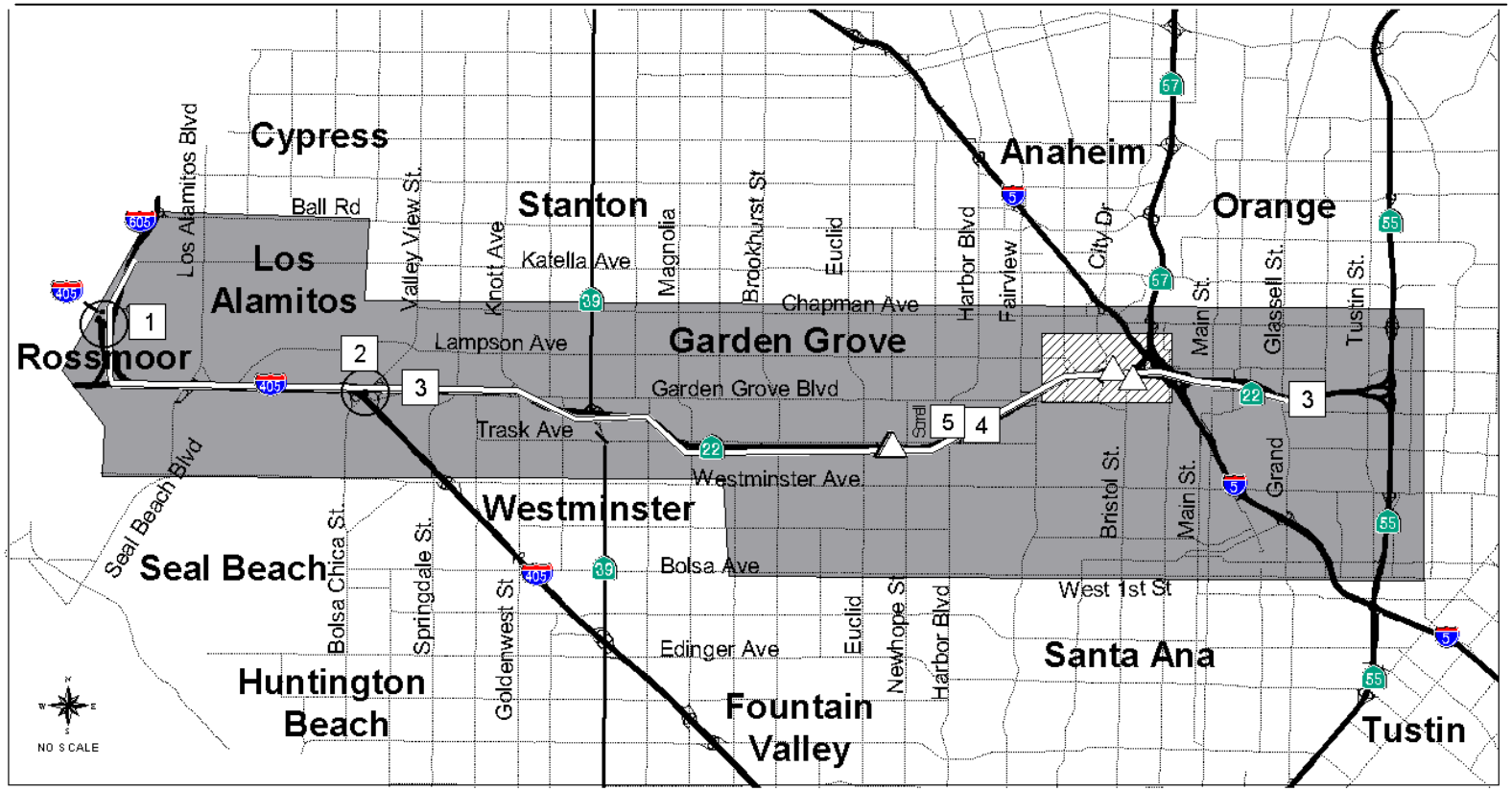
It was noted that the widening of the existing SR-22 overcrossing of Trask Avenue, west of Harbor Boulevard, would require additional bridge columns in the median of Trask Avenue. These additional columns in the median supporting the westerly bridge widening will extend through the intersection of Sorrell Drive. Sorrell Drive, a north-south residential street, one block long, presently forms a “T-intersection” with Trask Avenue, an east-west arterial. Extension of the existing median on Trask Avenue westerly through the intersection to protect the new columns will result in limiting access at Sorrell Drive. Access would be limited to westbound right turns from Trask to Sorrell, and southbound right turns from Sorrell to Trask. Since widening of the overcrossing would potentially require acquisition of the residential property on the northeast corner of Trask/Sorrell, one option to limited access of right turns in and out only between Trask and Sorrell would be to cul-de-sac Sorrell Drive at Trask Avenue. Both the limited access and the cul-de-sac options would eliminate traffic that is now using this segment of Sorrell Drive between Trask Avenue and Banner Drive as an alternate from the busy intersection of Harbor Boulevard/Trask Avenue to the east. The Department and OCTA will continue its coordination with the City of Garden Grove and affected residents.

Table 2.2-1
(ENHANCED) REDUCED BUILD ALTERNATIVE ELEMENTS

• **All improvements included in the No Build and TSM/Expanded Bus Service Alternatives, plus:**	
Highway	• Continuous lane in each direction from Beach Boulevard to I-5. • Auxiliary lanes between interchanges at various locations • Interchange improvements at Beach Boulevard and Brookhurst Street • A collector/distributor road along the eastbound SR-22 at the SR-22/I-5/SR-57 confluence • Improvements at The City Drive including a new connector from southbound SR-57 to westbound SR-22 • Replacement of portions (or all) of several general-purpose lane connectors in the SR-22/I-405/ I-605 interchange, the SR-22/I-405 interchange, and the I-5/SR-22/SR-57 interchange • Eastbound auxiliary lane from Glassell Street to Tustin Avenue** • Pearce Street pedestrian overcrossing realignment • Sorrell Street modification
HOV	• An assumed HOV occupancy requirement of three or more persons per vehicle by study planning year 2020* • Anew HOV lane on SR-22 in each direction from Valley View to approx. SR-55**. • An additional HOV lane on I-405 in each direction from I-605 to SR-22 • HOV direct connector ramps between: – Southbound I-605 to southbound I-405 (modified from original proposal) – Northbound I-405 to northbound I-605 (modified from original proposal) – Southbound I-405 to eastbound SR-22 – Westbound SR-22 to northbound I-405

*Note: For study purposes, the HOV occupancy requirement is assumed to be applicable to all freeway HOV lanes in Orange County by Year 2020.
**Note: Introduced as part of the (Enhanced) Reduced Build Alternative

The planning horizon for both the (Enhanced) Reduced Build Alternative and the Full Build Alternative is 2020 (see Section 2.2.4 below for discussion of the Full Build Alternative). For the purposes of the traffic analysis the HOV requirement was assumed to be three or more persons per vehicle (3+) in the Year 2020. This assumption is consistent with other future planning efforts and was based on the analysis of travel forecasts. It is predicted that Orange County's HOV lanes would be congested during peak periods in 2020 even with an average occupancy requirement of two or more persons per vehicle (2+). Consequently, travel demand forecasts conducted for the SR-22/WOCC alternatives assume that the full Orange County HOV network would be operating under a 3+ occupancy requirement. It is important to note, however, that the policy decision to change the HOV vehicle occupancy requirement from 2+ to 3+ has not been made. The current vehicle occupancy requirement for HOV lanes in Orange County is 2+. For the (Enhanced) Reduced Build Alternative, it is anticipated that HOV lanes on SR-22 would open and operate at a 2+ occupancy requirement until such time that a policy decision is made to change the HOV network from 2+ to 3+.



LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from Full Build Alternatives

(Enhanced) Reduced Build Alternative Elements

1 - I-405/I-605 Connector (modified from 2001 Reduced Build Alternative)
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to approx. SR-55)
4 - Pearce St. Pedestrian Overcrossing (replacement with ADA compliance)
5 - Sorrell St. (Realignment)

FIGURE 2.2-3

SR-22/ West Orange County Connection Project
(Enhanced) Reduced Build Alternative Map
-March 2003 FEIS/EIR-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(0)	0	(1)
Seal Beach	0	(0)	0	(1)
Garden Grove	1	(54)	0	(2)
Santa Ana	0	(0)	0	(2)
Orange	1	(0)	10	(8)
TOTAL	2	(54)	10	(14)

* Community in Unincorporated Orange County

LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from Full Build Alternative

Reduced Build Alternative Elements

1 - I-405/I-605 Connector
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to Glassell St.)
4 - Pearce St. Pedestrian Overcrossing (replacement in kind)

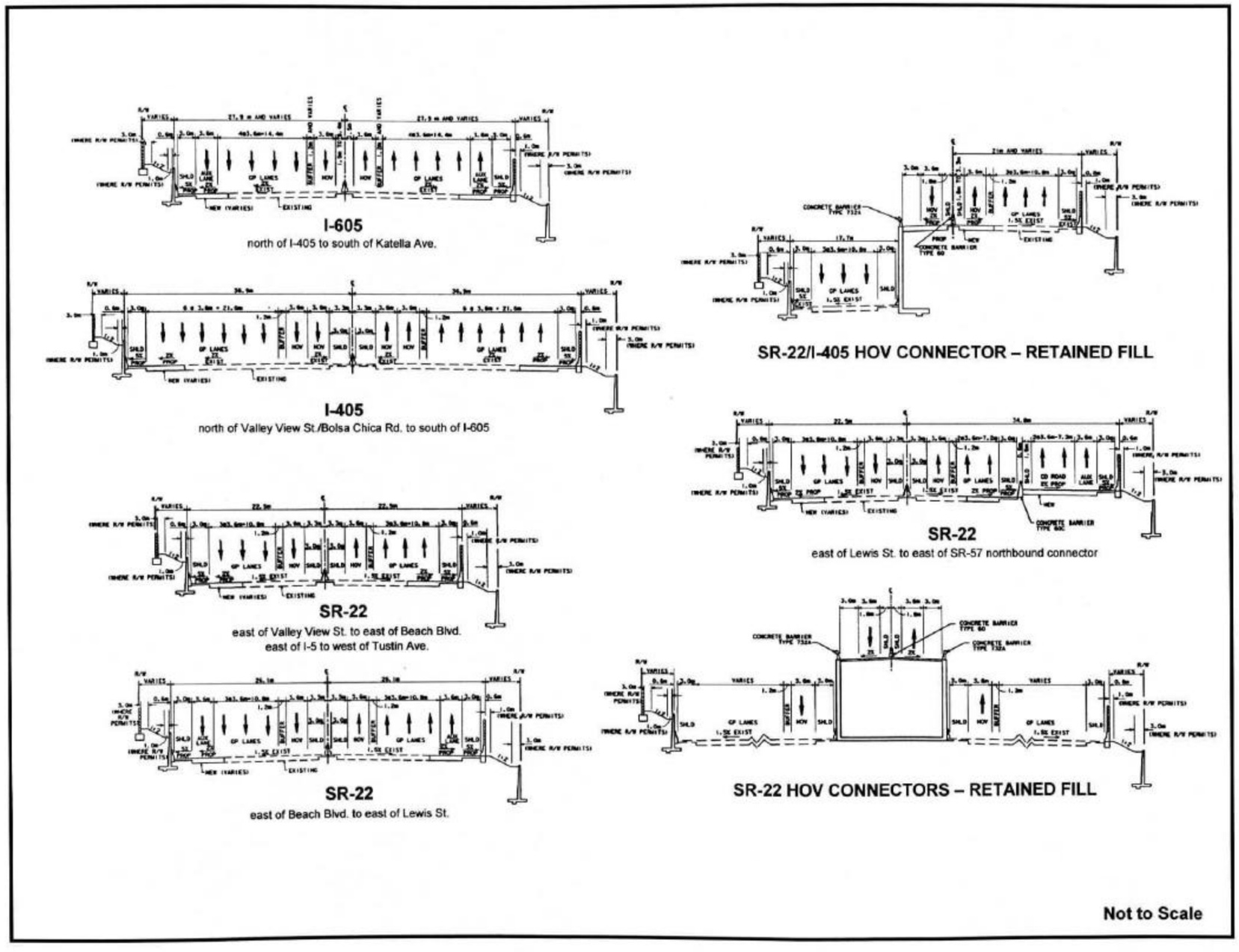
FIGURE 2.2-4

SR-22/ West Orange County Connection Project
Reduced Build Alternative Map
-August 2001 DEIR/EIS-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(6)	0	(0)
Seal Beach	6	(0)	0	(1)
Garden Grove	3	(4)	18	(2)
Santa Ana	0	(0)	0	(2)
Orange	1	(0)	8	(5)
TOTAL	10	(10)	26	(10)

* Community in Unincorporated Orange County



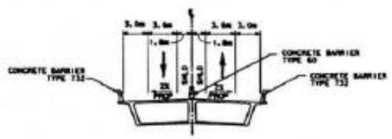
SR-22/West Orange County Connection Project

(Enhanced)
Reduced Build Alternative
Typical Sections

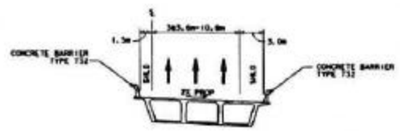
Figure 2.2-5a

SR-22/West Orange County Connection Project

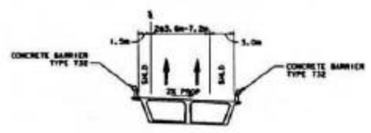
(Enhanced) Reduced Build Alternative Typical Sections



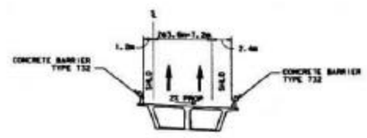
SR-22 HOV CONNECTORS



SOUTHBOUND I-405 TO EASTBOUND SR-22 CONNECTOR
over I-405



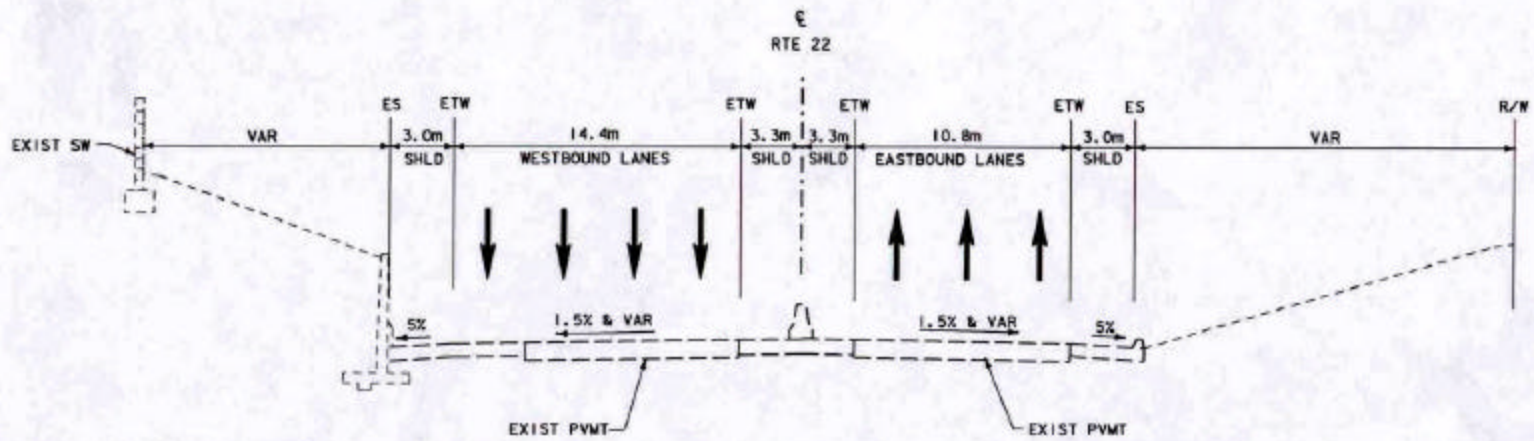
NORTHBOUND I-405 AND SOUTHBOUND I-5/SR-57 TO WESTBOUND SR-22 CONNECTORS
over northbound I-405 and over The City Drive ramps



SOUTHBOUND SR-57 TO METROPOLITAN DRIVE CONNECTOR
over Santa Ana River

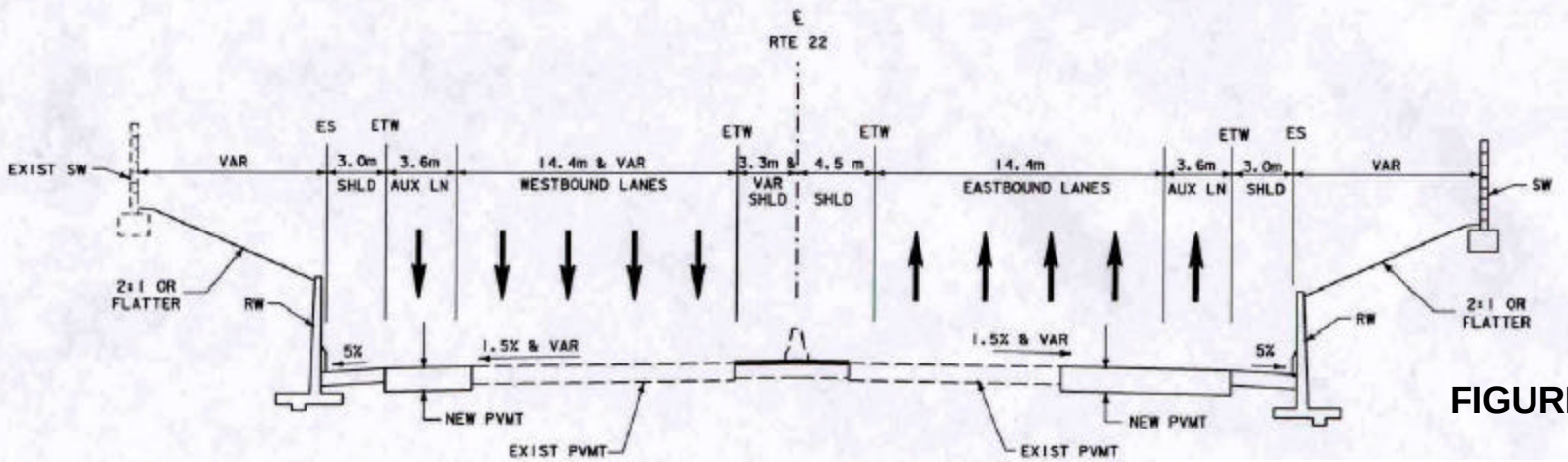
Not to Scale

Figure 2.2-5b



SR-22

Glassell St. to Tustin Ave. (Existing)



SR-22

Glassell St. to Tustin Ave. (Proposed)

FIGURE 2.2-5 c

Note: the (Enhanced) Reduced Build Alternative's cross-section is the same as the Full Build Alternative in both directions from approximately I-605 to Glassell Street on SR-22.

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B. OTHER ALTERNATIVES

The following discussions pertain to the alternatives that were presented in the draft EIR/EIS during the August 2001 public review/comment period. The No Build, TSM/Expanded Bus Service, Full Build and Reduced Build Alternatives were the four options that were presented to the public for solicitation of comments and input. As discussed in the previous section (Sec 2.2 (A), the Reduced Build Alternative has been modified slightly and renamed the (Enhanced) Reduced Build Alternative.

1. No Build Alternative

The No Build Alternative represents future baseline conditions in the year 2020 and provides a baseline scenario for comparison with other alternatives. The No Build Alternative encompasses only improvements to the transportation network that have already been approved and funded. No capital improvements for SR-22 are included under this alternative. The No Build Alternative incorporates all of the elements of the OCTA 1998 *FastForward* Long-Range Transportation Plan (FFTP) Baseline Scenario that are outlined in Table 2.2-2. The FFTP Baseline Scenario also includes the 1995 Combined Transportation Funding Program (CTFP) data. In addition, the No Build Alternative includes all governmental agency or private developer projects not in the 1995 CTFP that have been approved and funded.[1] It is important to note that under the no build alternative, traffic is projected to worsen, and driving conditions would ultimately deteriorate to a point where the use of the parallel alternate arterials would increase proportionately. Consequently, driving conditions are expected to worsen as commuters shift from utilizing SR-22 to the local arterials during peak periods. Under the No Build Alternative, one-half of the SR-22 corridor would operate at Level of Service (LOS) F (Refer to Transportation and Circulation Section 3.7 & 4.7).

Also included in the No Build Alternative are all of the elements of the No Build and TSM alternatives defined in OCTA's *The Corridor Major Investment Study Final Evaluation Report*, which was adopted by the OCTA Board on June 9, 1997.[2] Descriptions of these elements are contained in the *MIS Evaluation Report*. The Corridor MIS No Build Alternative represents the existing highway, HOV, bus, fixed guideway, and ATS systems plus all transportation improvements programmed to be implemented by 2020, as outlined in OCTA's FFTP Baseline Scenario.

[1] The FFTP and CTFP documents are available at OCTA.
[2] Available at OCTA.

Table 2.2-2
OCTA'S FASTFORWARD LONG-RANGE TRANSPORTATION PLAN
BASELINE SCENARIO

Highways/ Streets	Freeway Widening	• I-5 north through Anaheim from SR-22 to SR-91 (completed 2002) • SR-55 from SR-22 to SR-91 (completion: 2003)
	Improvements	• Various improvements at junction of I-405 and SR-73 (target completion date: 2005) • Eastern and Foothill Transportation Corridors (general-purpose lanes) (completed) • "Gateway" program using markers denoting county borders • State Route 133 (SR-133) realignment from I-405 to El Toro Road (target completion date: 2008) • Grade separation at Imperial Hwy. for Orangethorpe Rail Corridor to reduce delays (target completion date: • Complete existing bikeway projects (target completion date: 2005)
	Measure M	• Turnback funding for city street improvements to year 2011 • Competitive street program of projects
	Smart streets	• Beach Boulevard (complete) • Katella Avenue (due: 2010) • Imperial Highway (due: 2003) • Moulton Parkway
HOV	Carpool lanes	• Added to I-5 north from SR-22 to Los Angeles County line (complete) • Added to SR-91 from SR-57 to Los Angeles County line (complete)
	Carpool lane connections	• I-5/SR-91 (complete) • SR-91/SR-57 (complete) • I-405/SR-55 (target completion date: 2004)
Bus	Bus service	• Increase service to 1.90 million annual vehicle service hours by year 2020 • Purchase clean fuel transit buses and vans (target: 2007) • Add articulated buses (target: 2004)
	Additional Accessibility	• Support regional rideshare program for two years (carpool matching, marketing, etc.) (ongoing) • Build a fourth maintenance base • Implement new communication systems for buses • Meet ADA mandates for complementary paratransit service • Provide accessible bus stops for persons with disabilities
Rail Transit	Rail transit	• Design 45-kilometer (28-mile) urban rail from Fullerton to Irvine (target: 2010) • Operate Metrolink: Orange County (to Los Angeles) Line and Inland Empire-Orange County Line (ongoing) • Double Metrolink track parallel to Lincoln Avenue (in Santa Ana & Orange) (target: 2005) • Construct Metrolink rail stations in Buena Park, Tustin, and Laguna Niguel/Mission Viejo (completed)
Advanced Transportation Systems	ATS	• Traveler information at kiosks located throughout the county • Automatic vehicle locators for buses using Global Positioning Satellites (GPS) (completed) • Public/private advanced transportation technology partnerships (ongoing)

2. TSM/Expanded Bus Service Alternative

The TSM/Expanded Bus Service Alternative includes all of the improvements outlined in the No Build Alternative, such as OCTA's FFTP Baseline Scenario, The Corridor MIS No Build, and TSM Alternatives. In conjunction with these improvements, the TSM/Expanded Bus Service Alternative incorporates additional TSM strategies in the SR-22 corridor. The TSM/Expanded Bus Service Alternative would include various improvements such as increased capacity and speed on Garden Grove Boulevard, Trask Avenue, and Westminster Boulevard/17th Street within the existing curbs by removing parking and widening lanes, reduced headway on buses in study area, and two new routes, resulting in approximately 50 additional buses during peak periods and 40 buses during the midday period, and signal synchronization/controller upgrading. Adding bus service on both the freeway and adjacent arterials may not solve the congestion problem since these facilities do not have capacity for dedicated bus lanes, particularly on SR-22. Currently, SR-22 experiences congestion problems during AM/PM peak periods. The TSM/Expanded Bus Service Alternative strategies are primarily operational and are listed in Table 2.2-3.

The TSM/Expanded Bus Service Alternative does not include any capital improvements to SR-22. Although rejected as a standalone alternative, elements from this proposal are included in the preferred build alternative (as outlined in Table 2.2-1). The Corridor MIS TSM alternative represents implementation of lower cost capital improvements, such as increased bus service with associated arterial improvements.

Table 2.2-3

TSM/EXPANDED BUS SERVICE ALTERNATIVE ELEMENTS

All improvements included in the No Build Alternative, plus:	
HIGHWAY	• Increased capacity and speed on Garden Grove Boulevard, Trask Avenue, and Westminster Boulevard/17th Street within the existing curbs by such methods as removing parking and widening lanes • Deployment of trailblazing signage
BUS*	• Reduced headway on buses in study area and two new routes, resulting in addition of approximately 50 buses during peak periods and 40 buses during the midday period • Extension of three bus routes into Long Beach • Implementation of a fleet management system • Development of a transit intersection priority system
ATS	• Signal synchronization/controller upgrading • Automated Response Plan • Use of Highway Advisory Radio • Installation of Changeable Message Signs

* The transit operating plans were established as part of the definition of alternatives during the MIS phase of the SR-22/WOCC project.

3. Full Build Alternative

The Full Build Alternative, the initial "build" alternative identified by the OCTA Board on November 9, 1998, includes all of the elements contained in the No Build and TSM/Expanded Bus Service Alternatives, as well as specific elements that address HOV system connectivity. This alternative would provide HOV lanes on SR-22, thus furthering the countywide HOV system and fulfilling an important transportation goal. The SR-22 HOV connectors were added in September 1997 with the expansion of the project, which included the West Orange County Connection. This element was incorporated in response to public outreach, which identified completion of the HOV system as a high priority. In particular, HOV connectors were perceived as important as relieving on the SR-22 corridor, especially in regards to the safety and efficiency of the system. The HOV connectors allow the system to accommodate long distance travel for carpools and buses, while enabling the smooth flow of vehicles between freeways and avoiding chokepoints at major interchanges. The Full Build Alternative's route was divided into six segments for

analysis purposes. This was done to enable separate consideration of the impacts of each segment and facilitate subsequent planning and implementation decisions. These segments are as follows:

1. I-405/I-605 Connector – Katella Avenue south to Seal Beach Boulevard a distance of 3.7 kilometers (2.3 miles). The alignment of this connector has been modified from the original design.
2. I-405/SR-22 Connector – Seal Beach Boulevard east to Valley View Street, a distance of 3.7 kilometers (2.3 miles)
3. SR-22 Mainline – Valley View Street east to Glassell Street, including The City Drive improvements, a distance of 17.9 kilometers (11.1 miles)
4. I-5/SR-22 Connector – SR-22 and The City Drive to I-5 and Broadway, a distance of 2.3 kilometers (1.4 miles)
5. SR-22/SR-55 Connector – SR-22 and Glassell Street to SR-55 and Chapman Avenue to the north and Fairhaven Street to the south, a distance of 3.9 kilometers (2.4 miles)
6. Pacific Electric Arterial – Taft Avenue at SR-22, southeast to where it joins Santa Ana Boulevard at Raitt Street, a distance of 5.1 kilometers (3.2 miles)

In addition to the improvements outlined in the No Build and TSM/Expanded Bus Service Alternatives, the Full Build Alternative includes the elements listed in Table 2.2-4.

After the circulation of the August 2001 DEIR/EIS, and as a result of comments received during the public review and comment period of the DEIR/EIS, the Department further analyzed multiple sections of the SR-22 corridor to refine right-of-way limits and reduce environmental impacts for the proposed project. Additional design modifications to the Full Build Alternative, as presented in the August 2001 DEIR/EIS, were made to avoid right-of-way acquisitions and to reduce environmental impacts while maintaining the design standards. These efforts resulted in avoidance of acquisitions at the following locations:

- The partial acquisitions of six homes along Martha Ann Drive in the Rossmoor Community as well as utility relocation were avoided by tightening the curvature of the S405/N605 connector while shortening the gore area further to the south;
- The right-of-way impact at the City of Seal Beach's reservoir was avoided by tightening the curvature of the Seal Beach Boulevard off-ramp while shifting the exit nose further to the south;
- The I-405/605 HOV connector has been realigned and lowered from the DEIR/EIS proposal to reduce impacts to the community of Rossmoor and the City of Seal Beach (Please refer to Figure 2.2-1 for the modified plan);
- The full acquisitions of six homes along Almond Avenue in the City of Seal Beach as well as the relocation of overhead power lines and reconstruction of existing soundwalls were avoided by: 1) shifting the I-405 freeway centerline toward the south; 2) tightening the curvature; and 3) shifting the southbound I-405 to eastbound SR-22 connector gore area (divergence point) further to the east. This was achieved without changing the impacts to the United States Naval Weapons Station (USNWS) utility easement or facility on the south side of I-405; and
- The partial acquisitions of four homes along Enloe Way in the City of Garden Grove were avoided by shifting the SR-22 eastbound Magnolia on-ramp alignment closer to the freeway mainline and shifting the gore area (convergence point) further to the west.

Refined engineering plans and the availability of more detailed design level surveys have identified the Pearce pedestrian overcrossing to be replaced since it would conflict with the proposed footing of the SR-22/WOCC project just west of the Haster Street exit. The Pearce Pedestrian Overcrossing is an existing pedestrian overcrossing that is not Americans with Disabilities Act (ADA) compliant. The refined engineering plans enable the Department to determine the proximity of setback for possible landscaping and determination of preliminary noise barriers.

In refining the engineering plans and with the availability of more detailed design level surveys, a total of nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions at Yockey Bridge, along Dunklee Avenue on the north side of the freeway, and at El Prado Avenue on the south side of the freeway in the City of

Garden Grove. A comprehensive listing of displacements and partial acquisitions can be found in Section 4.6. Please see Figure 2.2-6 for the Full Build Alternative features, as presented in this FEIS/EIR and Figure 2.2-7 for the Full Build Alternative features, as presented in the August 2001 DEIR/EIS.

I-405/605 HOV Connector Synopsis

The I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the alignment as shown in the August 2001 DEIR/EIS of the proposed connector structure occurred at approximately 95 ft. (29 meters) high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one preferred design solution has been identified that reduces the height of the HOV connector by shifting the alignment of the proposed HOV connector southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment shown in the FEIS/EIR is approximately 72 ft. (22 meters) high where the connector crosses over the eastbound SR-22 connector (approximately 2300 ft. [700 meters] east of the previously identified peak elevation point). See Figure 2.2-1a, b, and c for more detail on the I-405/605 HOV connector realignment.

Pearce Street Pedestrian Overcrossing

Refined engineering plans and the availability of more detailed design level surveys have identified the Pearce pedestrian overcrossing to be replaced since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply with ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately eight feet (2.4 meters) wide. The refined engineering plans enable the Department to determine the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. As previously discussed, the August 2001 DEIR/EIS assumed the Pearce Street pedestrian overcrossing would be replaced in-kind at the same location as the existing facility. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 360 ft. (110 meter) east of the existing overcrossing. Please refer to Figure 2.2-2 b for a schematic of the replacement proposal.

In order to determine the usage of the Pearce Street pedestrian overcrossing, surveys were sent to residents within a half-mile radius of the pedestrian overcrossing. During the administrative review phase of the FEIS/EIR, the proposed ADA compliant pedestrian overcrossing identified three residential displacements that were not previously identified during the DEIR/EIS. As part of the environmental documentation process, the Department's right-of-way staff contacted these three potential displacees. This led to concerns raised by the displacees, and the Department elected to survey the usage of the pedestrian overcrossing and hold a public meeting. At this time, the Department is recommending a right-turn only access from Sorrell Drive to westbound Trask Avenue design; a final decision will be made at the design stage. A Public Meeting was held on December 17, 2002 to present to the community the different plans to replace the existing Pearce Street pedestrian overcrossing. The purpose of the Public Meeting was to supplement the survey by sharing information with the community and to solicit their input on the replacement of the pedestrian overcrossing. Approximately 50 residents in the community attended the meeting. Comment Forms were available at the meeting and 42 of them were received. The

Pearce Street pedestrian overcrossing user survey results, as well as the Public Meeting, and the Comment Form are summarized in Section 2.2 of this chapter. The three potential displacements have been avoided by redesigning and relocating the overcrossing east of the existing location. Please see Figure 2.2-2 b for the modified proposed design of the overcrossing. Additional discussions are in Section 10.5.3, Comments and Coordination.

Partial Acquisitions

The process of refining the engineering plans, including the availability of more detailed design level surveys, revealed the exact location of the existing right-of-way line in relation to the proposed roadway improvements. As a result, nineteen new partial acquisitions were identified in this FEIS/EIR that were not previously included in the August 2001 DEIR/EIS. These include partial acquisitions on Dunklee Avenue and Sorrell Drive on the north side of the freeway and on El Prado Avenue on the south side of the freeway in the City of Garden Grove. Please see Table 4.6-12 in Section 4.6 of this FEIS/EIR for a comprehensive listing of displacements and partial acquisitions. Also, see Figure 2.2-6 for the Full Build Alternative features, as presented in this FEIS/EIR, and Figure 2.2-7 for the Full Build Alternative features, as presented in the August 2001 DEIR/EIS.

Trask Avenue/Sorrell Drive Synopsis

The structures design team, when reviewing the SR-22 Project plans, identified several locations where there could be potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. As most of the potential conflicts involved City of Garden Grove local streets, the traffic team met with the City to discuss these issues.

It was noted that the widening of the existing SR-22 overcrossing of Trask Avenue, west of Harbor Boulevard, would require additional bridge columns in the median of Trask Avenue. These additional columns in the median supporting the westerly bridge widening will extend through the intersection of Sorrell Drive. Sorrell Drive, a north-south residential street, one block long, presently forms a “T-intersection” with Trask Avenue, an east-west arterial. Extension of the existing median on Trask Avenue westerly through the intersection to protect the new columns will result in limiting access at Sorrell Drive. Access would be limited to westbound right turns from Trask to Sorrell, and southbound right turns from Sorrell to Trask. Since widening of the overcrossing would potentially require acquisition of the residential property on the northeast corner of Trask/Sorrell, one option to limited access of right turns in and out only between Trask and Sorrell would be to cul-de-sac Sorrell Drive at Trask Avenue. Both the limited access and the cul-de-sac options would eliminate traffic that is now using this segment of Sorrell Drive between Trask Avenue and Banner Drive as an alternate from the busy intersection of Harbor Boulevard/Trask Avenue to the east. More details can be found in Section 2.2 of this chapter.

Table 2.2-4
FULL BUILD ALTERNATIVE ELEMENTS

All improvements included in the No Build and TSM/Expanded Bus Service Alternatives, plus:	
Highway	• A general-purpose arterial roadway on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and Civic Center Drive; this alternative includes a temporary landscaped median, which will be reserved for future transit improvements • Direct connector ramps between SR-22 and the new arterial on the former Pacific Electric right-of-way • Continuous lane in each direction from Beach Boulevard to I-5. • Auxiliary lanes between interchanges at various locations • Interchange improvements at Beach Boulevard and Brookhurst Street • A collector/distributor road along the eastbound SR-22 at the SR-22/I-5/SR-57 confluence • Improvements at The City Drive including a new connector from southbound SR-57 to westbound SR-22 • Replacement of portions (or all) of several general-purpose lane connectors in the SR-22/I-405/I-605 interchange, the SR-22/I-405 interchange, the I-5/SR-22/SR-57 interchange, and the SR-22/SR-55 interchange • Eastbound auxiliary lane from Glassell Street to Tustin Avenue • Pearce Street pedestrian overcrossing realignment • Sorrell Street modification
HOV	• An assumed HOV occupancy requirement of three or more persons per vehicle by study planning year 2020* • A new HOV lane on SR-22 in each direction from I-405 to SR-55 • An additional HOV lane on I-405 in each direction from I-605 to SR-22 • HOV direct connector ramps between: – Southbound I-605 to southbound I-405 (modified from original proposal) – Northbound I-405 to northbound I-605 (modified from original proposal) – Southbound I-405 to eastbound SR-22 – Westbound SR-22 to northbound I-405 – Eastbound SR-22 to southbound I-5 – Northbound I-5 to westbound SR-22 – Eastbound SR-22 to northbound SR-55 – Southbound SR-55 to westbound SR-22

*Note: For study purposes, the HOV occupancy requirement is assumed to be applicable to all freeway HOV lanes in Orange County by Year 2020.

The Full Build Alternative also includes the following design features to improve the operational characteristics of the facility in certain locations that currently create bottlenecks (choke-points) for motorists:

- Continuous lane in each direction from Beach Boulevard to I-5.
- Auxiliary lanes between interchanges at various locations
- Interchange improvements at Beach Boulevard and Brookhurst Street
- A collector/distributor road along the eastbound SR-22 at the SR-22/I-5/SR-57 confluence

Under the Full Build Alternative, the freeways within the SR-22/WOCC project would be improved to full geometric design standards with the exception of design standards, such as interchange spacing, weaving lengths, lane widths, shoulder width, and median widths, that must be approved by the Department.

[3] Available at OCTA.

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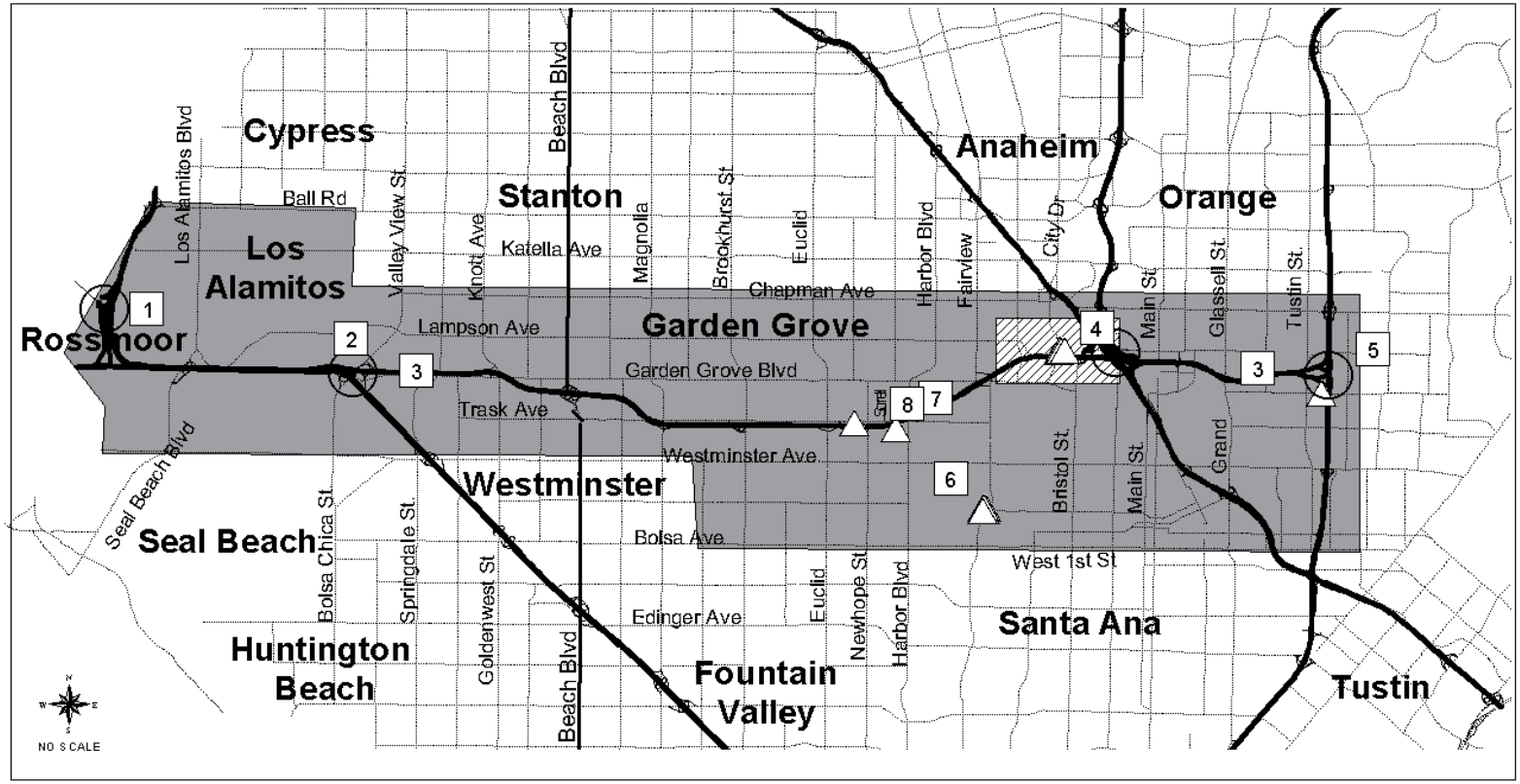

LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from (Enhanced) Reduced Build & Reduced Build Alternatives

Full Build Alternative Elements

1 - I-405/I-605 Connector (same as (Enhanced) Reduced Build Alternative)
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to Glassell St.)
4 - I-5/SR-22 Connector
5 - SR-22/SR-55 Connector
6 - Pacific Electric Right-Of-Way
7 - Pearce St. Pedestrian Overcrossing (replacement with ADA Compliance)
8 - Sorrell St. (Realignment)

FIGURE 2.2-6

SR-22/ West Orange County Connection Project
Full Build Alternative Map
-March 2003 FEIS/EIR-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(0)	0	(1)
Seal Beach	0	(0)	0	(1)
Garden Grove	20	(56)	17	(2)
Santa Ana	60	(0)	8	(7)
Orange	64	(13)	14	(8)
TOTAL	144	(69)	39	(19)

* Community in Unincorporated Orange County

LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from (Enhanced) Reduced Build & Reduced Build Alternatives

Full Build Alternative Elements

1 - I-405/I-605 Connector (same as Reduced Build Alternative)
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to Glassell St.)
4 - I-5/SR-22 Connector
5 - SR-22/SR-55 Connector
6 - Pacific Electric Right-Of-Way
7 - Pearce St. Pedestrian Overcrossing (replacement in kind)

FIGURE 2.2-7

SR-22/ West Orange County Connection Project
Full Build Alternative Map
-August 2001 DEIR/EIS-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(6)	0	(0)
Seal Beach	6	(0)	0	(1)
Garden Grove	59	(8)	17	(2)
Santa Ana	60	(0)	8	(7)
Orange	64	(15)	10	(5)
TOTAL	189	(29)	35	(15)

* Community in Unincorporated Orange County

2.3 ALTERNATIVES WITHDRAWN FROM FURTHER CONSIDERATION (preliminary planning phase)

As described in Section 2.1.2, a refined set of six conceptual alternatives was evaluated in detail as part of the MIS conducted for the SR-22/WOCC project. The MIS technical analysis is presented in the *MIS Evaluation Report*. The MIS technical evaluation, along with public input and policy considerations, provided the basis for the selection of the final set of transportation alternatives described in Section 2.2. Ultimately, the No Build Alternative, the TSM/Expanded Bus Service Alternative, the two variations of the HOV Lanes Full System Alternative, and the Full Build and Reduced Build Alternatives were carried forward for further study in the DEIR/EIS, as discussed in the following Section 2.4.

The alternatives that were withdrawn from further study upon completion of the MIS phase of the project are summarized in Sections 2.3.1 through 2.3.3, below. The detailed technical results, description of public involvement activities and findings, and summary of OCTA Board actions that led to the elimination of these conceptual alternatives are provided in the *MIS Evaluation Report*.

2.3.1 Refined Alternative 3: Fixed Guideway

A. DESCRIPTION

The Fixed Guideway Alternative would implement a new travel mode in the study area. The Fixed Guideway would link two existing systems extending from the Santa Ana Transportation Center/Metrolink station on the east to the Metropolitan Transportation Authority (MTA) Blue Line on the west. This alternative includes all elements of the No Build Alternative and the TSM/Expanded Bus Service Alternative, in addition to the following changes:

Bus.

- Reduce the number of express buses from those provided in the TSM/Expanded Bus Service Alternative to lessen conflicts between express buses and the proposed Fixed Guideway
- Increase north/south service to act as feeder service to the Fixed Guideway
- Provide park-and-ride lots at the following locations for improved access/transfer to the Fixed Guideway:
  - Brookhurst Street at SR-22 (Garden Grove)
  - Seal Beach Boulevard at SR-22 (Seal Beach)

Fixed Guideway.

- The Fixed Guideway alignment running between the Los Angeles/Orange County line in Seal Beach and the Santa Ana Transportation Center following along SR-22, the Pacific Electric right-of-way, Santa Ana Boulevard, and Fourth Street through central Santa Ana
- Ten-minute headways in the peak periods and twenty-minute headways in the off-peak periods
- Fixed Guideway technology serving mainline east/west movements along SR-22 and the former Pacific Electric right-of-way; extended trip-making beyond the mainline requiring a transfer at each station
- Station locations at approximately 1.6- to 3.2-kilometer (one- to two-mile) intervals adjacent to major north/south arterial crossings
- Specific fixed guideway technology not determined; light-rail transit (LRT) assumed for purposes of travel forecasting and impact assessment

B. SUMMARY OF FINDING

Consistent with OCTA's decision in the MIS, the Fixed Guideway Alternative was eliminated from further consideration due to the high estimated capital, operating, and maintenance costs; lack of a direct rail/guideway system connection at the western terminus of the Fixed Guideway alignment (i.e. once the alignment reached the Los Angeles County/Orange County line); and lack of public support in the SR-22 corridor study area. The Fixed Guideway Alternative did not fulfill OCTA's transportation goal to complete the last major link in the county's HOV network. Furthermore, the Fixed Guideway Alternative would only moderately improve the availability of travel choices.

2.3.2 Alternative 4: General-Purpose Lanes

A. DESCRIPTION

The General-Purpose Lanes Alternative addresses the transportation needs of the study area through expanding the capacity of the freeway by adding general-purpose lanes in each direction on SR-22 between Valley View Street and SR-55 and providing a new arterial along the former Pacific Electric right-of-way. Because this alternative is made up of two distinct components (the general-purpose lanes on SR-22 and the arterial), two sub-alternatives were defined and evaluated. Alternative 4A includes only the general-purpose lanes on SR-22 and Alternative 4B includes the general-purpose lanes on SR-22 and the arterial along the former Pacific Electric right-of-way.

Alternative 4A. This sub-alternative includes all elements of the No Build Alternative and the TSM/Expanded Bus Service Alternative, and the following additional improvements:

Highway.

- An additional general-purpose lane on SR-22 in each direction from I-405 to SR-55

Alternative 4B. This sub-alternative includes all elements of the No Build Alternative and the TSM/Expanded Bus Service Alternative, and the following additional improvements:

Highway.

- An additional general-purpose lane on SR-22 in each direction from I-405 to SR-55
- A general-purpose arterial constructed on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and Civic Center Drive
- Direct connector ramps between SR-22 and the former Pacific Electric right-of-way arterial

B. SUMMARY OF FINDING

From a purely technical perspective, the General-Purpose Lanes Alternative exhibited many of the mobility benefits of the other build alternatives considered, as well as similar environmental impacts depending upon the General-Purpose Lanes Alternative option being considered. Alternative 4B showed greater environmental impacts compared to Alternative 4A, largely because of the proposed four-lane arterial in the former Pacific Electric right-of-way. Consistent with OCTA's decision in the MIS, the General-Purpose Lanes Alternative was eliminated from further consideration due to concerns with future air quality conformity, a desire to preserve the long-term operational flexibility of added lanes to SR-22, and the desire to meet an important transportation goal: completion of Orange County's HOV system. With the completion of Orange County's HOV system, mobility throughout other freeways linked to SR-22 would also be improved, thereby reducing the "bottleneck" effect throughout the region.

The implementation of the General-Purpose Lanes Alternative would not efficiently address the increased travel times and long-term congestion issues predicted for SR-22. A lesser benefit for reducing congestion and improving air quality would be derived from the general-purpose lane alternatives than from an HOV alternative because the PM peak period vehicle hours traveled (VHT) for the general-purpose lane would be greater than that for an HOV lane.

The SR-22 corridor is located in the South Coast Air Basin (SCAB) jurisdiction, currently classified as non-attainment for Carbon Monoxide (CO), Ozone (O_3), and Particulate Matter greater than 10 microns (PM_{10}), with respect to air quality compliance under the Federal and California Clean Air Acts. Federal Law [23 U.S.C section 134 (l)] prohibits funding for a significant increase in carrying capacity for single-occupant vehicles (general-purpose lanes) for regions classified as non-attainment for CO and O_3 (Sections 3.8 & 4.8 for further discussions on air quality). Furthermore, capacity-enhancing highway projects would not satisfy SCAG's air quality conformity analysis to determine whether the project would contribute to air pollution in the SCAB. It was rejected on the basis that it would worsen air quality and it would only provide moderate improvements in operations. The South Coast Air Quality Management District has jurisdiction over SCAB, and would not allow funding of projects that would cause any exceedances to non-attainment areas with respect to criteria pollutants.

2.3.3 Alternative 5: HOV Lanes on SR-22

A. DESCRIPTION

The HOV Lanes on SR-22 Alternative would add an HOV lane to SR-22 between Valley View Street and SR-55, as incorporated in the SCAG 1998 RTP. The HOV lane in each direction would end at the terminal freeway-to-freeway interchanges. This alternative includes all elements of the No Build Alternative and the TSM/Expanded Bus Service Alternative, and the following additional improvements:

HOV

- An HOV lane in each direction from I-405 (Valley View Street) to SR-55

Bus

- Use of SR-22 HOV lanes by express buses, providing faster bus service

B. SUMMARY OF FINDING

This HOV Alternative performed well in the technical analysis conducted for the MIS as it maximized transportation benefits at the lowest cost compared to the other build alternatives. This alternative would complete the countywide HOV system, fulfilling an important transportation goal. Through surveys of the project area and countywide public opinion polls, participants voiced concerns about the safety and congestion impacts of vehicles moving between HOV and general-purpose lanes as they transition between freeways. Surveys indicated that the public generally believes direct carpool connectors between freeways improve safety and overall efficiency of the HOV system. The public regarded Alternative 5 as less desirable compared to the other HOV alternatives because it lacked direct freeway-to-freeway HOV connectors, so it was eliminated from further consideration. The benefits of system HOV connectivity would be minimized by the lack of direct freeway-to-freeway HOV connectors.

2.4 ALTERNATIVES CONSIDERED FOR FURTHER ANALYSIS (preliminary planning phase)

As described in Section 2.2, the following are alternatives that were analyzed during the MIS process along with the alternatives discussed in the previous section. These alternatives were carried forward based on their meeting the 13 objectives, as set forth during the MIS process. These objectives were: improve availability of travel choices; lower peak-period travel times; maximize transportation benefits with available transportation dollars; limit right-of-way acquisition; minimize emissions within the study area; maximize consistency with adopted local land use and regional plans; minimize impacts to people and property adjacent and near to the improvements; minimize impacts to water and biological resources; minimize impacts to the tax base; maximize visual/physical access to adjacent commercial properties; minimize construction-related disruptions; improve geometric design to the extent possible; and provide CHP access/enforcement areas and emergency access. Table 2.4-1 summarizes the alternatives that were analyzed during the MIS process and how each of them performed in meeting each of the 13 objectives.

2.4.1 Alternative 1: No Build

A. DESCRIPTION

The No Build Alternative represents future baseline conditions in the year 2020 and provides a base scenario for comparison with other alternatives. It encompasses only improvements to the transportation network that have already been approved and funded, including all of the elements of the OCTA 1998 *FastForward* Long-Range Transportation Plan (FFTP) Baseline scenario as outlined in Table 2.2-2.

Also included in the No Build Alternative are all of the elements of the No Build and the TSM alternatives as defined for The Corridor MIS (Central Orange County) and adopted by the OCTA Board on June 9, 1997. The Corridor MIS No Build Alternative represents the existing highway, HOV, bus, fixed guideway, and ATS system plus all transportation improvements programmed to be implemented by 2020 as outlined in OCTA's FFTP Baseline Scenario. The Corridor MIS TSM alternative represents implementation of lower-cost capital improvements, such as increased bus service with associated arterial improvements.

B. SUMMARY OF FINDING

From a planning standpoint, the No Build Alternative did not perform well in meeting most of the objectives. However, it performed well under the objectives to minimize environmental impacts because it does not involve any construction activities that would require additional right-of-way.

2.4.2 Alternative 2: TSM/Expanded Bus Service

A. DESCRIPTION

All improvements outlined in Alternative 1 are in Alternative 2. This includes OCTA's FFTP Baseline scenario and The Corridor MIS No Build and TSM alternatives. In conjunction with these improvements, Alternative 2 incorporates additional TSM strategies in the SR-22 corridor. These strategies include:

Highway

- Enhance alternative routes by providing operational improvements that result in increased speed on Garden Grove Boulevard, Trask Avenue, and Westminster Boulevard/ 17th Street.

Bus

- Reduce headways on buses in the study area. Extend three routes into Long Beach.

B. SUMMARY OF FINDING

The TSM/Expanded Bus Service Alternative performed similarly to the No Build Alternative, except that it would improve mobility and maximize cost-effectiveness over the No Build Alternative by adding additional bus service, and it would also minimize emissions within the SR-22 corridor slightly by providing additional travel choices. This Alternative was carried forward for analysis in the environmental document to adhere to FHWA's guidelines recommending highway projects consider these options in metropolitan areas with over 200,000 population.

2.4.3 Alternative 6: HOV Lanes Full System

A. DESCRIPTION

The HOV Lane Full System alternative attempts to address HOV system connectivity. By including HOV freeway-to-freeway direct connectors, Alternative 6 provides the highest level of service for HOVs, which in turn benefits general-purpose vehicles by removing HOVs from the general-purpose traffic stream.

Like Alternative 4, Alternative 6 includes several distinct components (HOV lanes on SR-22, HOV freeway-to-freeway direct connectors at four freeway interchanges, and an arterial along the former Pacific Electric right-of-way). Three sub-alternatives were defined that include different combinations of the three components.

Alternative 6A. This sub-alternative includes all elements of the No Build Alternative and the TSM Alternative, HOV lanes on SR-22, and an arterial along the former Pacific Electric right-of-way, which includes the following specific improvements:

Highway

- An arterial on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and/or Civic Center Drive (the arterial may or may not have designated HOV lanes).
- Direct connector ramps between SR-22 and the former Pacific Electric right-of-way arterial.

HOV

- The HOV occupancy requirement is assumed to be three or more persons per vehicle by the 2020 study planning year. Travel demand forecasts for a two or more persons per vehicle occupancy requirement showed that the demand exceeded the capacity.
- An HOV lane in each direction from I-405 (Valley View Street) to SR-55.
- An arterial on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and/or Civic Center Drive (the arterial may or may not have designated HOV lanes).

Bus

- Express buses routed on SR-22 are assumed to travel in the HOV lanes providing faster bus service.

Alternative 6B. This sub-alternative includes all elements of the No Build Alternative and the TSM Alternative, HOV lanes on SR-22, and HOV freeway-to-freeway direct connectors at four freeway interchanges includes the following specific improvements:

HOV

- The HOV occupancy requirement is assumed to be three or more persons per vehicle by the 2020 study planning year. Travel demand forecasts for a two or more persons per vehicle occupancy requirement showed that the demand exceeded the capacity.
- An HOV lane in each direction from I-605 to SR-55 (an additional HOV lane in each direction would be added to the segment of I-405 between I-605 and SR-22).
- HOV direct connector ramps at the following locations: between I-605 and I-405, between I-405 and SR-22, between SR-22 and I-5, and between SR-22 and SR-55.

Bus

- Express buses routed on SR-22 are assumed to travel in the HOV lanes providing faster bus service.

Alternative 6C. This sub-alternative includes all elements of the No Build Alternative and the TSM Alternative, HOV lanes on SR-22, HOV freeway-to-freeway direct connectors at four freeway interchanges, and an arterial along the former Pacific Electric right-of-way which includes the following specific improvements:

Highway

- An arterial on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and/or Civic Center Drive (the arterial may or may not have designated HOV lanes).
- Direct connector ramps between SR-22 and the former Pacific Electric right-of-way arterial.

HOV

- The HOV occupancy requirement is assumed to be three or more persons per vehicle by the 2020 study planning year. Travel demand forecasts for a two or more persons per vehicle occupancy requirement showed that the demand exceeded the capacity.
- An HOV lane in each direction from I-605 to SR-55 (an additional HOV lane in each direction would be added to the segment of I-405 between I-605 and SR-22).
- An arterial on the former Pacific Electric right-of-way south of SR-22 leading to central Santa Ana via Santa Ana Boulevard and/or Civic Center Drive (the arterial may or may not have designated HOV lanes).
- HOV direct connector ramps at the following locations: between I-605 and I-405, between I-405 and SR-22, between SR-22 and I-5, and between SR-22 and SR-55.

Bus

- Express buses routed on SR-22 are assumed to travel in the HOV lanes providing faster bus service.

B. SUMMARY OF FINDINGS

Alternative 6A, 6B, or 6C would be most consistent with the regional plans because each would provide HOV lanes on SR-22, HOV connectors at freeway-to-freeway interchanges, and a future transit corridor along the former Pacific Electric right-of-way as detailed in the MPAH, the 98 RTP, and the AQMP. Alternative 6C performed well in the technical analysis conducted for the MIS as it maximized transportation; it would perform best in providing the most daily hours of transit service and would also provide the most kilometers/postmiles of HOV facilities. Alternative 6C would result in the greatest number of parcel acquisitions and largest area of acquisition of any of

the alternatives. The main reason for this result is that Alternative 6C would include improvements along the former Pacific Electric right-of-way. Alternative 6C would improve more of the geometric conditions than any of the other alternatives because the improvements included in Alternative 6C extend over the greatest length (from I-605 to SR-55). The other build alternatives include improvements over shorter distances, and thus provide fewer improvements. Alternative 6B or 6C would provide the most CHP and emergency access.

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Table 2.4-1
SUMMARY OF ALTERNATIVE EVALUATION RESULTS

Study Objectives	Alt. 1	Alt. 2	Alt. 3	Alternative 4		Alt. 5	Alternative 6		
				Alt. 4A	Alt. 4B		Alt. 6A	Alt. 6B	Alt. 6C
The results presented in this table are based on technical analyses. "High" indicates that the alternative performed well with regard to a particular objective and "Low" indicates that it performed poorly.	No Build	TSM / Expanded Bus Service	Fixed Guideway	GP on SR-22	• GP on SR-22 • GP Arterial on PE ROW	HOV lane on SR-22	• HOV on SR -22 • GP Arterial on PE ROW	• HOV on SR -22 • HOV Connectors	• HOV on SR -22 • GP Arterial on PE ROW • HOV Connectors
Improve Mobility									
Expand the Range of Travel Choices	Low	High	High	Low	Low	High	High	High	High
Lower Travel Times at Peak Periods	Low	Medium	High	Medium	Medium	High	High	High	High
Improve Roadway Operations									
Improve Roadway Design to the Extent Possible	Low	Low	Low	Medium	High	Medium	High	High	High
Provide Greater CHP Access / Enforcement Areas and Emergency Access	Low	Low	Low	Medium	Medium	High	High	High	High
Minimize Adverse Environmental Impacts									
Limit Displacements and Acquisitions	High	High	Medium	Medium	Low	Medium	Medium	Medium	Low
Reduce Emissions within the Study Area	Low	Medium	High	Low	Low	Medium	Medium	Medium	Low
Limit Impacts to People and Property in the Vicinity of the Project	High	High	Low	Medium	Medium	Medium	Medium	Low	Low
Limit Impacts to Water and Biological Resources	High	High	Medium	Medium	Low	Medium	Low	Medium	Low
Maximize Cost-Effectiveness									
Get Greatest Transportation Benefits with Transportation Dollars	____	High	Medium	Low	Low	High	Medium	Medium	Medium
Limit Adverse Economic Impacts									
Reduce Economic Impacts to the Tax Base	High	High	Medium	Medium	Medium	Medium	Medium	Medium	Low
Enhance Visual / Physical Access to Adjacent Commercial Properties	High	High	Medium	Medium	Low	Medium	Low	Medium	Low
Limit Disruptions due to Construction	High	High	Low	Low	Low	Low	Low	Low	Low
Be Consistent with Adopted Local Land Use and Regional Plans	High	High	High	High	Medium	High	High	High	High

Notes: GP = General-Purpose; PE ROW = Pacific Electric right-or-way

2.5 STATUS OF OTHER PROJECTS AND PROPOSALS WITHIN THE AREA

Related projects are those that may affect the construction, operation or use of the SR-22/WOCC, but are developed independently from it. They may also contribute to cumulative impacts when considered in conjunction with the SR-22/WOCC.

Related projects that have been identified for the SR-22/WOCC study area are presented below. Projects that are still in the planning process pending environmental approvals by the lead agencies are not listed. Only projects that have certified and adopted environmental documents are included. Examples of major projects in the SR-22 study area awaiting environmental approval are the Harbor Boulevard Smart Street Feasibility Study and The CenterLine Project.

2.5.1 Los Alamitos

- See Section 2.5.10 of this report, Regional Transportation Projects, for a description of the Katella Avenue Super Street project.

2.5.2 Orange County & Rossmoor Community

- The Orange County Water District has planned construction of a 60 to 78-inch diameter water pipeline along the north levee of the Santa Ana River. The limits of the projects, which consists of a 3-phase construction process, begin south of I-405 adjacent to Orange County Sanitation District's Plant No. 1 and terminate at Miller Basin in the City of Anaheim. A portion of the pipeline is presently under construction in the vicinity of the Theo Lacy Facility.
- Rossmoor Pump Station and Basin Modifications, located between I-605 and the San Gabriel River, is a portion of Los Alamitos Channel known as Rossmoor Retarding Basin. This project will build a new pump station to help regulate flows (Orange County, 1998).[4]

2.5.3 Seal Beach

- The proposed redevelopment of Bixby Old Ranch Towne Center in Seal Beach is adjacent to Seal Beach Boulevard between Saint Cloud Drive and Rossmoor Center Way. The project would dedicate the existing Bixby Old Ranch Tennis Club to the City of Seal Beach as a public recreation facility. Plans include building a new hotel, restaurants, and senior care facilities, while improving the existing golf course (Seal Beach, 1998).
- Widening of the Seal Beach Boulevard overcrossing of I-405 is proposed to provide six through lanes (three in each direction), sidewalks, bike lanes and a median. Roadway approaches would also be widened. Small amounts of additional right-of-way would be required for the widening (Seal Beach, 1998).[5]
- Marina Drive Bike Trail extends from First Street to Electric Avenue in the City of Seal Beach. The project proposes to construct Regional Trail in order to connect the trail system from the proposed trail on North Marina to an existing trail on Electric Avenue, including a traffic circles at Marina Drive and 5th Street.

2.5.4 Westminster

- No projects are proposed in the vicinity of SR-22.

[4] The Negative Declaration for this project is available at County of Orange, Public Facilities and Resources Department, 300 N. Flower Street, Santa Ana, CA 92703.
[5] The EIR for the Bixby Old Ranch Towne Center and the Negative Declaration for the Seal Beach Boulevard overcrossing are available at the City of Seal Beach, 211 Eighth Street, Seal Beach, CA 90740.

2.5.5 Garden Grove

- County Wide Automotive Dealership, located on the corner of Trask Avenue and Taft Street, anticipates construction of an approximately 1.3-hectare (3.2-acre) site for the operation of an automobile sales, repair, and service facility (Garden Grove, December 1999).[6]
- The City of Garden Grove has proposed improvements at the Harbor Boulevard interchange with SR-22. Note, this proposed project is included as an element of the Harbor Blouevard Smart Street, listed below under Regional Transportation Projects.

2.5.6 Stanton

- No projects are proposed in the vicinity of SR-22.

2.5.7 Santa Ana

- Fashion Square Commercial Center (now known as MainPlace Mall) completed the final phase of development, which includes an office building on the northern end of the property and a department store expansion on the southern end (Santa Ana, 1983).
- Main Street Concourse, located at the northeast corner of Main Street and Owens Drive, is a proposed 7.6-hectare (18.9-acre) development, which includes the construction of commercial, office, retail, hotel, entertainment, and residential land uses (Santa Ana, 1992).
- Bristol Street Widening entails upgrading a 6.3-meter (3.9-mile) section of Bristol Street to six lanes. The project extends from Memory Lane to Warner Avenue (Santa Ana, 1990).[7]
- Santiago Creek Bike Trail Project extends from Santiago Park to Santiago Day Camp in the City of Santa Ana. The project entails the construction of an asphalt pedestrian/bicycle trail including the installation of a pre-fabricated pedestrian bridge over Santiago Creek at one location.

2.5.8 Orange

- Main Street/La Veta Avenue/Chapman Avenue. Phases of this project have been completed. The unfinished phases include widening La Veta Avenue between Cambridge Street and Parker Street to an ultimate width of 80 feet (25 meters), and between Parker Street and Flower Street to a range of 100 to 135 feet (30 to 40 meters) (Orange, 1991).[8]
- Santiago Creek Bike Trail Project consists of the construction of a Class I bike trail along Santiago Creek from the western city boundary to north Tustin Street. It implements a portion of the City's Master Plan of Bikeways. The proposed trail will connect existing, non-contiguous segments of trail in the cities of Orange and Santa Ana, and will consist of a ten-foot wide paved pathway with two-foot wide graded shoulders. The trail will be constructed on the north side of Santiago Creek beginning at the Orange/Santa Ana boundary, and entering Hart Park via an existing paved access road to the park. The trail will cross to the south side of the creek within the Hart Park parking lot, and traverse the south side of the park on existing paved pathways. The project will include undercrossings at the SR-22 Cambridge Street and Tustin Street. The undercrossing of SR-22 will be constructed on the existing dirt path that is elevated out of the creek bottom.

2.5.9 Tustin

- No projects are proposed in the vicinity of SR-22.

[6] The Negative Declaration for this project is available at the City of Garden Grove, 11222 Acacia Parkway, Garden Grove, CA 92840.
[7] The EIR for these projects are available at the city of Santa Ana, 20 Civic Center Plaza, Santa Ana, CA 92702.
[8] The Memorandum of Understanding for this project is available at OCTA.

2.5.10 Regional Transportation Projects

- Katella Avenue Super Street improvements are proposed for a 23.0-kilometer (14.3-mile) segment of Katella Avenue between I-605 and SR-55. Measures that would be implemented include traffic signal coordination, roadway widening, intersection improvements, on street parking modification, re-striping, bus turnouts and upgrading the safety and efficiency of the roadway (OCTA, 1993).[9]
- I-5 widening extending from SR-22 to SR-91, approximately 13.0 kilometers (8.1 miles), will reduce traffic congestion, provide additional capacity for the anticipated traffic increase, and reduce operational problems (Caltrans, 1991).[10] This project has been completed.
- Harbor Boulevard Smart Street improvements are proposed for a 12.5-kilometer (7.8-mile) segment from Orangewood Avenue (City of Anaheim) to the intersection with Gisler Avenue (Immediately south of I-405) in the City of Costa Mesa. Measures that would be implemented include The Smart Street concept envisions:
  - Addition of through and turn lanes
  - Preferential traffic signal timing and synchronization
  - Removal of on-street parking
  - Free right-turn lanes
  - Access limitation: right turn only, or no access (street and/or driveways)
  - Access consolidation
  - Bus Turnouts
  - Applications of Intelligent Transportation Systems (ITS) technology

2.6 PROJECT FUNDING

Estimated capital costs of the proposed improvement alternatives range from $68 million to approximately $751 million. The $68 million is for the TSM/Expanded Bus Service Alternative, the $751 million is for the Full Build Alternative, while the (Enhanced) Reduced Build Alternative is estimated between these two alternatives. According to the Preliminary Cost Estimate prepared during the DEIR/EIS stage, the cost of the Reduced Build Alternative is approximately $511 million. With the added features in the (Enhanced) Reduced Build Alternative, offset by the fewer residential and commercial property acquisitions, we can expect the identified Preferred Alternative cost to be similar to the Reduced Build Alternative at approximately $499 million. Specific funding plans will be determined based upon the identified Preferred Alternative and availability of a range of funding sources.

If selected, the funding of a recommended build alternative by OCTA and the Department would likely require several funding sources. The Department and OCTA will develop the actual funding plan for a recommended build alternative during the next phase of project development. Potential funding sources for improvements in the SR-22 corridor could include:

- Measure M funds
- State transportation funds
- Federal transportation funds
- Transportation Congestion Relief Plan (TCRP) funds
- Local transportation funds

On July 6, 2000, Governor Gray Davis signed Assembly Bill (AB) 2928, a transportation funding measure called the California Transportation Congestion Relief Plan (TCRP). Among other improvements, the TCRP provides $206.5 million for the mainline portion of the proposed improvements on SR-22, to construct HOV lanes from I-405 to SR-55. In addition, in December 2001, the OCTA Board of Directors approved allocating $203 million in Measure M dollars to fund the same limits of improvements. The combined funding would cover costs of the proposed SR-22 Mainline improvements outlined in the

[9] The EIR for this project is available at OCTA.
[10] The EIR for this project is available at the Department of Transportation, District 12.

(Enhanced) Reduced Build Alternative, but would not include the HOV direct connectors at SR22/I-405 or I-405/I-605.

Measure M was not included in the improvements to SR-22 during the DEIR/EIS phase. However, OCTA has continued to experience cost savings on committed freeway construction projects to date and Measure M sales tax revenues higher than OCTA's conservative financial projections. These two factors may offer the availability of additional Measure M funds beyond those required to complete committed freeway improvements.

State and Federal transportation funding allocations are based on the State Transportation Improvement Program (STIP). The STIP underwent a major change due to the approval of Senate Bill 45 in 1999. This bill consolidated various funding programs into the STIP and created more accountability for programming and delivery of STIP projects to the regions around the state and the various Caltrans districts. Of the available STIP funds, 75 percent are allocated by formula to the counties and are referred to as the RTIP. The California Transportation Commission (CTC) and the Department, through the Interregional Transportation Improvement Program, allocate the remaining 25 percent. The 1998 STIP covers a six-year time period, with future STIPs reduced to four-year periods. The 1998 STIP,[11] adopted in June 1998, includes over $300 million in funding for transportation improvements in Orange County. Most of these funded projects are included in the Measure M program of projects. Furthermore, the 2002 draft STIP did not include funding for construction of the HOV direct connectors at I-405/I-605 and I-405/SR-22 freeways.

2.7 PROJECT PHASING

Project construction would likely be phased. The mainline portion of the project, extending from I-405 to SR-55 has funding commitment and may proceed with design and construction upon complete processing of the EIR/EIS. The OCTA intends to utilize a design-build concept for this phase of the proposed improvement. The implementation of this approach could reduce construction duration. Phasing scenarios for the remaining features of the proposed project have not been determined, and would be dependent on such factors as funding availability, environmental impacts and mitigation requirements, coordination with other projects, and operational considerations of the transportation system during both construction and operation.

[11] Available at OCTA.

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SECTION 3.0
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

3.1 GEOLOGY AND SOILS

For the purpose of including analysis of the affected environment, a brief discussion will be presented below. A more detailed discussion for the geology and soils can be found in Section 3.1 of the August 2001 DEIR/EIS.

3.1.1 GEOLOGY

Orange County includes a diverse combination of mountains, hills, flatlands and shoreline. The County is located within the southern Los Angeles Basin, within the northern Peninsular Ranges Geomorphic Province. The backbone of Orange County geology is the Santa Ana Mountain Range, which extends southeast from the Puente Hills near Prado Dam across the county limits. The Santa Ana River is primarily responsible for the surface geology of the study area.

3.1.2 SEISMICITY

As described in the August 2001 DEIR/DEIS, Orange County is subject to a high level of seismic activity with potentially destructive earthquakes. Six major active or potentially active fault zones are known within or near the project area (OCEMA, 1987). These fault zones include the Los Alamitos Fault, Newport-Inglewood Fault, Whittier Fault, San Andreas Fault, El Modena Fault and Peralta Hills Fault. Figure 3.1-1 shows the locations of major known faults near or within the SR-22/West Orange County Connection (SR-22/WOCC) study area.

3.1.3 SOILS

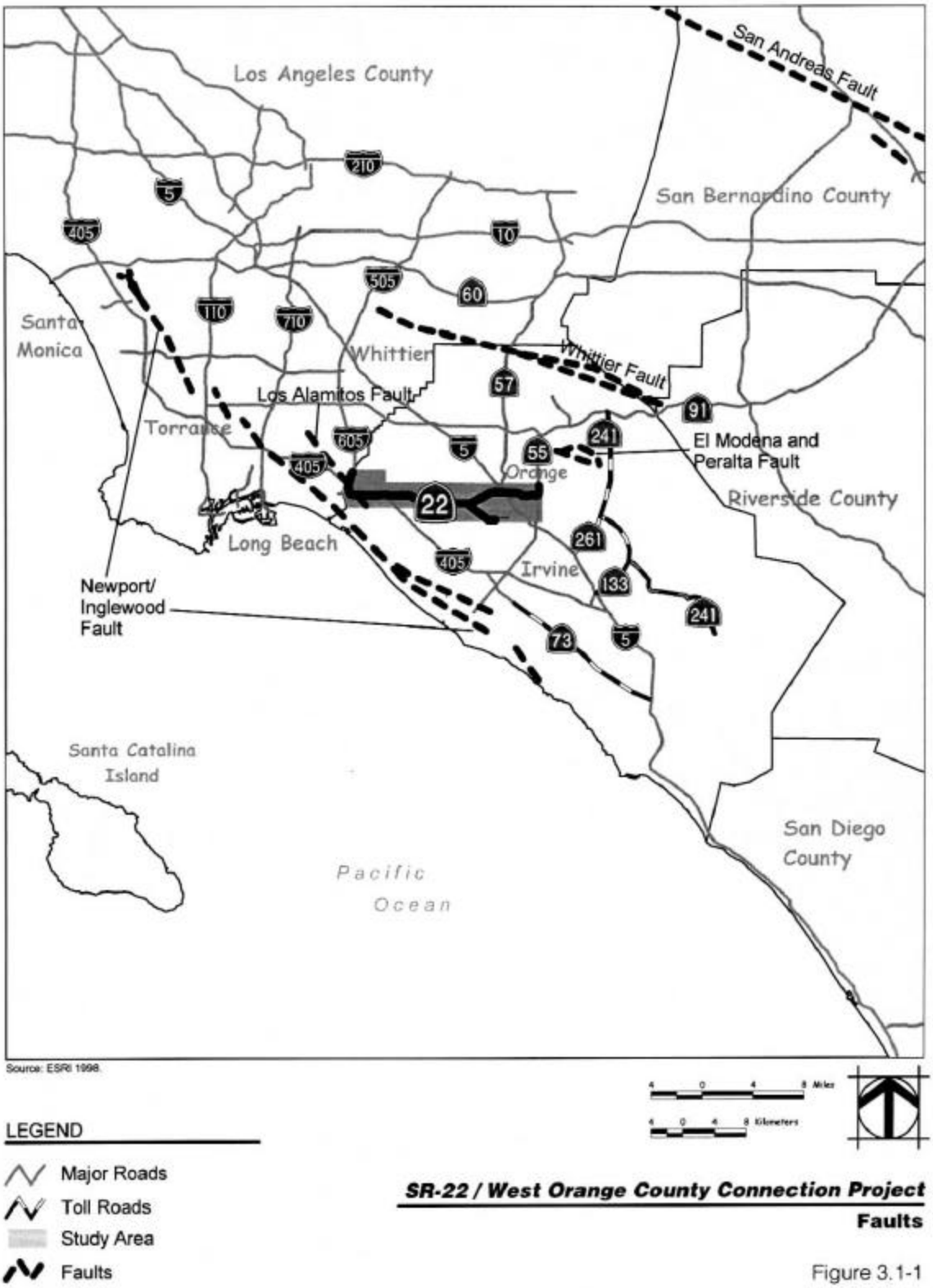
The two large soil associations in the SR-22/WOCC study area are the Hueneme-Bolsa and the Metz-San Emigdio. The Hueneme-Bolsa association extends southeast from Seal Beach to the Santa Ana River and about 16 to 19 kilometers (10 to 12 miles) inland from the coast, making up approximately 11 percent of Orange County. Plant cover for this association is comprised of annual grasses, forbs, mustard, and plants that require moisture. Elevations range from 1.5 to 107 meters (5 to 350 feet) (USDA, 1978). The Metz-San Emigdio association is located primarily on the upper floodplains from the Santa Ana Canyon area west to Buena Park and Stanton, and southwest to Garden Grove and northern Santa Ana. The plant cover is usually annual grasses and forbs. Elevations range from 3 to 460 meters (10 to 1,500 feet) (USDA, 1978). These soil associations comprise about 39 percent of all soil types in Orange County (USDA, 1978).

3.1.4 LIQUEFACTION

In general, the SR-22/WOCC project study area has a high water table and is located in a region that has moderate to high susceptibility to liquefaction (USGS, *Seismic Liquefaction,* 2000). See Figure 3.1-2 for areas susceptible to liquefaction.

3.1.5 EXPANSIVE SOILS

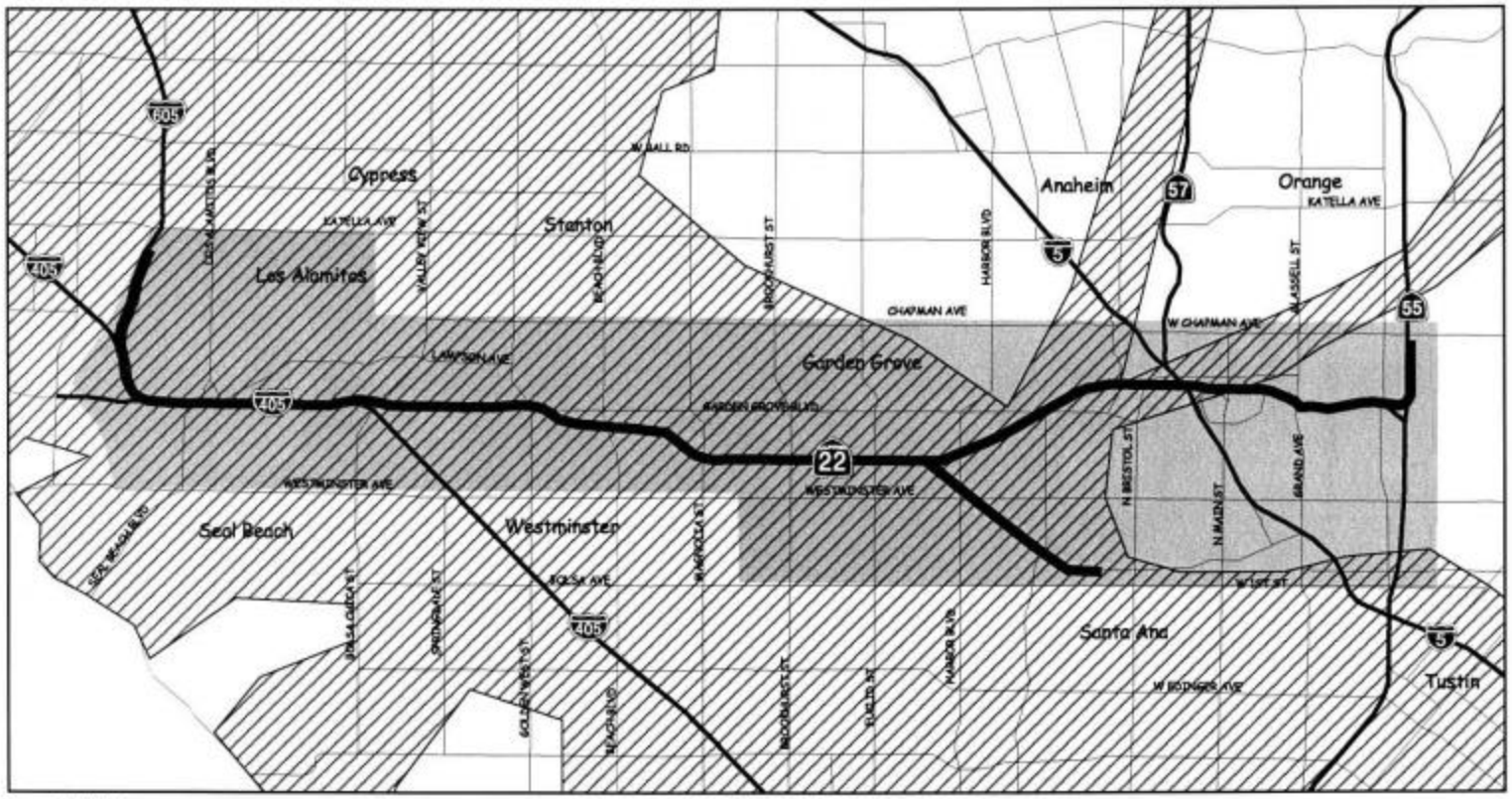
Expansive soils have grains that swell and increase in volume when water is added. This triggers cracking, slipping or sinking of residences, sidewalks and swimming pools. Much of Orange County suffers from this problem because of the clay structure of the soil (Orange County, August 1987).



SR-22 / West Orange County Connection Project

Faults

Figure 3.1-1



SR-22 / West Orange County Connection Project

Areas Susceptible to Liquefaction

Figure 3.1-2

[1] The General Plan is available at OCTA.

3.1.6 LANDSLIDE, EROSION, SUBSIDENCE, AND UPLIFT

The study area is located on a generally flat, landscaped terrace; therefore, there is a low potential for landslides and erosion to occur.

Subsidence and uplift are caused by forces within the earth's crust or by withdrawal or injection of fluids or solids such as oil, water, soil or rock. The proposed project study area has a very low potential for subsidence or uplift (Orange County, 1987).

3.1.7 SEICHES AND TSUNAMIS

The only bodies of water present in the vicinity of the proposed project study area are the small ponds and reservoirs present on golf courses and parks, which do not present a potential for seiches due to their low volume of water. In addition, The Orange County coastline is shielded to the west by the Channel Islands and to the north by Point Conception from most sources of tsunamis, thereby reducing the threat of damage (Orange County, August 1987).

3.1.8 MINERAL RESOURCES

There is currently no economic mineral resource extraction in operation within the study area; therefore, there is a low potential of mineral loss due to the construction of the proposed project.

3.1.9 PALEONTOLOGICAL RESOURCES

Soils in and around the study area are the result of alluvial deposits from sedimentary rock sources. These deposits have a low potential for paleontological resources. In addition, the project study area is not classified by the *Orange County General Plan* as an area of high paleontological sensitivity (Orange County, August 1987). [2]

[2] The General Plan is available at OCTA.

3.2 HYDROLOGY, FLOODPLAINS, AND WATER QUALITY

This section summarizes the surface water, groundwater and floodplains studies contained in the DEIR/DEIS, August 2001, and the *Floodplain Evaluation Report and Floodplain Evaluation Report Reduced Build Alternative Addendum* (December 2000).

3.2.1 SURFACE WATER

The primary surface water resources within the study area include the Santa Ana River, San Gabriel River and Santiago Creek (see Figure 3.2-1).

A. LOCATION

The study area lies within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB). The Santa Ana River is the region's largest river, flowing southwest from the San Bernardino Mountains into the Pacific Ocean at Huntington Beach (USGS, 1999). The major tributary to the Santa Ana River within the project area is Santiago Creek. The creek empties into the Santa Ana River approximately 490 meters (1,600 feet) downstream from the Bristol Street Bridge south of SR-22.

The San Gabriel River is located at the western boundary of the project area. Runoff in the study area near the San Gabriel River and I-605 is discharged into the Los Alamitos Channel. Currently, the Los Alamitos Channel does contain wetlands in various locations in the project vicinity. For more information on the locations of the wetlands, refer to Section 3.4. Since runoff from the project area does not discharge directly into the San Gabriel River, no further discussion of the San Gabriel River will be provided in this section.

Other surface water features located within the study area include 16 lined and unlined flood control channels. These channels do not have any beneficial uses as defined by the Santa Ana Basin Water Quality Control Plan (1995). For further information regarding flood control channels within the study area, refer to Section 3.2.3 of this document.

B. BENEFICIAL USES

Santa Ana River. Reach 2 of the Santa Ana River, located within the study area, provides several beneficial uses. The existing beneficial uses in this segment include agriculture, groundwater recharge, and water contact and non-contact recreation. Reach 2 also provides habitats for warm freshwater ecosystems, wildlife, and rare, threatened or endangered species. Currently, this segment of the river is accepted for municipal and domestic uses.

Santiago Creek. Reach 1 of the Santiago Creek is also located within the study area. Although the creek is not as large as the Santa Ana River, Santiago Creek has similar beneficial uses. Beneficial uses of the creek's waters within the project limits include municipal and domestic supply, groundwater recharge and water contact and non-contact recreation. There are also potential wildlife and warm freshwater habitats within this reach of the creek (Santa Ana RWQCB, 1995).

C. QUALITY

The SR-22/West Orange County Connection (SR-22/WOCC) study area is densely urbanized and consequently has a high proportion of impervious surfaces. The Santa Ana River, Santiago Creek and other channels within the study area receive runoff from the high amount of paved area in the region. Water was not sampled within the study area (Hintlian, 2000); however, the surface water is generally considered to be of poor to fair quality.

Currently, none of the major water resources within the study area are included in the California 303(d) List and TMDL (Total Maximum Daily Load) Priority Schedule. However, the Bolsa Chica Channel and the East Garden Grove-Wintersburg Channel discharge directly into Huntington Harbor, which discharges into Anaheim Bay. Both Huntington Harbor and Anaheim Bay are 303(d)-listed waterbodies. Huntington Harbor is listed for metals, pathogens and pesticides, and Anaheim Bay is listed for metals and pesticides. In addition, The Los Alamitos Channel also discharges into a 303(d)-listed waterbody. The San Gabriel River receives discharges from the channel and is listed for abnormal fish histology, algae, ammonia, high coliform count and toxicity. No TMDL's have been established for any of these water bodies.

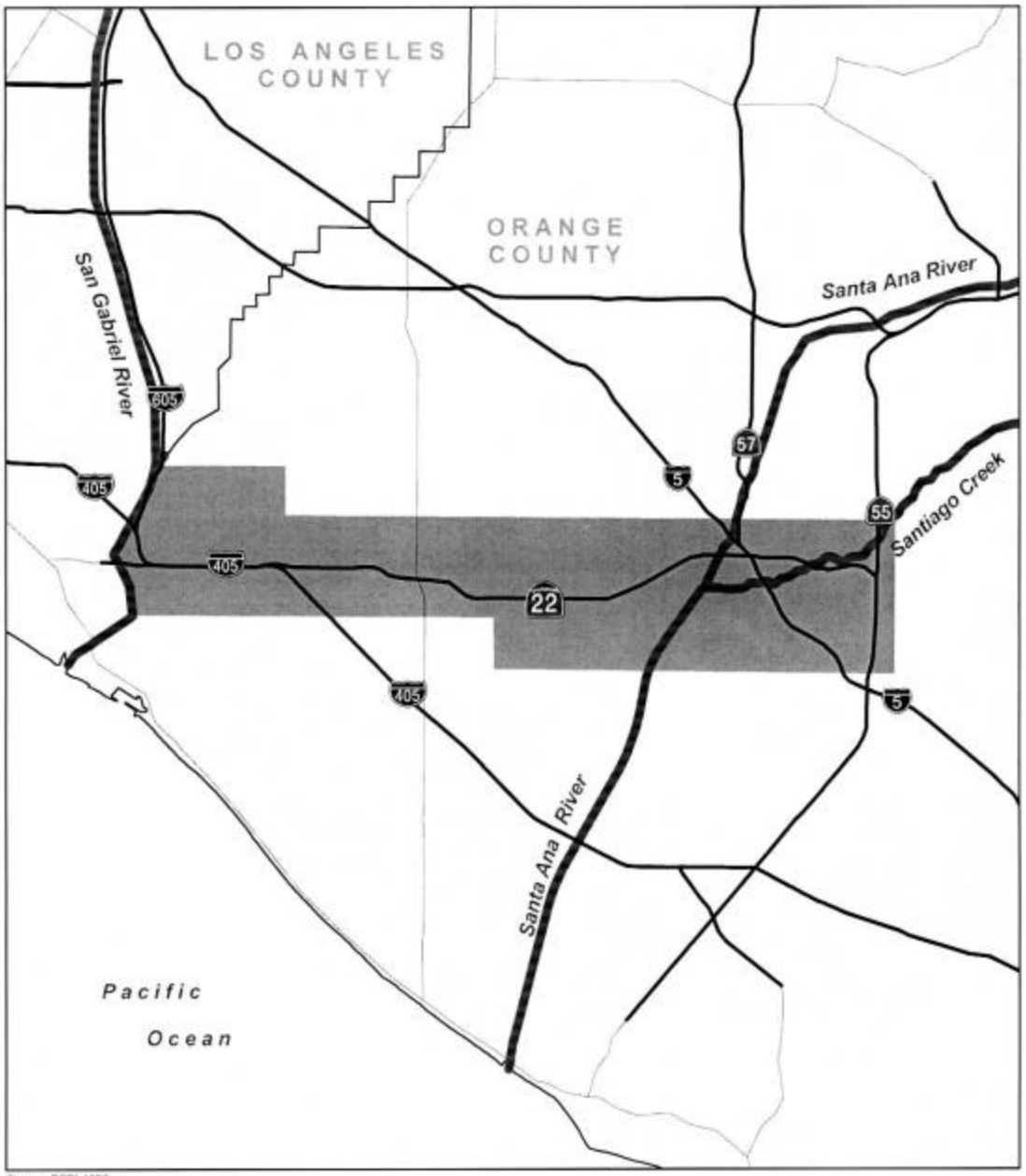
3.2.2 GROUNDWATER

Both natural and artificial factors influence groundwater in Orange County. Natural factors include rainfall, outflow from underground reservoirs to the ocean and other basins, and stream inflow. Due to the urban nature of the study area and the low percentage of pervious surfaces, limited groundwater recharge occurs naturally. The majority of groundwater recharge in the study area occurs by artificial recharge from water within the Santa Ana River north (upstream) of the study area. Artificial factors include water extraction through wells and the recharge of groundwater basins using imported or treated water supplies. However, most of the recharge basins are located north (upstream) of the proposed improvements, and few sites are located downstream.

A. LOCATION

The Orange County groundwater basin underlies the northern half of Orange County, including the study area (see Figure 3.2-2, Major Surface Water Resources, SR-22/WOCC). The entire basin covers approximately 910 square kilometers (350 square miles). It is bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminates near the Orange County line to the northwest.

The California Department of Water Resources divides the Orange County groundwater basin into two hydrologic divisions, the Forebay Area and the Pressure Area (see Figure 3.2-2). The Forebay Area encompasses much of the cities of Garden Grove (eastern side), Santa Ana, Orange and Tustin. The majority of the central and coastal portions of the basin fall within the Pressure Area, including Garden Grove (western half), Westminster, Seal Beach, Rossmoor and Los Alamitos.



Source: ESRI 1998.

LEGEND

Major Highways

Major Surface Water Resources

Study Area

SR-22 / West Orange County Connection Project

Major Surface Water Resources

Figure 3.2-1

B. USE

The Santa Ana River is used for groundwater recharge as described in Section 3.2.1 of the August 2001 DEIR/EIS. Beneficial uses for the Lower Santa Ana River Basin groundwater subbasins include municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply.

C. QUALITY

During 1996 and 1997, the Orange County Water District (OCWD) service area had an average of 506 milligrams per liter (0.0805 ounces per gallon) total dissolved solids (TDS). The TDS concentration had an average flow weight of 466 milligrams per liter (0.0741 ounces per gallon) TDS (OCWD, *Engineer's Report*, 1998). Poorer quality water with high organic or mineral content is treated to make it drinkable.

3.2.3 FLOODPLAIN

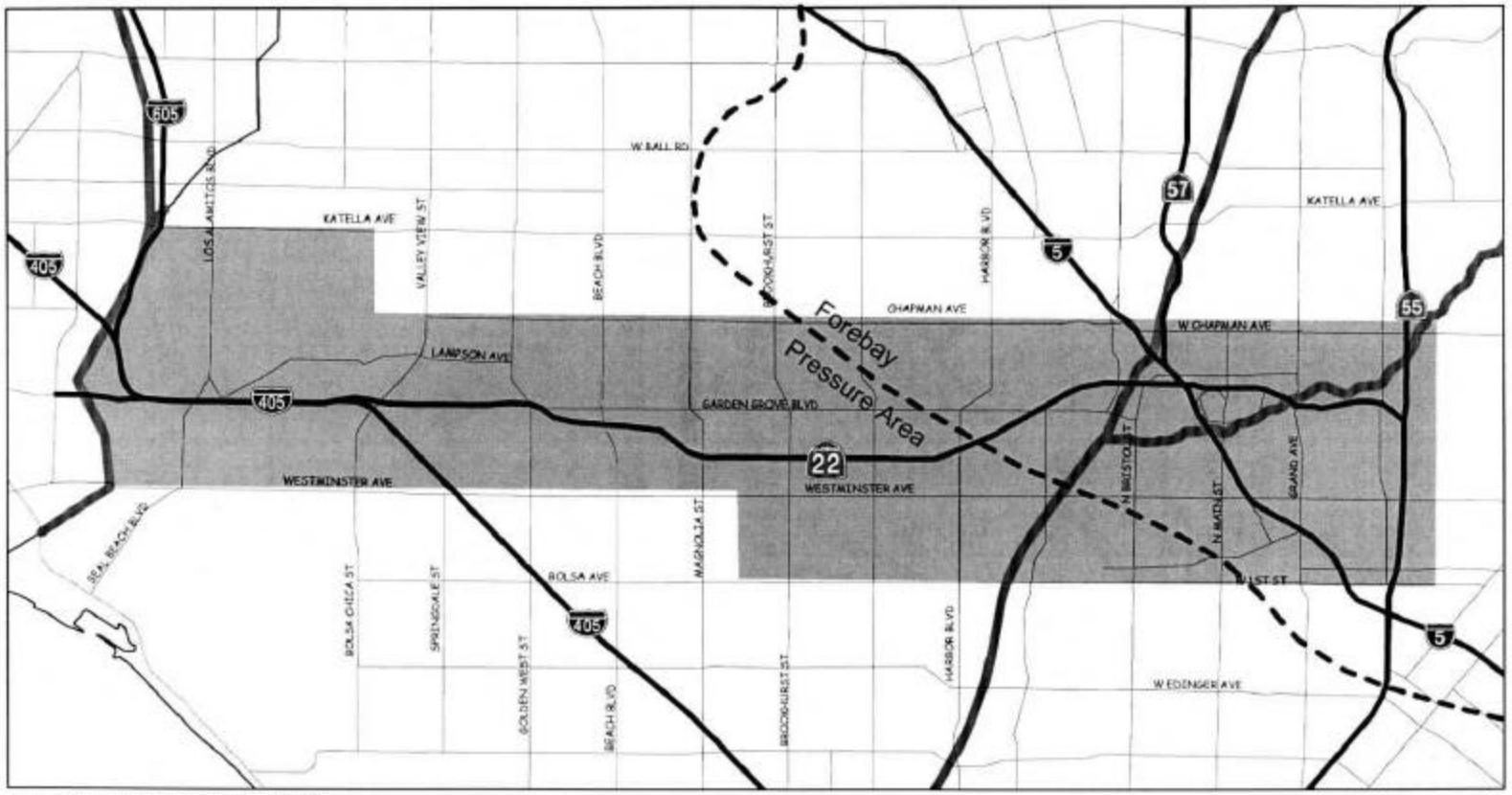
The Federal Emergency Management Agency (FEMA) *Flood Insurance Study for Orange County, California* has identified 100-year flood limits for nine of the eighteen flood control channels that cross the project alignment (see Table 3.2-1, Orange County Flood Control Facilities).[1] All nine culverts studied by FEMA passing under the study area freeways fully contain the 100-year flows. Detailed floodplain maps at each of the crossings are included in Appendix B of the *Floodplain Evaluation Report* (December 2000).

Table 3.2-1
ORANGE COUNTY FLOOD CONTROL FACILITIES

Facility (with Orange County System Number)	**Included in FEMA Flood Insurance Study**
Los Alamitos Channel (C01)	Yes[a]
Katella Storm Channel (C01S05)	No
Kempton Storm Channel (C01S01)	No
Montecito Storm Channel (C01S03)	Yes[a]
Bixby Storm Channel (C01S04)	Yes[a]
Bolsa Chica Channel (C02)	Yes[a]
Federal Storm Channel (C01S06)	Yes[a]
Anaheim-Barber City Channel (C03)	Yes[b]
Bolsa Grande Storm Channel (C04S02)	No
Westminster Channel (C04)	No
Taft Storm Drain (C04P12)	No
Newhope Channel (C05S10)	No
East Garden Grove-Wintersburg Channel (C05)	Yes[b]
Lewis Storm Channel (C05S10)	No
Santa Ana River (E01)	Yes[b]
La Veta Storm Channel (E08P01)	No
El Modena Storm Channel (E08P06)	No
Santiago Creek (E08)	Yes[b]

[a] Approximate methods used for study of floodplain.
[b] Detailed methods used for study of floodplain.

[1] This study is available at Caltrans District 12.



Source: ESRI 1998, Orange County Water District, 1999.
Note: Entire study area is underlain by the Orange County groundwater basin.

LEGEND

- Freeway
- Forebay/Pressure Area Boundary
- Study Area

1 0 1 2 Miles

1 0 1 2 Kilometers

SR-22 / West Orange County Connection Project

Groundwater Recharge Basin

Figure 3.2-2

Table 3.2-2
FLOOD FLOWS, ELEVATIONS AND ZONES

Facility (with Orange County System Number)	50-Year Flow	100-Year Flow* (multiple sources, see notes)	100-Year Elevation meters (Feet)	Flood Zone[a]
Los Alamitos Channel (C01)	Not Available	**69 cms** (1,950 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Katella Storm Channel (C01S05)	Not Available	**220 cms** (780 cfs)[b]	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
Kempton Storm Channel (C01S01)	Not Available	**8.2 cms** (290 cfs)[b]	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
Montecito Storm Channel (C01S03)	Not Available	**18 cms** (640 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Bixby Storm Channel (C01S04)	Not Available	**5.4 cms** (190 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Bolsa Chica Channel (C02)	Not Available	**109 cms** (3,850 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Federal Storm Channel (C01S06)	Not Available	**11 cms** (400 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Anaheim-Barber City Channel (C03)	27 cms (950 cfs)[a]	37 cms (1,300 cfs)[a] **178 cms** (6,300 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Bolsa Grande Storm Channel (C04S02)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
Westminster Channel (C04)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
Taft Storm Drain (C04P12)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
East Garden Grove-Wintersburg Channel (C05)	24 cms (850 cfs)[a]	**34 cms** (1,200 cfs)[a] 28 cms (990 cfs)[b]	Per FEMA, flow contained in channel, exact flooding elevation not determined	No elevations established, a limit only
Newhope Channel (C05S10)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD

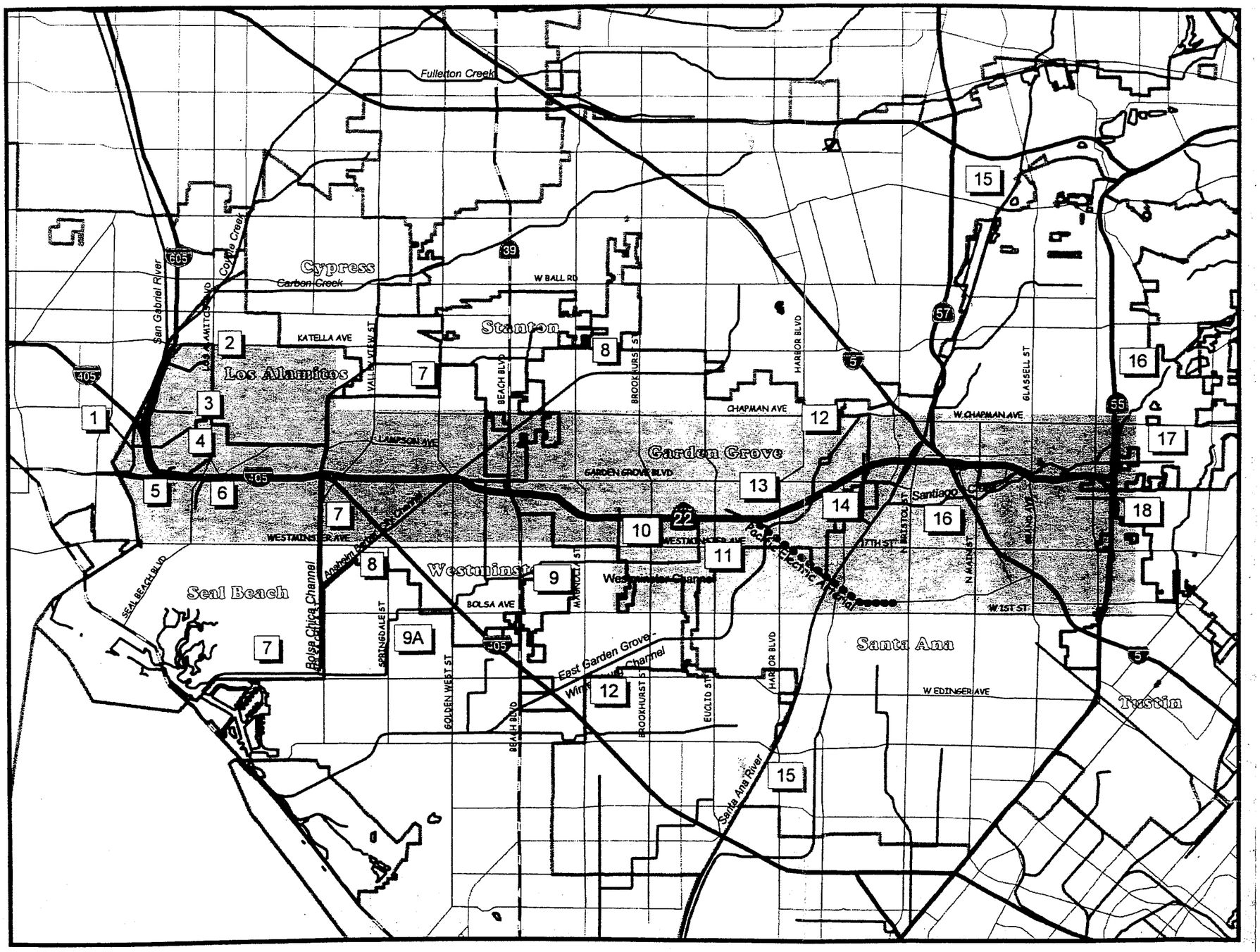
Table 3.2-2 (continued)
FLOOD FLOWS, ELEVATIONS AND ZONES

Facility (with Orange County System Number)	50-Year Flow	100-Year Flow* (multiple sources, see notes)	100-Year Elevation	Flood Zone[a]
Lewis Storm Channel (C05S10)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
Santa Ana River (E01) (upstream of Santiago Creek)	1,005 cms (35,500 cfs)[c]	1,400 cms (50,000 cfs)[a] 1,190 cms (42,000 cfs)[b] **1,090 cms** (38,500 cfs)[c]	32.38 m (100.22 ft)[a]	No Floodplain Zone
Santa Ana River (E01) (downstream of Santiago Creek)	1,048 cms (37,000 cfs)[c]	1,400 cms (50,000 cfs)[a] 1,190 cms (42,000 cfs)[b] **1,160 cms** (41,000 cfs)[c]	32.22 m (105.71 ft)[a]	No Floodplain Zone
Santiago Creek (E08) (at SR-22)	113 cms (4,000 cfs)[a]	338 cms (12,000 cfs)[a] 183 cms (6,450 cfs)[b] **127 cms** (4,500 cfs)[c]	51 m (168 ft)[a]	No Floodplain Zone
Santiago Creek (E08) (at SR-55)	113 cms (4,000 cfs)[a]	338 cms (12,000 cfs)[a] 183 cms (6,450 cfs)[b] **110 cms** (3900 cfs)[c]	71 m (232 ft)[a]	No Floodplain Zone
La Veta Storm Channel (E08P01)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD
El Modena Storm Channel (E08P06)	Not Available	Not Available	Not determined by FEMA or County of Orange PFRD	Not determined by FEMA or County of Orange PFRD

Sources: [a] FEMA, 1997. [b] Orange County, 1999. [c] USACOE, 1988.
Note: * 100-year flows that should govern design are **indicated in bold**`
cms = cubic meters per second; cfs = cubic feet per second

The Flood Insurance Study for Orange County, California defines the 10-, 50-, 100- and 500-year flood flows for four of the nine creeks studied that cross the project alignment. The FEMA-defined 100-year flows, elevations and zones for the four waterways studied are shown in Table 3.2-2, Floodflows, Elevations and Zones. Figure 3.2-3, Flood Control Channels in the SR-22/WOCC, depicts all of the flood control channels.

The Santa Ana River connects to the Pacific Ocean well downstream of SR-22. In many locations, the riverbanks have been stabilized by the placement of rock riprap, and channel capacity has been increased by the construction of levees protected by riprap material. Within the Santa Ana River floodplain, the County of Orange Public Facilities and Resources Department (PFRD) has channelized several major tributary watercourses to convey local runoff, but this has not materially reduced the 100-year flooding of the Santa Ana River. With the completion of the Seven Oaks Dam and lower Santa Ana River channel improvements from Imperial Highway to the Pacific Ocean, part of the Santa Ana River Mainstem Project, the river channel is now capable of containing a 100-year flood, according to the U.S. Army Corps of Engineers letter of September 27, 1999 (see Appendix C). The resulting, greatly increased flood capacity would receive runoff primarily from local storms occurring in the coastal plain of Orange County (Figure 3.2-4, FEMA-Defined Floodplains).



SR-22/West Orange County Connection Project

Flood Control Channels

LEGEND

- Freeway Improvements
- Pacific Electric Right-of-Way Improvements
- Secondary Road
- River/Channel
- City Boundary
- Study Area

Source: ESRI 1998.

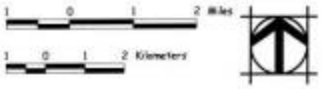
1 - Los Alamitos Channel (C01)
2 - Katella Storm Channel (C01S05)
3 - Kempton Storm Channel (C01S01)
4 - Montecito Storm Channel (C01S03)
5 - Bixby Storm Channel (C01S04)
6 - Federal Storm Channel (C01S06)
7 - Bolsa Chica Channel (C02)
8 - Anaheim-Barber City Channel (C03)
9 - Westminster Channel (C04)
10 - Bolsa Grande Storm Channel (C04S02)
11 - Taft Storm Drain (C04P12)
12 - East Garden Grove-Wintersburg Channel (C05)
13 - Newhope Channel (C05S10)
14 - Lewis Storm Channel (C05S11)
15 - Santa Ana River (E01)
16 - Santiago Creek (E08)
17 - La Veta Storm Channel (E08P01)
18 - El Modena Storm Channel (E08P06)

1 0 1 2 Miles

1 0 1 2 Kilometers

Figure 3.2-3

Source: ESRI 1998, FEMA 2000.



LEGEND

- Major Roads
- Primary Creeks/Channels
- FEMA 100-year Floodplains
- FEMA Remaining Zone A99 SFHA

SR-22 / West Orange County Connection Project

FEMA-Defined Floodplains

Figure 3.2-4

3.3 BIOLOGY

This section summarizes the existing biological resources within the project study area. The information is based on the *SR-22/West Orange County Connection Natural Environment Study (NES)* and the *Reduced Build Alternative NES Addendum* (December 2000), the *NES Reduced Build Alternative (Revised) Addendum* (December 2002), and the August 2001 DEIR/EIS. For a more detailed analysis of biological resources, see the technical reports.

3.3.1 VEGETATION

The existing SR-22/West Orange County Connection (SR-22/WOCC) corridor is vegetated primarily with exotic (non-native) species used in southern California landscaping and freeway rights-of-way. Plant species observed in the study area are listed in Table 3.3-1.

Table 3.3-1
Plant Species Observed in the Study Area

Common Name	Scientific Name
acacia	*Acacia* sp.
California pepper	*Schinus molle*
California sycamore tree	*Platanus racemosa*
castor bean*	*Ricinus communis*
Chinese elm	*Ulmus parvifolia*
coast live oak tree	*Quercus agrifolia*
eucalyptus	*Eucalyptus* sp.
fan palm	*Washingtonia* sp.
fennel[A]	*Foeniculum vulgare*
fountain grass* [A]	*Pennisetum setaceum*
giant reed* [A]	*Arundo donax*
horseweed	*Conyza canadensis*
Hottentot fig[A]	*Carpobrotus edulis*
ice plant	*Mesembryanthemum crystallinum*
jacaranda	*Jacaranda mimosifolia*
mulefat	*Baccharis salicifolia*
mustard*	*Hirshfeldia incana*
oleander	*Nerium oleander*
pampas grass[A]	*Cortaderia selloana*
pine	*Pinus* sp.
red brome[A]	*Bromus madritensis* ssp. *rubens*
tree tobacco	*Nicotiana glauca*
wild oat	*Avena* sp.
willows	*Salix* sp.

* On California noxious weeds list (CDFA, 2000); [A] from the California Exotic Pest Plant Council list of Invasive Wildland Pest Plants.

Most drainages in the study area are entirely lined by concrete channels. The SR-22 overcrossing at the Santa Ana River supports a sand bottom, with only ruderal and exotic vegetation. Vegetation at the SR-55 crossing over Santiago Creek, which has rocky/gravel channel bed, includes mulefat, a native species, although invasive ruderal species, including giant reed, castor bean, fennel, eucalyptus, tree tobacco and wild oat, dominate the area. The quality of riparian habitat in this area is low.

The SR-22 overcrossing at the Santiago Creek primarily contains exotic vegetation. Mature coast live oak trees occur north of the Santiago Creek/SR-22 overcrossing, in addition to several mature California sycamore trees and willows, all of which have the potential to be impacted due to ramp relocation activities at Santiago Creek. Although California sycamores and willows are riparian species and

sycamores are associated with riparian woodland habitat, other vegetation is sparse, and the very low-quality riparian habitat in this area would not be characterized as riparian woodland. The associated vegetation includes several non-native species including fennel, giant reed, fan palm, fountain grass, common horseweed, and eucalyptus.

The City of Orange has an Oak Tree Preservation Ordinance to regulate large-scale tree removal from undeveloped property. The County of Orange has no similar tree protection or preservation ordinance and no other similar local ordinances exist in other local jurisdictions within the project area.

3.3.2 WILDLIFE

The sparse nature of riparian vegetation in the study area limits its potential to support a diverse array of wildlife species (Table 3.3-2, Animal Species that May or Are Known to Occur in the Study Area). Native amphibians and reptiles were not observed during surveys. Birds and raptors observed during surveys included species such as the mourning dove, spotted dove, red-shouldered hawk, red-tailed hawk and great horned owl. Native and non-native mammal species were expected to occur in the study area; however, none were observed during field surveys. Many of the mammals may be nocturnal. White-throated swifts reportedly nested in recent years at the SR-55 bridge over Santiago Creek (Newkirk, 1999). The December 2000 Natural Environmental Study identified maternity colonies of big brown bats and Mexican free-tailed bats at the SR-55 and SR-22 bridge (Bridges 55-0381, 55-0381OL, 55-0381K, 55-0381S, 55-0033) crossings over Santiago Creek. These species were not observed during summer 2002 field surveys, but the nocturnal and secretive nature of these species indicates they may be present. Also, these migratory species are not present throughout the year or every year at historic nesting sites.

Table 3.3-2
ANIMAL SPECIES THAT MAY OR ARE KNOWN TO OCCUR IN THE STUDY AREA

Common Name	Scientific Name	Comments
Amphibians and Reptiles		
African clawed frog	*Xenopus laevis*	May be present in the study area
bullfrog	*Rana catesbiana*	May be present in the study area
common kingsnake	*Lampropeltis getulus*	May be present in the study area
gopher snake	*Pituophis melanoleucus*	May be present in the study area
Pacific treefrog	*Pseudacris regilla*	May be present in the study area
side-blotched lizard	*Uta stansburiana*	May be present in the study area
western fence lizard	*Sceloporus occidentalis*	May be present in the study area
western toad	*Bufo boreas*	May be present in the study area
Birds		
American kestrel	*Falco sparverious*	May make use of the study area
Anna's hummingbird	*Calypte anna*	Observed during surveys
black-necked stilt	*Himantopus mexicanus*	Observed during surveys at the Los Alamitos Channel
black phoebe	*Sayornis nigricans*	Observed during surveys at the Los Alamitos Channel
European starling	*Sturnus vulgaris*	Observed during surveys
great blue heron	*Ardea herodias*	Observed during surveys at the Los Alamitos Channel
great egret	*Casmerodius albus*	Observed during surveys at the Los Alamitos Channel
great horned owl	*Bubo virginianus*	May make use of the study area
house finch	*Carpodacus mexicanus*	Observed during surveys
house sparrow	*Passer domesticus*	Observed during surveys
killdeer	*Charadrius vociferus*	Observed during surveys at the Los Alamitos Channel
mourning dove	*Zenaida macroura*	Observed during surveys
northern mockingbird	*Mimus polyglottos*	Observed during surveys
red-shouldered hawk	*Buteo lineatus*	May make use of the study area
red-tailed hawk	*Buteo jamaicensis*	May make use of the study area
snowy egret	*Egretta thula*	Observed during surveys at the Los Alamitos Channel
spotted dove	*Streptopelia chinensis*	Observed during surveys
western scrub-jay	*Aphelocoma californica*	Observed during surveys
white-crowned sparrow	*Zonotrichia leucophrys*	May roost and feed in the study area during winter

Birds continued		
white-throated swift	*Aeronautes saxatalis*	Nested in recent years at the SR-55 bridge over Santiago Creek
yellow-rumped warbler	*Dendroica coronata*	May roost and feed in the study area during winter
Mammals		
big brown bat	*Eptesicus fuscus*	Nest under the bridge at the SR-55 crossing over Santiago Creek
coyote	*Canis latrans*	Native, expected to occur in study area
domestic and feral cat	*Felis domesticus*	Non-native, expected to occur in study area
Ca. Ground Squirrel	*Citellus beecheyi*	Native, expected to occur in study area
house mouse	*Mus musculus*	Non-native, expected to occur in study area
Mexican free-tailed bat	*Tadarida brasiliensis*	Nest under the bridge at the SR-55 crossing over Santiago Creek
Norway rat	*Rattus norvegicus*	Non-native, expected to occur in study area
raccoon	*Procyon lotor*	Native, expected to occur in study area
red fox	*Vulpes vulpes*	Non-native, expected to occur in study area
striped skunk	*Mephitis mephitis*	Native, expected to occur in study area
Virginia opossum	*Didelphis virginiana*	Non-native, expected to occur in study area

WILDLIFE DISPERSION

The project study area crosses several potential wildlife corridors in the form of drainages. Most of these drainages are channelized and generally support little native vegetation. Those that are not channelized in the vicinity of the crossings are channelized either just upstream or downstream, decreasing their ability to act as potential wildlife corridors. However, the Los Alamitos Channel/San Gabriel River, located adjacent to the I-605 portion of the project, is very wide and vegetated, and represents an important potential wildlife corridor.

3.3.3 SPECIES OF CONCERN

The study area supports some native plant species. Even so, the study area does not support native plant communities and exhibits a high level of human disturbance. No sensitive plant or wildlife species are expected to occur in the study area. Sensitive species may occur in the project area as occasional migrants. Information on the species that were reviewed is summarized in Table 3.3-3.

3.3.4 RESOURCE AGENCY COORDINATION

The Department and OCTA have been working with the United States Army Corps of Engineers (USACOE), regarding Section 404 of the Clean Water Act permitting process, the California Department of Fish and Game (CDFG) regarding the need for Lake/Streambed Alteration Agreements (1600), and the U.S. Fish and Wildlife Service (USFWS) regarding the potential sensitive species list. The sensitive species provided in this list have been included in Table 3.3-3 with the USFWS species list, received by the Department on March 16, 2001. Both lists are included in the appendices of this document. The NES determined that there was low quality habitat provided for these sensitive species within the project area. As a result of surveys conducted, these sensitive species would not have the potential to occur within the project area.

The project proponent is required to negotiate with the CDFG, USFWS, USACOE, and California Regional Water Quality Control Board (CRWQCB) prior to permit application to discuss current project features and proposed mitigation measures. The Department has recommended general mitigation measures for both the (Enhanced) Reduced Build Alternative and the Full Build Alternative and has notified the CDFG and USACOE of these proposed measures.

Research was conducted regarding the County of Orange Nature Reserve boundaries to determine whether any of the study area (area of direct effect) or area of indirect effect is located within the boundaries of the Nature Reserve Natural Communities Conservation Plan (NCCP) area (Orange County, 1996). No areas of direct or indirect effect are located in the vicinity of the Nature Reserve of Orange County.

Further coordination with resource agencies will be conducted prior to permit application to discuss current project features and proposed mitigation measures.

Table 3.3-3
SENSITIVE SPECIES REVIEWED FOR POTENTIAL OCCURRENCE IN THE REGION

Species	Protection	Preferred Habitat	Potential for Occurrence in Project Area
Plants			
Braunton's milk-vetch *Astragalus brauntoni*	USFWS-FE CNPS-1B	chaparral, coastal sage scrub	None – No habitat
Thread-leaved brodiaea *Brodiaea filifolia*	USFWS-FT CDFG-CE CNPS-1B	oak woodland, coastal sage scrub	None – No habitat
Plummer's mariposa lily *Calochortus plummerae*	CNPS-1B	chaparral, oak woodland, coastal sage scrub	None – No habitat
Santa Monica Mountains dudleya *Dudleya cymosa* ssp. *ovatifolia*	USFWS-FT CDFG-CE CNPS-1B	talus slopes, north-facing cliffs in chaparral	None – No habitat
Many-stemmed dudleya *Dudleya multicaulis*	CNPS-1B	chaparral, coastal sage scrub	None – No habitat
Palmer's grapplinghook *Harpagonella palmeri*	CNPS-4	chaparral, coastal sage scrub	None – No habitat
Gambel's water cress *Rorippa gambellii*	USFWS-FE CDFG-CT CNPS-1B	freshwater or brackish marshes and swamps, lake margins, along slow-flowing streams	None – No habitat
Animals			
Quino checkerspot butterfly *Euphydryas editha quino*	USFWS-FE	coastal sage scrub, grassland	None – No habitat
Arroyo southwestern toad *Bufo californicus*	USFWS-FE CDFG-CSC	oak woodland, riparian habitats	None – No habitat
California red-legged frog *Rana aurora draytoni*	USFWS-FT CDFG-CSC	riparian habitats associated with deep, still or slow-moving water	None – No habitat
Western spadefoot *Scaphiopus hammondii*	CDFG-CSC	riparian habitats and ponds	None – No habitat
California legless lizard *Anniella pulchra*	CDFG-CSC	chaparral, oak woodland, riparian (sandy soils)	None – No habitat

Table 3.3-3 (continued)

Species	Protection	Preferred Habitat	Potential for Occurrence In Project Area
Western pond turtle *Clemmys marmorata*	CDFG-CSC	reservoirs, riparian habitats	Very Low (may wash down during storms)
White-tailed kite *Elanus leucurus*	CDFG-CSC/FP	ruderal (foraging), oak woodland	Low (foraging) Breeding?
Cooper's hawk *Accipiter cooperii*	CDFG-CSC	woodlands	Moderate (foraging) Low (breeding)
Sharp-shinned hawk *Accipiter striatus*	CDFG-CSC	woodlands	Moderate (foraging) None (breeding)
Merlin *Falco columbarius*	CDFG-CSC	open woodlands, grassland edges	Low (foraging) None (breeding)
Peregrine falcon *Falco peregrinus*	USFWS-Formerly FE CDFG-CE/FP	many habitats (foraging)	Low (foraging) Very low (breeding)
Burrowing owl *Speotyto cunicularia*	CDFG-CSC	ruderal (with friable soils or existing burrows)	None – No habitat
Long-eared Owl *Asio otus*	CDFG-CSC	riparian woodlands	None – No habitat
Southwestern willow flycatcher *Empidonax traillii extimus*	USFWS-FE CDFG-CE**	riparian woodlands	None (except as migrant)
Coastal California gnatcatcher *Polioptila californica californica*	USFWS-FT CDFG-CSC	coastal sage scrub	None – No habitat
Coastal cactus wren *Campylorynchus brunneicapillus couesi*	CDFG-CSC	coastal sage scrub	None – No habitat
Loggerhead shrike *Lanius ludovicianus*	CDFG-CSC	ruderal habitats, coastal sage scrub	Low (breeding)
Least Bell's vireo *Vireo belli pusillus*	USFWS-FE CDFG-CE	riparian woodlands	None – No habitat
California yellow warbler *Dendroica petechia*	CDFG-CSC	riparian woodlands	None (except as migrant)
Yellow-breasted chat *Icteria virens*	CDFG-CSC	riparian woodlands	None – No habitat
Ashy rufous-crowned sparrow *Aimophila ruficeps canescens*	CDFG-CSC	coastal sage scrub, chaparral	None – No habitat
Mountain plover *Charadrius montanus*	USFWS-FPT CDFG-CSC	sparsely vegetated fields and grasslands	None – No habitat
Pallid bat *Antrozous pallidus*	CDFG-CSC	cliffs, rock outcrops, bridges and other human-made structures	Low – roosts under bridges
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	CDFG-CSC	caves, buildings, other human-made structures including bridges	Low – roosts under bridges
Spotted bat *Euderma maculatum*	CDFG-CSC	cliff crevices	None – No habitat

Table 3.3-3 (continued)

Coast horned lizard *Phrynosoma coronatum*	CDFG-CSC	coastal sage scrub, chaparral	None – No habitat
Coast patch-nosed snake *Salvadora hexalepis virgultea*	CDFG-CSC	coastal sage scrub, chaparral	None – No habitat
Two-striped garter snake *Thamnophis hammondii*	CDFG-CSC	riparian habitats	Very low (requires substantial permanent sources of water)
California mastiff bat *Eumops perotis californicus*	CDFG-CSC	rock areas, crevices in cliffs and trees	None – No habitat
San Diego black-tailed jackrabbit *Lepus californicus benettii*	CDFG-CSC	open chaparral, coastal sage scrub	None – No habitat
Southern grasshopper mouse *Onychomus torridus ramona*	CDFG-CSC	chaparral, coastal sage scrub	None – No habitat
San Diego desert woodrat *Neotoma lepida intermedia*	CDFG-CSC	coastal sage scrub	None – No habitat
Badger *Taxidea taxus*	CDFG-CSC	oak woodland, coastal sage scrub	None – No habitat
Pacific pocket mouse *Perognathus longimembris pacificus*	USFWS-FE CDFG-CSC	fine-grain, sandy substrates in immediate vicinity of Pacific Ocean	None – No habitat
Santa Ana sucker *Catostomus santaanae*	USFWS-FT CDFG-CSC	permanent flowing streams with areas of coarse gravel	None – No habitat
Southern steelhead *Oncorhynchus mykiss*	USFWS-FE CDFG-CSC	fresh water, ocean	None – No habitat
San Diego fairy shrimp *Branchinecta sandiegonensis*	USFWS-FE	vernal pools	None – No habitat
Riverside fairy shrimp *Streptocephalus woottoni*	USFWS-FE	vernal pools	None – No habitat

Note: **The entire species, not just the subspecies, is listed by the State of California (http://www.dfg.ca.gov/whdab/html/lists.html
* Modified December 2002 based on Rainey, W.E. & E. D. Pierson, Bats and Bridges in California. S.E. (1994). Night Roosting Ecology of Pallid Bats (*Antrozous pallidus*) in Oregon, American Midland Naturalist, vol. 132: 219-226.

Sources:

- California Natural Diversity Database, CDFG, Natural Heritage Division 2002 for U.S. Geological Survey quadrangle names: Los Alamitos, Anaheim, Orange and Tustin.
- Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2001), California Native Plant Society Special Publication No. 1 (Fifth Edition), Sacramento, CA.
- State and Federally Listed Endangered, Threatened and Rare Plants of California, CDFG, Natural Heritage Division, April 2002.
- State and Federally Listed Endangered and Threatened Animals of California, CDFG, Natural Heritage Division, April 2002.
- United States Fish and Wildlife Service, Sensitive Species List, March 16, 2001

USFWS (U.S. Fish and Wildlife Service)

FE	Federally endangered
FT	Federally threatened
FPT	Proposed for federal threatened species listing

CDFG (California Department of Fish & Game)

CE	California endangered (protected from hunting)
CT	California threatened
FP	California fully protected
CSC	California Species of Special Concern

CNPS (California Native Plant Society)

List 1B	plants that are considered rare, threatened or endangered in California and elsewhere
List 2	plants that are considered rare, threatened or endangered in California but more common elsewhere
List 4	plants of limited distribution-Watch list

3.4 WETLANDS AND WATERS OF THE UNITED STATES

This section provides a summary of the existing wetlands and waters of the United States within the project study area. Section 404 of the Clean Water Act of 1977 regulates activities that result in discharge of dredged, fill, or excavated material into "waters of the United States." This generally includes any waterway, intermittent stream, man-made wetland, or reservoir. Projects that include physical modification of a "water of the United States" must generally comply with Section 404 under the jurisdiction of the Corps. The information in this section is based on the *SR-22/West Orange County Connection NES* and the *Reduced Build Alternative NES Addendum* (December 2000), and the *NES Reduced Build (Revised) Alternative Addendum*, (December 2002). For a more detailed analysis, see Table of Contents for their locations.

According to 33 CFR 328.3 (a), by definition, the term waters of the United States means:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

(b) The term wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(c) The term adjacent means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes and the like are ``adjacent wetlands.''

(d) The term high tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising

tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.
(e) The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.
(f) The term tidal waters means those waters that rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by hydrologic, wind, or other effects.

3.4.1 WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

The SR-22/West Orange County Connection (SR-22/WOCC) corridor includes overcrossings of, or is adjacent to, a number of drainages, which are waters of the United States (Figure 3.4-1). These waters include the Los Alamitos Channel, Montecito Channel, Santa Ana River and Santiago Creek, as well as several drainage channels that are concrete-lined with no biological habitat.

Rock- or concrete-lined banks and a sand bottom with sparse weedy vegetation characterize the Santa Ana River at the existing SR-22 crossing. On-going drainage improvements, which include regular channel grading, limit the extent of vegetation that occurs in this area.

At the SR-22 overcrossing at Santiago Creek, portions of creek embankments are concrete-lined, although most of the embankments in this area are rock. Vegetation includes sycamore, eucalyptus, giant reed, fan palm, fountain grass, willows, horseweed, and myoporum *(Myoporum laetum).* Several of these are riparian species, comprising a low-quality wetland habitat. Large native existing trees, including coast live oak, are found within the project survey area and could be impacted due to the ramp relocation activities at Santiago Creek. The exit area of a small culvert within Santiago Creek contains approximately 0.003 ha (300 square feet) of emergent vegetation that could be impacted during ramp relocation activities. This drainage channel, likely excavated on upland, is exempt from Section 404 regulation, but still is subject to Section 1600 jurisdiction.

3.4.2 WETLANDS WITHIN THE STUDY AREA

A. LOS ALAMITOS CHANNEL

The Los Alamitos Channel and floodplain parallel I-605 and the San Gabriel River. Water was present in the main channel over its entire length during the wetlands survey for this project. The main channel and branches support low-growing and emergent, herbaceous wetland vegetation, while the floodplain away from the main channel supports a patchy, disturbed vegetation community of forbs and grasses on a hard-packed clay surface. Jurisdictional wetlands within the survey area at the Los Alamitos Channel covered 0.615 hectare (1.52 acres). The Los Alamitos Channel was included within the study area surveys; however, it is not anticipated to be impacted by project activities.

B. SANTIAGO CREEK

Santiago Creek travels southwesterly and intersects SR-55 and SR-22 in the project area. A total of 0.014 hectare (0.035 acre) along Santiago Creek, outside the existing SR-22 right-of-way, met the Corps definition of jurisdictional wetlands. Santiago Creek in the vicinity of the SR-55 crossing was not identified as a jurisdictional wetland. At the SR-22 crossing of Santiago Creek, the conditions include vegetation consisting primarily of exotic species. A concrete parking lot covers the creekbed under and upstream of Glassell Street near SR-22. The impact area proposed as part of the (Enhanced) Reduced Build Alternative at Santiago Creek is not anticipated to impact the jurisdictional wetland areas.

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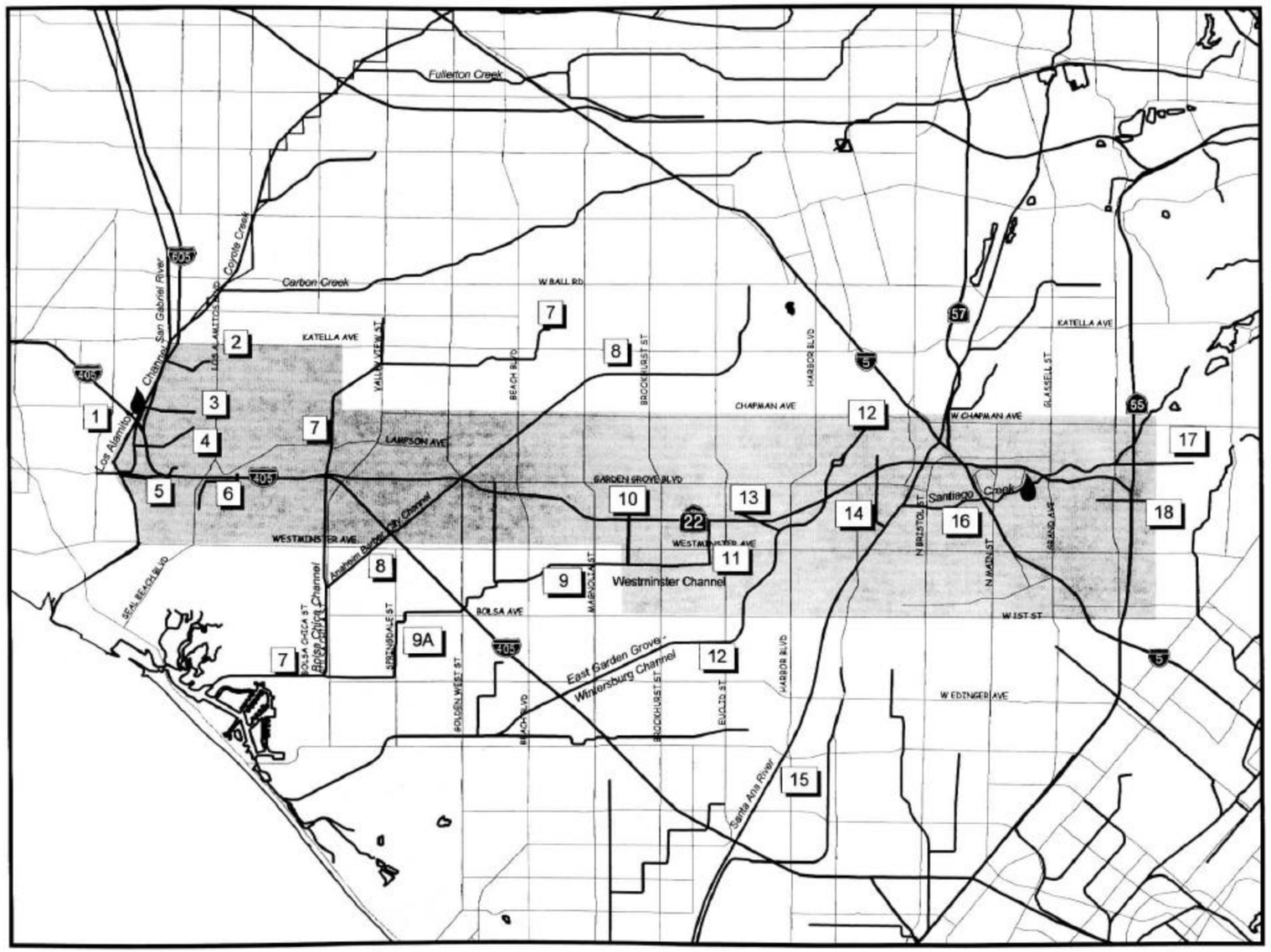

SR-22/West Orange County Connection Project

Wetlands and Waters of the United States

LEGEND

- Freeway
- Secondary Road
- Rivers/Channels/ Waters of the U.S.
- Study Area

Source: ESRI 1998.

- Wetlands

1 - Los Alamitos Channel
2 - Katella Storm Channel
3 - Kempton Storm Channel
4 - Montecito Storm Channel
5 - Bixby Storm Channel
6 - Federal Storm Channel
7 - Bolsa Chica Channel
8 - Anaheim-Barber City Channel
9 - Westminster Channel
10 - Bolsa Grande Storm Channel
11 - Taft Storm Drain
12 - East Garden Grove-Wintersburg Channel
13 - Newhope Channel
14 - Lewis Storm Channel
15 - Santa Ana River
16 - Santiago Creek
17 - La Veta Storm Channel
18 - El Modena Storm Channel

1 0 1 2 Miles
1 0 1 2 Kilometers

Figure 3.4-1

3.5 CULTURAL RESOURCES

Information contained in this section is based on the *SR-22/West Orange County Connection Historic Property Survey Report (HPSR)* (December 2000) and Section 3.5 of the August 2001 DEIR/EIS. As summarized in the HPSR, a Historic Architectural Survey Report (HASR) and Negative Archaeological Survey Report (NASR) were prepared. For a more detailed analysis, these documents are available under separate cover for review at the Department's District 12 Office and at OCTA. (Note: The NASR contains information that may be disclosed only to credentialed archaeologists to protect sensitive archaeological resources. Those with proper credentials may view these reports at District 12 and OCTA.)

In preparation for the cultural investigations for the SR-22/West Orange County Connection (SR-22/WOCC), an Area of Potential Effect (APE) was established and approved by the Department and FHWA on September 10, 1999 (see Appendix C of the HPSR). The APE serves as the study area for the cultural resources analysis.

3.5.1 ARCHAEOLOGICAL SETTING AND RESOURCES

Historical occupation of the project area was by Native American people known as the Gabrielenos. Two prehistoric sites were previously recorded adjacent to the project study area, identified by trinomials. CA-ORA-1352 was originally recorded as a prehistoric shell midden. The site has since been developed for commercial use and no evidence of any associated deposit was encountered in the investigation for the SR-22/WOCC project. CA-ORA-392 was recorded in 1973 as a shell midden site. A letter dated October 28, 1999, from the Tribal Chairman of the Gabrieleno/Tongva Council indicated the presence of a current Native American burial site on the east side of Seal Beach Boulevard, approximately 99 meters south of SR-22. Based on the investigation conducted for this project, it appears that there are no known archaeological resources within the APE.

3.5.2 HISTORICAL SETTING

Analysis of the historical setting is contained in the August 2001 DEIR/EIS. A summary of historical events representing significant development trends for each of the cities within the project study area is presented in Table 3.5-1, Historical Highlights of Study Area Cities.

Table 3.5-1
Historical Highlights of Study Area Cities

Los Alamitos	• 1890s–sugar beets became an important crop in Southern California • Los Alamitos Sugar Company organized in 1896 • Los Alamitos founded as a company town for the Los Alamitos Sugar Company
Seal Beach	• Settlement of Seal Beach began with establishment of Anaheim Landing on Alamitos Bay in 1864 • Old Anaheim Landing subdivided in 1903 and promoted as community of Bay City • Bay City renamed Seal Beach in 1915 and transformed into major beach resort community with establishment of "Joy Zone" amusement park • Naval Weapons Station established in 1943 with purchase of Anaheim Landing area by the U.S. Navy • Leisure World and areas north of I-405 developed during the 1950s and 1960s
Westminster	• Westminster originated as a temperance colony for Presbyterian farmers in 1869 • Westminster incorporated as a city in 1957
Garden Grove	• Core development of Garden Grove Village began in 1860 with first settlers, continuing with construction of a small office (later location of the first post office) in 1874 and the first store in 1877 • Agriculture production shifted to tree crops and grapes with introduction of gas-powered pumps near the turn of the century • Population of the town increased dramatically with introduction of the Pacific Electric Railway in 1905 making access to the region easier for settlers and facilitating commerce

Table 3.5-1 (continued)
Historical Highlights of Study Area Cities

Santa Ana	• Purchased by William H. Spurgeon and partner Ward Bradford in 1869 • Platted in 1870 near the center of Rancho Santiago de Santa Ana • In 1876, Santa Ana was placed on the Southern Pacific Railroad's southern route; station was erected in 1877 • Arrival of the Santa Fe Railroad in 1887 brought a drop in fares, resulting in a great influx of migrants • In 1886, the Santa Ana, Orange and Tustin Street Railway was established • The Pacific Electric Railway started service to Santa Ana in 1905, with a line running along Fourth Street • An emerging real estate boom quadrupled the population with more than 3,600 people by the early 1890s • Orange County was created by public vote in July 1889, and Santa Ana, the region's largest settlement, was named county seat
Orange	• Subdivided by Alfred Beck Chapman and Andrew Glassell, in 1870 and initially promoted as "Richland" • Re-christened "Orange" in 1875, after what its developers hoped would be a leading product • The city's central plaza, which still exists today, was the focus of an improvement project in 1883 • Direct rail service became available in 1887 with the coming of the Santa Fe railroad • Beginning in 1888, a steam-powered street rail line, later taken over by the Pacific Electric, tied Orange to Santa Ana
Tustin	• The Anza Expedition of 1776 identified the area from Santiago Creek to Red Hill as El Alisal, the Sycamore Grove • In 1810, Juan Pablo Grijalva received a grant to use the area for ranching; in 1868, the land was partitioned to be sold • In 1868, Columbus Tustin and Nelson Stafford purchased lands that had been the Rancho Santiago de Santa Ana and created "Tustin City" • In 1877, Tustin lost out to Santa Ana as the southern terminus of the Southern Pacific Railroad • In 1927, the population topped 900 and the voters elected to incorporate • The Santa Ana Army Air Base, El Toro Marine Corps Air Station, and the Navy's Lighter-Than-Air Base were established in 1942 during World War II in nearby bean fields • Tustin grew significantly during the 1950s when schools and post-war industries attracted thousands of people • Several annexations between 1955 and 1981, including the Marine Corps Air Station and Irvine Ranch agricultural preserve, greatly increased the city's acreage

3.5.3 HISTORY OF TRANSPORTATION IN THE STUDY AREA

The Southern Pacific and Santa Fe railroad connections of the 1870s and 1880s supported the county's rural agricultural economy and helped cities develop around station locations. In particular, the Pacific Electric played a vital role in the growth of Garden Grove and Santa Ana in the areas adjacent to the SR-22/WOCC APE, before the growing popularity of the automobile and the construction of roads and freeways led to the decline in railroad use.

3.5.4 HISTORICAL RESOURCES IN THE STUDY AREA

Thirty-one of the buildings and structures within the SR-22/WOCC APE date to 1950 or earlier. An HPSR was prepared for the SR-22/West Orange County Connection, which identified the Pacific Electric Santa Ana River Bridge as the only property within the APE previously determined to be eligible for the National Register of Historic Places. The State Historical Preservation Office (SHPO) concurred on the findings of the HPSR on February 9, 2001. (Refer to Appendix E of Volume II of the August 2001 DEIR/EIS for SHPO concurrence letter.)

3.6 COMMUNITY CHARACTERISTICS

The SR-22/West Orange County Connection (SR-22/WOCC) study area is located in western Orange County (Figure 3.6-1, Community Impact Study Area). The study area includes: Los Alamitos, Rossmoor (unincorporated Orange County), Seal Beach, Westminster, Garden Grove, Santa Ana, Orange, Stanton and Tustin. This section examines the community characteristics of these jurisdictions within the SR 22/ WOCC corridor. Community Characteristics discusses the elements of community cohesion:

- land-use and development;
- population and housing;
- economic conditions; and
- community facilities and services.

Community cohesion, as defined by Caltrans Environmental Handbook Volume 4, is the degree to which residents have a sense of belonging to their neighborhood, their level of commitment to the community, or a strong attachment to neighbors, groups and institutions, usually as a result of continued association over time (Caltrans, June 1997)[1]. For the purpose of this analysis, community is defined as a population rooted in one place, where the daily life of each member involves contact with and dependence on other members. Generally, cohesive communities are associated with specific social characteristics, which may include long tenure of residency, ethnic homogeneity, high levels of community activity and shared goals. In examining community cohesion, the following elements were used to establish community cohesiveness:

- How frequently do residents move in and out of the community?
- Are residents of the same age, ethnicity, religion, or do they have other special characteristics that bond members together?
- Does the community share or participate in community activities?
- Are there recreational areas and community facilities that promote frequent personal contact between members of an established community?

Land use and development patterns provide the physical setting of the community. Population and housing includes information on population (e.g. population estimates, growth, demographics, and transportation choices) and housing types (single family residences, multi-family residences, mobile homes, etc.). The economic aspect of a community encompasses the business activity (e.g. agriculture, manufacturing, services, etc.), employment, income, and tax base. Lastly, community facilities and services include school districts, fire districts and police precincts. Public parks and recreation centers also fall under the category of community facilities and services. Information on parks and recreation facilities may be found in Sections 3.10 and 4.10.

3.6.1 LAND USE AND DEVELOPMENT

The information in this section was obtained from city and county finance departments, chambers of commerce, general plans and the Internet. An overview of the history of Orange County and the cities that may be affected by the SR-22/ WOCC project may be found in Section 3-5 and Table 3.5-1 Historical Highlights of Study Area Cities.

Land Use and Development Patterns. Development and land use patterns along the SR-22/ WOCC corridor consist of generally older, heavily developed, and urbanized communities with long-term residents. All of the affected cities have reached build-out and have little or no remaining vacant land available for development. According to local general plans, substantial new growth in the SR-22/WOCC study area is no longer occurring. Rather, redevelopment is the main contributor to growth in the area. Existing land uses throughout the SR-22/WOCC corridor are summarized below and are illustrated in Figures 3.6-2a and 3.6-2b, Existing Land Use, of this document.

[1] Available at the California Department of Transportation, District 12.

Seal Beach. The predominant land use in Seal Beach is military followed by residential. There are 60 hectares (149 acres) of general commercial land and 51 hectares (126 acres) of light industrial uses. Seal Beach is the home of the U.S. Naval Weapons Base and Leisure World. Leisure World is a medium-density, residential community made up of 7,000 to 10,000 retirees and senior citizens.

Los Alamitos. The predominant land uses in Los Alamitos and Rossmoor are military, open space, residential, and industrial. Los Alamitos is home to the Armed Forces Reserve Center, which is the training center for the National Guard. Single-family residential and open space areas together make up almost half of the land area in Los Alamitos (24 percent each). Industrial land uses account for 18 percent of the total land use.

Rossmoor. Rossmoor is an unincorporated area of Orange County located south of Los Alamitos, in the northeast quadrant of the I-405/I605 interchange. The predominant land use in Rossmoor is low to medium density residential.

Westminster. Westminster's current land use pattern is a mixture of urban and suburban uses. The three largest existing land uses in 1996 were residential (43 percent), street/freeway right-of-way (26.0 percent) and public facilities (5.8 percent). An important aspect of the city's general plan is redevelopment. The City of Westminster has identified the majority of the area south of the SR-22 as a redevelopment area.

Garden Grove. Garden Grove is similar to many cities that border SR-22 in that Garden Grove has reached full build out. Residential housing makes up approximately 50 percent of the total area in Garden Grove. Within the project study area, industrial, mixed-use, commercial, and redevelopment areas characterize Garden Grove. The Garden Grove Redevelopment Plan Project spans the area north of the SR-22 and south of Trask Avenue between Magnolia Street and Harbor Boulevard.

Santa Ana. Since its founding, Santa Ana has served as a center for commerce and post office for the surrounding agricultural areas. Santa Ana is retaining and building upon its important governmental, retailing, and employment roles, rich architecture, and streetscape heritage associated with the city's history. Santa Ana is also typical of other cities that border SR-22 in that it has reached full build-out.

Orange. The primary land use in Orange along SR-22 is commercial, with some retail uses near the west end of SR-22. Mid-rise and high-rise office buildings, business parks and retail centers are clustered around Main Street. Since the early 1980s, mid-rise and high-rise office buildings and business parks have been developed on land formerly occupied by small-scale, low-intensity offices and industrial developments. Denser subdivisions, condominiums and apartment complexes have replaced the traditional medium-sized lot, single-family residential tract.

Stanton. A small portion of Stanton is in the vicinity of the SR 22 corridor between the Union Pacific Railway and Fern Street, east of SR-39. Stanton is dominated by residential land use.

Tustin. Tustin is mostly low-density residential with some business and light industrial areas. Tustin is the home of the former Marine Corps Air Station.

Farmland. Two areas of designated prime farmland border the SR-22 corridor (Figure 3.6-3, Farmland). One is located in Seal Beach, within the United States Naval Weapons Station, between Seal Beach Boulevard and Old Bolsa Chica Road. In the past, the U.S. Navy leased this area for agricultural use; however, since September 2001, the station has been closed to civilians and the crops are no longer under cultivation. The other farmland is located between Western Avenue and Hoover Street on both sides of SR-22. At the time this document was prepared, the farmland areas were being used as open space, and no active agricultural cultivation was occurring.

Source: ESRI 1998.

LEGEND

- Freeway
- Roadway
- Study Area

SR-22 / West Orange County Connection Project

Community Impact Study Area

Figure 3.6-1

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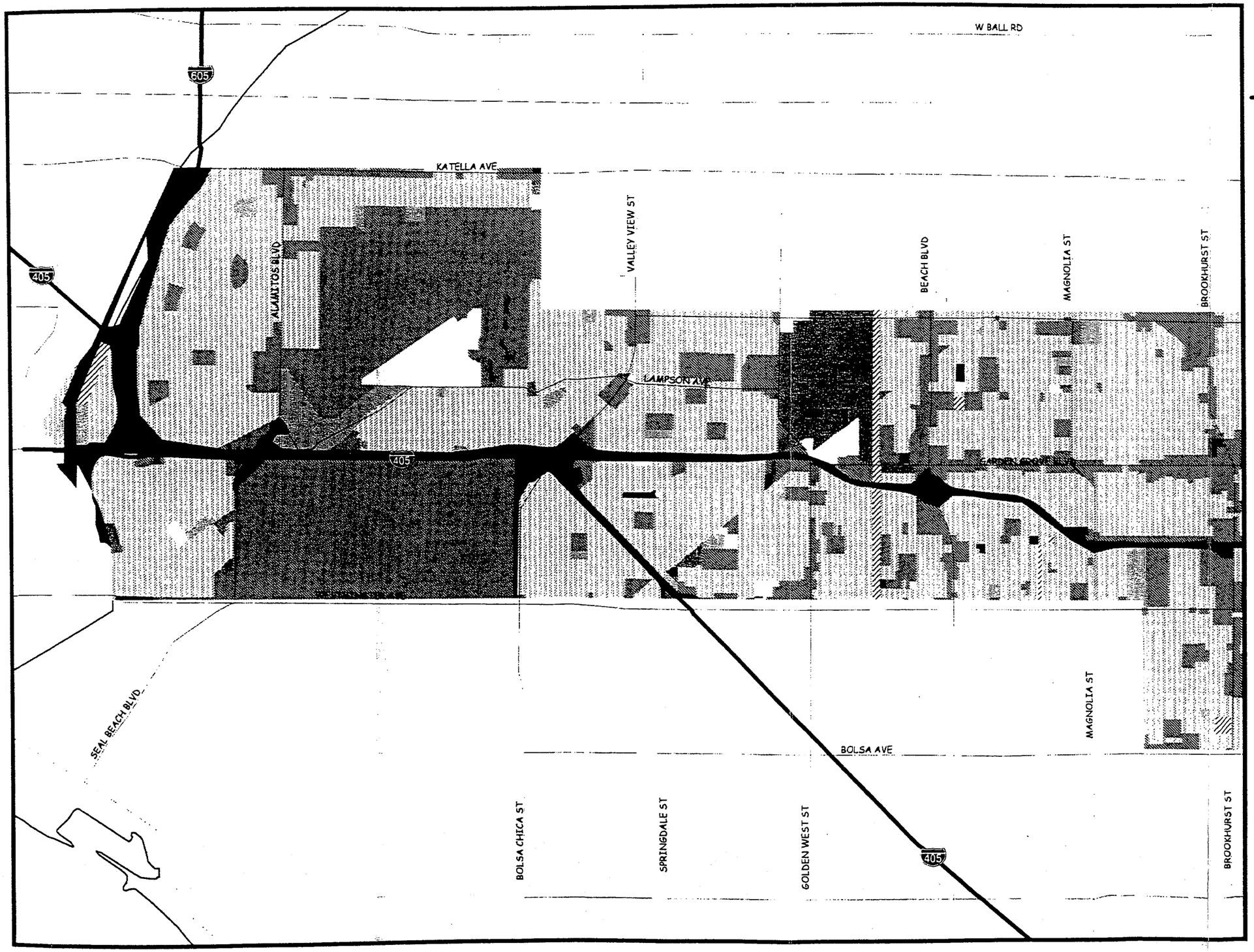


SR-22/West Orange County Connection Project

Existing Land Use

LEGEND

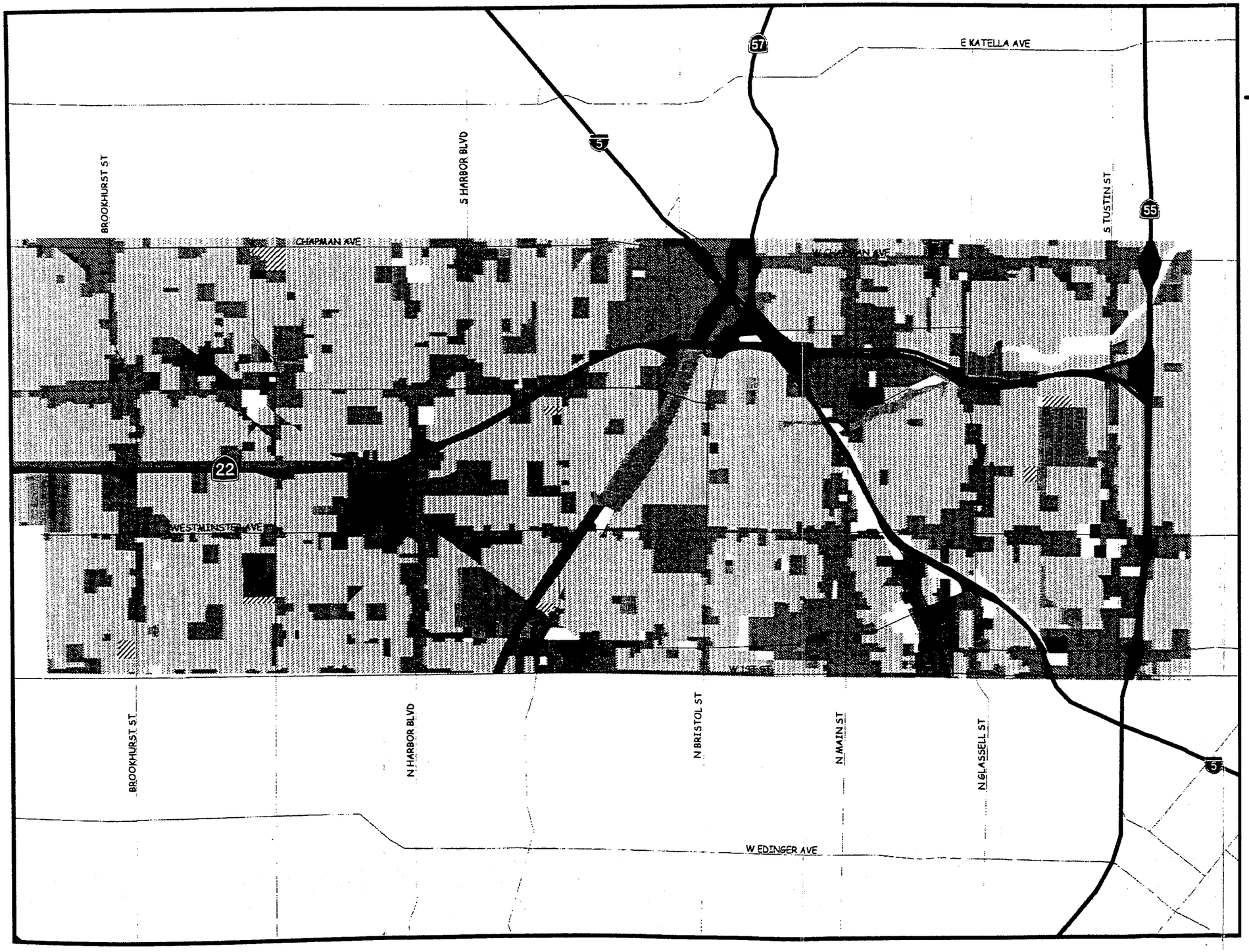
- Freeway
- Secondary Road
- Residential
- Commercial & Services
- Industrial
- Transportation
- Open Space & Recreation
- Urban Vacant
- Agriculture
- Water

Source: ESRI 1998, SCAG 1994

0.5 0 0.5 1 Miles

0.5 0 0.5 1 Kilometers

Figure 3.6-2a



SR-22/West Orange County Connection Project

Existing Land Use

LEGEND

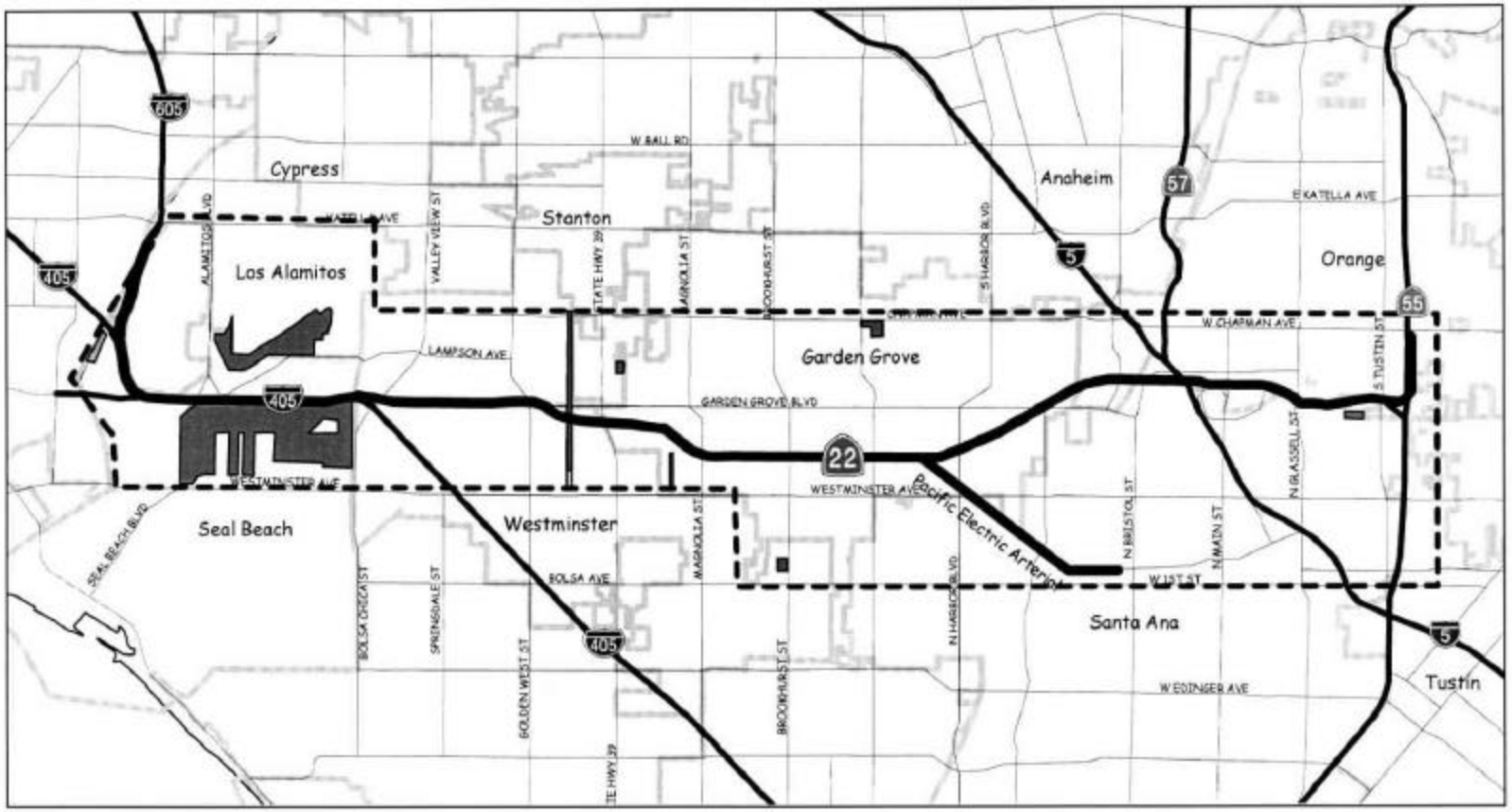
- Freeway
- Secondary Road
- Residential
- Commercial & Services
- Industrial
- Transportation
- Open Space & Recreation
- Urban Vacant
- Agriculture
- Water

Source: ESRI 1998, SCAG 1994.

0.5 0 0.5 1 Miles

0.5 0 0.5 1 Kilometers

Figure 3.6-2b



Source: Farmland Mapping and Monitoring Program, California Department of Conservation 1994.

LEGEND

- Build Alternative
- Freeway
- Road
- Study Area
- City Boundary

Farmland Category

- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland

SR-22 / West Orange County Connection Project

Farmland

Figure 3.6-3

3.6.2 POPULATION AND HOUSING

This section contains a brief summary of population and housing characteristics within the study area. Data on current and forecasted population, ethnic distribution, and housing in the study area were gathered from the local city websites, the 2000 U.S. Census and 1996 Orange County Projections (OCP-96).[2]

Note: Data on race from Census 2000 allow respondents to report more than one race. To avoid double-counting, the data used for this analysis examines Spanish/Hispanic/Latino and six mutually exclusive categories (White alone, Black or African American alone, Asian alone, Native Hawaiian and Other Pacific Islander alone).

A. POPULATION

Population Estimates. Populations for the cities along the SR-22 corridor were examined in order to characterize the changes in population along the corridor. OCP-96 population estimates for Orange County through the year 2020 show that increases in the projected populations for the cities along the SR-22 corridor are expected to gradually slow towards 2020. Between 1990 and 2000, Tustin shows the highest percent change (33.2%) in population growth while Seal Beach exhibits negative growth (-3.7% change).

Table 3.6-1
1990 & 2000 POPULATION ESTIMATES
FOR CITIES ALONG THE SR-22 CORRIDOR

Jurisdiction	1990	2000	Percent Change (%)	Annual Growth Rate
Seal Beach	25,098	24,157	-3.7%	-0.3%
Rossmoor	9,893	10,298	4.1%	0.4%
Los Alamitos	11,676	11,536	-1.2%	-0.12%
Garden Grove	143,050	165,196	15.5%	1.6%
Westminster	78,118	88,207	12.9%	1.3%
Orange	110,658	128,821	16.4%	1.6%
Santa Ana	293,742	337,977	15.1%	1.5%
Stanton	30,497	37,403	22.6%	2.3%
Tustin	50,689	67,504	33.2%	3.3%
Total	753,421	871,099	15.7%	1.6%

Source: *1990 & 2000 U.S. Census of Population and Housing.*

Households. Table 3.6-2 provides an overview of the number of households and persons per household for the cities along the SR 22/ WOCC corridor and for the study area. At nearly 73,000 household, Santa Ana contains the highest number of households in the study area. Rossmoor and Los Alamitos had the lowest number of households (less than 5,000 households). The average number of households in the corridor cities is 40,513 households. The average number of persons per household is three for Orange County. The same is true for the study area.

-

Table 3.6-2
NUMBER OF HOUSEHOLDS IN 2000
FOR CITIES ALONG THE SR-22 CORRIDOR

Jurisdiction	Number of Households	Average Number of Persons per Household
Seal Beach	13,041	1.83
Rossmoor	3,691	2.77
Los Alamitos	4,168	2.62
Garden Grove	45,945	3.56
Westminster	26,358	3.32
Orange	41,030	3.02
Santa Ana	72,993	4.55
Stanton	10,769	3.43
Tustin	23,853	2.82
Orange County	935,287	3.00
Study Area Cities	127,831	3.10

Source: *2000 U.S. Census of Population and Housing.*

Race/Ethnic Distribution. The 2000 U.S. Census tracts potentially affected by the proposed project are illustrated in Figure 3.6-4, Minority Population in the Study Area. The study area's 2000 population was predominantly non-Hispanic white (51.7 percent) and Hispanic Origin (45 percent). The minority population accounts for approximately 48.3 percent of the study area.

The City of Santa Ana is predominantly of Hispanic origin. Approximately 76.1 percent of the population are of Hispanic origin. Nearly a third of Garden Grove, Tustin and Orange and about half of Stanton are of Hispanic origin.

The City of Westminster has the highest percentage of Asians (38.1%) compared to the other cities along the SR 22 corridor. The Asian community in Westminster is also known as "Little Saigon" and has the largest concentration of people of Vietnamese descent in the United States. Table 3.6-3 summarizes race and ethnic distribution of the cities within the study area.

Table 3.6-3
2000 RACE/ETHNIC DISTRIBUTION IN THE STUDY AREA

Jurisdiction	% NH White	% NH Black	% NH American Indian	% NH Asian	% NaH & OPI	% NH Other	% Hispanic Origin Of Any Race
Seal Beach	88.9	1.4	0.3	5.7	0.2	14	6.4
Rossmoor	88.9	0.8	0.3	5.7	0.1	1.3	6.7
Los Alamitos	77	3.2	0.6	9.5	0.3	5.4	16
Garden Grove	46.9	1.3	0.8	30.9	0.7	15.4	32.5
Westminster	45.8	1.0	0.6	38.1	0.5	10.2	21.7
Orange	70.5	1.6	0.8	9.3	0.2	13.8	32.2
Santa Ana	12.4	1.3	1.2	8.8	0.3	0.1	76.1
Stanton	49.6	2.3	1.1	15.5	0.9	25.7	48.9
Tustin	58.7	2.9	0.7	17.9	0.3	17.9	34.2
Study area	51.7	1.7	0.9	19.4	0.4	21.6	45.0

Source: *2000 U.S. Census of Population and Housing.*
Note: NH = Non-Hispanic; NaH &OPI = Native Hawaiian or Other Pacific Islander

Age Distribution. According to the 2000 U.S. Census, the majority of the population (about 57.3 percent) within the within the study area were between 20 and 64 years of age. About 32 percent

of the population in the study area are less than 19 years of age. However, a sizable population greater than 65 years of age resides in Seal Beach. Leisure World, a medium-density, residential community in Seal Beach, is made up of 7,000 to 10,000 retirees and senior citizens. Table 3.6-4 below summarizes the age distribution for the census tracts within the study area. The median age within the study area is approximately 32 years.

Table 3.6-4
2000 AGE DISTRIBUTION IN THE STUDY AREA

Age Range	Number	Percent (%)
Less than 19 years	144,397	32
20-64 years	258,551	57.3
Greater than 65 years	48,290	10.7

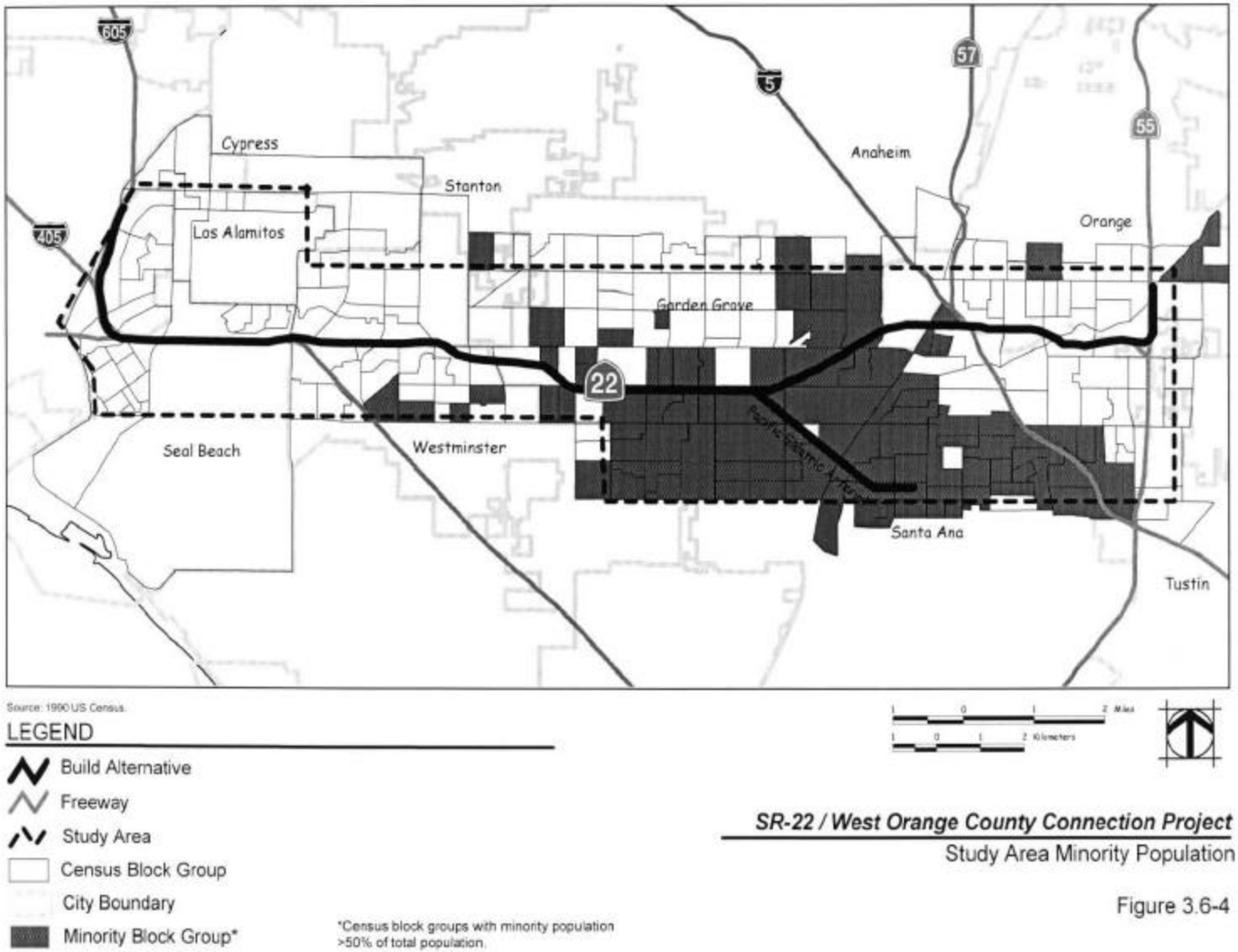
Source: *2000 U.S. Census of Population and Housing.*

Mode Choices. Based on the Census 2000, the modes of transportation for people commuting to work who are above the age of sixteen were categorized into car, truck or van alone; carpool, public transportation, walk, or other transportation. The majority of people either traveled alone by car, truck, or van, or carpooled to work. In the study area, approximately 69 percent commuted to work by car, truck or van alone. About five percent of the people in the study area indicated that they used public transportation to get to work while two percent either walked or used other means of transportation. Table 3.6-5 below provides a summary of the mode choices for people commuting to work in the study area.

Table 3.6-5
2000 MODE CHOICES FOR THE WORK COMMUTE IN THE STUDY AREA

Jurisdiction	Car, Truck, or Van - Alone		Carpool		Public Transportation		Walk		Other Transportation	
	Number	%	Number	%	Number	%	Number	%	Number	%
Seal Beach	8,079	84.2	765	8.0	84	0.9	152	1.6	176	1.8
Rossmoor	3,993	86.0	341	7.3	37	0.8	31	0.67	33	0.7
Los Alamitos	4,607	83.1	506	9.1	52	0.9	210	3.8	55	1.0
Garden Grove	50,543	74.7	11,558	17.1	2,374	3.5	1,016	1.5	922	1.4
Westminster	28,770	77.4	5,785	15.6	751	2.0	479	1.3	469	1.3
Orange	46,216	76.5	7,720	12.8	1,585	2.6	1,766	2.9	995	1.6
Santa Ana	74,709	60.1	30,720	24.7	10,549	8.5	2,779	2.2	3,574	2.9
Stanton	9,640	67.1	2,790	19.4	745	5.2	322	2.2	583	4.1
Tustin	26,834	78.2	4,542	13.2	1,002	2.9	483	1.4	387	1.1
Study area	123,766	69.0	34,577	19.0	8,864	4.9	3,642	2.0	3,226	1.8

Source: *2000 U.S. Census of Population and Housing.*



SR-22 / West Orange County Connection Project

Study Area Minority Population

Figure 3.6-4

B. HOUSING

Housing Types. As shown in Table 3.6-6 below, over half (55.4%) of households in the study area lived in single family homes while over a third (37.5%) lived in multi-family homes. Approximately five percent live in mobile homes or other type of housing.

Table 3.6-6
SUMMARY OF HOUSING IN THE STUDY AREA

Housing Type	Number	Percent (%)
Single Family Homes (either attached or detached)	73,827	55.4
Multi-Family Homes	49,956	37.5
Mobile Homes	6,556	4.9
Other (Boats, RVs, etc.)	390	0.3
TOTAL	133,304	--

Source: *2000 U.S. Census of Population and Housing.*

Mobile Homes and Trailer Parks. Twenty-four mobile home and trailer parks are located in the cities of Garden Grove, Orange, Santa Ana, and Stanton within a 0.8-kilometers (0.5-miles) of the SR-22/ WOCC corridor. The location of the mobile home and trailer parks are summarized in Table 3.6-7.

Table 3.6-7
MOBILE HOMES & TRAILER PARKS
WITHIN 0.8-KILOMETERS (0.5-MILES) FROM THE SR22/ WOCC CORRIDOR

Jurisdiction	Name	Location
Seal Beach	None	N/A
Rossmoor	None	N/A
Los Alamitos	None	N/A
Garden Grove	Bahia Villa Mobile Home Park	Blackbird St.
	Berrydale Trailer Park	Fairview/ Garden Grove Blvd.
	Emerald Isle Mobile Home	Harper St./ Laurel St.
	Fairlane Mobile Lodge	Haster St./ Lampson
	Glenhaven Mobile Lodge Club	Lampson Ave/ Jetty St.
	Ocean Breeze Trailer Park	Mirage Ave./ Donnegal Dr.
	South Grove Mobile Estates	Fernwood Ave./ 16th St.
	Thunderbird Mobile Lodge	Cottage Rd/ Partridge St.
Westminster	Caravan Trailer Lodge	Hoover / 21st St.
	Los Alisos Mobile Home Estates	Via Carmel/ Garden Grove Blvd.
	Prado Verde Mobile Home Park	Sandy Way / Mirage Ave.
	Summerset Mobile Estates	Mirage Ave/ Goebel Lane
Orange	Carriage Mobile Estates	201 W. Collins Ave.
	Creekside Mobile Estates	SR 55/ La Veta Ave.
	Goforth Mobile Home Village	1801 E. Collins Ave.
	Mobile Ritz Sales	300 W. Lincoln Ave
	Orange Coast Mobile Home Park	5215 E. Chapman Ave.
	Orange Mobile Home Park	1931 E. Meats Ave.
	Orange Village Mobile Home Park	1540 E. Trenton Ave.
	Orangeland Recreation Vehicle Park	1600 W. Struck Ave.
	Park Royalty Mobile Home Park	300 N. Rampart St.
	Val Verde Estates & Mobile Home Park	446 S. Tustin Ave.
Santa Ana	Lake Park Santa Ana North Mobile Home Park	Lake/ Knoll
Stanton	Beach West Mobile Estates	Beach Blvd./ Garden Grove Blvd.
Tustin	None	N/A
TOTAL	24	

Sources: Thomas Brothers 2001; http://www.mobilehomeparkstore.com.

3.6.3 ECONOMIC CONDITIONS

A. REGIONAL BUSINESS ACTIVITY

Orange County has a wide range of economic generators, including industry, agriculture, tourism and commercial operations. SR-22 is one of only two east/west freeways in the county. The SR-22 freeway serves a large number of daily commuters and freight trucks. Congestion and delays on the freeway network and major arterials are costly for commerce. Figure 3.6-5 Study Area Major Activity Centers illustrates the major activity centers in central Orange County.

B. STUDY AREA BUSINESS ACTIVITY

The following summarizes study area business activity based on information from city and county finance departments, chambers of commerce, general plans, InfoOutfitters, and the Internet.

Los Alamitos. In 1998, the largest employers in Los Alamitos were GTE, Los Alamitos Medical Center, and Arrowhead Products. The Los Alamitos Racetrack is located along the northern limits of the project study area on Katella Avenue.

Rossmoor. The main commercial center in the Rossmoor area is the Rossmoor Center, located on Rossmoor Center Way and Beach Boulevard.

Seal Beach. The predominant land use in Seal Beach is military followed by residential. There are 60 hectares (149 acres) of general commercial land, and 51 hectares (126 acres) of light industrial uses. The city's main employers in 1998 were Boeing and the U.S. Naval Weapons Station.

Westminster. Westminster's three largest employers in 1998 were the Westminster Mall, Westminster School District and Southern California Edison.

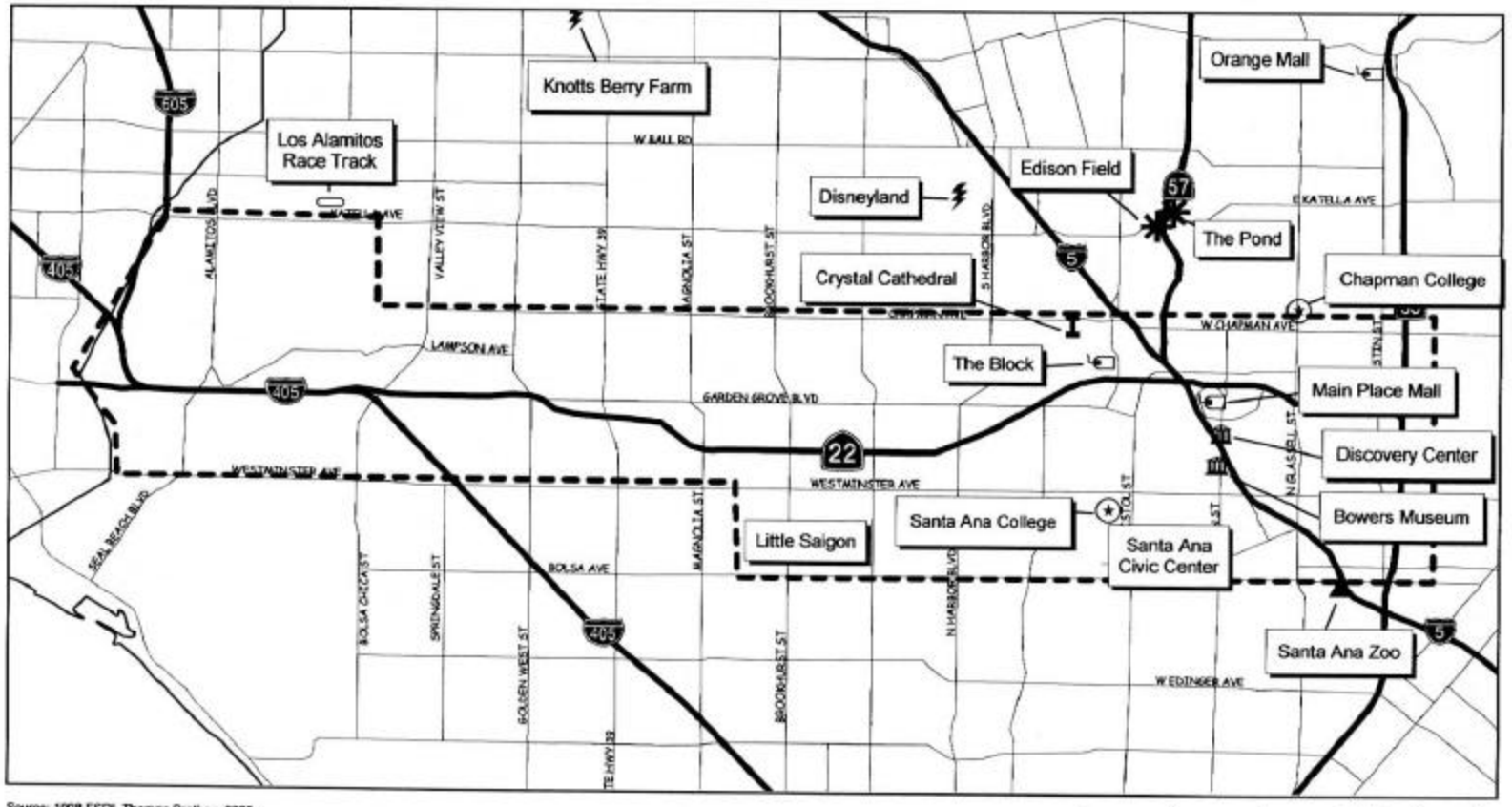
Garden Grove. Within the project study area, there is a major industrial area, mixed use, commercial and a redevelopment project plan area. In 2001, the four major employers in Garden Grove were Garden Grove Hospital, C&D Aerospace & Plastics, Crystal Cathedral and Air Industry. The commercial centers of Harbor Plaza, Garden Grove Center, and Harbor Town and Country Center are located approximately within a mile of the SR 22 corridor. All three commercial centers are situated near the intersection of Garden Grove and Harbor Boulevards.

Santa Ana. Since its founding, Santa Ana has served as a center for commerce and post office for the surrounding agricultural areas. In 1998, the main employers were Ingram Micro, the Orange County Register, and the United Western Medical Center. Commercial centers in the vicinity of the SR 22 include the Main Place Mall on Main Street and Mainplace Drive and Bristol Village Plaza on Bristol Street and Memory Lane.

Orange. The primary land use in Orange along SR-22 is commercial, with some retail uses near the west end of SR-22. Mid-rise and high-rise office buildings, business parks and retail centers are clustered around Main Street. Further east along SR-22, commercial and mixed-retail are the predominant land uses. Commercial centers in the vicinity of the SR 22 corridor include the Block near Chapman Avenue, and the City Drive and Orange Town and Country Center on Main Street and Town and County Road.

Stanton. The Village Center, located on Garden Grove and Beach Boulevard, is the only commercial center in Stanton near the SR 22 corridor.

Tustin. Tustin is mostly low-density residential with some business and light industrial areas. In 1998, Tustin's three top employers were Ricoh Electronics, Silicon Systems, and Steelcase Inc.



Source: 1998 ESRI, Thomas Brothers 2000.

LEGEND

- Road
- Freeway
- Study Area
- Church
- College
- Museum
- Race Track
- Shopping Center
- Sports Center
- Theme Park
- Zoo

1 0 1 2 Miles

1 0 1 2 Kilometers

SR-22 / West Orange County Connection Project

Study Area Major Activity Centers

Figure 3.6-5

C. EMPLOYMENT AND INCOME

Employment. According to the California Employment Development Department's *Labor Force Data for Sub-County Areas*, the 1998 civilian labor force for Orange County was 1,455,400. Orange County's unemployment rate was 2.9 percent. Westminster, Garden Grove, Santa Ana and Tustin exceeded the unemployment rate for the county. Data from OCP-96 indicate that over the next 20 years Orange County's employment growth rate is projected to average 2.3 percent per year. In 2020, the total projected employment growth rate of the study area cities is projected to be slightly less than Orange County's total projected employment rate. For detailed information on major employers for cities along the SR-22 corridor, refer to Section 3.6.3 B, Study Area Business activity above.

Income. The 2000 Census indicates that the average number of persons per household in the study area is three. According to the 2001 Federal Poverty Guidelines by Department of Health and Human Services (DHHS), an income below $14,630 for a family of three is considered below the poverty line. Since the 2000 Census income data is available in $5,000 increments, the closest 2000 Census income level, which would capture the population below the DHHS poverty guideline, is $14,999. Therefore, incomes below $14,999 were used for the analysis of the number of households below the poverty line.

As shown in Table 3.6-8 below, the 2000 U.S. Census indicated that the median household incomes for cities along the SR-22 corridor range from $39,172 in Stanton to $86,457 in Rossmoor. The median income for the study area is $44,396. Seal Beach and Stanton have the greatest percent (approx. 16 percent) of households at or below the poverty line while Rossmoor has the lowest percentage (4 percent). Nearly 13 percent of the households in the study area are at or below the poverty line.

Table 3.6-8
2000 INCOMES IN THE STUDY AREA

Jurisdiction	Median Income	Median Family Income	Number of Households	Number of Households >$14,999 Income	% Below $14,999
Seal Beach	42,079	72,071	13,041	2,104	16.13
Rossmoor	86,457	93,500	3,691	147	3.98
Los Alamitos	55,286	60,767	4,168	387	9.29
Garden Grove	47,754	49,697	45,945	5,280	11.49
Westminster	49,450	52,677	26,358	3,316	12.58
Orange	58,994	64,573	41,030	3,744	9.13
Santa Ana	43,412	41,050	72,993	8,463	11.59
Stanton	39,172	40,162	10,769	1,672	15.53
Tustin	55,985	60,092	23,853	1,786	7.49
Study area	44,396	47,226	127,831	16,063	12.57

Source: *2000 U.S. Census of Population and Housing.*

Tax Base. Information was obtained from study area cities' finance departments for tax information in fiscal years 1996/97 and 1997/98. Generally, revenues for cities were greater in fiscal year 1997/98 than in the previous year.

3.6.4 COMMUNITY FACILITIES AND SERVICES

Community facilities and services discussed in the following sections include police and fire protection, schools, libraries and medical facilities. An area extending approximately 0.8-kilometers (0.5-miles) on either side of the SR-22, I-605, I-405, I-5 and SR-55 within the study area and the former Pacific Electric right-of-way was used for this analysis (See Figure 3.6-6, Affected Areas' Community Facilities).

A. LAW ENFORCEMENT

The proposed project spans eight different law enforcement jurisdictions: Los Alamitos, Seal Beach, Westminster, Garden Grove, Orange, Santa Ana, Tustin and the Orange County Sheriff's Department. In addition to the unincorporated areas, the Orange County Sheriff's Department also provides law enforcement service to Rossmoor on a contract basis.

B. FIRE SERVICES

The Orange County Fire Authority, Metronet and the Santa Ana Fire Departments provide fire protection service in the SR-22/WOCC study area. In addition to standard fire-fighting units, there is one hazardous material unit covering areas in the SR-22/WOCC study area. See Table 3.6-9, Fire Stations within 1.6 Kilometers (one mile).

Table 3.6-9
FIRE STATIONS WITHIN 1.6 KILOMETERS (1 MILE)

Station Number	City	Address
Station 48	Seal Beach	3131 Beverly Manor Road
Station 1	Garden Grove	11301 Acacia Parkway
Station 3	Garden Grove	12132 Trask Avenue
Station 4	Garden Grove	12191 Valley View Street
Station 5	Garden Grove	12751 Western Avenue
Station 7	Garden Grove	14162 Forsyth Lane
Station 64	Westminster	7351 Westminster Boulevard
Station 65	Westminster	6061 Hefley Street
Station 6	Orange	345 South City Drive
Station 1	Santa Ana	1029 West 17th Street
Station 9*	Santa Ana	1320 East Warner Street
Station 10	Santa Ana	2301 North Grand Avenue

Note: * Hazardous materials unit approximately 3.2 kilometers (2 miles) from SR-22.
Source: Thomas Brothers, 2000.

C. SCHOOLS

The SR-22/WOCC study area traverses the jurisdictions of Los Alamitos, Garden Grove, Westminster, Orange and Santa Ana Unified School Districts. There is one adult education center, 27 elementary, five intermediate and two senior high schools located within approximately 0.8-kilometer (0.5-mile) of the study area. The adult education center, Acacia Adult Day Services, is located near the intersection of Euclid Avenue and Acacia Parkway. Ten elementary, three intermediate and two high school attendance boundaries cross the proposed project. Table 3.6-10 shows the name, location and district of each public school. Figures 3.6-7 through 3.6-9 (Elementary, Intermediate and High Schools and Affected School District Boundaries) show the enrollment boundaries for schools, which would be bisected by the proposed project alternatives. Although they are shown in Figures 3.6-8 and 3.6-9, Bell Intermediate School, Pacifica High School and Santa Ana High School are more than 0.8 km (0.5 miles) from proposed SR-22/WOCC corridor.

Table 3.6-10
PUBLIC SCHOOLS

School Name	Location	City/District	Map #
Elementary Schools			
Lee Elementary	11481 Foster Rd.	Rossmoor/Los Alamitos	1
Weaver Elementary	11872 Wembley Rd.	Rossmoor/Los Alamitos	2
Hopkinson Elementary	12582 Kensington Rd.	Rossmoor/Los Alamitos	3
Edgar Elementary	6202 Cerulean Ave.	Garden Grove/Garden Grove	4
Barker Elementary	12565 Springdale St.	Garden Grove/Garden Grove	5
Garden Park Elementary	6562 Stanford Ave.	Garden Grove/Garden Grove	6
Sequoia Elementary	5900 Iroquois Rd.	Westminster/Westminster	7
Fryberger Elementary	6952 Hood Dr.	Westminster/Westminster	8
Schmitt Elementary	7200 Trask Ave.	Westminster/Westminster	9
Meairs Elementary	8441 Trask Ave.	Garden Grove/Westminster	10
Anderson Elementary	8902 Hewitt Place	Garden Grove/Westminster	11
Excelsior Elementary	10421 Woodbury Rd.	Garden Grove/Garden Grove	12
Cook Elementary	9802 Woodbury Rd.	Garden Grove/Garden Grove	13
Sunnyside Elementary	9972 Russell Ave.	Garden Grove/Garden Grove	14
Mitchell Elementary	13451 Taft Ave.	Garden Grove/Garden Grove	15
Woodbury Elementary	11362 Woodbury Rd.	Garden Grove/Garden Grove	16
Peters Elementary	13162 Newhope St.	Garden Grove/Garden Grove	17
Dwight D. Eisenhower Elementary	13221 Lilly St.	Garden Grove/Garden Grove	18
Clinton-Mendenhall Elementary	13641 Clinton St.	Garden Grove/Garden Grove	19
Lampson Elementary	13321 Lampson Ave.	Garden Grove/Orange	20
Riverdale Elementary	13222 Lewis St.	Garden Grove/Garden Grove	21
Fremont Elementary	1930 W. Tenth St.	Santa Ana/Santa Ana	22
Carver Elementary	1401 W. Santa Ana Blvd.	Santa Ana/Santa Ana	23
West Orange Elementary	243 S. Bush St.	Orange/Orange	24
Fairhaven Elementary	1415 E. Fairhaven Ave.	Santa Ana/Orange	25
Palmyra Elementary	1325 E. Palmyra Ave.	Orange/Orange	26
La Veta Elementary	2800 E. La Veta Ave.	Orange/Orange	27
Intermediate Schools			
Johnson Middle School	13603 Edwards St.	Westminster/Westminster	1-I
Jordan Intermediate	9821 Woodbury Rd.	Garden Grove/Garden Grove	3-I
Jordan Secondary Learning Center	9915 Woodbury Rd.	Garden Grove/Garden Grove	3-I
Doig Intermediate	12752 Trask Ave.	Garden Grove/Garden Grove	4-I
Spurgeon Intermediate	2701 W. Fifth St.	Santa Ana/Santa Ana	5-I
High Schools			
Bolsa Grande High	9401 Westminster Ave.	Garden Grove/Garden Grove	2-H
Santiago High	12342 Trask Ave.	Garden Grove/Garden Grove	3-H

Source: Thomas Brothers, 2000.

D. OTHER COMMUNITY FACILITIES

When residents share the same facilities such as a library, community center, senior center or recreational areas, they have more frequent personal contact with each other, which in turn strengthens the bonds within a community.

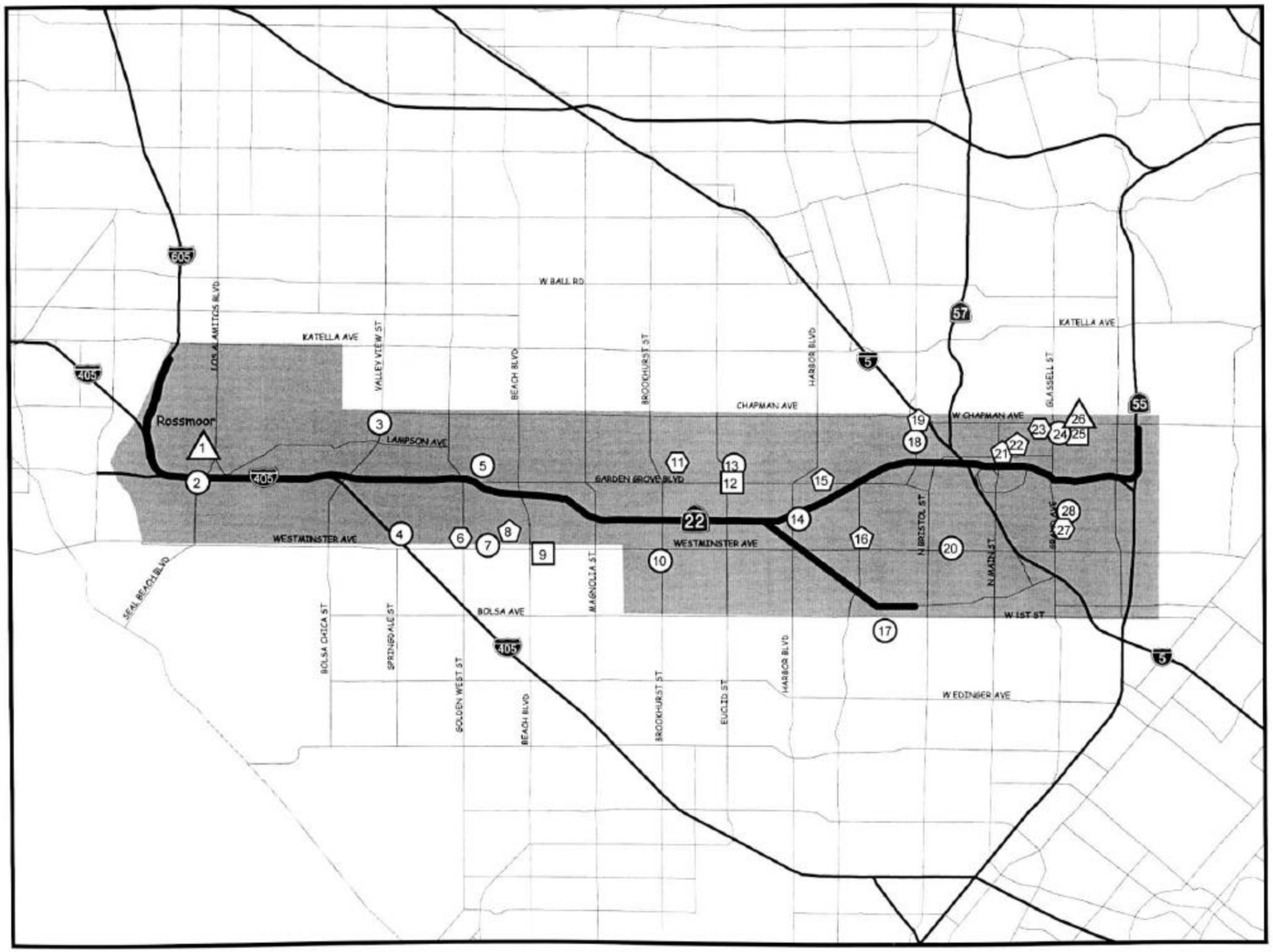
Libraries, City Halls and Post Offices. There are two libraries located within 1.6 kilometers (one mile) of the SR-22/WOCC study area. These libraries are located in Seal Beach and Orange.

Three city halls are located within 1.6 kilometers (one mile) of the study area in the cities of Garden Grove, Westminster and Orange.

Four post offices are located within 1.6 kilometers (one mile) of the study area in the cities of Garden Grove, Westminster, Orange and Santa Ana.

Hospitals. There are seven hospitals located within 1.6 kilometers (one mile) of the study area: Garden Grove Hospital and Medical Center, Vencor Hospital Orange County, UC Irvine Medical Center, The Children's Hospital of Orange County, St. Joseph Hospital, Orangegrove Rehabilitation Hospital and Santa Ana Hospital Medical Center. Two health care centers, the New Life Adult Day Health Care and Pacific Haven Health Care Center, are located in Garden Grove within 1.6 kilometers (one mile) of the study area.

Community Centers & Senior Centers. Based on information provided by Senior Service Solutions, city websites, and review of map resources, four community centers are located within 0.8-kilometers (0.5-miles) of the SR-22/ WOCC corridor. The Sunny Hills Senior Center, the Southern California Indian Center, the North Century Vietnamese Community Center, and the Korean Center are all located in the City of Garden Grove.



SR-22/West Orange County Connection Project

Affected Area Community Facilities

LEGEND

- Project Improvements
- Secondary Road
- Study Area
- City Hall
- Fire Station
- Hospital
- Library
- Post Office

Source: ESRI 1998, Thomas Brothers 2000, Field Check.

1 - Los Alimotos-Rossmoor Library
2 - Seal Beach Fire Station 48
3 - Garden Grove Fire Station 4
4 - Westminster Fire Station 64
5 - Garden Grove Fire Station 5
6 - Westminster Post Office
7 - Westminster Fire Station 65
8 - Vencor Hospital Orange County
9 - Westminster City Hall
10 - Garden Grove Fire Station 7
11 - Garden Grove Post Office
12 - Garden Grove City Hall
13 - Garden Grove Fire Station 1
14 - Garden Grove Fire Station 3
15 - Garden Grove Hospital and Medical Center
16 - Santa Ana Hospital and Medical Center
17 - Santa Ana Fire Station 3
18 - Orange Fire Station 6
19 - UC Irvine Medical Center
20 - Santa Ana Fire Station 1
21 - Children's Hospital Orange County
22 - St. Joseph Hospital
23 - Orange Post Office
24 - Orange Fire Station 1
25 - Orange City Hall
26 - Orange Public Library
27 - Santa Ana Post Office
28 - Santa Ana Fire Station 10

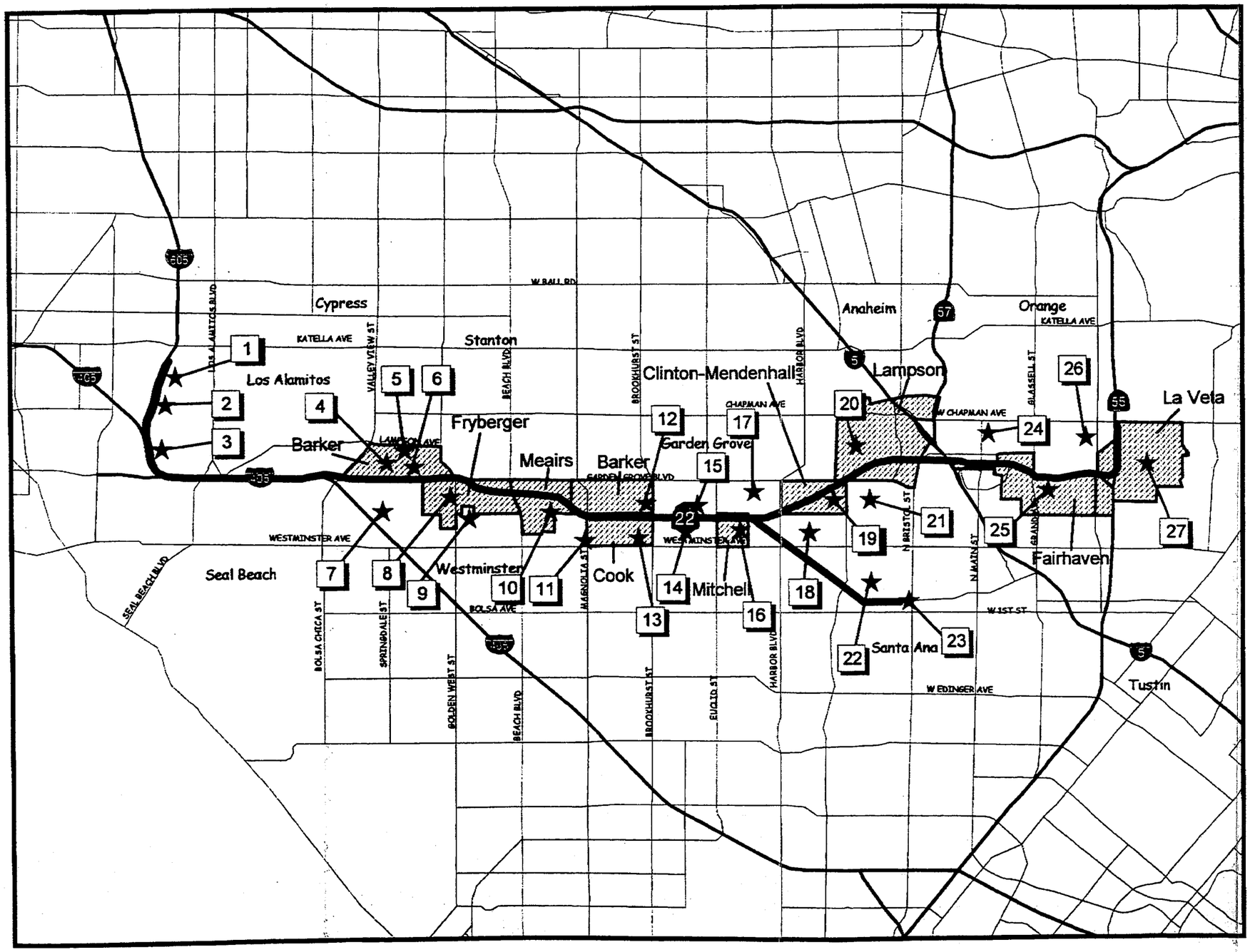
1 0 1 2 Miles

1 0 1 2 Kilometers

Figure 3.6-6

SR-22/West Orange County Connection Project

Elementary Schools and Affected School District Boundaries



★- Elementry Schools

1 - Lee Elementary School
2 - Weaver Elementary School
3 - Hopkinson Elementary School
4 - Edgar Elementary School
5 - Barker Elementary School
6 - Garden Park Elementary School
7 - Sequioa Elementary School
8 - Fryberger Elementary School
9 - Schmitt Elementary School
10 - Meairs Elementary School
11 - Anderson Elementary School
12 - Sunnyside Elementary School
13 - Cook Elementary School
14 - Excelsior Elementary School
15 - Mitchell Elementary School
16 - Woodbury Elementary School
17 - Peters Elementary School
18 - Clinton-Mendenhall Elementary School
19 - Dwight D. Eisenhower Elementary School
20 - Lampson Elementary School
21 - Riverdale Elementary School
22 - Fremont Elementary School
23 - Carver Elementary School
24 - West Orange Elementary School
25 - Fairhaven Elementary School
26 - Palmyra Elementary School
27 - La Veta Elementary School

LEGEND

Project Improvements
School District Boundary
School Attendance Area

Source: ESRI 1998, Garden Grove Unified School District 2000, Los Alamitos Unified School District 2000, Orange Unified School District 2000, Santa Ana Unified School District 2000, Westminster Unified School District 2000.

1 0 1 2 Miles

1 0 1 2 Kilometers

Figure 3.6-7

SR-22/West Orange County Connection Project

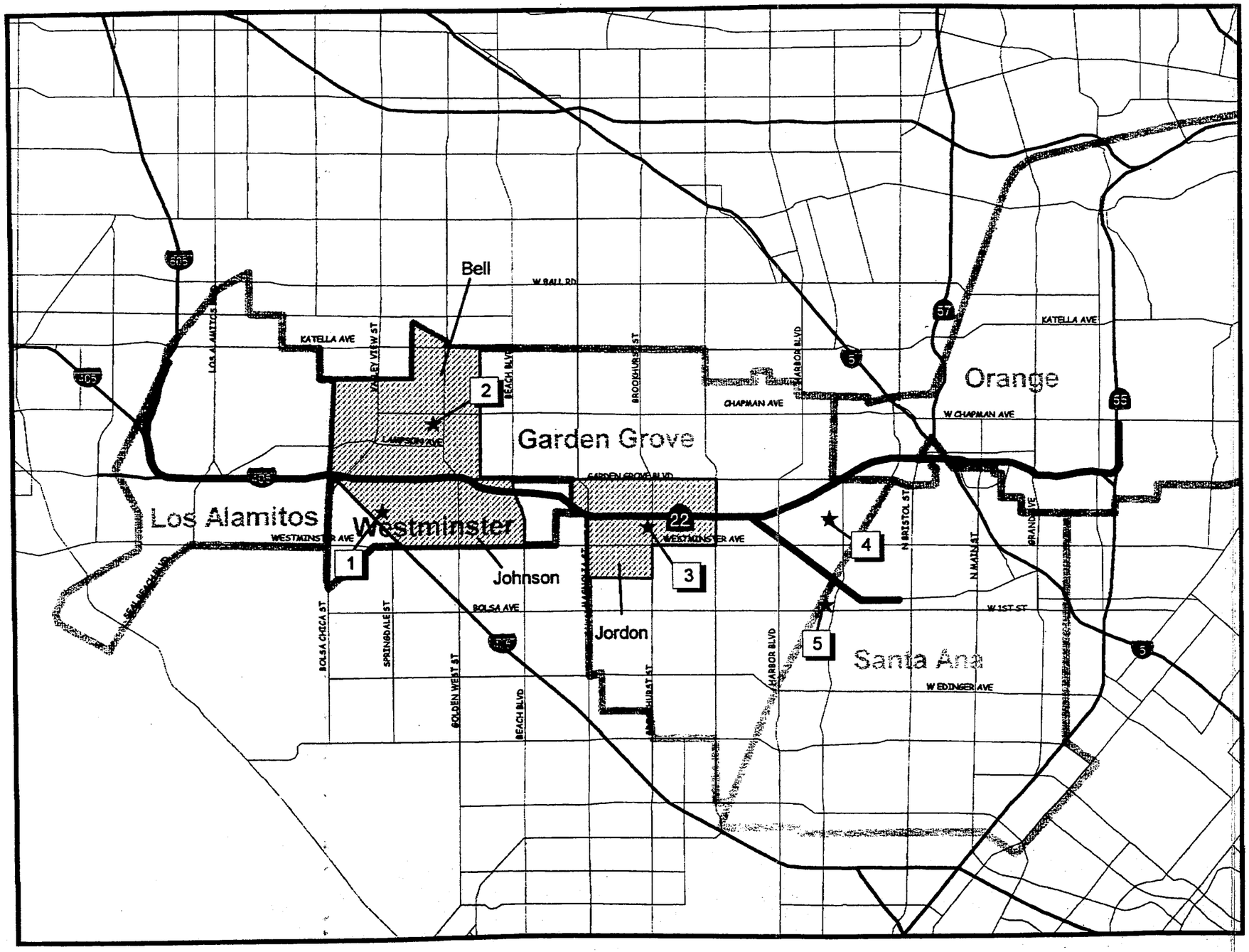
Intermediate Schools and Affected School District Boundaries

LEGEND

- Project Improvements
- School District Boundary
- School Attendance Area

Source: ESRI 1998, Garden Grove Unified School District 2000, Los Alamitos Unified School District 2000, Orange Unified School District 2000, Santa Ana Unified School District 2000, Westminster Unified School District 2000.

★- Intermediate Schools
1 - Johnson Middle School
2 - Bell Intermediate School
3 - Jordon Intermediate School
4 - Doig Intermediate School
5 - Spurgeon Middle School



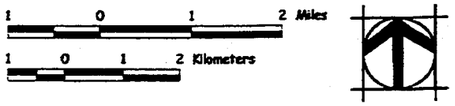


Figure 3.6-8

SR-22/West Orange County Connection Project

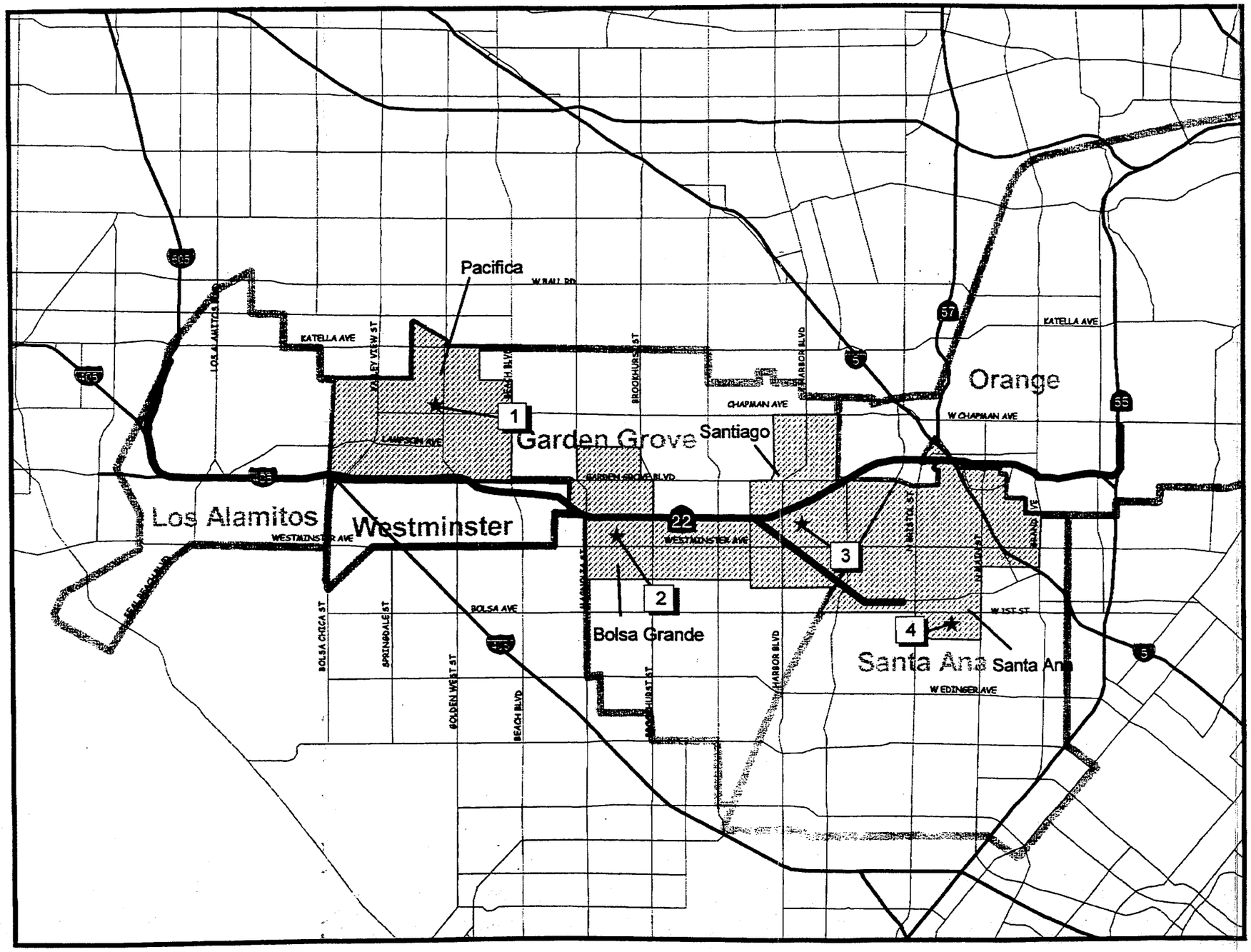
High Schools and Affected School District Boundaries

LEGEND

- Project Improvements
- School District Boundary
- School Attendance Area

Source: ESRI 1998, Garden Grove Unified School District 2000, Los Alamitos Unifed School District 2000, Orange Unified School District 2000, Santa Ana Unified School District 2000, Westminster Unified School District 2000.

★ - High Schools
1 - Pacifica High School
2 - Bolsa Grande High School
3 - Santiago High School
4 - Santa Ana High School



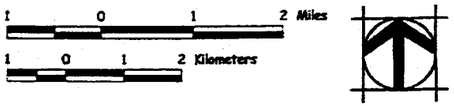


Figure 3.6-9

3.7 TRANSPORTATION AND CIRCULATION

This section summarizes the *SR-22/West Orange County Connection Traffic/Circulation Impact Report* and *Traffic/Circulation Impact Report Reduced Build Alternative Addendum* (May 2001), the *Traffic/Circulation Impact Report, Reduced Build Alternative (Revised) Addendum* (June 2002), and Section 3.7 of the August 2001 DEIR/EIS. The traffic and circulation data presented are from Year 2020, which are representative of the future or baseline condition when the SR-22/West Orange County Connection (SR-22/WOCC) would be in place. The 2020 data result in a "worst-case" scenario.

The following sections summarize the corridor's traffic conditions for the 2020 No Build Alternative, which is the base condition used to compare the other alternatives in Section 4.7.

3.7.1 CORRIDOR CONDITIONS

A. CORRIDOR TRAVEL TIME, VKT/VMT AND VHT

Vehicle kilometers traveled (VKT)/vehicle miles traveled (VMT), vehicle hours traveled (VHT), and the ratio between the two (average corridor speed) are throughput indicators of the study area mobility (including the freeway and the arterials). For the baseline No Build 2020 scenario, daily aggregate corridor travel time would be 2,610,240 hours. The annual aggregate travel time of all travelers with at least one trip ending in the SR-22 corridor would be 783,072,000 hours. The 2020 No Build scenario shows 16,155,410 VKT (10,040,650 VMT), with these kilometers (miles) being traveled in approximately 311,360 total vehicle hours. The data reflect an average corridor speed of 51.8 kilometers per hour (km/h) (32.2 miles per hour [mph]).

B. CORRIDOR SCREENLINE ANALYSIS

To assess travel demand and average speed, four north/south screenlines were identified, as shown in Figure 3.7-1. They are located:

- West of the SR-22/I-405 interchange
- Between Beach Boulevard and Magnolia Street
- Between Harbor Boulevard and Haster Street
- Between Glassell Street and Tustin Street

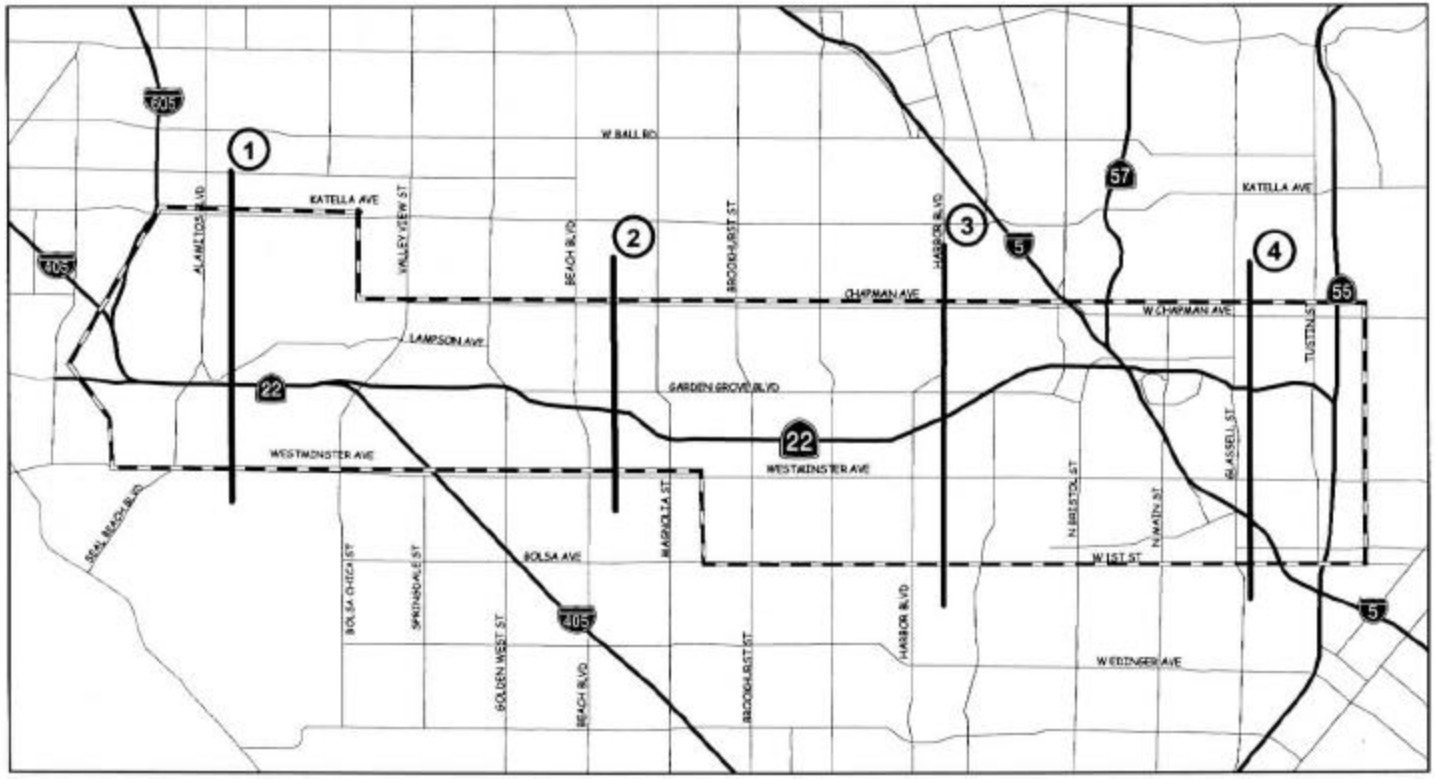
The screenline volume is the aggregate of all the vehicles on all the facility types that cross the screenline, not just those vehicles on SR-22. All of the vehicles that are on those roadways are also included in the Screenline No. 4 volume and speed data.

The 2020 No Build scenario screenline information on Table 3.7-1 (SR-22 Corridor No Build Screenline Summary) indicates the mobility on four screenlines.

Table 3.7-1
SR-22 CORRIDOR NO BUILD SCREENLINE SUMMARY

Screenline	Volume*	VKT (VMT)	VHT
1 – West of the SR-22/I-405 Interchange	431,340	521,040 (323,830)	9,190
2 – Between Beach Boulevard and Magnolia Street	283,910	246,690 (153,320)	3,240
3 – Between Harbor Boulevard and Haster Street	381,030	317,170 (197,120)	5,530
4 – Between Glassell Street and Tustin Street	634,888	453,480 (281,840)	7,420

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
* ADT volumes were derived from adjusted estimates and daily traffic demand provided by OCTA, December 1999



LEGEND

Study Area Limits

Study Area Screenlines

SR-22 / West Orange County Connection Project

Screenline Locations

Figure 3.7-1

D. CORRIDOR TRAVEL TIME COMPARISON

Travel time within the corridor was compared by selecting several pairs of trip origins (O) and destinations (D). These O-D pairs were selected as representative travel markets. Table 3.7-2 indicates that the selected trips extending beyond the study area are forecasted to take approximately 30 minutes and that a trip within the study area (from Westminster to Orange) is forecasted to take approximately 18 minutes

Table 3.7-2
SOV AND 3+ HOV TRAVEL TIMES IN MINUTES
YEAR 2020 – NO BUILD AM PEAK PERIOD

Origin	*Destination*	**Mode**	**Travel Time (min.)**[1]
Orange Mall Orange	Leisure World Seal Beach	SOV[2] 3+ HOV	31.4 31.4
17th St. at Bristol St. Santa Ana	Belmont Shore Dr. Long Beach	SOV 3+ HOV	30.9 30.9
I-405 at Bellflower St. Long Beach	Chapman Ave. Orange	SOV 3+ HOV	29.9 28.8
Belmont Shore Dr. Long Beach	Civic Center Santa Ana	SOV 3+ HOV	33.4 33.4
I-405 at SR-22 Westminster	Children's Hospital Orange County Orange	SOV 3+ HOV	18.2 18.2

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
[1] Rounded to nearest 0.1 minute
[2] SOV – single-occupant vehicle, including those with two occupants

3.7.2 FREEWAY MAINLINE CONDITIONS

A. FREEWAY AVERAGE DAILY TRIPS

As shown in Table 3.7-3 (Year 1996 and Year 2020 Traffic Demands [No Build]), SR-22 base year (1996) average daily traffic (ADT) volumes range between 135,000 to 206,000 vehicles (California Dept. of Transportation, 1997). Two-way peak-hour volumes range from 10,500 to 15,000 vehicles. Existing ADT on other freeway facilities would include 327,000 vehicles on I-405, 166,000 vehicles on I-605, and 245,000 vehicles on SR-55 (OCTA, 1999). Year 2020 forecast traffic volumes are estimated to range between 158,100 and 222,600 vehicles per day. Peak-hour traffic would increase between 11,390 and 17,160 vehicles

B. FREEWAY V/C RATIOS AND LOS

The level of service (LOS) can be used as an indicator of freeway throughput and mobility. For this study, the volume-to-capacity (V/C) ratio criterion shown in Table 3.7-4, Freeway Mainline LOS Criteria, was used to assign the mainline traffic LOS. Table 3.7-6 shows the base-year peak-hour traffic volumes and associated LOS conditions on SR-22, I-405, I-605 and SR-55 for 1996 and baseline 2020 peak-hour conditions.

Table 3.7-3
YEAR 1996 AND YEAR 2020 TRAFFIC DEMANDS (NO BUILD)

Freeway Section	Year 1996			Year 2020			Percent Change	
	ADT	Peak Hour	# of Lanes	ADT*	Peak	# of Lanes	ADT*	Peak Hour
SR-22								
Tustin St. – Glassell St.	146,000	10,900	3	173,600	11,390	3	18.9%	4.5%
Main St. – I-5/SR-57 IC	159,000	11,800	3	190,500	12,880	3	19.8%	9.2%
I-5/SR-57 IC – The City Dr.	206,000	15,000	3	222,600	17,160	3	8.1%	14.4%
Harbor Blvd. – Euclid St.	183,000	13,600	3	204,800	15,980	3	11.9%	17.5%
Beach Blvd. – Knott St.	135,000	10,500	3	158,000	12,490	3	11.7%	19.0%
I-405								
I-605 – Seal Beach Blvd.	327,000	26,000	6	332,700	28,620	6	1.7%	10.1%
SR-55								
SR-22 – Chapman Ave.	245,000	15,400	5	304,700	20,300	5	24.4%	31.8%

Source: California Dept. of Transportation, 1997; OCTAM 2.8 – SR-22 MIS/EIS Analysis
IC = Interchange
* ADT forecasts were derived from adjusted estimates of daily traffic demand in the SR-22 corridor provided by OCTA, December 1999.

Under the No Build Scenario, the peak-hour SR-22 eastbound forecast traffic demand approaches 4,600 vehicles near SR-55, 8,000 vehicles between The City Drive and Euclid Street, and 6,700 vehicles between Beach Boulevard and Valley View Street. The westbound forecast traffic demand would range between 4,000 and 8,500 vehicles, with traffic peaking near the I-5/SR-57 interchange. The forecast traffic demands would exceed the mainline capacity (three lanes in each direction) at several locations along SR-22 in both directions.

As shown in Table 3.7-5, 15 of the 30 sections studied on SR-22, would operate at LOS F conditions. Six would experience an LOS improvement compared to the 1996 condition. The forecast growth in the corridor and in trips through the corridor account for the 15 sections operating at LOS F. The elements of the No Build Alternative that were not in place in 1996 (such as *Master Plan of Arterial Highways* transportation improvements) account for the reduction of demand and corresponding improvement in LOS at several locations.

Table 3.7-4
FREEWAY MAINLINE LOS CRITERIA

LOS	Maximum V/C Ratio	Speed
A	0.283	105 km/h (65 mph)
B	0.452	105 km/h (65 mph)
C	0.673	104 km/h (64.5 mph)
D	0.849	98 km/h (65 mph)
E	1.000	85 km/h (53 mph)
F	*	less than 85 km/h (53 mph)

Source: Transportation Research Board, 1997
* Demand flows exceed capacity limits

3.7.3 HOV Conditions

Freeway-to-freeway HOV connectors can be evaluated based on the throughput level of service. The need for HOV connectors can be also determined from the congestion level on the existing general-purpose connectors that handle the movements that would be augmented by HOV freeway-to-freeway direct connectors.

The currently accepted HOV lane capacity range is from 800 vehicles per hour per lane [vphpl] to 1,500 vphpl. Capacity of the I-405/I-605 connectors and the SR-22/I-405 connectors is assumed to be 1,500 vphpl because of their higher-speed design. Capacity of the I-5/SR-22 and SR-22/SR-55 connectors is assumed to be less (1,200 vphpl) because of their geometry. Table 3.7-6 (Freeway Connector V/C Ratio and Level of Service, Year 2020 AM and PM Peak Hour [No build]) illustrates the vehicles and the LOS on the eight general-purpose connectors.

The baseline 2020 No Build scenario contains no HOV connectors in the study area, nor is there an HOV lane on SR-22 that would indicate the volumes anticipated to benefit from such connectors.

3.7.4 Arterial Conditions

The following arterials provide the baseline for analysis of a new arterial in Section 4.7: Newhope Street, Harbor Boulevard, Fairview Street, Westminster Boulevard, Fifth Street and First Street. The County of Orange arterial LOS criteria as shown in Table 3.7-7, Arterial LOS Criteria, were compared to the baseline conditions on the arterials.

The adjacent arterial system within the SR-22 corridor is burdened by heavy travel activity, and lacks sufficient mobility measures such as adequate capacity on arterials and intersections, HOV lanes and express transit services, continuity in arterial roadways, and TSM-related strategies. The 2020 No Build volumes on the parallel arterials in Table 3.7-8 (Arterial and Freeway Connector Level of Service, Year 2020 [No Build]) illustrate the congestion level that currently serves arterial traffic from the area around the SR-22/Euclid Street interchange (near the proposed Pacific Electric Arterial's northwest terminus) to central Santa Ana (near the proposed arterial's southeastern terminus). The table also includes the eastbound SR-22 to southbound I-5 connector and the northbound I-5 to westbound SR-22 connector that would carry some traffic from the Euclid Street area to central Santa Ana on the freeways.

Table 3.7-5
FREEWAY V/C RATIO AND LEVEL OF SERVICE
YEAR 1996 and YEAR 2020 PEAK HOUR

Study Freeway	Study Segment Between	Year 1996				*Year 2020 No Build*			
		General-Purpose		2+ HOV		General-Purpose		3+ HOV	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Eastbound SR-22	SR-22/I-405 – Valley View Blvd.	NA	NA	--	--	0.94	E	--	--
	Valley View Blvd. – Knott St.	NA	NA	--	--	0.97	E	--	--
	Knott St. – Beach Blvd.	0.68	D	--	--	0.98	E	--	--
	Beach Blvd. – Magnolia St.	0.87	E	--	--	1.05	F	--	--
	Magnolia St. – Brookhurst St.	0.87	E	--	--	1.09	F	--	--
	Brookhurst. – Euclid St.	0.88	E	--	--	1.12	F	--	--
	Euclid St. – Harbor Blvd.	0.89	E	--	--	1.15	F	--	--
	Harbor Blvd. – Haster St.	0.88	E	--	--	1.14	F	--	--
	Haster St. – The City Dr.	0.91	E	--	--	1.20	F	--	--
	The City Dr. – Bristol St.	NA	NA	--	--	1.26	F	--	--
	Bristol St. – I-5/SR-57 Interchange	NA	NA	--	--	1.03	F	--	--
	I-5/SR-57 Interchange – Main St.	NA	NA	--	--	1.02	F	--	--
	Main St. – Glassell St.	NA	NA	--	--	1.01	F	--	--
	Glassell St. – Tustin St.	0.87	E	--	--	0.92	E	--	--
	Tustin St. – SR-55	0.71	D	--	--	0.67	C	--	--
Westbound SR-22	SR-55 – Tustin St.	0.58	C	--	--	0.55	C	--	--
	Tustin St. – Glassell St.	0.71	D	--	--	0.73	D	--	--
	Glassell St. – Main St.	NA	NA	--	--	0.77	D	--	--
	Main St. – I-5/SR-57 Interchange	NA	NA	--	--	0.84	D	--	--
	I-5/SR-57 Interchange – Bristol St.	NA	NA	--	--	0.82	D	--	--
	Bristol St. – The City Dr.	NA	NA	--	--	1.23	F	--	--
	The City Dr. – Haster St.	1.11	F	--	--	0.88	E	--	--
	Haster St. – Harbor Blvd.	NA	NA	--	--	1.18	F	--	--
	Harbor Blvd. – Euclid St.	NA	NA	--	--	1.16	F	--	--
	Euclid St. – Brookhurst St.	NA	NA	--	--	1.10	F	--	--
	Brookhurst St. – Magnolia St.	1.07	F	--	--	1.03	F	--	--
	Magnolia St. – Beach Blvd.	1.07	F	--	--	0.94	E	--	--
	Beach Blvd. – Knott St.	0.84	D	--	--	0.83	D	--	--
	Knott St. – Valley View St.	NA	NA	--	--	0.73	D	--	--
	Valley View St. – SR-22/I-405	NA	NA	--	--	0.75	D	--	--
Northbound *I-405*	SR-22/I-405 – Seal Beach Blvd.	0.85	E	NA	NA	0.86	E	0.47	C
	Seal Beach Blvd. – I-605	0.79	D	NA	NA	0.84	D	0.63	C
SR-55	SR-22 – Chapman Ave.	NA	NA	NA	NA	0.79	D	1.12	F
I-605	I-405 – Katella Ave	NA	NA	--	--	0.63	C	--	--
Southbound I-405	I-605 – Seal Beach Blvd.	0.79	D	NA	NA	1.08	F	0.95	E
	Seal Beach Blvd. – SR-22/I-405	NA	NA	NA	NA	1.06	F	0.71	D
SR-55	Chapman Ave – SR-22	NA	NA	NA	NA	0.68	D	1.13	F
I-605	Katella Ave – I-405	0.78	D	--	--	0.70	D	--	--

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
NA = Not available; -- = No HOV lane
Capacity of the freeway mainline is assumed to be 2,300 vphpl per the California Dept. of Transportation, *Highway Capacity Manual*.
Capacity of the HOV lane is assumed to be 1,500 vphpl.

Table 3.7-6
FREEWAY CONNECTOR V/C RATIO AND LEVEL OF SERVICE
YEAR 2020 AM AND PM PEAK HOUR (NO BUILD)

Connector	# of Lanes	AM			PM		
		Volume	V/C	LOS	Volume	V/C	LOS
Southbound I-605 to Southbound I-405	2	2,320	0.50	C	2,600	0.57	C
Northbound I-405 to Northbound I-605	2	3,470	0.75	D	3,010	0.65	C
Southbound I-405 to Eastbound SR-22	3	4,190	0.61	C	6,510	0.94	E
Westbound SR-22 to Northbound I-405	3	6,540	0.95	E	5,160	0.75	D
Eastbound SR-22 to Southbound I-5	2	2,060	0.52	C	2,140	0.54	C
Northbound I-5 to Westbound SR-22	1	2,390	1.20	F	2,020	1.01	F
Eastbound SR-22 to Northbound SR-55	2	2,070	0.52	C	2,770	0.69	D
Southbound SR-55 to Westbound SR-22	2	2,120	0.53	C	1,880	0.47	C

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis

Table 3.7-7
ARTERIAL LOS CRITERIA

Type of Arterial	Level of Service					
	A	B	C	D	E	F
8 Lanes Divided	45,000	52,500	60,000	67,500	75,000	-
6 Lanes Divided	33,900	39,400	45,000	50,600	56,300	-
4 Lanes Divided	22,500	26,300	30,000	33,800	37,500	-
4 Lanes Undivided	15,000	17,500	20,000	22,500	25,000	-
2 Lanes Undivided	7,500	8,800	10,000	11,300	12,500	-

Source: OCTA, 1995

Table 3.7-8
ARTERIAL AND FREEWAY CONNECTOR LEVEL OF SERVICE
YEAR 2020 (NO BUILD)

Arterial	Type	ADT Volume*	LOS
Newhope Street at Westminster Boulevard	4 lanes divided	29,100	C
Harbor Boulevard at Westminster Boulevard	8 lanes divided	60,000	C
Fairview Street at Westminster Boulevard	4 lanes divided	45,800	F
Westminster Boulevard/17th Street at Fairview Avenue	6 lanes divided	38,700	B
Fifth Street at Fairview Avenue	2 lanes undivided	12,000	E
First Street at Fairview Avenue	6 lanes divided	44,100	C

Connector	# of Lanes	AM			PM		
		Volume	V/C	LOS	Volume	V/C	LOS
Eastbound SR-22 to Southbound I-5	2	2,060	0.52	C	2,140	0.54	C
Northbound I-5 to Westbound SR-22	1	2,390	1.20	F	2,020	1.01	F

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
* ADT forecasts were derived from adjusted estimates of daily traffic demand provided by OCTA, December 1999

One of the arterials shown in Table 3.7-8 is forecast to experience congestion (LOS F) in 2020. Also, the demand on the connector from northbound I-5 to westbound SR-22 is forecast to exceed the capacity in the morning and evening peak periods. The data indicate that some transportation enhancement could improve flow on this arterial and these connectors.

The capacity of the I-405/I-605 and SR-22/I-405 connectors is assumed to be the same as the freeway mainline (2,300 vphpl) because of their higher-speed design. The I-5/SR-22 and SR-22/SR-55 connectors capacity is assumed to be less (2,000 vphpl) because of their geometry.

3.7.5 INTERSECTION CONDITIONS

The Intersection Capacity Utilization (ICU) methodology uses the peak-hour turning movements in association with the intersection lane geometry to calculate the intersection V/C ratio. As shown in Table 3.7-9, the V/C ratio measures how well an intersection operates by comparing the volume of cars within the intersection with the estimated intersection vehicle processing capacity. Table 3.7-9 shows the intersection LOS classification based on V/C ratios.

Table 3.7-9
INTERSECTION LOS CRITERIA

LOS	V/C Ratio
A	0.01 - 0.60
B	0.61 - 0.70
C	0.71 - 0.80
D	0.81 - 0.90
E	0.91 - 1.00
F	> 1.00

Source: OCTA, 1996

Table 3.7-10 summarizes ICU ratios and LOS for the baseline 2020 No Build scenario. Of the 37 intersections studied, 17 of them (approximately 46 percent) are projected to operate below LOS E thresholds (LOS F conditions) in the evening peak period.

Table 3.7-10
INTERSECTION ICU RATIO AND LEVEL OF SERVICE
YEAR 2020 PEAK HOUR (NO BUILD)

Study Intersection	No Build			
	ICU		**LOS**	
	AM	*PM*	*AM*	*PM*
I-605/Katella Ave. Northbound On-/Off-Ramps	1.25	1.34	**F**	**F**
I-605/Katella Ave. Southbound On-/Off-Ramps	0.86	1.11	D	*F*
I-405/Seal Beach Northbound On-/Off-Ramps	0.60	0.68	A	B
I-405/Seal Beach Southbound On-/Off-Ramps	0.75	0.75	C	C
SR-22/Valley View St. Westbound On-/Off-Ramps	0.96	1.10	E	*F*
SR-22/Valley View St./Garden Grove Blvd. Eastbound On-/Off-Ramps	0.75	0.83	C	D
SR-22/Knott St. Westbound On-Ramp	0.73	0.95	C	E
SR-22/Goldenwest St. Eastbound Off-Ramp	0.64	0.82	B	D
SR-22/Goldenwest St. Westbound Off-Ramp	0.96	0.89	E	D
SR-22/Beach Blvd. Westbound On-/Off-Ramps	0.53	0.65	A	B
SR-22/Beach Blvd. Eastbound On-/Off-Ramps	0.57	0.61	A	B
SR-22/Magnolia St. Eastbound On-/Off-Ramps	0.97	1.03	E	*F*
SR-22/Magnolia St. Westbound Off-Ramp	0.59	0.81	A	D
SR-22/Brookhurst St. Westbound On-/Off-Ramps	0.82	0.91	D	E
SR-22/Brookhurst St. Eastbound On-/Off-Ramps	0.77	0.93	C	E
SR-22/Euclid St. Eastbound On-/Off-Ramps	0.68	0.98	B	E
SR-22/Euclid St. Westbound On-/Off-Ramps	1.11	1.17	**F**	**F**
SR-22/Harbor Blvd. Westbound Off-Ramp	0.75	0.89	C	D
SR-22/Harbor Blvd. Eastbound On-Ramp	0.52	0.65	A	B
SR-22/Haster St. Westbound Off-Ramp	0.82	0.94	D	E
SR-22/Haster St. Westbound On-Ramp	0.84	1.28	D	*F*
SR-22/Fairview St. Eastbound On-Ramp	1.32	1.21	*F*	**F**
SR-22/Fairview St. Eastbound Off-Ramp	0.81	0.71	D	C
SR-22/The City-Metropolitan Dr. Westbound On-/Off-Ramps	1.04	1.16	*F*	*F*
SR-22/The City Dr. Eastbound On-/Off-Ramps	1.05	0.92	**F**	E
SR-22/Bristol St. Eastbound On-/Off-Ramps	1.29	1.39	**F**	*F*
SR-22/Bristol St./La Veta Ave. Westbound On-/Off-Ramps	0.75	0.88	C	D
SR-22/Main St. Westbound On-/Off-Ramps	0.78	1.14	C	*F*
SR-22/Main St. Eastbound On-/Off-Ramps*	---	---	*F*	F
SR-22/Glassell St. Westbound On-/Off-Ramps	1.07	1.29	**F**	*F*
SR-22/Glassell St. Eastbound On-/Off-Ramps	0.80	1.07	C	**F**
SR-22/Tustin St. Westbound On-Ramp	1.12	0.78	F	C
SR-22/Tustin St. Eastbound Off-Ramp	0.84	1.39	D	*F*
SR-55/Chapman Ave. Southbound On-/Off-Ramps	0.68	0.65	B	B
SR-55/Chapman Ave. Northbound On-/Off-Ramps	0.50	0.65	A	B
Fairview St./Civic Center Dr.	0.90	1.04	D	*F*
Raitt St./Santa Ana Blvd.	0.59	0.65	A	B

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
*The intersection is not signalized. The LOS was obtained using the HCM method.

3.7.6 PEARCE STREET PEDESTRIAN OVERCROSSING

Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Pedestrian overcrossing is in need of replacement since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately eight feet wide. The August 2001 DEIR/EIS assumed the Pearce Street pedestrian overcrossing would be replaced in-kind at the same location as the existing facility. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 110 meters east of the existing overcrossing. Please refer to Figure 2.2b for a schematic of the replacement proposal.

3.8 AIR QUALITY

This section summarizes the *SR-22/West Orange County Connection Air Quality Technical Report* and the *Air Quality Technical Report Reduced Build Alternative Addendum* (January 2001, revised 2002), and the August 2001 DEIR/EIS. For a more detailed analysis, these documents are available at the Department and OCTA under separate cover.

3.8.1 RELEVANT POLLUTANTS

The US EPA has identified six criteria air pollutants as being of national concern: carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), ozone (O_3), particulate matter ($PM_{10,2.5}$), and lead (Pb).

3.8.2 AIR QUALITY REGULATIONS AND PLANNING

A. NATIONAL AMBIENT AIR QUALITY STANDARDS

Air quality is regulated at the federal level under the Clean Air Act (CAA) and the Final Conformity Rule (40 CFR Parts 51 and 93). The CAA authorizes the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for air pollutants of nationwide concern and requires each state to submit a State Improvement Plan (SIP) detailing its strategies for attaining the standards. Air quality is regulated at the state level under the California Clean Air Act of 1988 (AB 2595). The California Clean Air Act requires all districts that are designated as nonattainment for any pollutant to "adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction."

Both the EPA and the California CAA have established NAAQS for the following air pollutants: CO, O_3, NO_2, PM_{10}, SO_x, and Pb. Both the state and federal standards are shown in Table 3.8-1.

According to the US EPA, PM is the general term used for a mixture of solid particles and liquid droplets found in the air. Some of these particles are large or dark enough to be seen as soot or smoke, while others are so small they can be detected only with an electron microscope. These particles, which come in a wide range of sizes ("fine" particles are less than 2.5 micrometers in diameter and coarser-size particles are larger than 2.5 micrometers), originate from many different stationary and mobile sources as well as from natural sources. Fine particles (PM-2.5) result from fuel combustion from motor vehicles, power generation, and industrial facilities, as well as from residential fireplaces and wood stoves. Coarse particles (PM-10) are generally emitted from sources, such as vehicles traveling on unpaved roads, materials handling, and crushing and grinding operations, as well as windblown dust. Some particles are emitted directly from their sources, such as smokestacks and cars. In other cases, gases such as sulfur oxide and SO2, NOx, and VOC interact with other compounds in the air to form fine particles. Their chemical and physical compositions vary depending on location, time of year, and weather.

In 1997, EPA added two new PM-2.5 standards, set at 15 micrograms per cubic meter (μ/m^3) and 65 $\mu g/m^3$, respectively, for the annual and 24-hour standards. In addition, the form of the 24-hour standard for PM-10 was changed. EPA is beginning to collect data on PM-2.5 concentrations. Beginning in 2002, based on three years of monitoring data, EPA will designate areas as nonattainment that do not meet the new PM-2.5 standards.

Between 1988 and 1997, the average PM-10 concentrations decreased 26 percent. Short-term trends between 1996 and 1997 showed a decrease of 1 percent in monitored PM-10 concentration levels.

The emissions estimates presented above do not include emissions from natural and miscellaneous sources, such as fugitive dust (unpaved and paved roads), agricultural and forestry activities, wind erosion, wildfires and managed burning. These emissions estimates also do not account for PM that is secondarily formed in the atmosphere from gaseous pollutants (i.e., SO_2 and NO_x).

B. ATTAINMENT STATUS OF STUDY AREA

The study area is located in the South Coast Air Basin (SCAB). The SCAB is in nonattainment status for state and federal Ambient Air Quality Standards (AAQS) for four of the six criteria air pollutants. Currently, the basin exceeds the federal standards for ambient CO, O_3, and PM_{10} levels. NO_x levels have been below the federal standard, but the basin is the only area that has not been reclassified to attainment status for this criteria pollutant.

The SCAQMD and SCAG are the agencies responsible for preparing the Air Quality Management Plan (AQMP) for the SCAB. Since 1979 a number of AQMPs have been prepared. The most recent comprehensive plan fully approved by the U.S. EPA is the 1997 Air Quality Management Plan (1997 AQMP), which includes a variety of strategies and control measures. The 1997 AQMP was based on the 1994 AQMP and was designed to comply with State and federal requirements. The goal of the 1997 AQMP was to be less reliant on transportation control measures, be less reliant on long-term control measures that rely on future technologies as allowed under 182(e)(5) of the CAA, and removal of other infeasible control measures and indirect source measures.

The AQMP is a dynamic document that is updated every three years. The most recent 1997 AQMP is based on the 1994 Plan and carries forward most of the strategies included therein. However, with recent findings by nationally recognized health experts, the new Plan puts greater emphasis on PM_{10} particulate matter. In fact, the 1997 AQMP is required by federal law to demonstrate attainment of the federal PM_{10} ambient air quality standards. The 1997 Plan also updates the demonstration of attainment of ozone and carbon monoxide levels. Additionally, because the Basin came into attainment of the federal nitrogen dioxide standard since the 1994 AQMP was prepared, the new Plan includes a maintenance program to assure continued compliance.

The 1997 AQMP also addresses several State and Federal planning requirements and incorporates new scientific data, primarily in the form of updated emissions inventories, ambient measurements, and new air quality models. Expanding on the control strategies included in the 1994 AQMP, the 1997 Plan projects sufficient emissions reductions to meet all federal criteria pollutant standards within the time frames allowed under the Federal Clean Air Act.

The 1997 AQMP also addresses notable regulatory rules promulgated since the preparation of the 1994 Plan. These include the implementation of Phase II reformulated fuels in 1996, the replacement of Regulation XV rideshare program with an equivalent emission reduction program, and new incentive programs for generating emission credits. Other highlights of the 1997 Plan are noted below.

- Use of the most current air quality information (1995), including special particulate matter data from the PM_{10} Technical Enhancement Program;
- Improved emissions inventories, especially for motor vehicles, fugitive dust and ammonia sources;
- A similar but fine-tuned overall control strategy with continuing emphasis on flexible alternative approaches including intercredit trading;
- A determination that certain control measures contained in the 1994 AQMP are infeasible, most notably the future indirect source measures;
- Enhanced modeling for particulates;
- Separate analyses for the desert portions within the District's jurisdiction: the Coachella Valley within the newly designated Salton Sea Air Basin; and the Antelope Valley within the Mojave Desert Air Basin;
- Attainment to the federal Post-1996 Rate-of-Progress Plan and the Federal Attainment Plans for ozone and carbon monoxide;
- A maintenance plan for nitrogen dioxide; and
- An attainment demonstration and State Implementation Plan Revision for PM_{10}.

In 1999, the ozone plan portion of the 1997 AQMP was amended in conjunction with a settlement of litigation by environmental groups challenging the 1997 plan to provide the following:

- Greater emission reductions in the near-term than would occur under the 1997 AQMP;
- Earlier adoption of the measures that would otherwise be contained in the next three years' update of the AQMP; and
- Additional flexibility relative to substituting new measures for infeasible measures and recognition of the relevance of cost effectiveness in determining feasibility.

In April 2000, U.S. EPA approved the 1999 ozone SIP to the 1997 plan. The 1999 Amendment in part addressed the State's requirements for a triennial plan update.

C. CONFORMANCE WITH AIR QUALITY STANDARDS

Under the Clean Air Act Amendments of 1990 (CAAA), the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and the Transportation Equity Act for the 21st Century (TEA-21), proposed transportation projects must be derived from a long-range transportation plan (LRP) or Regional Transportation Plan (RTP) that conforms with the state air quality plans as outlined in the SIP. The SIP sets forth the state's strategies for achieving air quality standards. Projects must also be included in a Transportation Improvement Program (TIP) that conforms with the SIP, and localized impacts from proposed projects must conform to state air quality plans in nonattainment and maintenance areas.

Southern California Association of Governments (SCAG), as the federally designated Metropolitan Planning Organization (MPO) for most of Southern California, is required to adopt and periodically update a long-range transportation plan and develop an RTP and TIP for Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial Counties.

The SCAG Regional Council found the 1998 RTP[1] to conform to the SIP and adopted the 2001 RTP for the six-county SCAG region on April 16, 2001. Federal approval of the 2001 RTP was obtained in June 2001. The RTP, known as Community Link 21, is a performance-based plan aimed at providing a long-range, coordinated approach to transportation improvements from 2001 through 2025.

3.8.3 AMBIENT AIR QUALITY IN THE STUDY AREA

A. LOCAL METEOROLOGY

The study area is located in the 17,000-square-kilometer (6,800-square-mile) South Coast Air Basin. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix. The combination of the topography and climate in the Basin provides the region with potential for high air pollution.

B. LOCAL MONITORED AIR QUALITY

The SCAB air pollutant levels are measured at monitoring stations that the SCAQMD and the CARB maintain. The monitoring stations nearest the project study area are located in Anaheim, Costa Mesa and north Long Beach. The last three years of monitored data available for these locations are summarized in Table 3.8-2 to illustrate the study area's general air quality trends. The monitoring station nearest to the project study area that measures $PM_{2.5}$ is located in north Long Beach. Three years of monitored data at this location, 1997 through 1999, are summarized in Table 3.8-3. $PM_{2.5}$ data for 2000 and 2001 are not yet available at this location.

[1] Available at OCTA.

Table 3.8-1
STATE AND FEDERAL 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)	Same as Primary Standard	Ethylene Chemilumi-nescence
	8 Hours	-		0.08 ppm (157 µg/m^3)		
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m^3	Size Selective Inlet Sampler CARB Method P (8/22/85)	-	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	24 Hours	50 µg/m^3		150 µg/m^3		
	Annual Arithmetic Mean	-		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean			15 µg/m^3		
Carbon Monoxide (CO)	8 Hours	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)-		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	-	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemilumi-nescence
	1 Hour	0.25 ppm (470 µg/m^3)		-		
Lead (Pb)	30-day average	1.5 µg/m^3	AIHL Method 54 (12/74) Atomic Absorption	-	-	High-volume Sampler & Atomic Absorption
	Calendar Quarter	-		1.5 µg/m^3	Same as Primary	
Sulfur Dioxide (SO_2)	3 Hours	-		-	0.5 ppm (1,300 µg/m^3)	Pararosoaniline
Sulfates	24 Hours	25 µg/m^3	Turbidimetric Barium Sulfate AIHL Method 61 (2/76)	No Federal Standards		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Cadmium hydroxide STRactan			

ppm	*µg/m^3*	*mg/m^3*	*mm*	*° C*
parts per million	*micrograms/square mete*	*milligrams/square meter*	*millimeter*	*degrees Celcius*

1. *State standards for O_3, CO, SO_2 (1- and 24-hour), NO_2, PM_{10}, & visibility-reducing particles not to be exceeded. All others not to be equaled or exceeded. State AAQS listed in Table of Standards, Section 70200, Title 17, CCR. Section 70200.5 lists vinyl chloride (chloroethene) under "AAQS for Hazardous Substances." In 1978, CARB adopted vinyl chloride standard of 0.010 ppm (26 µg/m^3) (24-hour average), measured by gas chromatography. Standard notes that vinyl chloride is "known human and animal carcinogen" & that "low-level" effects are undefined, but are potentially serious. Level not threshold level & does not necessarily protect against harm. Level specified is lowest level at which violation can be reliably detected by method specified. Ambient concentrations =/> standard constitute endangerment to public health. In 1990, CARB identified vinyl chloride as Toxic Air Contaminant & determined there was not sufficient available scientific evidence to support identification of threshold exposure level. This allows implementation of health-protective control measures at levels < 0.010-ppm ambient concentration specified in 1978 standard.*
2. *National standards (other than O_3, PM_{10}, and those based on annual averages or annual arithmetic mean) not to be exceeded more than once a year. O_3 standard attained when 4th highest 8-hour concentration in a year, averaged over 3 years, =/< standard. For PM_{10}, 24-hour standard attained when 98% of daily concentrations, averaged over 3 years, =/< standard. Contact EPA for further clarification & current federal policies.*
3. *Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses based upon a reference temperature of 25° C & a reference pressure of 760 mm of mercury (1,013.2 millibar). Most measurements corrected to 25° C & 760 mm; ppm in this table refers to ppm volume, or micromoles of pollutant per mole of gas.*
4. *Any equivalent procedure that can be shown to the satisfaction of CARB to give equivalent results at or near the level of air quality standard may be used.*
5. *Levels necessary, with adequate margin of safety to protect public health.*
6. *Levels necessary to protect public welfare from any known or anticipated adverse effects of pollutant.*
7. *Reference method as described by EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by EPA.*

Table 3.8-2
AIR QUALITY SUMMARY FOR STUDY AREA MONITORING STATIONS

Air Pollutant	Standard/ Exceedance	Anaheim Harbor Boulevard			Costa Mesa *Mesa Verde Drive*			North Long Beach North Long Beach Boulevard		
		1999	2000	2001	1999	2000	2001	1999	2000	2001
Carbon Monoxide (CO)	Max. 1-hour Concentration (ppm)	8.3	7.9	7.5	7.9	7.8	6.2	7.5	9.7	6.0
	Max.8-hour Concentration (ppm)	5.34	6.73	4.69	6.41	6.29	4.64	5.49	5.73	4.00
	# Days>Federal 1-hour Std. of >35 ppm	NA	0	0	NA	0	0	0	0	0
	# Days>Federal 8-hour Std. of >9 ppm	0	0	0	0	0	0	0	0	0
	# Days>California 1-hour Std. of >20 ppm	NA	0	0	NA	0	0	0	0	0
	# Days>California 8-hour Std. of >9.0 ppm	0	0	0	0	0	0	0	0	0
Ozone (O_3)	Max. 1-hour Concentration (ppm)	0.098	0.132	0.107	0.098	0.102	0.098	0.131	0.118	0.091
	Max. 8-hour Concentration (ppm)	0.076	0.097	0.069	0.075	0.086	0.073	0.081	0.081	0.070
	# Days>Federal 1-hour Std. of >0.12 ppm	0	1	0	0	0	0	1	0	0
	# Days>Federal 8-hour Std. Of >0.08 ppm	0	1	0	0	1	0	0	0	0
	# Days>California 1-hour Std. Of >0.09 ppm	1	9	2	1	1	1	3	3	0
Nitrogen Dioxide (NO_2)	Max. 1-hour Concentration (ppm)	0.117	0.139	0.127	0.123	0.107	0.082	0.151	0.140	0.121
	Annual Arithmetic Mean (ppm)	NA	0.029	NA	0.020	0.020	NA	0.034	0.032	NA
	% AAM Exceeded (Federal)	NA	NA	NA	NA	NA	NA	0	0	0
	# Days>California 1-hour Std. of >0.25 ppm	0	0	0	0	0	0	0	0	0
Sulfur Dioxide (SO_2)	Max. 24-hour Concentration (ppm)	NM	NM	NM	0.005	0.006	0.004	0.011	0.007	0.009
	Annual Arithmetic Mean (ppm)	NM	NM	NM	0.002	0.002	0.001	0.003	0.002	0.002
	# Days>Federal 24-hour Std. of >0.14 ppm	NM	NM	NM	0	0	0	0	0	0
	# Days>California 24-hour Std. of >0.04 ppm	NM	NM	NM	0	0	0	0	0	0
Suspended Particulates (PM_{10})	Year Coverage*	77%	91%	33%	NM	NM	NM	99%	95%	22%
	Max. 24-hour Concentration ($\mu g/m^3$)	122	126	93	NM	NM	NM	79	105	91
	#Days>Fed. 24-hour Std. of>150 $\mu g/m^3$	0	0	0	NM	NM	NM	0	0	0
	#Days>California 24-hour Std. of>50 $\mu g/m^3$	15	8	6	NM	NM	NM	13	12	6
	State Annual Average ($\mu g/m^3$)	43	36	36	NM	NM	NM	36.4	34.0	35.8
Lead	Maximum Monthly Concentration ($\mu g/m^3$)	NM	NM	NM	NM	NM	NM	NM	NM	NM
	# Months Exceeding Federal Std.	NM	NM	NM	NM	NM	NM	NM	NM	NM
	# Months Exceeding State Std.	NM	NM	NM	NM	NM	NM	NM	NM	NM
Sulfates	Max. 24-hour Concentration ($\mu g/m^3$)	NM	NM	NM	NM	NM	NM	NM	NM	NM
	#Samples>California 24-hour Std.>=25 $\mu g/m^3$	NM	NM	NM	NM	NM	NM	NM	NM	NM

Source: California Air Resources Board 1999, 2000, 2001.
* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations were expected.
NM: Pollutant not monitored
NA: Pollutant not available

Table 3.8-3
AIR QUALITY SUMMARY FOR $PM_{2.5}$ MONITORING STATION CLOSEST TO PROJECT STUDY AREA

Air Pollutant	Standard/ *Exceedance*	North Long Beach		
		1997	1998	1999
Fine Particles ($PM_{2.5}$)	Year Coverage*	87	88	30
	Maximum Annual Concentration ($\mu g/m^3$)	51	42	42
	#Days>Federal Std. of>65 $\mu g/m^3$	0	0	0
	98th Percentile	49.0	39.0	42.0
	National Annual Average ($\mu g/m^3$)	17.0	16.0	17.9
	3-year National Average**	19.0	17.7	17.0

Source: California Air Resources Board 1997, 1998, 1999.
* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations were expected.
** The 3-year statistics include data from the listed year and the two years before the listed year.

3.9 NOISE

This section contains a summary of the information based on the *SR-22/West Orange County Connection (SR-22/WOCC) Traffic Noise Impact Technical Report* and the *Reduced Build Alternative Traffic Noise Impact Technical Report Addendum* (December 2000), *Traffic Noise Impact Technical Report (Revised) Addendum* (December 2002), *Traffic Noise Impact Technical Report Rossmoor Addendum* (September 2002), *Traffic Noise Impact Technical Report Garden Grove Addendum* (October 2002), and Section 3.9 of the August 2001 DEIR/EIS.

The purpose of these Traffic Noise Impact Technical reports is to identify traffic noise impacts associated with proposed transportation improvements as well as potential noise abatement measures, and to meet the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). These reports were prepared according to Title 23, Part 772 of Federal Regulations, *Procedures for Abatement of Highway Traffic Noise* and Caltrans' noise analysis policy described in *Traffic Noise Analysis Protocol*, October 1998. Therefore, the noise analyses presented in this section and Section 4.9 mainly follows the procedure and methodology described in Caltrans' Traffic Noise Analysis Protocol. Please note that this Protocol was developed in 1998 to fulfill the State and Federal noise analyses and abatement/mitigation requirements.

3.9.1 Noise Measurement and Modeling

Within the project study area noise receivers were carefully selected to represent the existing noise-sensitive land uses based on the following criteria:

1. The first row of existing residential land uses located along the freeway right-of-way were selected because they are expected to receive the highest future noise levels over the period covered by the analysis.
2. Other noise-sensitive locations, such as schools and parks, were included.
3. Receivers were selected to represent areas where the roadway was elevated, at-grade, or depressed.
4. Receivers located at different elevations to the roadway were also selected.

Future noise-sensitive land uses were identified using these guidelines. Existing noise levels for these receivers were determined by measurements and modeling. Both short-term (15- to 20-minute) and long-term noise measurements were taken at these noise-sensitive locations. Additional noise-sensitive receiver sites were "modeled" to supplement the measurement sites. These modeling sites represent additional first-row residential receivers, schools, parks and commercial sites where frequent outdoor uses occur, such as outdoor seating for restaurants, outdoor shopping areas or automobile sales lots.

Figure 3.9-1, Noise Measurement Sites, included at the end of this section, correlates to Table 3.9-1, Existing Noise Levels, on the next page. In the figure and table, short-term noise measurement sites are indicated by a single number (1, 2, 3, etc.), while 24-hour measurement sites are indicated by single letter (A, B, C, etc.). Modeled sites are indicated by a hyphenated identifier (1-A, 1-B, G-A, etc.).

3.9.2 Existing Noise Levels

Table 3.9-1 (Existing Noise Levels) includes both the existing noise levels based on measurements and the "highest noise hour" based on modeling. Information regarding noise measurement and modeling can be found in the *SR-22/West Orange County Connection (SR-22/WOCC) Traffic Noise Impact Technical Report* and the *Reduced Build Alternative Traffic Noise Impact Technical Report Addendum* (December 2000) and *Traffic Noise Impact Technical Report (Revised) Addendum* (December 2002); these documents are available under separate cover at the Department and OCTA.

Table 3.9-1
EXISTING NOISE LEVELS AT
GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE AND SEAL BEACH SITES

Site ID No.	Site Description *Distances expressed in meters (m) and feet (ft)*	Measured Noise Level (dBA)	Modeled Noise Level (dBA) (highest noise hour)
1-A	**337 Harvard, College Park West, Seal Beach.** 20-minute measurement taken at 07:25 am. Surrounding area: mainly single-family homes.	68.1	68 Leq(h), dBA
1-G	**224 College Park Drive, Seal Beach.** 20-minute measurement taken at 09:45 am. Surrounding area: mainly single-family homes.	63.1	---
1-K	**409 Purdue Circle, College Park West, Seal Beach.** 20-minute measurement taken at 08:35 am. Surrounding area: mainly single-family homes.	59.6	---
--	**Blue Bell Park, Almond Avenue, Seal Beach.** Modeled. Community park in single-family residential area. Primary use is community and recreational.	---	67 Leq(h), dBA
B	**3521 Columbine Street, Seal Beach.** 24-hour measurement taken at Almond Ave. side of house, directly across Almond Ave. from SR-22/I-405 noise barrier, 15m (50 ft) from house. Surrounding area: single-family homes.	72 Leq(h) 75 CNEL	67 Leq(h), dBA
--	**Almond Park, Almond Avenue, Seal Beach.** Modeled. Community park located in single-family residential area. Primarily use is community and recreational.	---	68 Leq(h), dBA
5	**3550 Sunflower Circle, Seal Beach.** 15-minute measurement taken at 11:30 am on Almond Dr. side of house, across street from SR-22/I-405 noise barrier. Surrounding area: mainly single-family homes.	63 Leq(h)	67 Leq(h), dBA
5-A	**3530 Pansy Circle, Seal Beach.** Modeled. Second-row house. Single-family homes.	---	67 Leq(h), dBA
5-B	**3560 Wisteria Street, Seal Beach.** Modeled. Single-family home at end of cul-de-sac. Existing noise barrier on westbound SR-22 to northbound I-405 connector.	---	66 Leq(h), dBA
6-a	**Christal Avenue, Garden Grove**. Modeled. Single-family homes.	---	74 Leq(h), dBA
6-e	**Christal Avenue, Garden Grove**. Modeled. Single-family homes.	---	73 Leq(h), dBA
6-j	**Bailey Street, Garden Grove**. Modeled. Single-family homes.	---	66 Leq(h), dBA
7	**Garden Grove Boulevard at Via Los Alisos, Westminster.** 15-minute measurement taken at 1:40 pm along Garden Grove Blvd. at the 1.8m (6-ft) privacy wall behind mobile homes, beyond a 12m-wide (40-ft-wide) swath of grass/shrubs separating Garden Grove Blvd. and SR-22. No existing noise barrier. Surrounding area: mobile homes.	71 Leq(h)	73 Leq(h), dBA
C	**Anthony Avenue at Chase Street, Garden Grove.** 24-hour measurement taken at rear of home, 27m (90 ft) from SR-22, separated by 1.8m (6-ft) privacy wall. Surrounding area: single-family homes.	76 Leq(h) 76 CNEL	74 Leq(h), dBA
8	**6282 Anthony Avenue, Garden Grove.** 15-minute measurement taken at 2:15 pm at the back of the house, behind 1.8m (6-ft) privacy wall, 27m (90 ft) from SR-22, which is elevated 1.8m (6 ft). No existing noise barrier. Surrounding area: single-family homes.	72 Leq(h)	74 Leq(h), dBA
9	**6732 Anthony Avenue, Garden Grove.** 15-minute measurement taken at 2:50 pm at the back of the house, behind 1.8m (6-ft) privacy wall, 14m (45 ft) from SR-22. No existing noise barrier. Surrounding area: single-family homes.	71 Leq(h)	74 Leq(h), dBA
10	**Yuma Place at Garden Grove Boulevard, Westminster.** 15-minute measurement taken at 10:20 am at 1.2m (4-ft) property wall separating homes from Garden Grove Blvd, across street and 7m (120 ft) from SR-22. No existing noise barrier. Surrounding area: single-family homes.	71 Leq(h)	72 Leq(h)
10-A	**Palomar Street, Westminster.** Modeled. Single-family residences.	---	72 Leq(h)

Table 3.9-1 (continued)
EXISTING NOISE LEVELS AT
GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE AND SEAL BEACH SITES

Site ID No.	Site Description *Distances expressed in meters (m) and feet (ft)*	Measured Noise Level (dBA)	Modeled Noise Level (dBA) (highest noise hour)
11	**12892 Dumont Street, Garden Grove.** 15-minute measurement taken at 9:20 am at back of house, 18m (60 ft) from SR-22, which is elevated. No existing noise barrier. Surrounding area: single-family homes.	68 Leq(h)	71 Leq(h)
12	**7051 Natal Drive, Sutton Place Apartments, Westminster.** 15-minute measurement taken at 1:15 pm at back of apartments, 18m (60 ft) from SR-22, which is elevated 6m (20 ft). No existing noise barrier. Surrounding area: apartments/multi-family residences.	58 Leq(h)	68 Leq(h)
M-1	Modeled. Single-family residences.	---	65 Leq(h)
M-11	Modeled. Single-family residences.	---	64 Leq(h)
13	**7721 Benton Avenue, Westminster.** 15-minute measurement taken at 11:00 am at back of house, 23m (75 ft) from SR-22 eastbound off-ramp to Beach Blvd, which is elevated 12m (40 ft). No existing noise barrier. Surrounding area: single-family homes.	57 Leq(h)	69 Leq(h)
14	**8172 Larson Avenue, Garden Grove.** 15-minute measurement taken at 12:20 pm at back of apartment building, 2.4m (8 ft) behind 1.8m (6-ft) privacy wall, separated from SR-22 by 9m (30 ft) of grass/shrubs. No existing noise barrier. Surrounding area: mainly multi-family residences.	73 Leq(h)	73 Leq(h)
15	**13171 Monroe Street, Garden Grove.** 15-minute measurement taken at 3:00 pm in parking lot at back of apartment building, 11m (35 ft) behind 1.8m (6-ft) privacy wall separating parking lot from SR-22. No existing noise barrier. Surrounding area: mainly multi-family residences.	71 Leq(h)	70 Leq(h)
D	**Central Avenue at Wilson Street, Garden Grove.** 24-hour measurement taken at front of home, 18m (60 ft) from SR-22 noise barrier across Central Avenue. Surrounding area: single-family homes.	63 Leq(h) 67 CNEL	66 Leq(h)
15-A	**West of Newland Street and north of SR-22, Garden Grove.** Modeled. Mixture of single-family and multi-family residential. Existing 4.3m (14-ft) noise barrier.	---	65 Leq(h)
16	**Edgebrook Drive and Newland Street, Garden Grove.** 15-minute measurement taken at 1:20 pm at back of apartment complex, 8m (25 ft) behind 1.8m (6-ft) privacy wall, with 9m-wide (30-ft-wide) swath of shrubs/trees separating SR-22, which is elevated 9m (30 ft). No noise barrier. Surrounding area: multi-family residences.	67 Leq(h)	68 Leq(h)
16-A	**Mar Drive, Garden Grove.** Modeled. Multi-family residences.	---	75 Leq(h)
16-B	**Dakota Avenue, Garden Grove.** Modeled. Single-family homes.	---	73 Leq(h)
17	**8871 Boyd Avenue, Garden Grove.** 15-minute measurement taken at 1:45 pm at back of house, 18m (60 ft) from SR-22, which is elevated 6m (20 ft). No existing noise barrier. Surrounding area: single-family residential.	56 Leq(h)	66 Leq(h)
18	**9141 Enloe Way, Garden Grove.** 15-minute measurement taken at 2:10 pm at back of house, 12m (40 ft) from eastbound SR-22 on-ramp at Magnolia St., which is elevated. No existing noise barrier. Surrounding area: single-family homes and Garden Grove Park nearby.	62 Leq(h)	70 Leq(h)
--	**Bolsa Grande High School, Westminster Avenue, Garden Grove.** Modeled at school playfield. High school and park located in single-family residential community. Park uses are primarily community and recreational.	---	69 Leq(h)
--	**Bolsa Grande High School, Westminster Avenue, Garden Grove.** Modeled at closest school building to SR-22.	---	60 Leq(h)
19	**9531 Mallard Drive, Garden Grove.** 15-minute measurement taken at 9:45 am at back of house, 9m (30 ft) behind 1.8m (6-ft) privacy wall, with trees/shrubs separating SR-22, which is slightly elevated. No existing noise barrier. Surrounding area: single-family homes and Bolsa Grande High School nearby.	65 Leq(h)	68 Leq(h)

Table 3.9-1 (continued)
EXISTING NOISE LEVELS AT
GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE AND SEAL BEACH SITES

Site ID No.	Site Description *Distances expressed in meters (m) and feet (ft)*	Measured Noise Level (dBA)	Modeled Noise Level (dBA) (highest noise hour)
20	**9711 Mallard Drive, Garden Grove.** 15-minute measurement taken at 10:00 am at back of house, 18m (60 ft) from SR-22. No existing noise barrier. Surrounding area: single-family homes and Jordan Intermediate School playfield adjoining this location.	62 Leq(h)	69 Leq(h)
--	**Jordan Intermediate School, 9821 Woodbury Road, Garden Grove.** Modeled at nearest school building to SR-22.	---	69 Leq(h)
--	**Excelsior Elementary School, 10421 Woodbury Road, Garden Grove.** Modeled at playfields. School located in single-family residential community.	---	70 Leq(h)
--	**Excelsior Elementary School, 10421 Woodbury Road, Garden Grove.** Modeled at closest school building to SR-22.	---	66 Leq(h)
21	**13581 Hope Street, Garden Grove.** 15-minute measurement taken at 11:00 am at end of cul-de-sac, 12m (40 ft) from SR-22, which is elevated 4.6m (15 ft). No existing noise barrier. Surrounding area: single-family homes.	64 Leq(h)	72 Leq(h)
E	**10671 Mallard Drive, Garden Grove.** 24-hour measurement taken at back of house, 20m (65 ft) from SR-22, which is elevated. No existing noise barrier. Surrounding area: single-family homes.	71 Leq(h) 74 CNEL	71 Leq(h)
21-A	**Fernwood Drive, Garden Grove.** Modeled. Single-family homes.	---	72 Leq(h)
22	**13592 Lanning Street, Garden Grove.** 15-minute measurement taken at 11:30 am at end of cul-de-sac, 18m (60 ft) from SR-22, which is elevated 9m (30 ft). No existing noise barrier. Surrounding area: single-family homes.	64 Leq(h)	68 Leq(h)
22-A	**Lanning Street, Garden Grove.** Modeled. Single-family homes. Second-row receivers.	---	65 Leq(h)
22-B	**Trask Avenue, Garden Grove.** Modeled single-family residential	---	70 Leq(h)
23	**11930 Banner Drive, Garden Grove.** 15-minute measurement taken at 2:00 pm in front yard of home, separated from SR-22 by 170-180m (560-590 ft) of parking lot and grass/trees. No existing noise barrier. Surrounding area: single-family homes.	69 Leq(h)	66 Leq(h)
23-A	**Garden View Apartment Homes, Garden Grove.** Modeled. Multi-family residences.	---	72 Leq(h)
24	**Pearce Avenue at Rainbow Street, Garden Grove.** 15-minute measurement taken at 1:30 pm at back of home 12m (40 ft) behind existing noise barrier. Surrounding area: single-family homes.	61 Leq(h)	66 Leq(h)
25	**12391 Pearce Street, Garden Grove.** 15-minute measurement taken at 12:45 pm at back of house, 8m (25 ft) behind existing noise barrier. Surrounding area: single-family homes.	64 Leq(h)	67 Leq(h)
F	**13102 Partridge Street, Thunderbird Mobile Home Park, Garden Grove.** 24-hour measurement taken at back of mobile home park, 9m (30 ft) behind SR-22 noise barrier. Surrounding area: mobile homes.	68 Leq(h) 71 CNEL	66 Leq(h)
--	**Eisenhower Elementary School Playground, School Drive, Garden Grove.** Modeled. School located in single-family/multi-family residential area.	---	66 Leq(h)
--	**Eisenhower Elementary School Playground, School Drive, Garden Grove.** Modeled at nearest school building to SR-22.	---	67 Leq(h)
26	**13096 Roberta Place, Garden Grove.** 15-minute measurement taken at 1:30 pm at back of house, 14m (45 ft) from SR-22, behind existing noise barrier. Surrounding area: single-family homes.	61 Leq(h)	66 Leq(h)
27	**13252 Dunklee Avenue, Garden Grove.** 15-minute measurement taken at 2:15 pm at back of house, 18m (60 ft) from SR-22. No noise barrier. Surrounding area: mainly single-family homes.	67 Leq(h)	66 Leq(h)

Table 3.9-1 (continued)
EXISTING NOISE LEVELS AT
GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE AND SEAL BEACH SITES

Site ID No.	Site Description *Distances expressed in meters (m) and feet (ft)*	Measured Noise Level (dBA)	Modeled Noise Level (dBA) (highest noise hour)
27-A	**Dunklee Avenue, Garden Grove.** Modeled. Single-family homes.	---	73 Leq(h)
27-B	**El Prado Avenue, Garden Grove.** Modeled. Single-family and multi-family residential.	---	72 Leq(h)
G	**1288 Park Balboa Road, Orange.** 24-hour measurement taken at back of apartments, 70m (230 ft) from rear building wall, which acts as a noise barrier for SR-22. Surrounding area: multi-family residential.	62 Leq(h) 61 CNEL	63 Leq(h)
G-A	**3821 Park Balboa Avenue, Orange.** Modeled. Multi-family residential.	---	65 Leq(h)
27-I	**W. Park Balboa Ave, Orange.** Modeled. Multi-family residential.	---	64 Leq(h)
40-W	**Marcella Ln, Santa Ana.** Modeled. Multi-family residential.	---	66 Leq(h)
28	**1047 Sherwood Lane, Santa Ana.** 15-minute measurement taken at 10:00 am at side of house facing SR-22, near I-5, 18m (60 ft) from noise barrier located atop a 6m-high (20-ft-high) embankment. Surrounding area: single-family homes.	63 Leq(h)	65 Leq(h)
28-A	**City Gardens Apartments, Santa Ana.** Modeled. Multi-family residential.	---	68 Leq(h)
28-B	**North Fallbrook Drive, Santa Ana.** Modeled. Park and single-family homes.	---	65 Leq(h)
28-C	**Fernwood Drive, Santa Ana.** Modeled. Single-family residential.	---	61 Leq(h)
29	**592 Crest Road, Orange.** 15-minute measurement taken at 11:00 am in front of house across street from noise barrier, with SR-22 depressed at this location. Surrounding area: single-family homes.	63 Leq(h)	67 Leq(h)
29-c	**Silktree Circle, Orange.** Modeled. Single-family residential.	---	65 Leq(h)
29-M	**Devon Rd., Orange.** Modeled. Single-family residential.	---	63 Leq(h)
29-M1	**Devon Rd., Orange.** Modeled. Single-family residential.	---	65 Leq(h)
29-B	**Flower Circle, Orange.** Modeled. Multi-family residential.	---	63 Leq(h)
29-C	**The Meridian Apartments, Orange.** Modeled. Multi-family residential.	---	67 Leq(h)
29-D	**Parker Street, Orange.** Modeled. Multi-family residential.	---	69 Leq(h)
30	**646 Cypress Street, Orange.** 15-minute measurement taken at 1:00 pm behind apartment complex, 24m (80 ft) from SR-22, which is elevated 8m (25 ft). Surrounding area: multi-family residential.	64 Leq(h)	67 Leq(h)
30-A	**The Aspen Apartments, Orange.** Modeled. Multi-family residential.	---	68 Leq(h)
--	**Fairhaven Elementary School, 1415 Fairhaven Avenue, Santa Ana.** Modeled at the nearest school building to SR-22.	---	69 Leq(h)
31	**2725 Linwood Street, Santa Ana.** 15-minute measurement taken at 1:45 pm at back of house, 40m (130 ft) from SR-22, which is depressed, with 1.8m (6-ft) privacy wall separating house from freeway. Surrounding area: single-family homes and nearby elementary school.	61 Leq(h)	66 Leq(h)
H-6	**Fairway Dr., Orange.** Modeled. Single-family residential.	---	70 Leq(h)
H-26	**Greenview, Orange.** Modeled. Single-family residential.	---	74 Leq(h)
H-29	**Cambridge, Orange.** Modeled. Church.	---	70 Leq(h)
31-A	***Fairway Drive, Orange.** Modeled. Multi-family residential.	---	69 Leq(h)
31-B	**Northridge Street, Orange.** Modeled. Multi-family residential	---	73 Leq(h)
I	***372 Jennifer Lane, Orange.** 24-hour measurement taken at back of home, 11m (35 ft) from SR-55 noise barrier, which is atop 1.5m-high (5-ft-high) embankment. Surrounding area: single-family homes.	66 Leq(h) 69 CNEL	70 Leq(h)
32	***2035 Sterns Avenue, Orange.** 15-minute measurement taken at 2:30 pm at edge of house, 15m (50 ft) behind existing noise barrier along SR-55. Surrounding area: single-family homes.	62 Leq(h)	67 Leq(h)
32-A	***Breezy Way, Orange.** Modeled. Single-family homes.	---	68 Leq(h)

Table 3.9-1 (continued)
EXISTING NOISE LEVELS AT
GARDEN GROVE, WESTMINSTER, SANTA ANA, ORANGE AND SEAL BEACH SITES

Site ID No.	Site Description *Distances expressed in meters (m) and feet (ft)*	Measured Noise Level (dBA)	Modeled Noise Level (dBA) (highest noise hour)
32-2	**Seba Avenue, Orange,** Modeled. Single-family residential.	---	66 Leq(h)
J	***Memory Lane, Santa Ana.** 24-hour measurement taken at end of cul-de-sac, in front of homes, 12m (40 ft) from I-5 noise barrier. Surrounding area: single-family homes.	65 Leq(h) 69 CNEL	65 Leq(h)
33	***14300 Clinton Street, Willowick Royal Mobile Home Park, Santa Ana.** 15-minute measurement taken at 9:40 am at side of mobile home park adjacent to former Pacific Electric right-of-way. No major roads nearby. Surrounding area: mobile homes, open space, and golf course nearby.	51 Leq(h)	51 Leq(h)
33-A	***Boyer Avenue, Santa Ana.** Modeled. Single-family residential.	---	51 Leq(h)
--	***Willowick Municipal Golf Course, 3017 West Fifth, Santa Ana.** Public Golf Course. (Note: No roadway noise at this location. "Highest-hour" based on 15-minute measurement for Site No. 33.)	---	51 Leq(h)
--	***Spurgeon Intermediate School, 2701 W. Fifth Street, Santa Ana.** Modeled at the school playfield. No roadway noise at this location. Highest-hour based on 15-minute measurement for site 34.	---	56 Leq(h)
	***Spurgeon Intermediate School, 2701 W. Fifth Street, Santa Ana.** Modeled at nearest school building to Pacific Electric right-of-way. No roadway noise at this location. Highest-hour based on 15-minute measurement for site 34.	---	56 Leq(h)
34	***2230 Seventh Street, Santa Ana.** 15-minute measurement taken at 10:15 am at back of home adjacent to former Pacific Electric right-of-way. Fairview St. is main noise source. Surrounding area: single-family homes.	56 Leq(h)	56 Leq(h)

Note: The "highest" noise hour may be lower than the measured.
* These sites are applicable to Full Build Alternative only.

3.9.3 Existing Noise Levels at Rossmoor Area (Seal Beach Boulevard at SR-22 to Katella Avenue at I-605)

A total of 18 short-term and three long-term noise measurements were taken along the north side of SR-22 from Seal Beach Boulevard at the SR-22 to Katella Avenue at I-605, referred to in this document as Rossmoor. Fifteen of the short-term measurements were conducted at residential receivers and three of the measurements at schools. The long-term measurements were conducted at residential receivers. The locations of these measurement sites are shown in Figure 3.9-2. The existing noise environment in the project area is due to traffic on SR-22, I-405, I-605 and local roadways. Existing worst-hour traffic noise levels range from 58 dBA to 71 dBA, depending on the proximity of the receiver to freeway traffic and the presence of an existing state noise barrier or non-state wall between the receiver and the freeway.

Table 3.9-2, Existing Noise Levels at Rossmoor Area Sites, includes both the existing noise levels, based on measurements, and the "highest noise hour" based on modeling. Please refer to *Traffic Noise Impact Technical Report Rossmoor Addendum* (September 2002) for each detail site information.

Table 3.9-2
EXISTING NOISE LEVELS AT ROSSMOOR AREA SITES

Site ID No.	Site Description	Type of Development	Measured Noise Level (dBA)	Modeled Noise Level, Leq(h), dBA (highest noise hour)
Lee Elementary School	**1181 Foster Road, Rossmoor**	School	55.1	58
1-15A	**11541 Martha Ann Drive, Rossmoor**	Residential	62.7	67
1-15B	**3651 Coleridge Drive, Rossmoor**	Residential	61.6	66
1-24	**11611 Martha Ann Drive, Rossmoor**	Residential	63.7	68
1A-15A	**11771 Martha Ann Drive, Rossmoor**	Residential	58.3	62
1A-15B	**2561 Piedmont Avenue, Rossmoor**	Residential	57.5	61
Weaver Elementary School	**11872 Wemeley Street, Rossmoor**	School	52.3	57
1B-15A	**12041 Martha Ann Drive, Rossmoor**	Residential	58.3	60
1B-15B	**2652 St. Albans Drive, Rossmoor**	Residential	55.2	59
2-15A	**12251 Martha Ann Drive, Rossmoor**	Residential	59.7	62
2-15B	**2641 Main Way, Rossmoor**	Residential	58.6	59
2-24	**12371 Martha Ann Drive, Rossmoor**	Residential	67	68
2A-15A	**12501 Martha Ann Drive, Rossmoor**	Residential	68.6	70
2A-15B	**12501 Kensington Road, Rossmoor**	Residential	62	63
Francis Elementary School	**12582 Kensington Road, Rossmoor**	School	62.2	63
2B-15A	**12701 Martha Ann Drive, Rossmoor**	Residential	65.4	67
2B-15B	**2642 Copa De Oro Drive, Rossmoor**	Residential	62.9	64
3A-15A	**12835 Martha Ann Drive, Rossmoor**	Residential	65.6	68
3-15A	**2962 Yellowtail Drive, Rossmoor**	Residential	67	68
3-15B	**2951 Yellowtail Drive, Rossmoor**	Residential	66.8	68
3-24	**3022 Yellowtail Drive, Rossmoor**	Residential	69.3	71

3.9.4 Existing Noise Levels at Garden Grove Area (Magnolia Street to Havenwood Dr.)

Both short-term and 24-hour noise measurements were conducted at locations representing noise-sensitive land uses, which are single- and multi-family residences, school playfields and commercial uses with frequent outdoor activity. The area south of Trask Avenue and north of the freeway is mostly commercial, consisting primarily of car dealerships from the westbound off-ramp to Magnolia Street east to Bowen Street.

A total of 11 short-term and two long-term noise measurements were conducted along the project corridor. Ten of the short-term measurements were conducted at residential receivers and two of the measurements at schools. The long-term measurements were conducted at residential receivers. The locations of these measurement sites are shown in Figure 3.9-3. The existing noise environment in the project area is due to traffic on SR-22, Trask Avenue and local roadways.

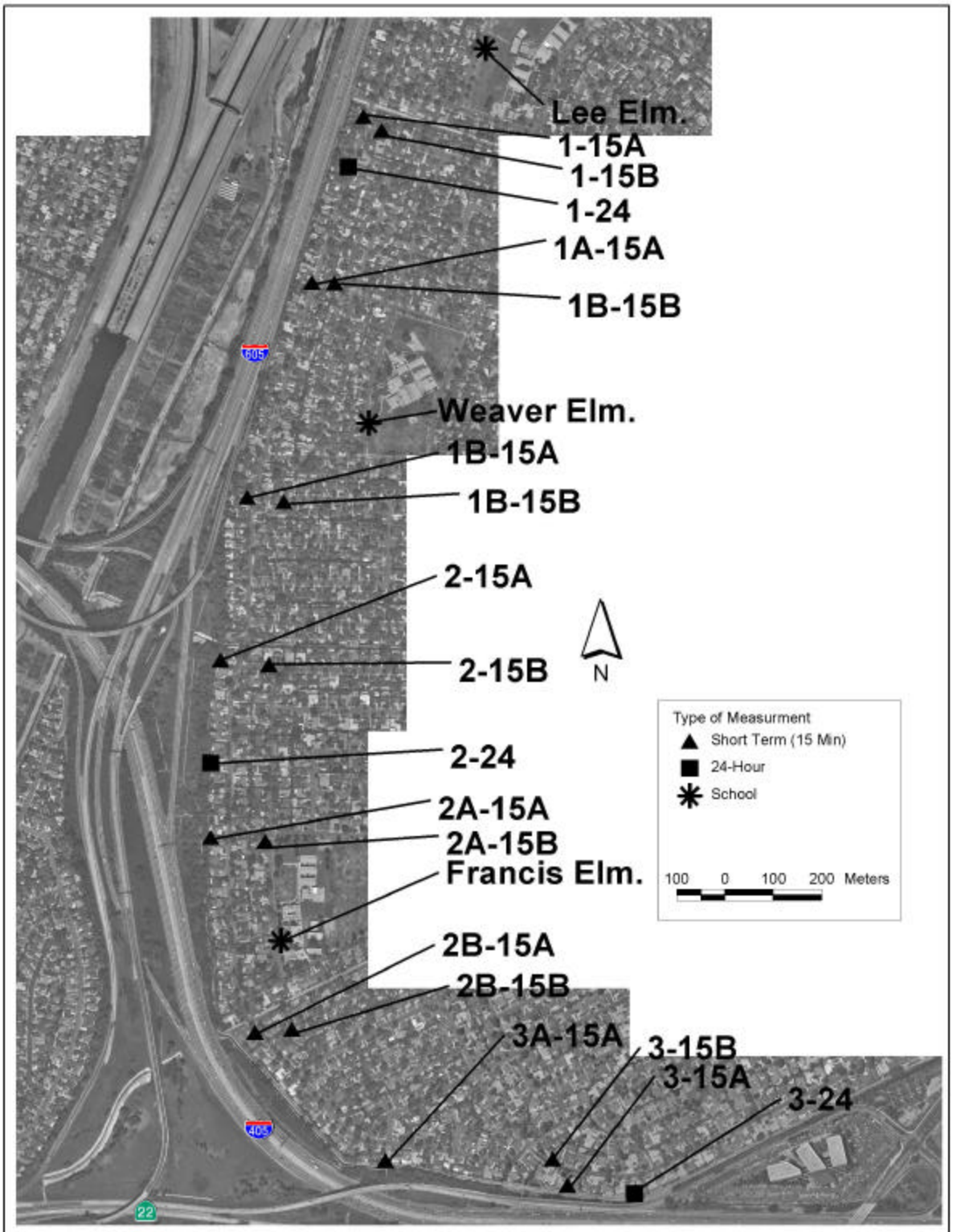
The Trask Avenue traffic is the closest source of noise to the residential receivers in this area. The traffic noise from Trask Avenue increases the noise levels at the receiver measurement sites in the range of 1 dBA to 5 dBA with the exception of Site T-5 which is shielded from the Trask Avenue traffic by a 12-foot high developer wall.

Table 3.9-3, Existing Noise Levels at Additional Garden Grove Area Sites, includes both the existing noise levels based on measurements and the “highest noise hour” based on modeling. Please refer

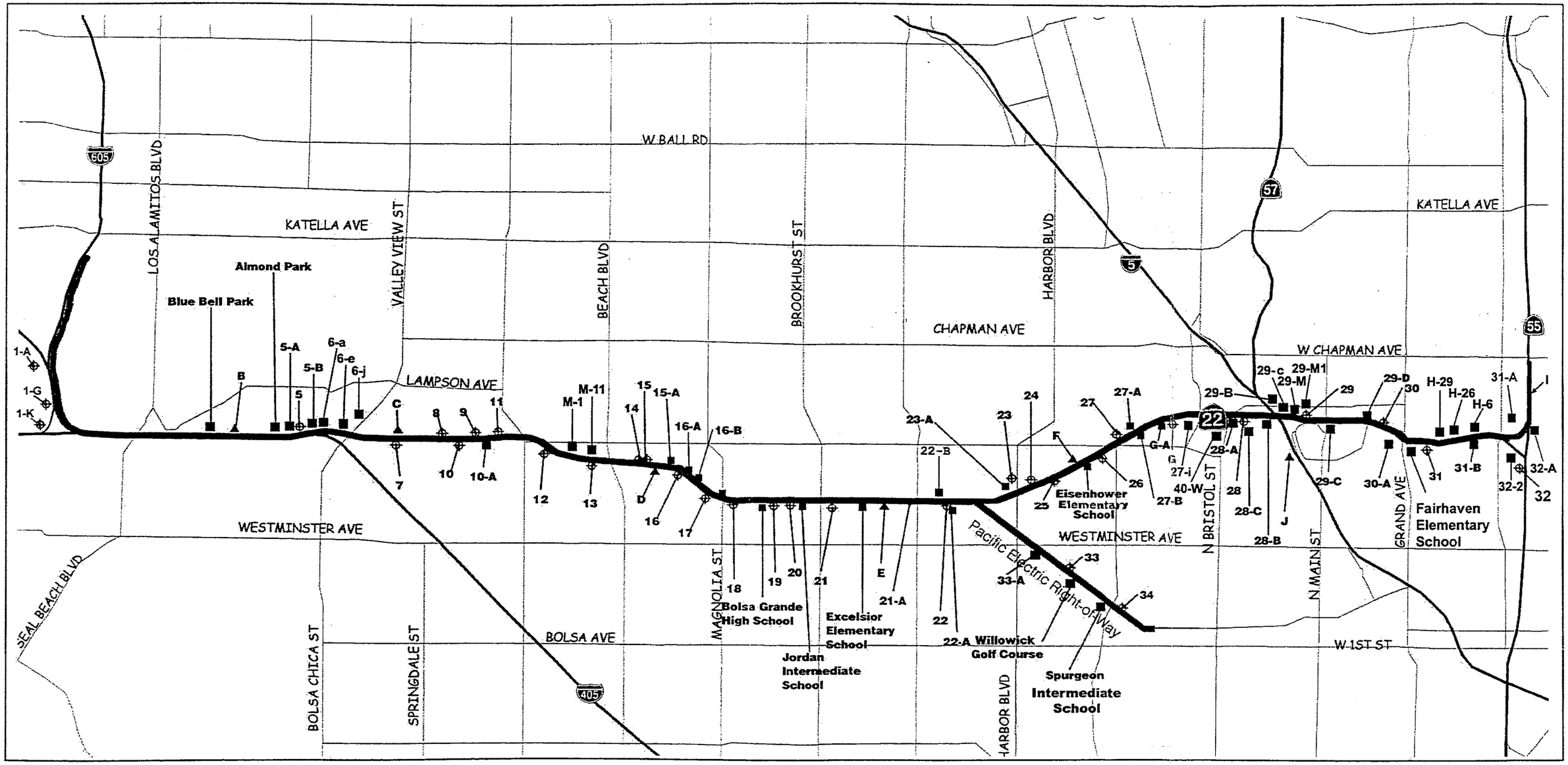
to *Traffic Noise Impact Technical Report Garden Grove Addendum* (October 2002) for each detail site information.

Table 3.9-3
EXISTING NOISE LEVELS AT ADDITIONAL GARDEN GROVE AREA SITES

Site ID No.	Site Description	Type of Development	Measured Noise Level (dBA)	Modeled Noise Level, Leq(h), dBA (highest noise hour)
T-1	**9121 Trask Avenue**	Residential	72.1	73
T-2	**13471 Mickey Street**	Residential	66.6	69
T-3	**9331 Trask Avenue**	Residential	69.2	69
T-4	**9461 Trask Avenue**	Residential	70.7	71
T-24A	**13471 Galway Street**	Residential	68.5	71
T-5	**9732 Luders Avenue**	Residential	55.5	60
T-6	**Iglesia Nueva Vida O.C.C. Christian Assembly - 9817 Trask Avenue**	Church	69.4	70
T-7	**13461 Hope Street**	Residential	63.9	66
T-8	**10351 Trask Avenue**	Residential	70	72
T-24B	**13462 Jessica Drive**	Residential	66.7	68
T-9	**Mitchell Elementary School**	School	66	67
T-10	**13482 Mitchell Avenue**	Residential	64.8	66
T-11	**11241 Trask Avenue**	Residential	69.4	71
-	**Sunnyside Elementary** (Classroom 40)	School	66	67
-	**Sunnyside Elementary** (Classroom 25)	School	63	64
-	**Mitchell Elementary** (Classroom 4)	School	70	70



Noise Measurement Locations
Figure 3.9-2



Source: ESRI 1998.

LEGEND

- Short-Term Sites
- 24-Hour Sites
- Modeled Sites
- Project Improvements

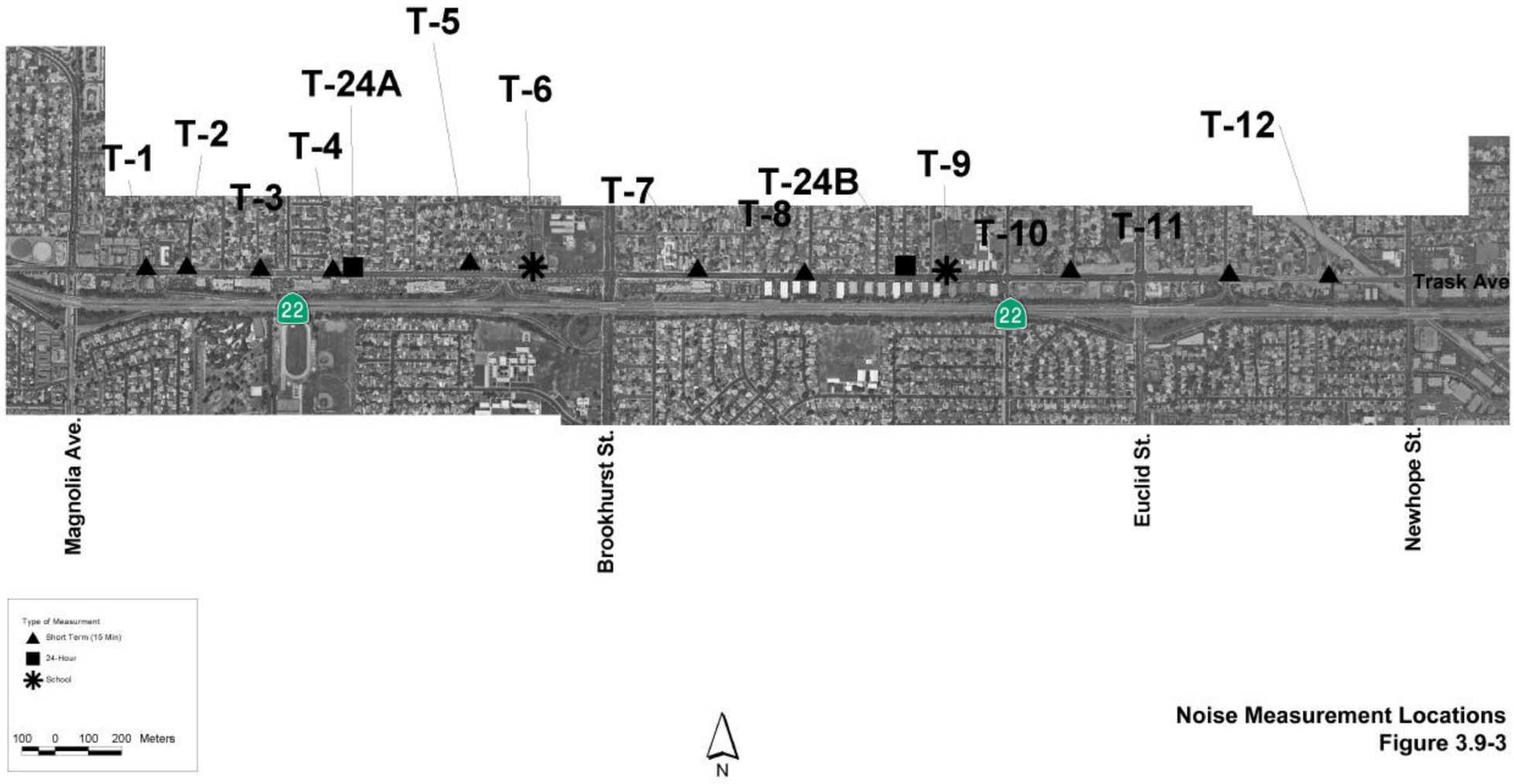
0.5 0 0.5 1 1.5 Miles

0.5 0 0.5 1 1.5 Kilometers

SR-22 / West Orange County Connection Project

Noise Measurement and Modeling Sites

Figure 3.9-1



Noise Measurement Locations
Figure 3.9-3

3.10 PARKS AND RECREATION

Parks and recreational facilities were identified within 0.8 kilometer (0.5 mile) of the SR-22/West Orange County Connection (SR-22/WOCC) project, including parks, golf courses, tennis facilities, trails and schools with recreational facilities.

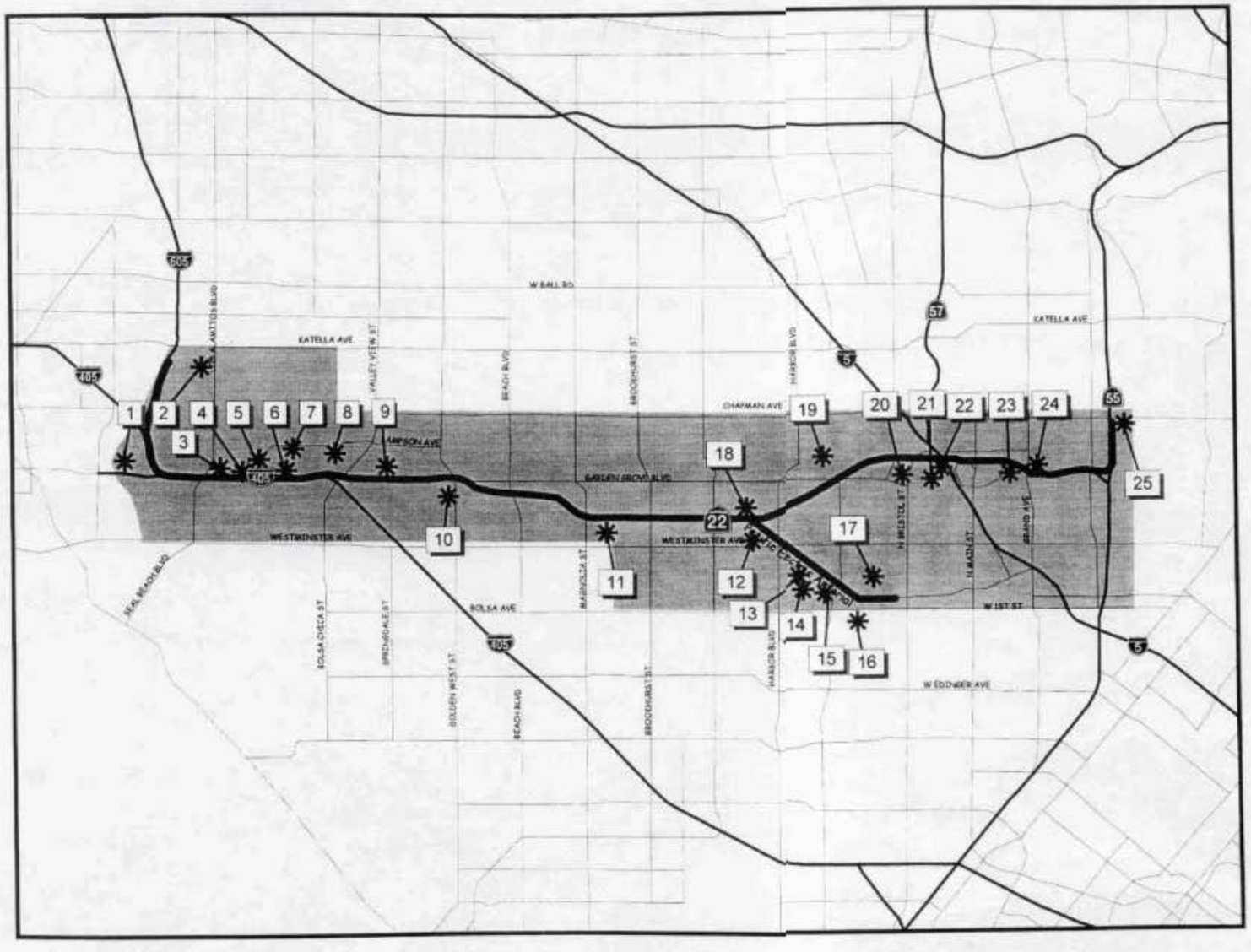
3.10.1 PARKS AND RECREATIONAL FACILITIES

There are a total of 20 parks and two golf courses identified within 0.8 kilometer (0.5 mile) of the proposed project area. These public parks and recreational facilities are listed in Table 3.10-1 and shown in Figure 3.10-1, CITY/REGIONAL PARKS AND GOLF COURSES.

Table 3.10-1
CITY/REGIONAL PARKS AND GOLF COURSES
Within 0.8 kilometer (0.5 mile)

Name (City)	Location	Size in Hectares (acres)	Current Use and Site Description	Map Ref. No.
Edison Park (Seal Beach)	99 College Dr.	4.0 (10)	Community Gardens (125), Sand Volleyball Court, Basketball Court, Tot Lot, Picnic Area, Open Turf, Softball Field	1
Rossmoor Park (Rossmoor)	3232 Hedwig St.	3.44 (8.5)	Baseball Fields (1 grass, 2 red-clay), Horse Shoe Pit, Volleyball Court, Basketball Court, Tennis Courts (4), Tot Lots (2)	2
Old Ranch Tennis Club (Seal Beach)	3901 Lampson Ave.	2.8 (7)	Tennis Courts (16), Clubhouse, Locker/Shower-Restroom Facility, Workout Room	3
Blue Bell Park (Seal Beach)	Almond Ave. & Bluebell St.	0.53 (1.3)	Basketball Court, Picnic Tables (3), Open Turf	4
Aster Park (Seal Beach)	Aster St. & Candleberry Ave.	0.2331 (0.576)	Open Turf	5
Almond Park (Seal Beach)	4600 Almond Ave	0.73 (1.8)	Basketball Court, Picnic Tables (3), Playground, Open Turf	6
Heather Park (Seal Beach)	Lampson Ave. & Heather St.	0.65 (1.6)	Tennis Courts (2), Playground, Open Turf	7
Westgrove Park (Garden Grove)	5372 Cerulean Ave.	2.67 (6.6)	Basketball Court, Soccer Field, Playground, Picnic Tables (8), Recreation Office, Open Turf	8
Edgar Park (Garden Grove)	6203 Cerulean Ave.	2.43 (6.0)	Basketball Court, Playgrounds (2), Picnic Tables (5), Open Turf	9
Golden West Park (Westminster)	Siskiyou St. & Hood Dr.	0.69 (1.7)	Baseball Field, Playground, Picnic Tables (6), Restrooms, Open Turf	10
Garden Grove Park (Garden Grove)	9301 Westminster Ave.	14.6 (36)	Baseball Fields (2), Playgrounds (2), Picnic Tables (40), Swimming Pool, Miniature Soccer Fields (2)	11
Woodbury Park (Garden Grove)	13800 Rosita Pl.	1.34 (3.3)	Basketball Court, Pool, Playground, Restrooms, Open Turf	12
Twin Lakes Park (Garden Grove)	12952 Lampson Ave.	9.31 (23.0)	Lakes (2), Playground, Picnic Tables (20), Open Turf	19
Santiago Park (Santa Ana)	2535 N. Main St.	9.3 (23)	Baseball Field, Tennis Courts (2), Lawn Bowling, Playgrounds (2), Picnic Tables (20), Restrooms, Meeting Room, Open Turf, Trails	23
Willowick (Santa Ana)	3017 W. Fifth St.	40.9 (101)	18-Hole Public Golf Course, Clubhouse, Maintenance Facilities	13
Campesino Park (Santa Ana)	W. Fifth St. & Clinton St.	2.43 (6.0)	Basketball Court, Soccer/Football Field, Picnic Area, Playground	14
Spurgeon Park (Santa Ana)	W. Fifth St.	0.85 (2.1)	Baseball Fields (3), Soccer Field	15
Friendship Park (Santa Ana)	Duchess Ln.	0.040 (.10)	Playground	16
Pacific Electric Commemorative Area (Garden Grove)	Trask Ave. & Newhope St.	0.227 (0.56)	Benches, paths	18

Table 3.10-1 (continued) CITY/REGIONAL PARKS AND GOLF COURSES Within 0.8 kilometer (0.5 mile)				
River View (Santa Ana)	1800 W. 22nd St.	48.6 (120)	18-Hole Public Golf Course, Clubhouse, Maintenance Facilities	20
Morrison Park (Santa Ana)	Sherwin Ln. & N. Flower St.	2.02 (5.0)	Baseball Field, Tennis Courts (2), Basketball Court, Playground, Picnic Tables (5), Open Turf	21
Eldridge Park (Santa Ana)	Fallbrook Dr. & SR-22	0.49 (1.2)	Open Turf	22
Hart Park (Orange)	701 S. Glassell St.	18.49 (45.7)	Baseball Fields (3), Swimming Facility, Tennis Courts (2), Playgrounds (2), Restrooms, Office, Picnic Tables (105)	24
Yorba Park (Orange)	Yorba St. & Chapman Ave.	3.24 (8.0)	Closed	25
El Salvador Park (Santa Ana)	1825 Civic Center Drive			17



SR-22/West Orange County Connection Project

City/Regional Parks and Golf Courses

LEGEND

- Project Improvements
- Secondary Road
- Study Area

Source: ESRI 1998

✱ - City/Regional Parks and Golf Courses

1 - Edison Park
2 - Rossmoor Park
3 - Old Ranch Tennis Club
4 - Blue Bell Park
5 - Aster Park
6 - Almond Park
7 - Heather Park
8 - Westgrove Park
9 - Edgar Park
10 - Golden West Park
11 - Garden Grove Park
12 - Woodbury Park
13 - Willowick Municipal Golf Course
14 - Campesino Park
15 - Spurgeon Park
16 - Friendship Park
17 - El Salvador Recreation Center
18 - Pacific Electric Railway Commemorative Area
19 - Twin Lakes Park
20 - River View Public Golf Course
21 - Morrison Park
22 - Colonel William W. Eldridge Park
23 - Santiago Park
24 - Hart Park
25 - Yorba Park

1 0 1 2 Miles
1 0 1 2 Kilometers

Figure 3.10-1

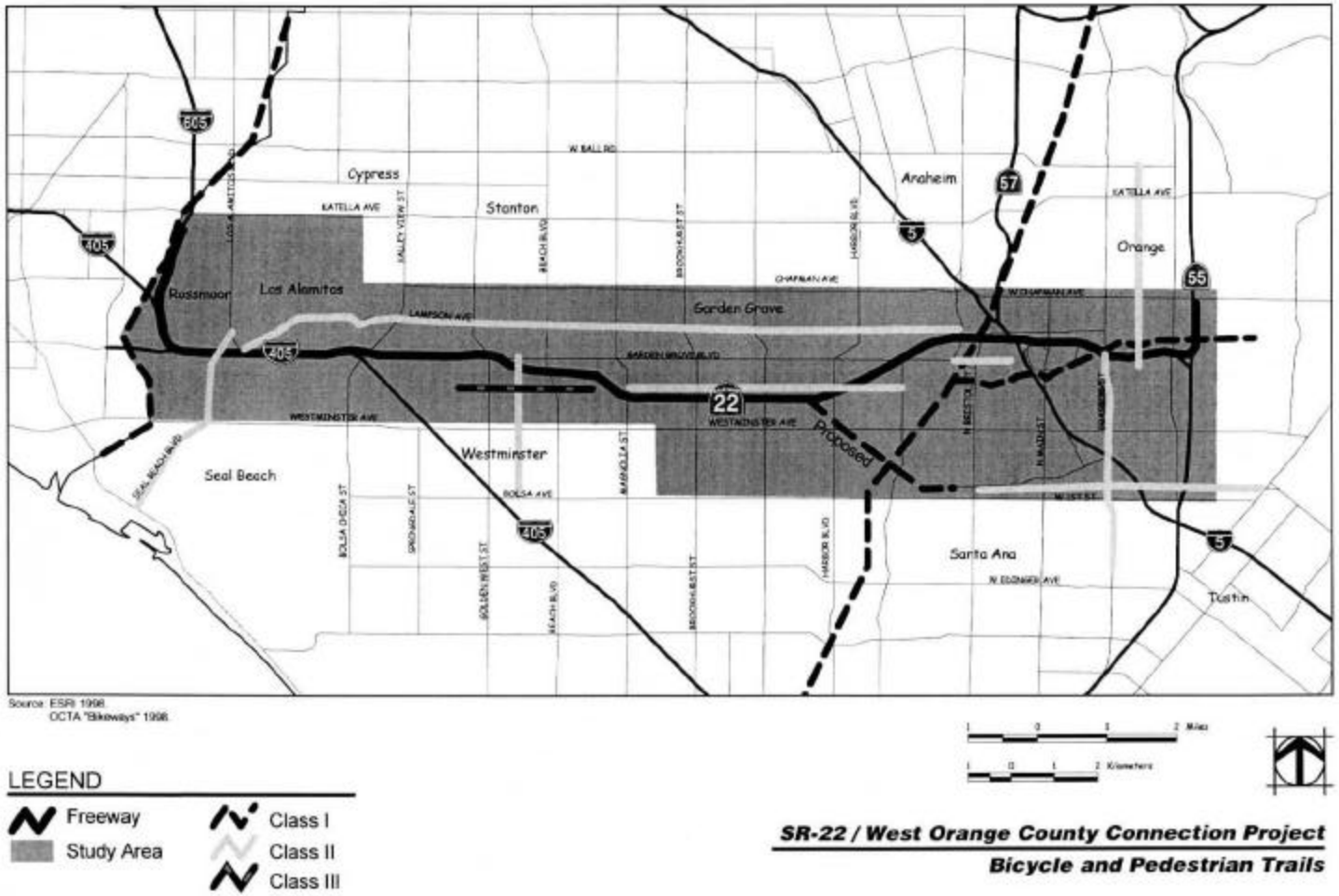
3.10.2 TRAILS

Table 3.10-2 Bicycle and Pedestrian Trails lists the existing and proposed trails and bikeways within the study area, in addition to their classification. To avoid confusion, "bikeway" is used to refer to a paved Class I (off-road) route, and "trail" to an unpaved Class I route. The trails/bikeways are shown on Figure 3.10-2, Bicycle and Pedestrian Trails.

Table 3.10-2
BICYCLE AND PEDESTRIAN TRAILS
Within 0.8 kilometer (0.5 mile)

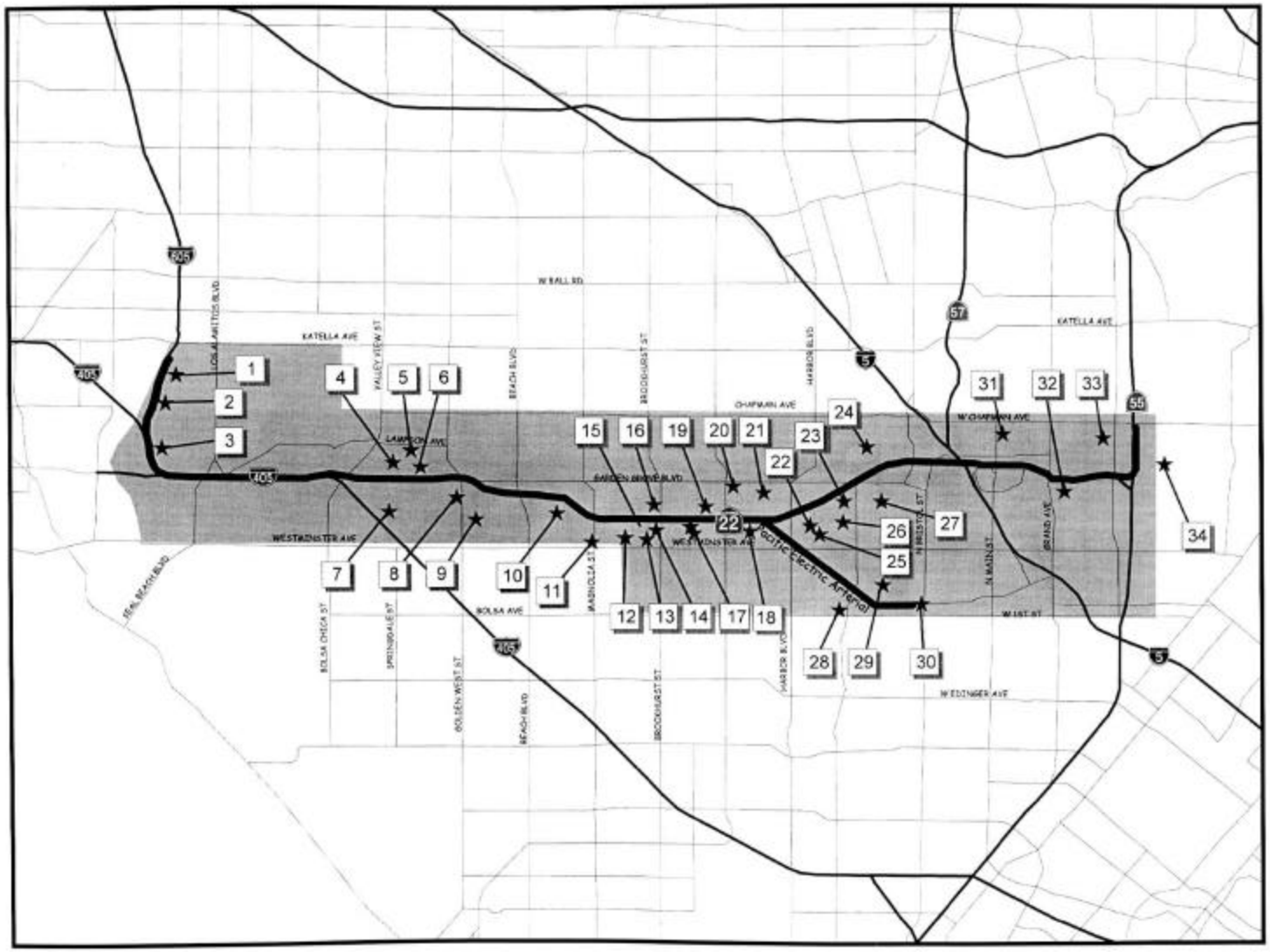
Name	Location	Current Jurisdiction	Class
Los Alamitos/Coyote Creek Channel Trail*	Seal Beach/Los Alamitos	Long Beach, Los Angeles County, Orange County	I
Seal Beach Boulevard	Seal Beach	Seal Beach	II
Lampson Avenue	Seal Beach, Rossmoor, Garden Grove	Seal Beach, Garden Grove, Orange County	II
Trask Avenue	Westminster	Westminster	III
Trask Avenue	Garden Grove	Garden Grove	II
Hoover Street	Westminster	Westminster	II
Memory Lane	Santa Ana, Garden Grove	Santa Ana, Garden Grove	II
Santiago Creek Trail	Santa Ana, Orange	Santa Ana, Orange (City)	I
Cambridge Road	Orange	Orange (City)	II
Santa Ana River Trail	Santa Ana	Santa Ana, Orange County	I
Santa Ana River Bikeway	Santa Ana	Santa Ana, Orange County Regional Bikeway System	I
Pacific Electric Bikeway (Proposed)	Santa Ana	Santa Ana	I
Fourth Street	Santa Ana	Santa Ana	II
Grand Avenue	Santa Ana	Santa Ana	II
Beverly Manor Bikeway (proposed)	Seal Beach	Orange County Regional Bikeway System	I
Huntington-Westminster Rail Bikeway (proposed)	Westminster, Huntington Beach	Orange County Regional Bikeway System	I
Santiago Creek Bikeway	Orange	Orange (City)	I

Note: *Currently listed in Los Alamitos *General Plan* as an existing class I trail. Proposed future General Plan amendment calls for no further jurisdictional involvement in these locations.



SR-22 / West Orange County Connection Project
Bicycle and Pedestrian Trails

Figure 3.10-2



SR-22/West Orange County Connection Project

Schools with Recreational Facilities

LEGEND

- Project Improvements
- Secondary Road
- Study Area

Source: ESRI 1998

★ - Schools with Recreational Facilities

1 - Lee Elementary School
2 - Weaver Elementary School
3 - Hopkinson Elementary School
4 - Edgar Elementary School
5 - Barker Elementary School
6 - Garden Park Elementary School
7 - Sequoia Elementary School
8 - Fryberger Elementary School
9 - Schmitt Elementary School
10 - Meairs Elementary School
11 - Anderson Elementary School
12 - Bolsa Grande High School
13 - Cook Elementary School
14 - Jordan Seconday Learning Center
15 - Jordan Intermediate School
16 - Sunnyside Elementary School
17 - Excelsior Elementary School
18 - Woodbury Elementary School
19 - Mitchell Elementary School
20 - Lincoln Education Center
21 - Peters Elementary School
22 - Santiago High School
23 - Dwight D. Eisenhower Elementary School
24 - Lampson Elementary School
25 - Clinton-Mendenhall Elementary School
26 - Doig Intermediate School
27 - Riverdale Elementary School
28 - Spurgeon Middle School
29 - Fremont Elementary School
30 - Carver Elementary School
31 - West Orange Elementary School
32 - Fairhaven Elementary School
33 - Palmyra Elementary School
34 - La Veta Elementary School

1 0 1 2 Miles

1 0 1 2 Kilometers

Figure 3.10-3

3.10.3 SCHOOLS WITH RECREATIONAL FACILITIES

Public schools within 1.5 kilometers (0.5 mile) of the SR-22/WOCC that contain recreational facilities are listed in Table 3.10-3 and shown on Figure 3.10-3, Schools with Recreational Facilities. All schools within the study area are "closed campuses" and can only be accessed by the general public with specific authorized consent of school officials.

Table 3.10-3
SCHOOLS WITH RECREATIONAL FACILITIES
Within 0.8 kilometer (0.5 mile)

Name	Location	City/District	Map Ref. No.
Lee Elementary	11481 Foster Rd.	Rossmoor/Los Alamitos	1
Weaver Elementary	11872 Wembley Rd.	Rossmoor/Los Alamitos	2
Hopkinson Elementary	12582 Kensington Rd.	Rossmoor/Los Alamitos	3
Sequoia Elementary	5900 Iroquois Rd.	Westminster/Westminster	7
Fryberger Elementary	6952 Hood Dr.	Westminster/Westminster	8
Edgar Elementary	6202 Cerulean Ave.	Garden Grove/Garden Grove	4
Barker Elementary	12565 Springdale St.	Garden Grove/Garden Grove	5
Garden Park Elementary	6562 Stanford Ave.	Garden Grove/Garden Grove	6
Schmitt Elementary	7200 Trask Ave.	Westminster/Westminster	9
Meairs Elementary	8441 Trask Ave.	Garden Grove/Westminster	10
Anderson Elementary	8902 Hewitt Place	Garden Grove/Westminster	11
Bolsa Grande High	9401 Westminster Ave.	Garden Grove/Garden Grove	12
Sunnyside Elementary	9972 Russell Ave.	Garden Grove/Garden Grove	16
Excelsior Elementary	10421 Woodbury Rd.	Garden Grove/Garden Grove	17
Jordan Secondary Learning Center	9915 Woodbury Rd.	Garden Grove/Garden Grove	14
Cook Elementary	9802 Woodbury Rd.	Garden Grove/Garden Grove	13
Mitchell Elementary	13451 Taft Ave.	Garden Grove/Garden Grove	19
Jordan Intermediate	9821 Woodbury Rd.	Garden Grove/Garden Grove	15
Woodbury Elementary	11362 Woodbury Rd.	Garden Grove/Garden Grove	18
Peters Elementary	13162 Newhope St.	Garden Grove/Garden Grove	21
Lincoln Education Center	11262 Garden Grove Blvd.	Garden Grove/Garden Grove	20
Santiago High	12342 Trask Ave.	Garden Grove/Garden Grove	22
Clinton-Mendenhall Elementary	13641 Clinton St.	Garden Grove/Garden Grove	25
Dwight D. Eisenhower Elementary	13221 Lilly St.	Garden Grove/Garden Grove	23
Lampson Elementary	13321 Lampson Ave.	Garden Grove/Orange	24
Doig Intermediate	12752 Trask Ave.	Garden Grove/Garden Grove	26
Riverdale Elementary	13222 Lewis St.	Garden Grove/Garden Grove	27
West Orange Elementary	243 S. Bush St.	Orange/Orange	31
Fairhaven Elementary	1415 E. Fairhaven Ave.	Santa Ana/Orange	32
Palmyra Elementary	1325 E. Palmyra Ave.	Orange/Orange	33
La Veta Elementary	2800 E. La Veta Ave.	Orange/Orange	34
Spurgeon Intermediate	2701 W. Fifth St.	Santa Ana/Santa Ana	28
Fremont Elementary	1930 W. Tenth St.	Santa Ana/Santa Ana	29
Carver Elementary	1401 W. Santa Ana Blvd.	Santa Ana/Santa Ana	30

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3.11 UTILITIES

This section summarizes the major utilities that are found within the State Route 22/West Orange County Connection (SR-22/WOCC) study area. These utilities include both high-risk and low-risk facilities as described in the Department's *Project Development Procedures Manual (PDPM) Appendix LL, Policy on High and Low Risk Underground Facilities Within Highway Rights of Way* (January 1997).[1]

3.11.1 ELECTRICITY

Southern California Edison (SCE) provides electricity and maintains four identified substations within the SR-22/WOCC study area. These substations are located:

- South of SR-22, between Beverly Manor Road and Seal Beach Boulevard in Seal Beach;
- South of SR-22, between Newland Street and Yockey Street in Garden Grove;
- East of Newhope Street and south of SR-22, adjacent to the former Pacific Electric right-of-way in Garden Grove; and
- West of Lewis Street, adjacent to the north side of SR-22 in Garden Grove.

SCE also has a transmission easement that crosses over SR-22, west of Hoover Street, in Westminster. In addition, the substation at Lewis Street has several major power poles associated with the facilities that are located between SR-22 and the substation.

In conjunction with these major electrical facilities, most of the arterials, and some of the local streets in the study area, contain either overhead (aerial) or buried electrical lines. A majority of the aerial lines identified within the study area are high-risk facilities.

3.11.2 NATURAL GAS PIPELINES

Southern California Gas Company (SCG) provides gas within the SR-22/WOCC study area. Figure 3.11-1, SR-22/West Orange County Connection Project Utilities, shows the locations of several high-risk gas lines in the study area, as well as the locations of buried gas lines crossing SR-22 and other freeways.

3.11.3 WATER PIPELINES

For most cities in the SR-22/WOCC study area, the water resources division of the public works department provides water service. However, Southern California Water Company provides water service for the cities of Los Alamitos and Stanton.

Water lines are located within most of the streets crossing SR-22 and other freeways in the study area. Other than these water lines, the Cambridge Street Pumping Station, owned by the City of Santa Ana, is the only large-scale water facility located within the study area. The pumping station is located west of Cambridge Street and adjacent to the SR-22 right-of-way.

3.11.4 SEWER PIPELINES

The utilities division of the public works department maintains sewer utilities for most cities within the SR-22/WOCC study area. In addition to wastewater, some sewer systems also handle storm water runoff. These facilities are maintained by the cities where they are located. Once wastewater passes through the city's sewer system, the Orange County Sanitation District (OCSD) is responsible for its treatment. Sewer lines are present within most of the major streets, the streets crossing SR-22, and other freeways in the study area. Sewer lines identified within the study area that are not located within the street system are identified in Figure 3.11-1.

[1] Available at the Department's District 12 Office

3.11.5 TELEPHONE, CABLE, AND FIBER OPTICS

Century Communications, Comcast, Cox Communications, GTE California Inc., Media One, Pacific Bell, and Time Warner Communications provide telecommunication services within the SR-22/West Orange County Connection study area. The majority of these facilities are located within street rights-of-way, with some facilities located in easements between the SR-22 right-of-way line and the backyards of single-family residences. The locations of these facilities are shown in Figure 3.11-1, SR-22/West Orange County Connection Project Utilities.

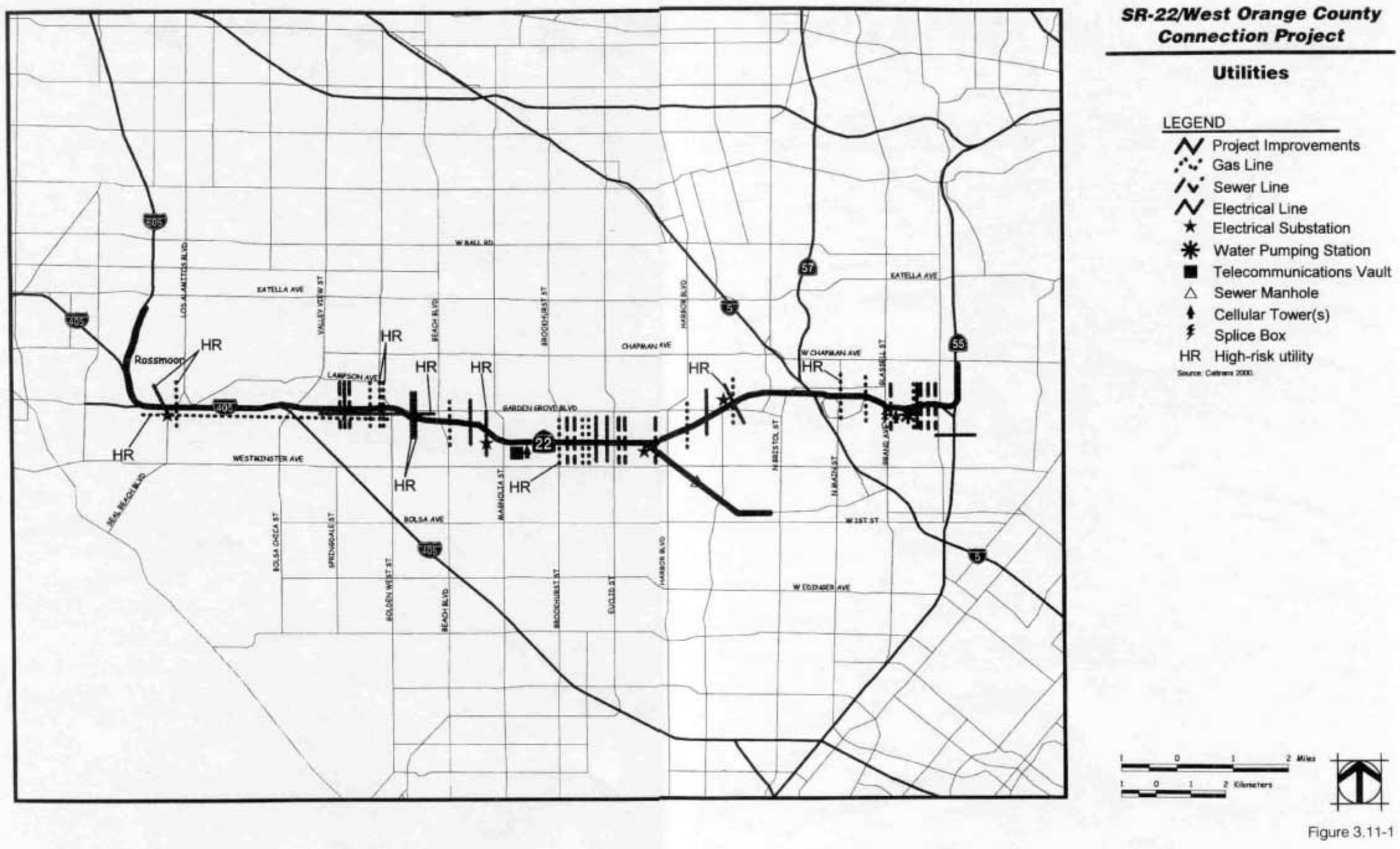
SR-22/West Orange County Connection Project
Utilities
LEGEND
Project Improvements
Gas Line
Sewer Line
Electrical Line
Electrical Substation
Water Pumping Station
Telecommunications Vault
Sewer Manhole
Cellular Tower(s)
Splice Box
HR High-risk utility
Source: Caltrans 2000.
Rossmoor
HR
W BALL RD
EATELLA AVE
LOS ALAMITOS BLVD
VALLEY VIEW ST
BEACH BLVD
BROOKHURST ST
CHAPMAN AVE
HARBOR BLVD
W CHAPMAN AVE
BRASWELL ST
LAMPSON AVE
GARDEN GROVE BLVD
N BRISTOL ST
N MAGNOLIA ST
GRANT AVE
WESTMINSTER AVE
SEAL BEACH BLVD
BOLSA AVE
MAGNOLIA ST
W 1ST ST
BOLSA CHICA ST
SPRINGDALE ST
GOLDEN WEST ST
EUCLID ST
W EDINGER AVE
405
5
57
55
22
1 0 1 2 Miles
1 0 1 2 Kilometers

Figure 3.11-1

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3.12 HAZARDOUS MATERIALS AND WASTE

This section summarizes the information based on the *SR-22/West Orange County Connection Initial Site Assessment (ISA)* and *ISA Reduced Build Alternative* (December 2000), the *Supplemental Initial Site Assessment (Enhanced) Reduced Build* Alternative (May 2002), and Section 3.12 of the August 2001 DEIR/EIS. For a more detailed discussion, these documents are available at the Department and OCTA under separate cover.

The six cities included in the project study area are mostly urbanized with varying intensities of residential, commercial and industrial uses. The urbanization of these areas has contributed to an increase in use of materials associated with hazardous waste.

3.12.1 DATABASES

The databases that list known hazardous materials are shown in Table 3.12-1, Regulatory Agency Listings Potentially Affecting Project Limits. A search of these databases disclosed sites within the SR-22/West Orange County Connection (SR-22/WOCC) study area. Figure 3.12-1, Potential Hazardous Wastes/Materials Sites, shows the locations of the listings that may provide information pertaining to the study area.

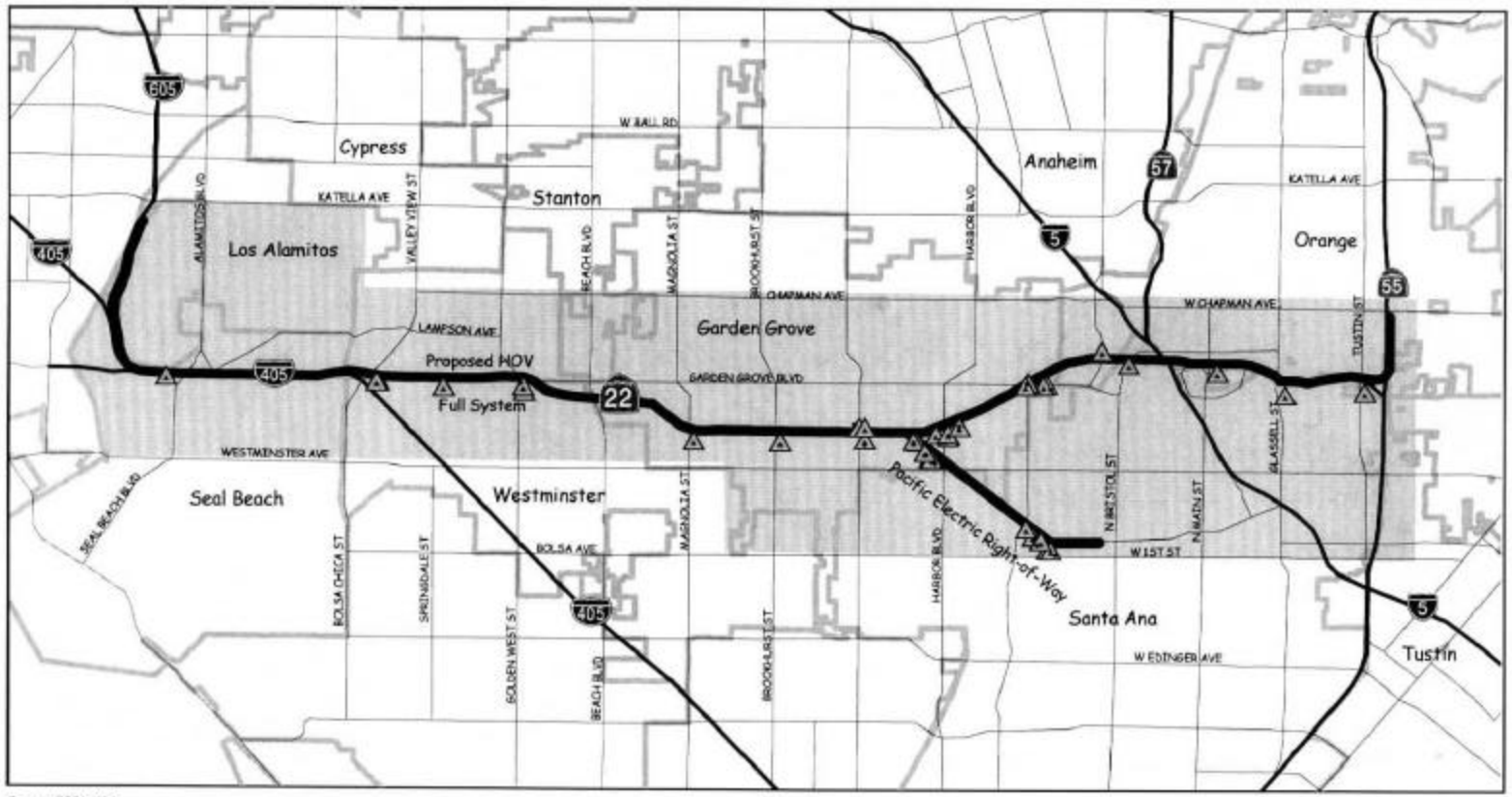
Table 3.12-1
REGULATORY AGENCY LISTINGS
POTENTIALLY AFFECTING PROJECT LIMITS

Database	No. of Database Listings by Jurisdiction					
	Seal Beach	**Westminster**	**Garden Grove**	**Santa Ana**	**Orange**	**Tustin**
National Priorities List (NPL)/Superfund: Federal list of those sites that pose an immediate public health hazard, and where an immediate response to the discovery was necessary. These listings are also found in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) database, also known as CERCLIS. The database was last updated in January 2000.	0	0	0	0	0	0
State Priority List (SPL): Lists those high-priority sites that were compiled from the Annual Work Plan (AWP), CAL-SITE database, and sites where Preliminary Endangerment Assessments were conducted by California Environmental Protection Agency (CAL-EPA). The database was last updated in October 1999.	0	0	0	1	0	0
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS): Lists hazardous substance usually abandoned or inactive sites that are under review by the federal EPA to determine the extent of the public health hazard. The database was last updated in October 1999.	0	0	1	4	1	0
State CERCLA or Superfund (SCL): Lists sites that are low-priority that were compiled from several State of California databases. The database was last updated in October 1999.	0	0	0	0	0	0
Resource Conservation and Recovery Act Transporter (RCRA TRANS): Federal list of sites of individuals or entities that move hazardous waste from the generator to an off-site facility that can recycle, treat, store or dispose of waste. This database was last updated December 1999.	1	3	12	14	3	1

Table 3.12-1 (continued)
REGULATORY AGENCY LISTINGS
POTENTIALLY AFFECTING PROJECT LIMITS

Database	No. of Database Listings by Jurisdiction					
	Seal Beach	Westminster	Garden Grove	Santa Ana	Orange	Tustin
RCRA (Small) generator facilities: Lists sites that have federal EPA identification numbers as managers of hazardous waste as defined by RCRA. These sites include conditionally exempt small-quantity generators (CESQG) that produce less than 100 kilograms (220 pounds) per month of hazardous waste or store less than 1,000 kilograms (2,200 pounds) per month of hazardous waste; small-quantity generators (SQG) that produce more than 100 kilograms (220 pounds) per month, but less than 1,000 kilograms (2,200 pounds) per month of hazardous waste. Violations were automatically listed for the sites. The database was last updated in December 1999.	8	40	14	11	37	7
RCRA (Large) generator facilities: Lists sites that have federal EPA identification numbers as managers of hazardous waste as defined by RCRA as large-quantity generators (LQG) that produce more than 1,000 kilograms (2,200 pounds) per month of hazardous wastes, and transporters (TRAN) of hazardous waste. Violations were automatically listed for the sites. The database was last updated in December 1999.	4	16	40	51	7	1
State of California solid waste landfills (SWLF): Lists sites that generally have been identified by the state as accepting solid wastes. The sites are either active or closed. The database was last updated in November 1999.	0	0	0	1	2	0
Underground storage tank (UST) sites: Lists sites that have a registered underground storage tank on site. The majority of these tanks store petroleum products. The database was last updated in January 2000.	9	23	120	203	72	4
Leaking underground storage tanks (LUST) sites: Lists sites with a reported release of stored product, usually petroleum hydrocarbons. The database was last updated in August 1999.	11	52	115	77	24	5
Emergency Response Notification System (ERNS): Lists reports filed by local emergency response agencies such as fire and police departments, county agencies, state agencies and federal agencies that have responded to a hazardous materials release situation. The database was last updated in August 1999.	2	11	13	31	10	0
Toxic Chemical Release Inventory System (TRIS): Lists facilities that have been identified to release toxic chemicals to the air, water and land in reportable quantities under Superfund Authorization Reamendment Act (SARA) Title III Section 313. The database was last updated January 1998.	0	0	2	1	0	0

Source: Vista Environmental Solutions, Inc., 1999.



Source: ESRI 1998.

LEGEND

- Project Improvements
- City Boundary
- Study Area
- Potential Hazardous Waste/Materials Sites

SR-22 / West Orange County Connection Project

Potential Hazardous Waste/Materials Sites

Figure 3.12-1

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3.13 VISUAL RESOURCES

Information contained in this section is summarized from the *SR-22/West Orange County Connection Visual Impact Assessment* and the *Reduced Build Alternative Visual Impact Assessment Addendum* (December 2000), Section 3.13 of the August 2001 DEIR/EIS and the *Visual Impact Assessment, Reduced Build Alternative, (Revised) Addendum* (April 2002).

3.13.1 Regional Setting

The SR-22/West Orange County Connection (SR-22/WOCC) is located in a portion of Southern California that is generally flat or gently sloping, and almost entirely urbanized. Most of the area is suburban with substantial amounts of landscaping. The study area is crossed by numerous waterways comprised of concrete-lined flood control channels.

Development in most of the study area includes one- to two-story residential houses, commercial office buildings and larger industrial facilities, and shopping malls separated by large parking lots or open areas. the U.S. Naval Weapons Station is near the northwestern portion of the study area, and has large areas with little development.

Views within the study area are generally confined to the local area due to development. In some areas, regional landmarks such as the San Gabriel Mountains and the San Bernardino Mountains are visible.

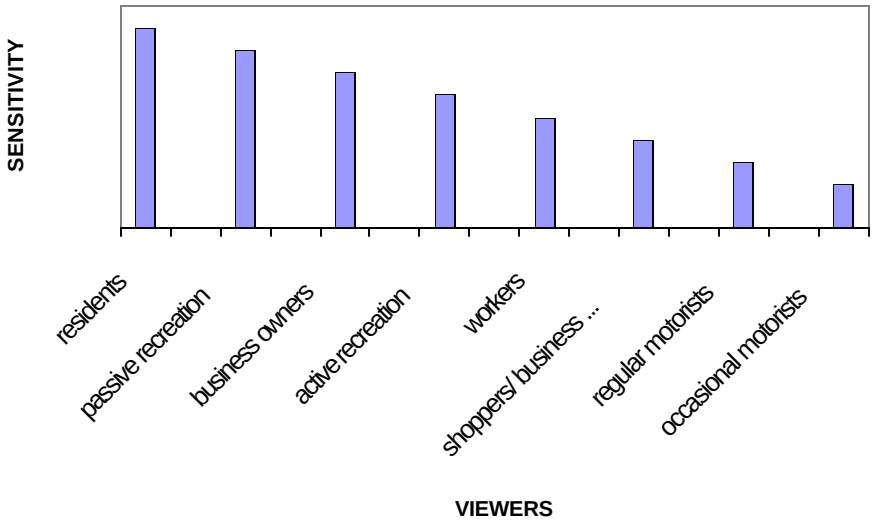
3.13.2 Viewshed

The viewshed of a project area includes the landform, vegetation, water and color within the project area. The study area for the SR-22/WOCC viewshed extends eastward from the vicinity of I-605 and Katella Avenue and I-605/I-405 interchange to the SR-22/SR-55 interchange.

3.13.3 Viewer Groups

Table 3.13-1, Comparative Viewer Sensitivity, provides a graphic representation of the comparative sensitivity of the various types of viewers in the SR-22/WOCC viewshed.

Table 3.13-1
COMPARATIVE VIEWER SENSITIVITY



The largest percentage of viewers in the viewshed is made up of the motorists on the freeway system. Most of these viewers have a moderate to low sensitivity to the visual environment due to their concentration on driving and their focus on their destination. The next most common type of viewer in the viewshed is the local resident/worker located in areas adjacent to the freeway network. This viewer is typically much more sensitive to the surrounding visual environment than the typical motorist

Other smaller groups of viewers such as recreational viewers also occur in the viewshed. Recreational viewers are those using the parks and other recreational facilities along the corridor. Their sensitivity to the visual environment tends to be high when engaged in passive activities and moderate when concentrating on more engaging activities.

3.13.4 Methodology

The first step is to analyze the existing regional landscape. A brief analysis establishes a frame of reference for comparing the visual effects of the proposed project. This is evaluated using the physical quality factors of landform, vegetation, water and color. Then, analyze the study area that would be affected by the proposed project. This area is called a viewshed and is a two-way view: the areas that can be seen from the project area and the areas that can be seen looking into the project area. The viewshed is then divided into landscape units for analysis. There are four units identified along the SR-22 corridor: the Suburban Landscape Unit, the Urban Landscape Unit, the Open Landscape Unit and the Motorist Landscape Unit (described below). Once the viewshed, landscape units and key viewpoints have been identified, it is possible to rate the visual quality of both the existing conditions and the proposed conditions. There are four factors used to evaluate the landscape units. *View opportunities* determine the location of the viewer in relation to the proposed project. *Physical quality factors* are the existing physical features of the area. *Perceptual quality factors* evaluate the existing landscape unit based on vividness, intactness and unity. *Sensitivity to change factors* evaluate the landscape unit with the proposed project, and how a change to the existing environment will affect the viewers.

A. SUBURBAN LANDSCAPE UNIT

This landscape unit makes up approximately 29 percent of the SR-22/WOCC viewshed. This unit consists of the residential areas that surround the proposed SR-22/WOCC. The view is either directly adjacent to the freeway or within the vicinity of the proposed project. The Key Viewpoints for the Suburban Landscape Unit consist of the residential areas near or within the vicinity of the proposed freeway widening. Physical Quality Factors are of moderate quality. Perceptual Quality of the existing condition is moderate to high quality. However, after project completion, vividness, intactness and unity drop to low to moderate quality the closer the homes are to the project site. Viewer sensitivity to change is high due to the change in view at certain areas.

Suburban Key Viewpoint **Figure 3.13-1**

B. URBAN LANDSCAPE UNIT

This landscape unit makes up approximately 30 percent of the SR-22/WOCC viewshed. It is characterized by commercial areas and is dominated by hard surfaces, including the buildings themselves and the surrounding paved areas. Many of the commercial areas are located adjacent to the freeway. Views within the Urban Landscape Unit can be extensive, especially from the upper floors of tall buildings. Physical Quality Factors are of Moderate Quality. Perceptual Quality of existing conditions is of moderate quality. Because many of the commercial areas consist of expanses of paving and large building structures, the Perceptual Quality and Viewer Sensitivity to Change remain the same moderate quality after construction.

Urban Key Viewpoint **Figure 3.13-2**

C. OPEN LANDSCAPE UNIT

This landscape unit makes up approximately 41 percent of the SR-22/WOCC viewshed and is characterized by large areas with limited amounts of hardscape or buildings. Views widen substantially in the Open Landscape Unit due to the lack of intervening structures.

The key viewpoint is typical of the view from open space areas that are accessible to the public. At the Open Key Viewpoint, the freeway is fully visible, cutting across the view and providing a background for the view. Physical Quality Factors are of moderate quality. Perceptual Quality of the existing condition is moderate to high. The Viewer Sensitivity to Change is moderate because the view already has encroaching elements on it.

Open Key Viewpoint **Figure 3.13-3**

D. VIEW FROM THE FREEWAY (MOTORIST LANDSCAPE UNIT)

The view from the freeway goes through all the landscape units, changing according to viewer activity and speed. Details are lost in such a view, and only the basic elements of the landscape are noticeable. The freeway itself is visually dominant in this view, with freeway landscaping framing the edges. Physical Quality Factor is moderate. Perceptual Quality Factors of the existing condition are moderate. However, after project construction, the view is of low to moderate quality. Many of the existing trees will be removed and soundwalls will take their place. Therefore, Viewer Sensitivity to Change is moderate to high.

View From the Freeway Figure 3.13-4

3.13.5 Existing Visual Quality at Important Visual Resources

Important visual resources include areas where the visual environment is particularly important to the land use. In the SR-22/WOCC study area, these include parks, recreational areas, trails, historic properties and other visual resources identified in local policy documents (see Table 3.13-2, Important Visual Resources).

Table 3.13-2
IMPORTANT VISUAL RESOURCES

Important Visual Resource	Description
Parks	
Parks adjacent or near the proposed project	Existing visual quality is high to moderate. The freeway is not visible from many of the parks due to existing noise barriers.
Trails	
Trails adjacent or near the proposed project	Existing visual quality is moderate to low. The freeway is visible from many of the trails
Recreational Facilities	
Schools, and recreational facilities adjacent or near the proposed project	Existing visual quality is moderate to high. In many of the areas, the freeway is visible but through partially screened vegetation.
Cultural Resources	
Pacific Electric Santa Ana River Bridge	Located at the point that the former Pacific Electric right-of-way crosses the Santa Ana River. Found to be eligible for the National Register of Historic Places (see Section 3.5). Because the bridge is in the right-of-way, the right-of-way is visible from it. Existing visual quality: moderately high.

3.13.6 Existing Visual Quality at Visual Resources Designated by Policy Documents

Policy documents of the seven cities and the County of Orange within the SR-22/WOCC viewshed include areas classified as scenic resources, visual resources, aesthetic assets, open space and other similar designations. Table 3.13-3, Visual Resources Designated by Policy Documents summarizes these resources, and notes the existing visual quality for these facilities in the viewshed.

Table 3.13-3
VISUAL RESOURCES DESIGNATED BY POLICY DOCUMENTS

Designated Visual Resource	Description
Orange County	
Los Alamitos Open Space	Identified on "Open Space/Conservation Program Map" as large open space. Includes Old Ranch Golf Course, Naval Base Golf Course, and Los Alamitos Armed Forces Reserve Center, mostly outside viewshed due to landscaping, intervening land uses. Old Ranch Golf Course is currently being redeveloped. **Existing visual quality: moderately low.**
Santa Ana River Corridor	Identified on "Open Space/Conservation Program Map" as scenic corridor. Includes Santa Ana River Trail and River View Golf Course (see above). **Existing visual quality: moderately high.**
Seal Beach	
Seal Beach Boulevard	Designated as local scenic route in *Seal Beach General Plan: Scenic Highways Element*. I-405 clearly visible, especially at Seal Beach Boulevard overcrossing. **Existing visual quality: moderately high.**
Lampson Avenue	Designated as local scenic route in *Seal Beach General Plan: Scenic Highways Element*. I-405 partially screened by vegetation, noise barriers, and intervening land uses. Adjacent construction activities. **Existing visual quality: moderate.**
Old Ranch Country Club and Tennis Club	Designated as important recreation resource in *Seal Beach General Plan: Open Space/Recreation/ Conservation Element*. See Table 3.13-2. Old Ranch Golf Course currently being redeveloped. **Existing visual quality: moderately low to high.**
Santa Ana	
Santa Ana River	Identified as view corridor in *Circulation Element.* Identified in *Urban Design Element* as imageability reference points to influence urban design. **Existing visual quality: moderately high.**
Main Place Mall	Identified in *Urban Design Element* as city gateway and imageability reference points to influence urban design. **Existing visual quality: moderately high.**
Willowick Municipal Golf Course	Identified in *Urban Design Element* as imageability reference points to influence urban design. (See Table 3.13-2.) **Existing visual quality: high.**
Tustin	
Hillsides east of SR-55	Designated as significant topographical features. **Existing visual quality: moderately high.**

3.13.7 Existing Freeway Landscaping

The landscaping along SR-22 contains some large trees and dense vegetation. In comparison to other freeways in the SR-22/WOCC, the SR-22 viewshed contains the most landscaping features. I-605 has tall trees on the west side, but does not contain a continuous screen, allowing views of the adjacent land uses. Recent freeway widening on the east side removed much of the landscaping, leaving an incomplete hedge to partially screen the adjacent noise barriers. I-405 in the viewshed received several improvements over the years, removing much of the landscaping. Relatively recent landscaping has been installed in some areas. SR-55 within the viewshed is currently undergoing a major improvement project and almost all of the landscaping has been removed. The total landscaped area within the rights-of-way is estimated to be over 150 hectares (370 acres).

SECTION 4.0
ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

4.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

4.1 GEOLOGY AND SOILS

This section includes discussions of impacts and mitigation measures related to geology and soils in the study area and will focus primarily on the identified Preferred Alternative, (Enhanced) Reduced Build Alternative.

The analyses in this section were the result of refined engineering and/or additional planning efforts. As discussed in Section 2.2-1, the added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to geology and soils. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

4.1.1 TOPOGRAPHY

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would not appreciably change the topography within the study area. Proposed improvements would extend the freeway cross-section and the start of slopes an average distance of 5.5 meters (18 feet) on each side, with retaining walls of varying heights added where needed. Topographical changes would be minimal.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not result in construction of new transportation facilities other than those addressed in previous environmental documents; therefore, no impacts to topography would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not result in construction of new transportation facilities that would alter topography. Therefore, negligible impacts, if any, to topography would occur.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not appreciably change the topography within the study area. The largest topographical change that would result under the Full Build Alternative is the new Pacific Electric Arterial and its interchange with SR-22. This new element would require structures and retained fill for the portion of the arterial/interchange that is elevated.

Thresholds of Significance for CEQA:

- Potential to substantially alter the configuration of the topography including its relief and the position of its natural and man made features

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would not appreciably alter the topography within the study area. New fill would be required mainly for widening of existing roadways or realignment of existing interchanges. In order to reduce right-of-way impacts, some fill would be retained with walls. Change to topography would be minimal. All changes would be designed in accordance with standard engineering practices and the Department specifications. These changes would result in less than significant impacts.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impact.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impact.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not appreciably alter the topography within the study area. The largest topographical change that would result under the Full Build Alternative is the new Pacific Electric Arterial and its interchange with SR-22.

4.1.2 SEISMICITY

The study area may traverse the active Newport-Inglewood fault zone in the area of the I-405/SR-22 and I-405/I-605 interchanges, the exact location of which has not been identified. There are several seismic hazards that could affect this area, including ground acceleration or ground shaking, surface or fault rupture and liquefaction (Section 4.1.3). However, all design elements for the proposed project would adhere to special guidelines with construction activities in seismically active regions as set forth in the Highway Design Manual. Seismic activity is a key element that would be fully addressed during the design phase.

Ground shaking occurs at the earth's surface as a result of a release of energy during an earthquake. A vibrating or seismic wave generates from the source of the earthquake, much like the waves created when a rock is tossed into a pool of water. Generally, the closer the source of the seismic event, the more the ground shakes. Areas in close proximity to the I-405/SR-22 and I-405/I-605 interchanges would be most susceptible to the effects of ground shaking. Areas further from this area would be less affected.

Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Not all earthquakes result in surface rupture. Fault rupture almost always follows pre-existing faults, which are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. It is impossible to predict whether a surface rupture would occur during a seismic event in the Newport-Inglewood fault zone.

Other faults in the area could produce earthquakes that could damage the structures in the study area and result in injury or death. This condition is prevalent throughout California and is not unique to the study area.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would include improvements in the assumed vicinity of the active Newport-Inglewood fault zone in the area of the I-405/SR-22 and I-405/I-605 interchanges. Thus it could expose people to hazards described above. It should be noted, however, that the project would include only widening of an existing facility in this area; therefore, it would not expose people to a new hazard.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not result in construction of new transportation facilities other than those addressed in other environmental documents. Therefore, it would not pose additional seismic hazards beyond what currently exists in the study area.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any capital improvements to SR-22. Therefore, it would not pose additional seismic hazards beyond what currently exists in the study area.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would include improvements in the assumed vicinity of the active Newport-Inglewood fault zone in the area of the I-405/SR-22 and I-405/I-605 interchanges, and may expose people to seismic hazards. However, the project would include only widening of an existing facility in this area and would not expose people to a new hazard.

Thresholds of Significance for CEQA:

- Potential for seismic hazards and ground shaking activities

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would also include improvements in the assumed vicinity of the active Newport-Inglewood fault zone. This would result in less than significant impacts to seismic hazards and ground shaking activities since the proposed project involves widening of an existing facility.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impact on seismic hazards and ground shaking activities.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impact on additional seismic hazards and ground-shaking activities beyond what currently exists in the study area.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would include improvements in the assumed vicinity of the active Newport-Inglewood fault zone. The project would include only widening of an existing facility in this area; it would not expose people to a new hazard. This would result in less than significant impacts to seismic hazards and ground shaking activities.

4.1.3 LIQUEFACTION

There is a moderate to high susceptibility of liquefaction within the study area due to a high water table. Adverse effects of liquefaction can take many forms, including flow failures, lateral spreads, ground oscillation, loss of bearing strength, settlement and increased lateral pressure on retaining walls (EERI, 1994). The most serious of these, flow failures, may displace large masses of soil laterally, sometimes over great distances. Because these types of failures generally occur on steep slopes, however, they are unlikely to affect the project study area. Lateral spreads, which involve lateral displacement of blocks of soil as a result of liquefaction at the subsurface, generally develop on gentle slopes and are therefore more likely to occur within the study area.

When the soil supporting a building or other structure liquefies and loses strength, large deformations can occur within the soil that may allow the structure to settle and tip. Conversely, buried tanks and piles may rise buoyantly through the liquefied soil. This is a secondary effect of liquefaction and there is a high potential for this type of failure in the study area.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Structures and pavements associated with the (Enhanced) Reduced Build Alternative would be susceptible to the types of failures discussed above, including lateral spreads, ground oscillation, loss of bearing strength, settlement and increased lateral pressure on retaining walls. However, all design elements for the proposed project would adhere to special guidelines with construction activities in seismically active regions as set forth in the Highway Design Manual.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Since no construction is associated with the No Build Alternative aside from that discussed in previous environmental documents, no additional impacts related to liquefaction are anticipated.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include operational improvements and would not include any capital improvements to SR-22. Therefore, new exposure to liquefaction hazards would be negligible.

3. FULL BUILD ALTERNATIVE

Structures and pavements associated with the Full Build Alternative would be susceptible to the types of failures discussed above, including lateral spreads, ground oscillation, loss of bearing strength, settlement and increased lateral pressure on retaining walls.

Thresholds of Significance for CEQA:

- Potential for liquefaction activities

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would be subject to the types of failures discussed above. Soil would be stabilized under this Alternative to minimize the potential for liquefaction or to control its effect, resulting in less than significant impacts.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not result in significant impacts related to liquefaction.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not result in significant impacts on new exposure to liquefaction hazards.

3. FULL BUILD ALTERNATIVE

Structures and pavements associated with the Full Build Alternative would be susceptible to the types of failures discussed above, including lateral spreads, ground oscillation, loss of bearing strength, settlement and increased lateral pressure on retaining walls. Soil would be stabilized under this Alternative to minimize the potential for liquefaction or to control its effect, resulting in less than significant impacts.

4.1.4 EXPANSIVE SOILS

Expansive soils contain clay minerals, which will swell when wetted to as much as 1.5 to 2.0 times their original dry volume. If construction takes place on wet materials that have high shrink-swell potential, and these materials subsequently are drained and dried, the resulting shrinkage may cause severe cracking in structures. Saturation of soil from rainfall, irrigation, groundwater or leaking pipes may cause major damage through the expansion of soils beneath highways, utility lines and foundations. Please refer to Table 2.2-1, (Enhanced) Reduced Build Alternative Elements.

Expansive soils are found throughout the study area.

A. PREFFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Structures and pavements associated with the (Enhanced) Reduced Build Alternative would be subject to the failures associated with expansive soils described above, unless appropriate measures are taken. The exposure to these hazards would be less than under the Full Build Alternative.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Because no construction is associated with the No Build Alternative, aside from that discussed in previous environmental documents, no additional impacts related to expansive soils are anticipated.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any capital improvements to SR-22. Therefore, new failures associated with expansive soils as described above would not be of concern.

3. FULL BUILD ALTERNATIVE

Structures and pavements associated with the Full Build Alternative would be subject to the failures associated with expansive soils described above, unless appropriate measures are taken.

Thresholds of Significance for CEQA:

- Potential for expansive soils

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Structures and pavements associated with the (Enhanced) Reduced Build Alternative would be subject to the failures associated with expansive soils previously discussed, unless appropriate measures are taken. These may include replacement of soil, treatment with lime, or supporting of structures on deep foundation, which would take place during the construction phase. The exposure to these hazards would be less than significant.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

No impacts related to expansive soils are anticipated as a result of the No Build Alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not result in significant impacts related to expansive soils.

3. FULL BUILD ALTERNATIVE

Structures and pavements associated with the Full Build Alternative would be subject to the failures associated with expansive soils described above, unless appropriate measures are taken, resulting in less than significant impacts.

4.1.5 EROSION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction. Grading would occur in upland areas and new

piers would be installed in riverbeds. Consequently, the potential exists for disturbed soil to erode and for sediments to be transported by water.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Since no construction is associated with the No Build Alternative, aside from that discussed in previous environmental documents, no additional impacts related to erosion are anticipated.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Only operational improvements and minor construction are included in the TSM/Expanded Bus Service Alternative; therefore, negligible impacts related to erosion are anticipated.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction. Grading would occur in upland areas and new piers would be installed in riverbeds. Consequently, the potential exists for disturbed soil to erode and for sediments to be transported by water.

Thresholds of Significance for CEQA:

- The potential for substantial disturbance of soil causing erosion, disturbance of soil in riverbeds, soil erosion during excavation, and the redesigning of drainage which may result in slope erosion

CEQA Findings:

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would result in less than significant impacts if appropriate erosion-control measures are taken.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

No additional impacts related to the above erosions are anticipated under the No Build Alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

No impacts related to the above-discussed erosions are anticipated with this alternative.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would result in less than significant impacts if appropriate erosion-control measures are taken.

4.1.6 MITIGATION

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

GEO-(E)RB-1. Structures will be designed to resist the maximum credible earthquake associated with nearby faults without endangering human life through collapse. To minimize potential structural damage due to seismically induced ground shaking, the following design measures will be utilized as needed:

- Hinge restrainers to hold together superstructure elements during extreme motion
- Heavy keys to limit movement between the superstructure and abutment
- Increased reinforcement in column sections to assure effective confinement of concrete allowing large movements to occur without collapse

GEO-(E)RB-2. Detailed geotechnical studies will be performed for areas that will support pavement or foundations in conjunction with detailed engineering design to provide appropriate boring, soil and fault information. This information will be used to minimize potential adverse impacts. The following items will be addressed:

- Precise location of areas of potential liquefaction
- Borings to determine the depth and geometry of alluvium and deeper soil types and to sample materials for various laboratory analyses
- Establishment of engineering criteria for ground acceleration to be used for the design of corridor structures and facilities in accordance with the Department's guidelines

All areas of historically high or perched groundwater levels will be analyzed in detail during project design to verify the potential for liquefaction. Should soils subject to liquefaction be found, site-specific engineering techniques (e.g. importation of stable material, compaction of soils, permanent de-watering and attachment of deep-set piles to bedrock or lower, denser soils) will be implemented.

GEO-(E)RB -3. Small structures will be strengthened to resist predicted ground movements.

GEO-(E)RB -4. Appropriate foundation types and depths will be designed (including foundation modifications in the case of existing structures) so that ground movements will not adversely affect the structure. For example, deep piles or piers that extend below the zone of liquefiable soil may be used.

GEO-(E)RB -5. Soil will be stabilized to eliminate the potential for liquefaction or to control its effects (e.g., removal and replacement of liquefiable soils; in situ stabilization by grouting, densification, or de-watering; buttressing of lateral spread zones).

GEO-(E)RB -6. During final engineering design, the area and thickness of expansive soils will be evaluated. Measures that mitigate for expansive soils will be incorporated into the construction documents. These measures may include replacement of soil, treatment with lime, or supporting of structures on deep foundations.

GEO-(E)RB -7. Appropriate erosion-control measures will be incorporated into the construction documents and implemented during site preparation, grading and construction. These measures may include protecting exposed slope areas, control of surface flows over exposed soils, use of wetting or sealing agents and/or sedimentation ponds, and limiting soil excavation in high winds.

GEO-(E)RB -8. Excess excavated soil will be hauled away from the job site and disposed of at an appropriate, permitted disposal facility. The contractor will be responsible for ensuring that the soil is hauled away on an approved route to a permitted disposal facility.

GEO-(E)RB -9. To avoid transport of sediments during construction, work within riverbeds will not occur when water is present. If necessary, cofferdams may be used to keep water out of the construction area.

GEO-(E)RB -10. Roadway and bridge deck drainage will outlet under the bridge abutments onto energy dissipaters to prevent slope erosion.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None proposed.

3. FULL BUILD ALTERNATIVE

Mitigation measures GEO-(E)RB-1 through GEO-(E)RB-10 for the (Enhanced) Reduced Build Alternative are the same for the Full Build Alternative.

4.1.7 RESIDUAL IMPACTS AFTER MITIGATION

A IDENTIFIED PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Through mitigation, impacts related to liquefaction and expansive soils would be prevented. All other impacts would be minimal after mitigation

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Through mitigation, impacts related to liquefaction and expansive soils would be prevented. All other impacts would be minimal after mitigation.

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4.2 HYDROLOGY, FLOODPLAINS, AND WATER QUALITY

This section includes discussions of impacts and mitigation measures related to hydrology and floodplains in the study area and focuses primarily on the identified Preferred Alternative (PA). The floodplain information contained in this section is based on the *SR-22 West Orange County Connection (SR-22/WOCC) Floodplain Evaluation Report* and the *Floodplain Evaluation Report Reduced Build Alternative Addendum* (December 2000), both of which are available under separate cover at the Department and OCTA. The referenced documents provide floodplain analyses of surface water features of the SR-22/WOCC proposed project.

The discussions in this section were the result of refined engineering, responding to comments received during the public comment period for the August 2001 DEIR/EIS, and/or additional planning efforts. As discussed in Section 2.2-1, the added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to hydrology, floodplains, and water quality. The refinement to the right-of-way and the modification to the Pearce Street pedestrian overcrossing would have no effects to hydrology, floodplains, and water quality. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (volumes II & III).

4.2.1 SURFACE WATER

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Use. The major surface water resources in the project area for the (Enhanced) Reduced Build Alternative are the Santa Ana River, Santiago Creek, and San Gabriel River. These surface water bodies receive runoff, either directly or indirectly, from the pavement surfaces of SR-22 and project area impervious surfaces. The surface area of pavement on a roadway is one determinant of the amount of runoff that would be discharged into receiving waters. The (Enhanced) Reduced Build Alternative would increase the amount of paved surface area by approximately 10 hectares (25 acres), or 4.7 percent of the entire SR-22 WOCC. The quantity of runoff entering the Santa Ana River, the Santiago Creek, and various storm drain channels within the study area would be minimally increased. The increase in surface water runoff would not affect current beneficial uses of the two water bodies. For a complete list of beneficial uses for the Santa Ana River and the Santiago Creek, refer to 1995 Basin Plan for the Regional Water Quality Control Board Region 9, Santa Ana at http://www.swrcb.ca.gov/rwqcb8/

Runoff from the project area does not directly discharge into the San Gabriel River but rather into the Los Alamitos Channel, which contains wetland vegetation further downstream. An increase in runoff from the roadway due to the increase in paved area may minimally affect wetlands near the Los Alamitos Channel. For further information on wetlands refer to Section 4.4, Wetlands, of this document.

Quality. Currently, the majority of runoff flows into lined channels throughout the project area. The only surface waters that support any vegetation within or downstream from the study area are the Los Alamitos Channel, Santiago Creek and the Santa Ana River. Runoff from the roadway would be the most likely source of contamination to surface waters. Typical highway runoff may include vehicle-related pollutants such as oil, grease, and other petroleum products. Other pollutants that may also affect the watershed include illicit dumping, litter, and pollutants from pesticides, herbicides, and fertilizers (California Department of Transportation, 2001). Existing vegetation and wildlife in the Los Alamitos Channel, Santiago Creek and the Santa Ana River are adapted to the current water conditions. The incremental increase in contaminants would not be expected to result in the loss of this adapted vegetation and wildlife. Further discussion of impacts to biological resources in the Los Alamitos Channel, the Santiago Creek, and the Santa Ana River may be found in Section 4.3, Biology.

As discussed in Section 3.2.1 C, runoff from the study area does not discharge directly into any 303(d) listed water bodies. However, runoff from the study area may discharge indirectly into 303(d) listed water bodies located further downstream. The increase in runoff from impervious surfaces would minimally impact these water bodies because of the indirect nature of the discharge and the distance the runoff must travel before reaching these water bodies. Further, the components of typical highway runoff are not the same pollutants and stressors for which those water bodies are listed.

In accordance with the Department's National Pollution Discharge Elimination System (NPDES) permit, to minimize impacts to surface waters, a Storm Water Pollution Prevention Plan (SWPPP) would be developed for the proposed project, and submitted to the RWQCB and the Department for approval. The SWPPP would address storm water and non-storm water runoff and would outline construction Best Management Practices (BMPs). In addition, permanent BMPs would be selected during the design process. The selected BMPs would reduce runoff pollutant levels and minimize impacts to water quality. Refer to Section 4.2.4 for further information regarding water quality management.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that addressed in previous environmental documents for approved projects. No new impacts to surface water availability, use or quality would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include operational improvements and would not include any major capital improvements to SR-22. It would not result in substantial impacts to surface water availability, use or quality.

3. FULL BUILD ALTERNATIVE

Use. See discussion for the identified Preferred Alternative, above. The Full Build Alternative would yield an increase in paved surface of 24 hectares (60 acres), or approximately 11 percent of the entire SR-22 WOCC.

Thresholds of Significance for CEQA:

- Potential storm water and surface water pollution from construction and operation, substantially impairing the quality of the water.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Use. Since the (Enhanced) Reduced Build Alternative would increase the amount of paved surface area by approximately 10 hectares (25 acres), a slight increase in the amount of runoff may enter the Santa Ana River and other surface waters. The minimal increase in runoff would not impact the use of existing water resources.

Quality. Runoff from the roadway would be the most likely source of contamination to surface waters. The majority of runoff flows into lined channels. The only surface waters that support any vegetation within or downstream from the study area for this Alternative are Los Alamitos Channel, Santiago Creek and the Santa Ana River. These areas currently receive highway and roadway runoff, and existing vegetation is adapted to the water quality conditions. The

incremental increase in contaminants would not be expected to result in the loss of this adapted vegetation.

Increase in vehicle-related pollutants is not expected to impact surface water quality downstream. The increase in runoff from impervious surfaces would minimally impact 303(d) listed water bodies located further downstream because of the indirect nature of the discharge and the distance the runoff must travel before reaching those water bodies. In addition, the components of typical highway runoff are not the same pollutants and stressors for which those water bodies are listed under Section 303(d).

In accordance with the Department's National Pollution Discharge Elimination System (NPDES) permit, to minimize impacts to surface waters, a Storm Water Pollution Prevention Plan (SWPPP) would be developed by the contractor for the proposed project, and submitted to the Department for approval. The SWPPP would address storm water and non-storm water runoff and would outline construction Best Management Practices (BMPs). In addition, permanent BMPs would be selected during the design process. The selected BMPs would reduce runoff pollutant levels to less than significant levels. Refer to Section 4.2.4 for further information regarding water quality management.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

No new impacts to surface water availability, use or quality would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

There would be no impacts to surface water availability, use or quality.

3. FULL BUILD ALTERNATIVE

See the discussion for the identified Preferred Alternative, above. The amount of paved area resulting from the Full Build Alternative is 24 hectares (60 acres).

4.2.2 GROUNDWATER

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Availability. The (Enhanced) Reduced Build Alternative would add approximately 10 hectares (25 acres) of pavement to the roadway. Because additional surface areas would be covered with impermeable surfaces, there would be a minimal decrease in natural groundwater recharge. However, the majority of groundwater recharge in the study area occurs by artificial recharge from water within the Santa Ana River. Thus, no impact would occur to the availability of water used for recharge within the river.

Use. Groundwater in the area is used for municipal and domestic supply, agricultural supply, industrial service supply and industrial process supply. Improvements included in the (Enhanced) Reduced Build Alternative would not affect the use of any groundwater wells.

Quality. Runoff from the roadway may result in increased contamination entering the groundwater from percolation of surface waters. Receiving groundwater is susceptible to the types of contamination described in Section 4.2.1, Surface Water. The (Enhanced) Reduced Build Alternative may incrementally add to highway runoff due to the increase in paved surface areas.

Only a small portion of the runoff flows into the Santa Ana River. The small increase in runoff volume that flows into the Santa Ana River in areas used for groundwater recharge would incrementally affect groundwater quality, but the changes are not expected to affect its beneficial uses. For a list of beneficial groundwater uses in the project area, refer to the 1995 Basin Plan for the Regional Water Quality Control Board Region 9, Santa Ana at http://www.swrcb.ca.gov/rwqcb8/

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that addressed in previous environmental documentation for approved projects. No new impacts to groundwater availability, use or quality would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Impacts to the availability, use or quality of groundwater would be minimal.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would include widening of the portion of the roadway that passes over the Santa Ana River. The availability of water for groundwater recharge in the river would be unaffected because areas above the river would drain into it. Since only a small portion of the runoff drains into the Santa Ana River, the impacts to groundwater quality and use would be minimal. There would be a slight decrease in groundwater recharge from the 24 hectares (60 acres) of additional paved surface. However, this amount is not expected to affect the availability, use, and quality of groundwater in the project vicinity because there is minimal percolation occurring within these areas.

Thresholds of Significance for CEQA:

- Substantial impacts on groundwater availability, use or quality.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Availability. The (Enhanced) Reduced Build Alternative would add approximately 10 hectares (25 acres) of pavement to the roadway, causing a slight decrease in groundwater recharge. This would result in less than significant impact to the availability of water.

Use. Improvements included in the (Enhanced) Reduced Build Alternative would not affect any groundwater wells. Therefore, current uses of groundwater in the area would be minimally affected.

Quality. The (Enhanced) Reduced Build Alternative may incrementally add to highway runoff due to the increase in paved surfaces. This incremental increase in runoff would result in less than significant impacts if temporary and permanent Best Management Practices are implemented.

Only a small portion of the runoff flows into the Santa Ana River. Surface water quality in the river is important because it is used for groundwater recharge. However, most of the recharge basins are located north (upstream) of the proposed improvements, and few sites are located downstream.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to groundwater availability, use or quality.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would result in no impacts to the availability, use or quality of groundwater.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would include widening of the portion of the roadway that passes over the Santa Ana River. The availability of water for groundwater recharge in the river would be unaffected because areas above the river would drain into it. Since only a small portion of the runoff drains into the Santa Ana River, the impacts to groundwater quality and use would be minimal. There would be a slight decrease in groundwater recharge from the 24 hectares (60 acres) of additional paved surface. However, this amount is not expected to affect the availability, use, and quality of groundwater in the project vicinity because there is minimal percolation occurring within these areas.

4.2.3 FLOODPLAIN

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Changes in Floodplain Elevations. There are eight waterways within the study area floodplain that were studied for the (Enhanced) Reduced Build Alternative. Table 4.2-1 describes the impacts for most of the waterways.

As part of this project, county facilities, including culverts, incapable of carrying 100-year floods upstream and downstream of SR-22 would be upgraded within project limits. Should the project have an impact on any cross culvert, the Department would contact Orange County Flood Control District (OCFCD) to obtain a permit to improve the facility.

Changes in Floodplain Risks. The (Enhanced) Reduced Build Alternative would not result in significant floodplain risks as defined by FEMA. It would not be a significant longitudinal encroachment. There would be minimal risks associated with the action; the action would not support probable incompatible floodplain development. The action would be minimal on floodplain encroachment. Non-routine measures would not be required to minimize floodplain impacts associated with the action. There would be minimal impacts on natural and beneficial floodplain values. Non-routine measures would not be required to restore and preserve the natural and beneficial floodplain values impacted by the action for the (Enhanced) Reduced Build Alternative.

Table 4.2-1
CHANGES IN FLOODPLAINS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Waterway	Impact
Los Alamitos Channel (C01)	Improvements are not anticipated to impact the flow or flood storage area of the channel. The toe of the widened highway embankment would be above the maximum flooding elevation.
Montecito Storm Channel (C01S03)	Improvements are not anticipated to impact the floodplain of the Montecito Storm Channel. The embankment would require a lengthening of the existing culvert under the embankment with minimal hydraulic impacts.
Bixby Storm Channel (C01S04)	Improvements are not anticipated to impact the floodplain of the channel. The 100-year flow of this segment of the storm channel is relatively small. The proposed relocation of the Seal Beach Boulevard northbound on-ramp in this area would require the relocation of the channel, replacement of the channel with a culvert or construction of a retaining wall to maintain flow capacity, with no negative impact to the channel.
Federal Storm Channel (C01S06)	Improvements are not anticipated to impact the floodplain of the channel. The embankment would require a lengthening of the existing culvert under the embankment with minimal hydraulic impacts.
Bolsa Chica Channel (C02)	Improvements are not anticipated to impact the floodplain of the channel. The embankment would require a lengthening of the existing culvert under the embankment with minimal hydraulic impacts.
Anaheim-Barber City Channel (C03)	Improvements are not anticipated to impact the floodplain of the channel. The embankment or bridge widening would not require a lengthening of the existing culvert that passes under both SR-22 and Knott Street/Goldenwest Street.
East Garden Grove-Wintersburg Channel (C05)	Improvements are not anticipated to impact the floodplain of the channel. The embankment would require a lengthening of the existing culvert under the embankment with minimal hydraulic impacts.
Santiago Creek (E08)	Improvements at both the SR-22 and SR-55 crossing are not anticipated to impact the floodplain of the creek. Both bridge widenings would require additional piers to be placed in the creek. By placing the piers in the same alignment as the existing bridge piers, the hydraulic impacts to Santiago Creek should be minimal.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that addressed in previous environmental documents for approved projects. No new impacts to floodplain elevations would occur. No new risks associated with flooding would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include operational improvements to bus service and would not include any major capital improvements to SR-22. No new impacts to floodplain elevations are expected. New risks associated with flooding are expected to be negligible.

3. FULL BUILD ALTERNATIVE

Changes in Floodplain Elevations. There are eight waterways within the proposed project area that were studied for the Full Build Alternative. The Full Build Alternative would include widening of the portion of the roadway that passes over the Santa Ana River. However, this improvement would not contribute any additional impact than those previously discussed in the August 2001 DEIR/EIS.

Changes in Floodplain Risks. The Full Build Alternative would not result in significant floodplain risks as defined by FEMA. It would not be a significant longitudinal encroachment. There would be no significant risks associated with the action. The action would not support probable incompatible floodplain development. The action would not be a significant floodplain encroachment. Non-routine measures would not be required to minimize floodplain impacts associated with the action. There would be no significant impacts on natural and beneficial floodplain values. Non-routine measures would not be required to restore and preserve the natural and beneficial floodplain values impacted by the action for the Full Build Alternative.

Thresholds of Significance for CEQA:

- Potential of new/enlarged structures, including culverts, that may result in change in floodplain elevation

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would result in less than significant floodplain impacts as defined by FEMA. There would be less than significant impacts on natural and beneficial floodplain values. No changes in floodplain limits are anticipated because the floodplain is contained within the channel at this location.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to floodplain elevations or increased flooding.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

No impacts to floodplain elevations would occur and new risks associated with flooding would not occur.

3. FULL BUILD ALTERNATIVE

Changes in Floodplain Elevations. See Table 4.2-1 above for description of impacts to most of the waterways.

4.2.4 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

See Section 4.4, Wetlands, of this document for erosion control mitigation.

HYD-(E)RB-1: For all bridges and other structures to be built within 100-year floodplains, specific impacts to floodplain elevations will be analyzed at the design stage. Such structures will not be allowed to result in a 0.3-meter (one-foot) or greater impact in floodplain elevation. If analysis of the design indicates impacts equal to or greater than this threshold, the designs will be revised until the impact is reduced to less than the threshold.

HYD-(E)RB-2: The Department has obtained a Statewide National Pollutant Discharge Elimination System (NPDES) permit (the Permit). The Department will comply with all provisions of the Permit. As directed by the Permit, the Department implements the Statewide Stormwater

Management Plan (SWMP) that describes a framework for management of storm water discharges during the term of the Permit. The Contractor shall implement and maintain temporary (during construction) Best Management Practices (BMPs) and the Department will implement and maintain permanent (post construction) BMPs to control storm water and non-storm water discharges and to meet the discharge requirements of the Santa Ana Regional Water Quality Control Board (RWQCB). The Contractor shall fully conform to the requirements of the Permit, Order No. 99-06-DWQ, NPDES No. CAS000003. When applicable, the contractor shall also conform to the requirements of the General NPDES Permit for Construction Activities, Order No. 92-08-DWQ, NPDES No. CAS000002, and any subsequent revisions. In compliance with the Department's NPDES Permit, a Storm Water Pollution Prevention Plan (SWPPP) will be developed for the SR-22/WOCC proposed project, and submitted for approval prior to construction. The SWPPP would address construction storm water and non-storm water runoff.

HYD-(E)RB-3: The Department's Storm Water Management Plan also encompasses design and operation/maintenance measures to address operation of the Department's facilities. Appropriate permanent Best Management Practices (BMPs), such as dry weather flow diversion, biofiltration strips/swales, infiltration basins, and detention devices, will be selected and approved by the Department during the design process. Routine maintenance will be conducted to ensure the selected BMPs are effective in reducing runoff pollutant levels to insignificant levels.

HYD-(E)RB-4: Coordination with the Regional Board and the Department during the design process would be used to select the appropriate permanent BMPs for the proposed improvements.

Design, construction, and operation/maintenance activities all contribute to the overall effort of minimizing water pollution. For further discussion regarding the Department's storm water program, please refer to the Department's Statewide Storm Water Management Plan (SWMP, 2001).

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

   None proposed

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

   None proposed.

3. FULL BUILD ALTERNATIVE

   Same Mitigations as those listed for the identified "Preferred Alternative" above.

4.2.5 RESIDUAL IMPACTS AFTER MITIGATION

A. IDENTIFIED PA/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Less than substantial.

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4.3 BIOLOGY

The information contained in this section is based on the *SR-22 West Orange County Connection (WOCC) Natural Environment Study (NES)* and the *NES Reduced Build Alternative Addendum* (December 2000), and the NES Reduced Build Alternative (Revised) Addendum (December 2002), all of which are available under separate cover at the Department and OCTA. The studies investigated the biological setting of the project area, assessed project impacts and proposed mitigation measures. This section focuses primarily on impacts and mitigation measures related to biology in the study area of the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative.

As discussed in Section 2.2.1, the Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section of the SR-22/SR-55 direct HOV connector from the Full Build Alternative, without the freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction. The extended portion of the Mainline is approximately 1.2 miles at the eastern terminus of the project limits, which was analyzed as part of the Full Build Alternative. The added feature to the (Enhanced) Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the modification of the Reduced Build Alternative. The extension of the HOV mainline at the eastern terminus prompted additional analysis (i.e., invasive plant species) to address potential impacts to Santiago Creek and Santa Ana River. The refinement to the right-of-way and the modification to the Pearce Street pedestrian overcrossing would have no effects to biological resources.

4.3.1 VEGETATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive natural plant communities identified in local or regional plans, policies or regulations or by the CDFG or USFWS are present in the project study area. The Special Status Plant, Animals, and Natural Communities species list are included in Appendix I to this document.

I-405/605 HOV connector

As discussed in Section 2.2, the I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the proposed connector occurred at approximately 29 meters high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one design solution significantly reduced the height of the HOV connector by shifting the previous alignment southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment occurs at approximately 22 meters high where the minimum vertical clearance is required over the eastbound SR-22 connector. The realignment of the I-405/605 HOV connector is in the existing right-of-way; there are no impacts anticipated from this structure to sensitive species. The proposed project will include the mitigation measures described in BIO-(E)RB-4.

Pearce Street Pedestrian Overcrossing

Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Pedestrian overcrossing is in need of replacement since it would conflict

with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately seven feet wide. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. This pedestrian overcrossing is an urban area with mostly bare ground and few trees. Sensitive species are not within the area. The proposed project will include the mitigation measures described in BIO-(E)RB-4.

Most drainage facilities in the study area are entirely concrete-lined and do not support riparian vegetation. The following drainage facilities are unlined channels.

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the (Enhanced) Reduced Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. No impacts to riparian vegetation would occur. (See Section 4.4 for a discussion of potential erosion impacts to nearby wetlands.)

Santa Ana River. In the vicinity of the SR-22 crossing, the Santa Ana River has rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Minimal impacts to riparian vegetation are anticipated during construction under the (Enhanced) Reduced Build Alternative.

Santiago Creek. In the vicinity of the SR-22 crossing, Santiago Creek has rock- or concrete-lined banks with a rocky bottom supporting only ruderal and exotic vegetation. Minimal impacts to riparian vegetation are anticipated during construction under the (Enhanced) Reduced Build Alternative. Large native existing trees, including coast live oaks, are found within the project survey area and could be impacted due to ramp relocation activities. The culvert at Santiago Creek (the relocation area for the westbound ramp) may be impacted. This drainage channel, likely excavated on upland, is exempt from Section 404 regulation, but still subject to CDFG Section 1600 jurisdiction as it may be impacted due to ramp relocation activities.

Montecito Channel. In the vicinity of the SR-22 crossing, the Montecito Channel has a soft-bottom, exhibits disturbed conditions, and contains primarily ruderal species. There are no impacts anticipated to riparian vegetation or sensitive species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative includes no construction or other action and no impacts to vegetation would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to vegetation would occur.

3. FULL BUILD ALTERNATIVE

No sensitive natural plant communities identified in local or regional plans, policies or regulations or by the CDFG or USFWS are present in the project study area.

Most drainages in the study area are concrete lined and do not support riparian vegetation. Surveys by the Department, in June 2002, indicated several "v-ditches" (drainage ditches), constructed in upland near the existing bridges that may be jurisdictional under Section 1601, were identified as supporting emergent riparian wetland vegetation. The following drainages are unlined channels:

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the Full Build Alternative would be constructed within the existing state right-of-way and above the maximum flooding elevation. No impacts to riparian vegetation would occur.

Santa Ana River. In the vicinity of the SR-22 crossing, the Santa Ana River has rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Impacts to riparian vegetation are anticipated to be minimal under the Full Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. The creek has a gravel/sandy channel bed where it crosses SR-22 and SR-55 . Impacts to riparian vegetation in the creek related to the widening of the two crossings would be minimal and likely to require a Streambed Alteration Agreement from CDFG for proposed improvements that would affect the creek.

Thresholds of Significance for CEQA:

- Construction activities in the Santa Ana River and Santiago Creek may result in spread of invasive plant species.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive natural plant communities have been identified in the local or regional plans, policies or regulations or by the CDFG or USFWS in the project study area.

Improvements under the (Enhanced) Reduced Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. Impacts to riparian vegetation would be less than significant for the Santa Ana River and Santiago Creek.

Santa Ana River. As the SR-22 crosses over the Santa Ana River, existing conditions include rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Impacts to riparian vegetation are anticipated to be less than significant under the Reduced Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. Impacts to riparian vegetation in the creek related to the (enhanced) reduced build alternative would be less than significant.

Montecito Channel. In the vicinity of the SR-22 crossing, the Montecito Channel has a soft-bottom and disturbed conditions containing primarily ruderal species. There are no impacts anticipated to riparian vegetation or sensitive species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to waters of the United States.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts to vegetation.

3. FULL BUILD ALTERNATIVE

No sensitive natural plant communities have been identified in local or regional plans, policies or regulations or by the CDFG or USFWS in the project study area.

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the Full Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. Impacts to riparian vegetation are anticipated to be less than significant.

Santa Ana River. As the SR-22 crosses over the Santa Ana River, rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation are present. Impacts to riparian vegetation would be less than significant under the Full Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. The creek has a gravel/sandy channel bed where SR-22 and SR-55 cross it. Impacts to riparian vegetation in the creek related to the widening of the two crossings would be minimal and likely to require a 1601 Streambed Alteration Agreement from CDFG for proposed improvements that would affect the creek.

Montecito Channel. The Montecito Channel is an intermittent stream that supports primarily ruderal species and is channelized for portions of its length in proximity to the SR-22. There are no impacts anticipated to riparian vegetation or sensitive species.

4.3.2 WILDLIFE AND WILDLIFE DISPERSION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The wildlife species within the project area of the (Enhanced) Reduced Build Alternative are well acclimated to an urban environment. Habitat generally removed would be limited to introduced landscaping (i.e., primarily exotic and ruderal species with a small amount of disturbed riparian vegetation). Minimal impacts to wildlife are anticipated from the removal of habitat.

Wildlife Dispersion. The (Enhanced) Reduced Build Alternative is proposed within an existing transportation corridor. Improvements to freeways within this corridor would not include structures that could act as barriers to wildlife movement. The minimal movement of wildlife within these drainages includes mostly local common species. However, migratory birds, including swifts and swallows, and mature bats may use existing landscaping and native trees as well as bridge structures for nest sites. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed for occupied nests by a biologist. Discovery of occupied nests will result in a delay of work until the nests are unoccupied.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts to wildlife and wildlife dispersion would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to wildlife and wildlife dispersion would occur.

3. FULL BUILD ALTERNATIVE

The wildlife species within the path of the Full Build Alternative are well acclimated to an urban environment. Generally, habitat removed would be limited to introduced landscaping. Minimal impacts to wildlife are anticipated from the removal of habitat.

Maternity colonies of big brown bats and Mexican free-tailed bats are reported to occur at the SR-55 and SR-22 bridge crossing over Santiago Creek. The bridges are concrete box structures, with four to five spans, and internal cavities of variable lengths. At least one structure indicates the presence of a restrained hinge and closure pours between adjacent structures. The hinges, closure crevices, internal cavities, and rock slope protection are the most probable location for bat species to occur on this type of structure. A pre-construction survey will be performed by a biologist at the Santiago Creek Bridges for the presence of bats. Disturbance and possible destruction of the bridge nooks used by bats are considered substantial impacts because maternity colonies of bats are rare. In addition, the bridges provide nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts, which would be affected by construction.

Wildlife Dispersion. The Full Build Alternative is in an existing transportation corridor. Improvements to freeways within this corridor would not include structures that would act as barriers to wildlife movement. Waterways within the project study area currently function only minimally as wildlife corridors due to their mostly channelized condition and the lack of adjacent open space. The limited movement of wildlife that occurs within these drainage areas includes mostly local common species. Migratory birds may use existing landscaping and native trees for nest sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests.

Thresholds of Significance for CEQA:

- Impacts to nesting swifts, swallows, bat maternity sites, and other migratory birds

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Habitat generally removed under the (Enhanced) Reduced Build Alternative would be limited to introduced landscaping, and impacts to wildlife resulting from its removal would be less than significant. (The Enhanced Reduced Build Alternative would include an alteration of the SR-22 bridge over Santiago Creek with a pre-construction survey required to determine any impacts to nesting birds or bats).

Wildlife Dispersion. The (Enhanced) Reduced Build Alternative is in an existing transportation corridor. The minimal movement of wildlife within these drainages includes mostly local common species, resulting in less than significant impacts. Removal of landscaping and trees should be accomplished before or after the nesting season since migratory birds, swifts, swallows and/or bats may use existing landscaping, native trees and bridge structures for nest sites. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests; if occupied nests are found, this may cause a delay of work until the nests are unoccupied.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to wildlife and wildlife dispersion.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. The TSM/Expanded Bus Service Alternative would have no impacts to wildlife and wildlife dispersion.

3. FULL BUILD ALTERNATIVE

The wildlife species within the path of the Full Build Alternative are well acclimated to an urban environment. Generally, habitat removed would be limited to introduced landscaping. Impacts to wildlife resulting from the removal of this habitat would be less than significant.

Maternity colonies of big brown bats and Mexican free-tailed bats are reported to occur at the SR-55 and SR-22 bridge crossings over Santiago Creek. The bridges are concrete box structures, with four to five spans, and internal cavities of variable lengths. At least one structure indicates the presence of a restrained hinge and closure pours between adjacent structures. The hinges, closure crevices, internal cavities, and rock slope protection are the most probable location for bat species to occur on this type of structure. A pre-construction survey will be performed by a biologist at the Santiago Creek Bridges for the presence of bats. Disturbance and possible destruction of the bridge nooks used by bats are considered a substantial impact because maternity colonies of bats are rare. In addition, the bridges provide nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts, which would be affected by construction.

Wildlife Dispersion. The Full Build Alternative is in an existing transportation corridor. The minimal movement of wildlife within these drainage areas includes mostly common species, resulting in less than significant impacts. Migratory birds may use existing landscaping and native trees for nesting sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests.

4.3.3 SPECIES OF CONCERN

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Since the (Enhanced) Reduced Build Alternative study area exhibits a high level of human disturbance and supports isolated native plant species but no native plant communities, no sensitive plant or wildlife species are expected to occur in the vicinity of the study area. Some sensitive species may occasionally occur within the vicinity of the alternative, but these species would be visitors to the study area at most. No specific mitigation measures have been proposed for these possible occurrences based on surveys of the study area, which did not indicate the presence of any species of concern.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts to species of concern would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No substantial impacts to species of concern would occur. No sensitive plant or animal species are expected to occur within the study area.

3. FULL BUILD ALTERNATIVE

Since the Full Build Alternative study area supports isolated native plant species and because of the high level of human disturbance, no sensitive plant or animal species are expected to be affected by this alternative.

Thresholds of Significance for CEQA:

- Substantial impacts to species of concern

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive plant and/or animal species of concern were identified during surveys of the study area. Therefore, this alternative is not expected to have an impact on sensitive plant or animal species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts on species of concern.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. The TSM/Expanded Bus Service Alternative would have no impacts on species of concern.

3. FULL BUILD ALTERNATIVE

Since the Full Build Alternative study area supports isolated native plant species and exhibits a high level of human disturbance, no sensitive plant or animal species are expected to be affected by this alternative.

4.3.4 BIOLOGY-RELATED LAWS, REGULATIONS AND EXECUTIVE ORDERS

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). Migratory birds, their nests, and their eggs are protected under the Federal MBTA. This Alternative would remove or alter structures that may be used by migratory birds as nesting areas. All actions related to this Alternative are required to be conducted in accordance with the MBTA. Special permits from the USFWS may be required for the proposed actions in order to comply with the Act.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which may nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to any disturbance to nesting birds and/or bats during the nesting season. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts arising from other biology-related regulations would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts resulting from other biology-related regulations would occur.

3. FULL BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). Migratory birds, their nest, and their eggs are protected under the Federal MBTA. This Alternative would remove or alter structures that may be used by migratory birds as nesting areas. All actions related to this Alternative are required to be conducted in accordance with the MBTA. Special permits from the USFWS may be required for the proposed actions in order to comply with the Act.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which may nest under the Santiago Creek

bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to any disturbance to nesting birds and/or bats during the nesting season. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law.

Thresholds of Significance for CEQA:

- Substantial impacts to streambeds and associated habitats, and existing native trees

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). The (Enhanced) Reduced Build Alternative would have impacts under this act because it includes removal and/or alteration of structures that may be used by migratory birds as nesting areas. However, the potential for removal of existing native trees within the project study area will be reviewed by a biologist prior to construction and the proper MBTA permits will be obtained, if necessary. This impact would be considered less than significant with proper coordination.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which potentially nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation. This impact would be considered less than significant with proper coordination.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to construction activities for disturbance to nesting birds and/or bats. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law. This impact would be considered less than significant with proper coordination.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts related to streambeds and associated habitats and existing native trees.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts related to streambeds and associated habitats, and existing native trees.

3. FULL BUILD ALTERNATIVE

Migratory Bird Treaty Act (MBTA). The (Enhanced) Reduced Build Alternative would have impacts under this act because it includes removal and/or alteration of structures that may be used by migratory birds as nesting areas. However, the potential for removal of existing native trees within the project study area will be reviewed by a biologist prior to construction and the proper MBTA permits will be obtained, if necessary. This impact would be considered less than significant with proper coordination.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which potentially nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation. This impact would be considered less than significant with proper coordination.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to construction activities for disturbance to nesting birds and/or bats. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law. This impact would be considered less than significant with proper coordination.

4.3.5 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Future acquisition of Section 401, 404, and 1600 permits required by resource agencies may require additional mitigation measures. In addition, mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-(E)RB-1. The project will comply with the provisions of Section 1601 of the California Fish and Game Code with respect to project impacts on streambeds and associated habitats. After design of the Preferred Alternative and prior to project construction, a determination of the extent of disturbance to drainages and streambeds in the study area will be made, and a Streambed Alteration Agreement will be obtained.

BIO-(E)RB-2. Large existing native trees will be avoided to the maximum extent feasible; where sufficient area is available, replacement trees of ecologically appropriate native species (to be determined by the biologist) will be replanted as near as possible to the tree that was removed. See Section 4.13 for mitigation related to the replacement of landscaping.

BIO-(E)RB-3. Prior to project construction in Santiago Creek, invasive weeds will be removed from the project area under the supervision of a botanist qualified in the identification of invasive species. Invasive weed removal will be conducted prior to seed set (as determined by monthly spring surveys by a qualified botanist) to minimize the spread of invasive weed seeds in the project area. If it is not possible to remove weeds prior to seed set, measures to minimize the release of invasive weed seeds during weed removal (e.g., manual weed removal while placing weeds in plastic bags) will be used. In addition, early in the spring following termination of construction activities in and adjacent to Santiago Creek and prior to seed set by invasive weed species (as determined by the monthly surveys), removal of invasive weeds will be conducted in and within 60 meters (200 feet) downstream of the construction zone to minimize the contribution of project construction to the spread of invasive weed species in Santiago Creek. If necessary for erosion-control, only weed-free haybales will be used. The removal of invasive species at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-(E)RB-4. Per Executive Order 13112 Invasive Species (February 1999), (1) Invasive weeds will be removed from the project area as described in BIO-(E)RB-3 for areas outside of Santiago Creek. (2) No noxious weeds will be used in the landscape plans of the proposed project. The California Department of Food and Agriculture (per FHWA interim guidance) will be consulted for a list of invasive species. (3) Additionally, where appropriate, construction equipment will be rinsed to prevent the movement of invasive plants.

BIO-(E)RB-5. In order to prevent impacts to nesting swifts, swallows and other migratory birds as protected under the MBTA, all work on the Santiago Creek bridges and removal of landscaping will be scheduled outside of the dates of 15th of February to 31st of August. During the August 2001 DEIR/EIS, the recommended nesting bird survey was proposed between the 1st of March through the 31st of August. Upon additional analysis and survey conducted, to ensure minimal impacts, the nesting bird survey will be initiated earlier. If this is not feasible, all birds' nests that would be destroyed by the project will be removed prior to February 1 of that year, before the swallow colony returns to the nesting site. Removal of swallow nests will be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed, such as netting or similar mechanism that keeps birds from building nests and that is approved by the biologist. Such exclusion efforts will be continued to keep the structure swallow-free until September or completion of construction.

BIO-(E)RB-6. Measures to minimize harm to bats will include a biologist reviewing the bridge design to determine possible loss of habitat for the bats. At that time, a biologist may determine the need for structural modifications or superficial attachments to avoid the loss of habitat.

A pre-construction survey will be performed by a biologist at the Santiago Creek bridge for the presence of bats. If bats are present, appropriate mitigation will be performed as determined by a qualified bat biologist. This may include exclusion, changing staging areas, access routes, and lighting. Each structure and surrounding area that may be affected by the project shall be surveyed by a qualified bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found, the bat biologist will identify the species and evaluate the colony to:

a) Verify that the following potential impacts would not occur:
   - Verify there would be minimal adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by CDFG or USFWS.
   - Verify there would be minimal adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service where such effects may be caused by alteration of a colony.
   - Verify there would be minimal interference with the movement of any native, resident, or migratory bat species, with any corridor used by resident or migratory bat species, or with the ability of any bat species to use nursery sites.
   - Verify the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a bat species, cause a bat population to drop below self-sustaining levels, threaten to eliminate a bat community, or reduce the number or restrict the range of a rare or endangered bat.
b) Develop appropriate and feasible species-specific mitigation measures to offset impacts.
c) Design effective and humane exclusion techniques that reflect seasonal and structural constraints.
d) Identify scientific value of the site for research and management.

If individuals or colonies are present during project activities and these activities can reasonably be expected to result in harm, then the animals will be excluded during the appropriate time of year. The use of humane methods will minimize the potential to adversely affect populations

through increased morbidity and mortality or reduced fecundity. Methods and techniques shall be prepared under the review of the bat biologist using information from above.

If there is potential for adverse effects on bat habitat, then cost-effective measures developed under the direction of a bat biologist will be implemented to reduce the effect on the colony and ecosystem to a negligible level. Measures may include:

a) Minor structural modifications within engineering parameters for cost, safety, and function
b) Minor superficial attachments within engineering parameters for cost, safety, and function
c) Measures to improve off-site colony roosts sufficient to offset impacts from colony loss
d) Measures to improve species management sufficient to offset impacts from colony loss

If exclusion and/or mitigation measures are implemented, then an appropriate monitoring protocol will be implemented in cooperation with the CDFG and USFWS to ensure exclusion and mitigation measures are effective and modified as necessary. Scientific information shall also be recovered by identification of associated roosts and habitat use.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None proposed.

3. FULL BUILD ALTERNATIVE

The Section 401, 404, and 1600 permits required by resource agencies may require additional mitigation measures. In addition, mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-FB-1. The project will comply with the provisions of Section 1600 of the California Fish and Game Code with respect to project impacts on streambeds and associated habitats. After design of the Full Build Alternative and prior to project construction, a determination of the extent of disturbance to drainages/streambeds in the study area will be made and a Streambed Alteration Agreement will be obtained.

BIO-FB-2. Large existing native trees will be avoided to the maximum extent feasible. Where sufficient area is available, replacement trees of ecologically appropriate, native species (to be determined by the biologist) will be replanted as near as possible to the tree that was removed. See Section 4.13 for mitigation related to the replacement of landscaping.

BIO-FB-3. Prior to project construction in Santiago Creek, invasive weeds will be removed from the project area under the supervision of a botanist qualified in the identification of invasive species. Invasive weed removal will be conducted prior to seed set (as determined by monthly spring surveys by a qualified botanist) to minimize the spread of invasive weed seeds in the project area. If it is not possible to remove weeds prior to seed set, measures to minimize the release of invasive weed seeds during weed removal (e.g., manual weed removal while placing weeds in plastic bags) will be used. In addition, early in the spring following termination of construction activities in and adjacent to Santiago Creek and prior to seed set by invasive weed species (as determined by the monthly surveys), removal of invasive weeds will be conducted in and within 60 meters (200 feet) downstream of the construction zone to minimize the contribution of project construction to the spread of invasive weed species in Santiago Creek. If necessary for erosion-control, only weed-free

hay bales will be used. The removal of invasive species at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-FB-4. Per Executive Order 13112 Invasive Species (February 1999): (1) Invasive weeds will be removed from the project area as described in BIO-FB-3 for areas outside of Santiago Creek. (2) No noxious weeds will be used in the landscape plans of the proposed project. The California Department of Food and Agriculture (per FHWA interim guidance) will be consulted for a list of invasive species. (3) Additionally, where appropriate, construction equipment will be rinsed to prevent the movement of invasive plants.

BIO-FB-5. In order to prevent impacts to nesting swifts, swallows and other migratory birds as protected under the MBTA, all work on the Santiago Creek bridges and removal of landscaping will be scheduled outside of the months of 15th of February to 31st of August. During the August 2001 DEIR/EIS, the recommended nesting bird survey was proposed between the 1st of March through the 31st of August. Upon additional analysis and survey conducted, to ensure minimal impacts, the nesting bird survey will be initiated earlier. If this is not feasible, all unoccupied birds' nests that would be removed by the Full Build Alternative will be removed after August 31 and prior to February 1 of that year, before the swallow colony or other migratory birds return to the nesting site. However, it should be noted that migratory birds may use existing landscaping and natives trees for nest sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If vegetation removal must take place during the nesting season, the vegetation will be surveyed for occupied nests. Removal of empty or unfinished swallow nests will be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed, such as netting or similar mechanism that keeps birds from building nests and that is approved by the biologist. Such exclusion efforts will be continued to keep the structure swallow-free until September or completion of construction. Before demolition, the structures will be inspected for occupied nests. If occupied nests are found, demolition activities will be rescheduled until nesting activities cease. Occupied nests can only be removed with a special permit from USFWS.

BIO-FB-6. Measures to minimize harm to bats will include a biologist reviewing the bridge design to determine possible loss of habitat for the bats. At that time, a biologist may determine the need for structural modifications or superficial attachments to avoid the loss of habitat.

A pre-construction survey will be performed by a biologist at the Santiago Creek Bridge for the presence of bats. If bats are present, appropriate mitigation will be performed as determined by a qualified bat biologist. This may include exclusion, changing staging areas, access routes, and lighting. Each structure and surrounding area that may be affected by the project shall be surveyed by a qualified bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found, the bat biologist will identify the species and evaluate the colony to:

a) Verify that the following potential impacts would not occur:

- Verify there would be minimal adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by CDFG or USFWS.
- Verify there would be minimal adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service where such effects may be caused by alteration of a colony.
- Verify there would be minimal interference with the movement of any native, resident, or migratory bat species, with any corridor used by resident or migratory bat species, or with the ability of any bat species to use nursery sites.

- Verify the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a bat species, cause a bat population to drop below self-sustaining levels, threaten to eliminate a bat community, or reduce the number or restrict the range of a rare or endangered bat.

b) Develop appropriate and feasible species-specific mitigation measures to offset impacts.
c) Design effective and humane exclusion techniques that reflect seasonal and structural constraints.
d) Identify scientific value of the site for research and management.

If individuals or colonies may be present during project activities and these activities can reasonably be expected to result in harm, then the animals will be excluded during the appropriate time of year. Humane methods will be used to minimize the potential to adversely affect populations through increased morbidity and mortality or reduced fecundity. Methods and techniques shall be prepared under the review of the bat biologist using information from above.

If there is potential for adverse effects on bat habitat, then cost-effective measures developed under the direction of a bat biologist will be implemented to reduce the effect on the colony and ecosystem to a negligible level. Measures may include:

a) Minor structural modifications within engineering parameters for cost, safety, and function
b) Minor superficial attachments within engineering parameters for cost, safety, and function
c) Measures to improve off-site colony roosts sufficient to offset impacts from colony loss
d) Measures to improve species management sufficient to offset impacts from colony loss

If exclusion and/or mitigation measures are implemented, then an appropriate monitoring protocol will be implemented in cooperation with the CDFG to ensure exclusion and mitigation measures are effective and modified as necessary. Scientific information shall also be recovered by identification of associated roosts and habitat use.

4.3.6 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Impacts to biology can be reduced to minimal in most cases. For potential bat maternity sites, through mitigation proposed, most notably mitigation to exclude roosting (during construction) at the appropriate time of year, substantial impacts can be avoided. Mitigation includes approved monitoring and coordination with CDFG and USFWS. If it is determined that a potential substantial impact would occur, further coordination with the resources agencies would be required.

In addition, with the successful application of mitigation measures as proposed in Section 4.3.5, Mitigation, residual impacts are considered a less than substantial impact.

The project applicant is to coordinate with the CDFG, USFWS, USACOE, and CRWQCB prior to permit application to discuss current project features and proposed mitigation measures.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Impacts to biology can be reduced to minimal in most cases. For potential bat maternity sites, through mitigation proposed, most notably mitigation to exclude roosting (during construction) at the appropriate time of year, substantial impacts can be avoided. Mitigation includes approved monitoring and coordination with CDFG and USFWS. If, through this coordination, it is determined that a potential substantial impact would occur, further coordination with the resources agencies would be required.
In addition, with the successful application of mitigation measures as proposed in Section 4.3.5, Mitigation, residual impacts are considered a less than substantial impact.

The project proponent is to coordinate with the CDFG, USFWS, USACOE and CRWQCB prior to permit application to discuss current project features and proposed mitigation measures.

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4.4 WETLANDS AND WATERS OF THE UNITED STATES

This section includes discussions of impacts and mitigation measures related to wetlands and Waters of the United States in the study area. This section will focus primarily on the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative

As discussed in Section 2.2.1, the Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section of the SR-22/SR-55 direct HOV connector from the Full Build Alternative, without the freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction. The extended portion of the Mainline is approximately 1.2 miles at the eastern terminus of the project limits, which was analyzed as part of the Full Build Alternative. The added feature of the (Enhanced) Reduced Build alternative involves an extension of the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the modification of the Reduced Build Alternative. The extension of the HOV mainline at the eastern terminus prompted additional analysis (i.e., calculation of impacts) to address potential impacts to Santiago Creek and Santa Ana River. The refinement to the right-of-way and the modification to the Pearce Street pedestrian overcrossing would have no effects to wetlands and waters of the United States.

4.4.1 WATERS OF THE UNITED STATES

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative includes overcrossings of, or is adjacent to, a number of drainages that are Waters of the United States. The majority of these drainages are concrete-lined and therefore do not contain sensitive biological resources. Table 4.4-1 shows the potential area of impact for each of these drainages.

Section 404 permits will be required for the crossings identified in Table 4.4-1 below, but coverage under existing Nationwide Permit 14, Linear Transportation Crossings, is anticipated because permanent impacts would not exceed the thresholds for this nationwide permit. The Permit allows construction of public linear transportation projects in non-tidal waters, excluding non-tidal wetlands adjacent to tidal waters, provided the discharge does not cause the loss of greater than 1/2 acre of waters of the United States.

Projects that include physical modification of a "Water of the United States" must generally comply with Section 404 of the Clean Water Act under the jurisdiction of the Corps. The objective of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the nation's waters. Section 404 regulates activities that result in discharge of dredged, fill or excavated material into "Waters of the United States" (33 CFR 328.3, see Section 3.4). Although the study area supports no wetlands that would be directly affected by the (Enhanced) Reduced Build Alternative, this alternative would result in modification of some soft-bottom, channelized drainages. Therefore, the project will need to comply with Section 404 of the Clean Water Act to address impacts on "Waters of the United States." Section 404 permits will be required for the crossings identified below, but coverage under existing Nationwide Permit 14, Linear Transportation Crossings, is anticipated because permanent impacts would not exceed the thresholds for this nationwide permit (0.2 hectare or 0.5 acre), as shown in Table 4.4-1.

Section 401 of the federal Clean Water Act requires that for each permit or license issued by a federal agency, the state is to provide certification that water quality standards and the use of the water will not be impaired by issuance of the federal permit. The state may grant, grant with conditions, waive, or deny certification. Most certifications are issued for a Section 404 permit, so an application for a Section 401 certification is generally filed concurrently with the Section 404 permit application (or request for coverage under a nationwide permit). The state's Regional

Water Quality Control Boards (RWQCBs) issue the 401 certifications. The applicable RWQCB may approve the certification application, passively waive certification by taking no action (generally within 60 days, although extensions are possible), or deny the certification if it is unable to find that the project will comply with water quality standards or other applicable requirements. If the 401 certification is denied, the USACOE cannot issue a Section 404 permit or cover the project under an existing nationwide permit. Because the Reduced Build Alternative would require coverage under existing Nationwide Permit 14, Linear Transportation Crossings, a Section 401 certification would be required.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts to waters of the United States would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to waters of the United States would occur.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative includes overcrossings of, or is adjacent to, a number of drainages that are Waters of the United States. The majority of these drainages are concrete-lined and therefore do not contain sensitive biological resources.

See the Preferred Alternative/(Enhanced) Reduced Build discussions above regarding compliance with Sections 401 and 404 Clean Water Act. Although the study area supports no wetlands that would be directly affected by the Full Build Alternative, this alternative would result in modifications of some soft-bottom channelized drainage areas. The Full Build Alternative will need to comply with Section 404 of the Clean Water Act to address impacts on "Waters of the United States." Section 404 permits will be required for the crossings but coverage under existing Nationwide Permit 14, Linear Transportation Crossings, is anticipated because permanent impacts would not exceed the thresholds for this nationwide permit (0.2 hectare or 0.5 acre). Since the Full Build Alternative would require coverage under existing Nationwide Permit 14, Linear Transportation Crossings, a Section 401 certification would be required.

Table 4.4-1
POTENTIAL IMPACTS TO WATERS OF THE UNITED STATES
(ENHANCED) REDUCED BUILD ALTERNATIVE

Water of the U.S.	Impact Description (RCB = reinforced concrete box)	Permanent Impacts		Temporary Impacts	
		Square Meters (Sq.Ft.)	Hectares (Acres)	Square Meters (Sq.Ft.)	Hectares (Acres)
I-405/I-605 Connector Segment					
Los Alamitos Channel	No impact.	---	---	---	---
Katella Storm Channel	No impact.	---	---	---	---
Kempton Storm Channel	No impact.	---	---	---	---
Montecito Storm Channel	Extend RCB into current open, soft lined channel; no habitat.	36 (390)	0.0036 (0.0090)	85 (910)	0.0085 (0.0209)
Bixby Storm Channel	Extend RCB into current open, concrete-lined channel; no habitat.	1,400 (15,000)	0.1394 (0.3444)	1,500 (16,000)	0.1486 (0.3673)
I-405/SR-22 Connector Segment					
Federal Storm Channel	No impact.	---	---	---	---
Bolsa Chica Channel	No impact.	---	---	---	---
SR-22 Mainline Segment					
Anaheim-Barber City Channel	No impact.	---	---	---	---
Bolsa Grande Storm Channel	No impact.	---	---	---	---
Westminster Channel	No impact.	---	---	---	---
Taft Storm Drain	No impact.	---	---	---	---
Newhope Channel	No impact.	---	---	---	---
East Garden Grove-Wintersburg Channel	Extend RCB into existing open, concrete-lined channel; no habitat.	80 (900)	0.0084 (0.0207)	195 (2,100)	0.0195 (0.0482)
Santa Ana River	Lengthen 5 existing piers and construct 4 new piers. New connector SB I-5/SR-57 connector to WB SR-22	136 (1463)	0.014 (0.035)	16,200 (174,37)	1.62 (4.0)
Santiago Creek Bridge Widening*	Lengthen 1 existing pier; relocate/construct new eastbound and westbound ramps	19 (204)	0.0019 (0.0047)	8,290 (89,233)	0.829 (2.05)

Note: Lewis Channel, an open concrete-lined channel in Garden Grove, is not a "water of the United States," based on USACOE criteria (Vega, June 1, 2000). This channel, which is adjacent and parallel to SR-22, would be enclosed in a reinforced concrete box culvert located in the widened SR-22 right-of-way. The area of permanent impacts would be 5,160 square meters (55,500 square feet) or 0.5156 hectare (1.274 acres), but because the channel is non-jurisdictional, a Section 404 permit would not be required. No habitat is present within this concrete-lined channel.
*Information added to reflect update to the Reduced Build Alternative. All Santiago Creek temporary impacts are combined at the bridge widening impact.

Thresholds of Significance for CEQA:

- Substantial erosion and runoff that may affect waters of the United States

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative includes overcrossings of, or is adjacent to, a number of drainages that are Waters of the United States. The majority of these drainages are concrete-lined and therefore do not contain sensitive biological resources. However, there will be continued coordination with the proper resources agencies where there are potential impacts to

Waters of the United States. Table 4.4-1 shows potential areas of impact for each of these drainages.

The project will need to comply with Section 404 of the Clean Water Act to address impacts on "Waters of the United States." Coverage under existing Nationwide Permit 14, Linear Transportation Crossings, is anticipated because permanent impacts would not exceed the thresholds for this nationwide permit (0.2 hectare or 0.5 acre), thus resulting in less than significant impact.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts on waters of the United States.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts on waters of the United States.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative includes overcrossings of, or is adjacent to, a number of drainage areas that area "Waters of the United States". The majority of these drainages are concrete-lined and therefore do not contain sensitive biological resources.

Although the study area supports no wetlands that would be directly affected by the Full Build Alternative, this alternative would result in modification of some soft-bottom channelized drainages. Therefore, the project will need to comply with Section 404 of the Clean Water Act to address impacts on "Waters of the United States" with Nationwide Permit 14, Linear Transportation Crossings, anticipated because permanent impacts would not exceed the thresholds for this nationwide permit (0.2 hectare or 0.5 acre), thus resulting in less than significant impacts.

4.4.2 WETLANDS WITHIN THE STUDY AREA

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The study area for the (Enhanced) Reduced Build Alternative supports 0.629 hectare (1.55 acres) of wetlands. It is not anticipated that right-of-way required for the proposed widening would impact wetlands within the study area; however, the wetlands could be affected by runoff or erosion from the project area during construction activities. These wetlands are located along the Los Alamitos Channel in the I-405/I-605 Connector segment and adjacent to the SR-22 crossing over Santiago Creek in the SR-22 Mainline segment.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts on wetlands would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to wetlands would occur.

3. FULL BUILD ALTERNATIVE

The study area for the Full Build Alternative supports a total of 0.629 hectare (1.55 acres) of wetlands. It is not anticipated that right-of-way required for the proposed widening would impact wetlands within the study area; however, the wetlands could be affected by runoff and erosion from the project area during construction activities. These wetlands are located along Los Alamitos Channel in the I-405/I-605 Connector segment and adjacent to the SR-22 crossing over Santiago Creek in the SR-22 Mainline segment and the SR-22/55 direct HOV connector.

Thresholds of Significance for CEQA:

- Substantial erosion and runoff that may affect wetlands

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The study area for the (Enhanced) Reduced Build Alternative supports 0.629 hectare (1.55 acres) of wetlands. It is not anticipated that right-of-way required for the proposed widening would impact wetlands within the study area; however, the wetlands could be affected by runoff or erosion from the project area during construction activities. Implementation of appropriate erosion or runoff controls measures will result in less than significant impacts.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts on wetlands.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts on wetlands.

3. FULL BUILD ALTERNATIVE

The study area for the Full Build Alternative supports a total of 0.629 hectare (1.55 acres) of wetlands. It is not anticipated that right-of-way required for the proposed widening would impact wetlands within the study area; however, the wetlands could be affected by runoff or erosion from the project area during construction activities. These wetlands are located along Los Alamitos Channel in the I-405/I-605 Connector segment and adjacent to the SR-22 crossing over Santiago Creek in the SR-22 Mainline segment. Implementation of appropriate erosion or runoff control measures will result in less than significant impacts.

4.4.3 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

WET-(E)RB-1. Potential impacts to wetlands will be mitigated by the implementation of appropriate erosion or runoff controls, to be designed and constructed as part of the widening of the roadway along the west side of the I-405/I-605 Connector segment, and by the widening of the SR-22 crossing over Santiago Creek in the SR-22 Mainline segment. These controls will include berms or detention basins to channel runoff to a collection area(s). A National Pollutant Discharge Elimination System (NPDES) Permit will be obtained for construction activities and implementation of a Storm Water Pollution Prevention Plan (SWPPP) would eliminate or minimize erosion and runoff.

See also HYD-(E)RB-2 in Section 4.2.4A.

WET-(E)RB-2. Mitigation proposed for construction activities in the Santiago Creek and Santa Ana River includes the removal of exotic/invasive plant species. A field survey conducted by the Department biologist indicates that Santiago Creek and the Santa Ana River are heavily disturbed areas. Access routes and staging areas for construction activities in Santiago Creek and the Santa Ana River will be limited to designated access routes and staging areas to minimize impacts. These measures will be finalized at the design stage.

WET-(E)RB-3. Mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange (i.e., Santiago Creek Bike Trail).

WET-(E)RB-4. Unavoidable permanent and temporary impacts to "Waters of the United States" will be minimized during the design and construction project phases. The feasibility of back filling locations with native material where piers will be removed will be further investigated during design. Access areas for construction activities will be limited to designated routes to minimize impacts. The Section 401, 404, and 1601 permits required by resource agencies may require additional mitigation measures.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None proposed.

3. FULL BUILD ALTERNATIVE

WET-FB-1. Potential impacts to the wetlands will be mitigated by the implementation of appropriate erosion or runoff controls, to be designed and constructed as part of the widening of the roadway along the west side of the I-405/I-605 Connector segment and by the widening of the SR-22 crossing over Santiago Creek in the SR-22 Mainline segment. These controls will include berms to channel runoff to a collection area(s). A National Pollutant Discharge Elimination System (NPDES) Permit will be obtained for construction activities and implementation of a Storm Water Pollution Prevention Plan (SWPPP) would eliminate or minimize erosion and runoff.

See also HYD-(E)RB-2 in Section 4.2.4A.

WET-FB-2. Mitigation proposed for construction activities in the Santiago Creek and Santa Ana River includes the removal of exotic/invasive plant species. A field survey conducted by the Department biologist indicates that Santiago Creek and the Santa Ana River are heavily disturbed areas. Access routes and staging areas for construction activities in Santiago Creek and the Santa Ana River will be limited to designated access routes and staging areas to minimize impacts. These measures will be finalized at the design stage.

WET-FB-3. Mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange (i.e., Santiago Creek Bike Trail).

WET-FB-4. Unavoidable permanent and temporary impacts to "Waters of the United States" will be minimized during the design and construction project phases. The feasibility of back filling locations with native material where piers will be removed will be further investigated

during design. Access areas for construction activities will be limited to designated routes to minimize impacts. Section 401, 404, and 1601 permits required by resource agencies may require additional mitigation measures.

4.4.4 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

None.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

None.

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4.5 CULTURAL RESOURCES

The information contained in this section is based on the *SR-22/West Orange County Connection (SR-22/WOCC) Historic Property Survey Report (HPSR)* (December 2000) and the Supplemental Historic Architectural Survey Report (April 2002). A total of 305 properties were surveyed, and 31 buildings, building groups, and structures were determined to pre-date 1950. Only the Pacific Electric Railway Bridge was determined eligible for inclusion in the National Register of Historic Places (NRHP). A Historic Architectural Survey Report (HASR) and Negative Archaeological Survey Report (NASR) were prepared. This section includes discussions of impacts and mitigation measures related to cultural resources in the study area. This section will focus primarily on the identified Preferred Alternative (PA), (Enhanced) Reduced Build Alternative. For the purpose of including analysis of the other alternatives considered, a brief discussion will be presented below.

The discussions in this section were the result of refined engineering and/or additional planning efforts. The added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to Cultural Resources. The comments and responses to comments are attached as Appendix A of this Final Environmental Impact Statement/ Report (FEIS/EIR) (Volumes II & III).

4.5.1 IMPACTS ON CULTURAL RESOURCES

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

During construction, there is a potential for unknown buried cultural materials to be unearthed.

During the development of the FEIS/EIR, 19 new residential properties were identified for partial acquisitions, and two properties were identified as displacements that were included in the August 2001 DEIR/EIS. The 19 acquisitions, not previously identified in the August 2001 DEIR/EIS, were due to refined engineering analysis. However, these 19 residential properties are within the limits of the original Area of Potential Effect (APE). This alternative would also require two residential displacements for a total of 21 properties.

All of the 21 residential identified for displacements have been included in either the HPSR/HASR or Supplemental HASR. The State Historic Preservation Officer (SHPO) has concurred that none of these properties are eligible for listing on the National Register of Historic Places (NRHP). Please refer to SHPO letters in Volume IV of the FEIS/EIR, Appendix B.

Of the 21 total residential properties identified for displacements and partial acquisitions, six had previously been identified (two full displacement and four partial residential acquisitions) in the HASR Memorandum of Understanding Short Form (Appendix D) for properties that are pre-1945, and determined not to be eligible for listing on the NRHP. A Supplemental HASR, which is part of the Historic Property Survey Report (HPSR), was prepared to determine if any of the 22 properties were of eligible for listing on the NRHP. At the time of the original HPSR, the pre-1945 properties required analysis for eligibility for listing on the National Register of Historic Places; the current criterion for potential eligibility for listing on the NRHP is pre-1952. However, the California Department of Transportation has adopted a policy of analyzing properties at least 45 years old (pre-1957), as properties may reach the criterion age of 50 years between approval of the environmental document and start of acquisition or demolition, and would otherwise not be included in the Survey. There were two properties identified as pre-1957: 1) 12371 Pearce Street; and 2) 8802 Trask Avenue (partial acquisition). In addition, two of the parcels identified as possible displacements for the replacement of the Pearce Street Pedestrian Overcrossing is 12346 Flagstone Place and 12342 Flagstone Place, which does not have any records of the year built. **Subsequent evaluation of design variations for the Pearce Street pedestrian overcrossing has resulted in the conclusion that no displacement is necessary at 12371 Pearce Street, 12346 Flagstone Place, or 12342 Flagstone Place.** The field visit indicated

there are two small structures on this parcel. According to the findings of the April 2002 Supplemental HASR, none of the pre-1957 structures that were not previously identified in the August 2001 DEIR/EIS were eligibility for listing on the National Register of Historic Places. Refer to the Supplemental HASR for further details on the analysis of these properties.

The February 9, 2001 letter from SHPO to FHWA concurred that the Reduced Build Alternative, if selected as the Preferred Alternative, would have no effect on historic properties. This letter is in Appendix E in Volume II of the August 2001 DEIR/EIS.

The (Enhanced) Reduced Build Alternative would not result in impacts to known cultural resources. The SHPO concurred with this determination (see letter of 8/7/02 in Volume IV of the FEIS/EIR, Appendix B).

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Because there would be no construction associated with the No Build Alternative other than that addressed in other environmental documents, this alternative would not result in impacts to cultural resources.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Since there would be only minor construction associated with the TSM/Expanded Bus Service Alternative, it would not result in impacts to known cultural resources.

3. FULL BUILD ALTERNATIVE

None of the properties that would be affected by the Full Build Alternative are eligible for listing on the NHRP. See Section 4.5.1(A) for information on the consultation with SHPO for these properties.

Construction of the Full Build Alternative would require the removal of the Pacific Electric Santa Ana River Bridge, which has been determined to be eligible for the NRHP. This would be an adverse effect under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. See discussion of NHPA below.

The SHPO concurred on February 9, 2001 that the Full Build Alternative would have adverse effects on the Pacific Electric/Santa Ana Bridge.

During construction, there is a potential for unknown buried cultural materials to be unearthed.

Thresholds of Significance for CEQA:

- Removal of the Pacific Electric Santa Ana River Bridge, which is eligible for the National Register of Historic Places and the California Register of Historic Resources
- Potential for unearthing of unknown buried cultural materials and the potential disturbance of human remains and associated artifacts

Unavoidable Adverse Effects/Impacts (NHPA and NEPA)

The National Historic Preservation Act of 1966 (NHPA) established a federal policy to ensure that projects with federal involvement were not built at the expense of irreplaceable historic properties and landmarks. Section 106 of the NHPA requires that any undertaking with federal involvement

(funding or permitting) shall take into account the effect of the undertaking on "any district, site, building, structure or object that is included in or eligible for inclusion in the National Register." The federal agency with responsibility for approval shall also afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

Eligibility for the National Register (NRHP) may be based on any of four criteria:

1. Association with events that have contributed to history (national or local);
2. Association with the lives of persons significant in the past;
3. Embodiment of distinctive characteristics of a type, period or method of construction, or that represents the work of a master or possesses artistic values; or
4. Potential to yield information important in prehistory or history.

The NHPA further requires that the federal agency involved consult with the SHPO and that the SHPO concur in findings. A project may not affect any historic properties ("No Effect"), it may involve properties with no impact on them ("No Adverse Effect"), or there may be an Adverse Effect. "Effect" is determined by the potential the project has to alter the characteristics of the property that have made it eligible for the NRHP.

For the SR-22/WOCC project, only the Pacific Electric Santa Ana River Bridge is eligible for the NRHP. The Full Build Alternative is the only one that would affect the Bridge, and it would constitute an adverse effect.

- During construction of the SR-22/WOCC, there is a potential for unearthing unknown buried cultural materials and for disturbing human remains and associated artifacts (all alternatives).
- Removal of the Pacific Electric Santa Ana River Bridge, which is eligible for the National Register of Historic Places, constitutes an adverse effect under NHPA and a significant impact under NEPA (Full Build Alternative only).

CEQA Findings:

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The only cultural resource identified during the archaeological, historical and historic architecture evaluations is located in the former Pacific Electric right-of-way, which is not part of the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative would not result in impacts to known cultural resources.

During construction, there is a potential for unknown buried cultural materials or human remains to be unearthed. The impacts to buried cultural materials and the potential disturbance of human remains and associated artifacts are unknown at this time. However, based on the analysis, there is little evidence to anticipate cultural materials or human remains unearthed during construction. Sensitive locations will have a qualified Native America representative and a qualified archaeologist to monitor earthmoving activities during construction; provisions of Public Law 101-601, Section 5097.98 and .99 of the Public Resources Code, and Section 7050 of the Health and Safety Code would be followed. (See CUL-(E)RB-1 & CUL-(E)RB-2 for further details.)

The February 9, 2001 letter from SHPO to FHWA concurred that the Reduced Build Alternative, if selected as the Preferred Alternative, would have no effect on historic properties. This letter is in Appendix E in Volume II of the August 2001 DEIR/EIS. In August 2002, the SHPO concurred that the (Enhanced) Reduced Build Alternative would have no effect on historic properties; this letter is in Volume IV, Appendix B of this document.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would result in no impacts to buried cultural materials and disturbance of human remains and associated artifacts.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not result in impacts to cultural resources. Minor construction would occur within existing roadways, completely in areas previously disturbed.

3. FULL BUILD ALTERNATIVE

The construction for the Full Build Alternative would require the removal of the Pacific Electric Santa Ana River Bridge, which has been determined to be eligible for the NRHP. This would be an adverse effect under Section 106 of the National Historic Preservation Act of 1966, as amended. The removal of the Pacific Electric Santa Ana River Bridge is a significant impact under this alternative. The SHPO concurred on February 9, 2001 that the Full Build Alternative would have adverse effects on the Pacific Electric/Santa Ana Bridge.

See "A: PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE," above, for discussion of actions should cultural materials be unearthed during construction.

4.5.2 MITIGATION

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

CUL-(E)RB-1. Qualified Native American personnel and a qualified archaeologist will be appointed and authorized to monitor earthmoving activities associated with project construction in the vicinity of previously recorded archaeological resources. Work will be halted in the vicinity of any previously unknown buried cultural materials unearthed during construction until a qualified archaeologist can assess the significance of the materials. Any further mitigation required would be developed in accordance with the requirements of 36 CFR 800.13, the post review discovery provision of the regulations implementing Section 106 of the National Historic Preservation Act. Any mitigation required by the archaeologist will be implemented, including, if necessary, supplemental environmental documentation.

CUL-(E)RB-2. If human remains and associated artifacts are encountered during ground-disturbing activities, the provisions of Public Law 101-601, Section 5097.98 and .99 of the Public Resources Code, and Section 7050 of the Health and Safety Code will be followed. Any further mitigation required shall be developed in accordance with the requirements of 36 CFR 800.13, the post review discovery provision of the regulations implementing Section 106 of the National Historic Preservation Act.

CUL-(E)RB-3. If any structures in the project area are determined to be eligible for listing on the National Register of Historic Places subsequent to finalizing of this FEIS/EIR, such structures shall not be destroyed or significantly altered as part of construction of the SR-22/WOCC. Proper coordination shall be undertaken with the entity responsible for such listing.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None proposed.

3. FULL BUILD ALTERNATIVE

See CUL-(E)RB-1 through CUL-(E)RB-3, above.

CUL-FB-4: If the Full Build Alternative is selected as the Preferred Alternative, a Memorandum of Agreement (MOA) shall be prepared that stipulates how the project will be carried out to avoid, minimize, or mitigate adverse effects, or to accept such effects. The MOA will clearly and completely present specific mitigation measures to address the project's specific adverse impacts. Caltrans, FHWA, and the SHPO will concur on the MOA. The Advisory Council on Historic Preservation (ACHP) may be asked to participate either by FHWA or SHPO. If the ACHP is a consulting party, its execution of the MOA concludes the Section 106 process. If the ACHP is not a consulting party, FHWA will submit a signed MOA for ACHP review. Once the ACHP is satisfied with the MOA, the Section 106 process is complete. The signed MOA will be included in the Final EIS/EIR. Any mitigation required as part of the MOA will be included in the Final EIS/EIR.

4.5.3 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFFERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Unknown due to the potential for the discovery of cultural resources.

B. OTHER ALTERNATIVES

1 NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Since the Full Build Alternative would require the removal of the Pacific Electric Santa Ana River Bridge, and because there is no acceptable and economical avoidance alternative, the implementation of the Full Build Alternative would result in substantial residual impacts to cultural resources after mitigation.

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4.6 COMMUNITY IMPACT ASSESSMENT

This section examines the potential for impacts to community cohesion. Impacts to community cohesion relate to changes in the land use, neighborhoods, visual, economic, or community facilities and services. Changes in the noise and visual impacts are discussed in Sections 4.9 and 4.13.

In analyzing community cohesion, the following questions were used:

- Will there be a loss of prime farmland?
- Does the proposed project induce changes in land use and density?
- Is the proposed project compatible with community goals and local land use plans and zoning?
- Will the project cause a redistribution of the population or an influx or loss of population?
- Will the proposed action encourage businesses to move to the area, relocate, close, or move outside the area?
- How does the project affect parking availability?
- How are tax base and the local economy affected by construction activities? Are there both positive (job-generated) and negative (detours and loss of access) impacts?
- Would access to and from a community be impaired? Hoes does the project affect non-motorist access to businesses, public services, schools, and other community facilities?
- How will the project affect interaction among persons and groups? How will it change social relationships and patterns?

The information contained in this section is based on the SR-22/West Orange County Connection (SR-22/WOCC) Final Relocation Impact Report (FRIR)[1], (Enhanced) Reduced Build Alternative (March 2003), the Draft Relocation Impact Report (DRIR) (December 2000)[1], and the FHWA report, *Summary: Economic Impacts of Federal-Aid Highway Investment* (2000).[2] These documents provide complete information regarding the right-of-way impacts of the project. The FRIR focuses on the (Enhanced) Reduced Build Alternative, the identified Preferred Alternative. Should another alternative be identified as the Preferred Alternative, a FRIR for that alternative would be prepared.

As previously discussed in Section 2.2.1, the (Enhanced) Reduced Build Alternative is a slight modification of the Reduced Build Alternative proposed in the August 2001 DEIR/EIS. The eastern portion of the Mainline, previously proposed in the Reduced Build Alternative to end at Glassell Street, has been extended to approximately SR-55, and an auxiliary lane has been added from Glassell Street to Tustin Avenue in the eastbound direction. The actual direct HOV connector to SR-55 is not included as part of the (Enhanced) Reduced Build Alternative. Elements from the TSM/Expanded Bus Service Alternative are also included in the (Enhanced) Reduced Build Alternative. Please refer to Table 2.2-1, The (Enhanced) Reduced Build Alternative Elements.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. Some of the modifications in this section include more narrowly defined impacts to residential and non-residential properties, as compared to the August 2001 DEIR/EIS, Section 4.6, Community Impact Assessment. During the public comment period of the DEIR/EIS, the Department received numerous comments from residents in the Community of Rossmoor and from the City of Seal Beach. Residents of these areas were concerned with potential impacts to community cohesiveness and possible property acquisitions. To address these issues, additional analyses were prepared to determine the impacts from the project. The findings for the analyses are discussed in this section. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

[1] Available at the California Dept. of Transportation, District 12 and OCTA.
[2] Available at the California Dept. of Transportation, District 12.

4.6.1 LAND USE AND DEVELOPMENT IMPACTS

The potential for land use impacts was determined as follows:

- Consistency with land use plans and policies was assessed through review and comparison of the project alternatives to the adopted plans and policies of local cities and regional jurisdictions within the study area that have authorities for land use, transportation and other relevant infrastructure.

- Land use compatibility was assessed by identifying existing and planned land uses to proximate locations affected by project alternatives, and analyzing the relative sensitivity of these land uses to conditions arising from construction, operation or maintenance of the alternatives.

- Farmland impacts were determined by identifying properties within the study area that are designated as prime farmland or that are currently used for agricultural operations. This information was then used to determine whether the project alternatives would require the use of prime farmland for project-related capital improvements, or whether the alternatives would disrupt or interfere with agricultural practices of statewide significance.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Consistency with Land Use Plans and Policies. The (Enhanced) Reduced Build Alternative would be consistent with land use plans and policies. This alternative supports major land use policies as defined by Orange County's and affected cities' general plans. Parking and maintenance of the expanded bus fleet proposed by this alternative can be accommodated at existing and previously planned and approved OCTA facilities.

Land Use Compatibility. The (Enhanced) Reduced Build Alternative would be incompatible with sensitive land uses defined as residences, educational facilities, religious institutions, and open space or preservation areas. Measures to mitigate noise and visual impacts for this alternative include noise barriers, landscaping and aesthetic treatments as discussed in Sections 4.9 and 4.13. However, there are a few areas where landscaping would not completely eliminate substantial impacts to residential areas. Please refer to Section 4.6.2 for additional discussion on community cohesion.

Farmland. The (Enhanced) Reduced Build Alternative would have no impact on farmland. No area of prime farmland is expected to be acquired for the (Enhanced) Reduced Build Alternative. Two areas of prime farmland border this alternative: along the I-405/SR-22 in Seal Beach within the United States Naval Weapons Station, and between Western Avenue and Hoover Street on both sides of SR-22. The area of the Naval Weapons Station adjacent to the freeway was leased to a private entity for agricultural use. However, all agricultural activities have ceased since September 19, 2001, when the Navy restricted access to the public. A utility easement on the Naval Weapons Station would be needed for improvements to the SR-22/WOCC project, hence the Department and its partnering agencies are coordinating with the United States Department of the Navy to use the land required. At this time, the United States Naval Weapons Station is permitting the Department a utility easement at this location.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Consistency with Land Use Plans and Policies. The No Build Alternative would be inconsistent with the land use plans of some cities within the study area insofar as the cities' land use plans anticipate improvements to major arterials and freeway systems as an integral part of their vision for the future. If the SR-22/WOCC were not constructed, the goals of these cities for overall transportation mobility would not be met.

Land Use Compatibility. This alternative would be compatible with all other adjacent land uses. Therefore, no impacts are anticipated.

Farmland. There would be no prime farmland acquired for the No Build Alternative. Therefore, no impact to farmland is anticipated.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Consistency with Land Use Plans and Policies. The TSM/Expanded Bus Service Alternative would be inconsistent with some of the plans and policies of cities within the study area, but would not create any new impacts. Parking and maintenance of the expanded bus fleet proposed by this alternative can be accommodated at existing and previously planned and approved OCTA facilities. This alternative would not include major arterial and freeway improvements; therefore, city land use plans, as well as regional land use plans within the study area that anticipate improvements to major arterials and freeway systems as an integral part of their vision for the future, would not be met.

Land Use Compatibility. This alternative would be compatible with all other adjacent land uses. Therefore no impacts are anticipated.

Farmland. There would be no prime farmland acquired by the TSM/Expanded Bus Service Alternative. Therefore, no impact to farmland is anticipated.

3. FULL BUILD ALTERNATIVE

Consistency with Land Use Plans and Policies. Most of the proposed Full Build Alternative would be consistent with land use plans and policies. This alternative supports major land use policies defined by Orange County's and affected cities' general plans. Parking and maintenance of the expanded bus fleet proposed by this alternative can be accommodated at existing and previously planned and approved facilities, even with the loss of parking in the OCTA-owned former Pacific Electric right-of-way (Burton, 2000). However, placement of an arterial in the former Pacific Electric right-of-way would not be consistent with the City of Garden Grove and the City of Santa Ana General Plans.

Land Use Compatibility. The Full Build Alternative would be incompatible with sensitive land uses adjacent to the project segments, especially where noise barriers and visual mitigation would not completely eliminate impacts to residential areas.

Farmland. The Full Reduced Build Alternative would have no impact on farmland. No area of prime farmland is expected to be acquired for the Full Reduced Build Alternative. Two areas of prime farmland border this alternative: along the I-405/SR-22 in Seal Beach within the United States Naval Weapons Station, and between Western Avenue and Hoover Street on both sides of SR-22. A utility easement on the Naval Weapons Station would needed for improvements to the SR-22/WOCC project, hence the Department and its partnering agencies are coordinating with the United States Department of the Navy to utilize the land required. At this time, the United States Naval Weapons Station has permitted the Department a utility easement at this location.

Thresholds of Significance for CEQA:

- Consistency with Land Use Plans.
- Land Use Compatibility.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would be incompatible sensitive land uses. There are a few areas where landscaping would not completely eliminate significant impacts to residential areas.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would be inconsistent with the land use plans of some cities within the study area insofar as the cities' land use plans anticipate improvements to major arterials and freeway systems as an integral part of their vision for the future.

2. TSM/EXPANDED BUS ALTERNATIVES

The TSM/Expanded Bus Alternative would be inconsistent with the land use plans of some cities within the study area insofar as the cities' land use plans anticipate improvements to major arterials and freeway systems as an integral part of their vision for the future.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would be incompatible with sensitive land uses adjacent to the project segments, especially those segments where noise barriers and visual mitigation would not completely eliminate impacts to residential areas.

4.6.2 NEIGHBORHOOD IMPACTS

Community cohesion, as defined by Caltrans Environmental Handbook Volume 4, is the degree to which residents have a sense of belonging to their neighborhood, their level of commitment to the community, or a strong attachment to neighbors, groups and institutions, usually as a result of continued association over time (Caltrans, June 1997)[1]. The impacts to community cohesion and neighborhoods examined changes to residents, businesses, and parking availability due to displacements and partial acquisitions.

4.6.2.1 DISPLACEMENTS AND PARTIAL ACQUISITIONS

Community cohesion is affected by displacement and partial acquisitions of residential and non-residential property. Non-residential properties include retail trade, finance, insurance, services, government/non-profit, and other types of non-residential property uses. A displacement involves the full acquisition of a property and is defined as an area within which occupants of residential and non-residential units would be displaced by the project and would be expected to relocate. A partial acquisition is when a small area of a property is acquired, but full use of the property and dwelling structures, including multi-family units, would remain. Generally, these acquisitions consist of portions of a back, side or front yard, landscaping or parking. Partial Acquisitions for areas containing multi-family residences may not affect all units on the parcel. Figures 4.6-1 and 4.6-2 provide a summary of displacements and partial acquisitions for the (Enhanced) Reduced Build Alternative and the Full Build Alternative.

For the SR-22/WOCC project, estimates of residential and non-residential displacements and partial acquisitions were made by reviewing preliminary engineering design plans and aerial photographs, and

through field review. The results of the displacement analysis as well as an evaluation of compensation for displacements in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601, et seq.), as amended, are discussed in detail in the SR-22/West Orange County Connection *Draft Relocation Impact Report (DRIR)* (December 2000); DRIR Reduced Build *Alternative Addendum* (December 2000); and the *Final Relocation Impact Report (FRIR) (Enhanced) Reduced Build Alternative* (March 2003). These reports provide complete information regarding the right-of-way impacts of the project. The FRIR deals primarily with the (Enhanced) Reduced Build Alternative, which has been identified as the Preferred Alternative. These reports also contain information regarding partial residential and non-residential acquisitions, as well as mobile home relocation data. Please note that determination of right-of-way impacts will not be finalized until the approval of final design. Existing properties that are proposed to be impacted (either full displacements and/or partial acquisitions) are subject to change if required through refined engineering and/or information regarding right-of-way.

LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from Full Build Alternatives

(Enhanced) Reduced Build Alternative Elements

1 - I-405/I-605 Connector (modified from 2001 Reduced Build Alternative)
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to approx. SR-55)
4 - Pearce St. Pedestrian Overcrossing (replacement with ADA compliance)
5 - Sorrell St. (Realignment)

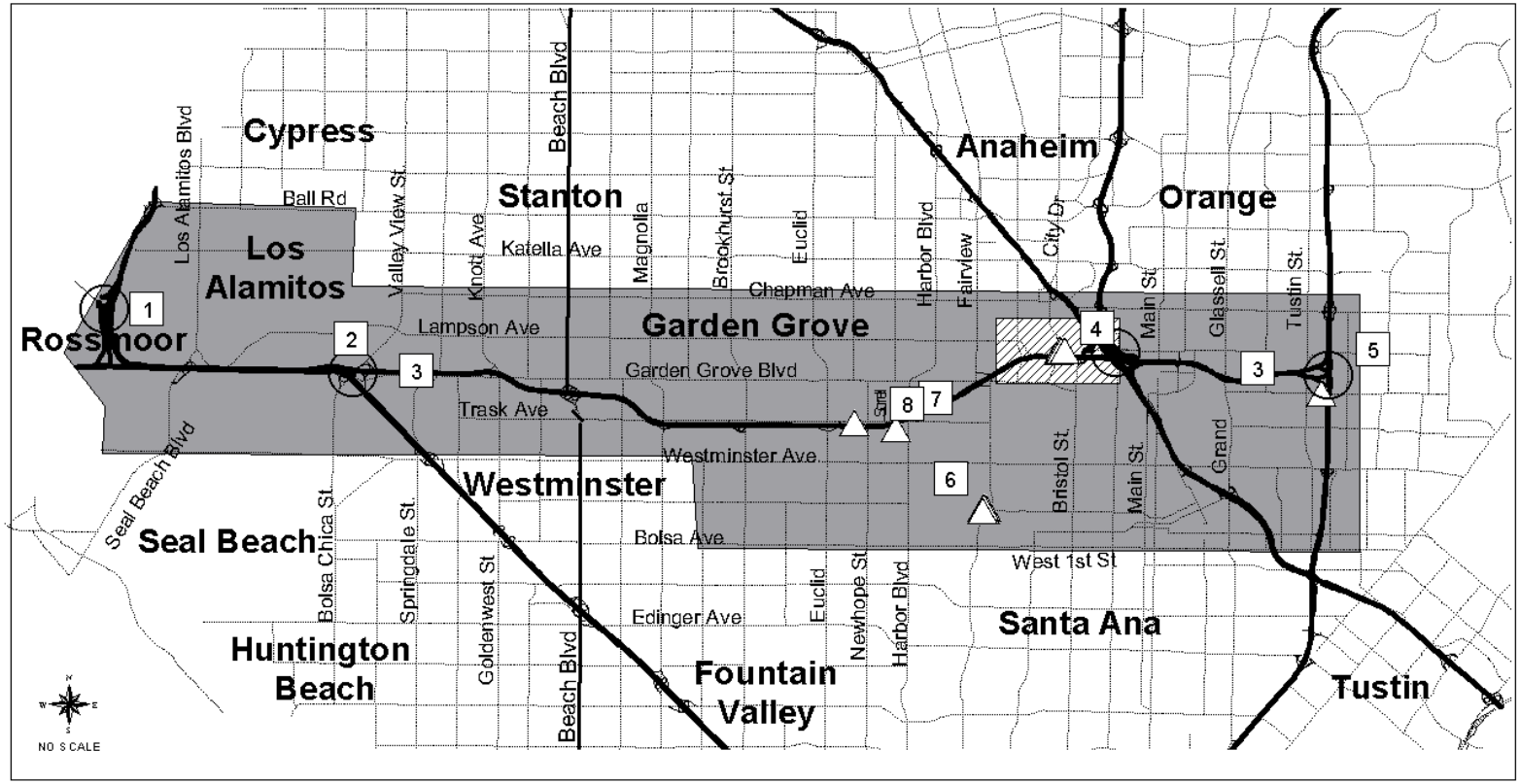
FIGURE 4.6-1

SR-22/ West Orange County Connection Project
(Enhanced) Reduced Build Alternative Map
-March 2003 FEIS/EIR-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(0)	0	(1)
Seal Beach	0	(0)	0	(1)
Garden Grove	1	(54)	0	(2)
Santa Ana	0	(0)	0	(2)
Orange	1	(0)	10	(8)
TOTAL	2	(54)	10	(14)

* Community in Unincorporated Orange County



LEGEND

- Interstate Highway
- State Highway
- Proposed Improvements
- Proposed Interchange Improvements
- Location of Displacements
- Study Area
- Differs from (Enhanced) Reduced Build & Reduced Build Alternatives

Full Build Alternative Elements

1 - I-405/I-605 Connector (same as (Enhanced) Reduced Build Alternative)
2 - I-405/SR-22 Connector
3 - SR-22 Mainline (Valley View St. to Glassell St.)
4 - I-5/SR-22 Connector
5 - SR-22/SR-55 Connector
6 - Pacific Electric Right-Of-Way
7 - Pearce St. Pedestrian Overcrossing (replacement with ADA Compliance)
8 - Sorrell St. (Realignment)

FIGURE 4.6-2

SR-22/ West Orange County Connection Project
Full Build Alternative Map
-March 2003 FEIS/EIR-

Summary of Displacements & Partial Acquisitions

	RESIDENTIAL		NON-RESIDENTIAL	
LOCATION	DISPLMT	PARTIAL ACQ.	DISPLMT	PARTIAL ACQ.
Rossmoor*	0	(0)	0	(1)
Seal Beach	0	(0)	0	(1)
Garden Grove	20	(56)	17	(2)
Santa Ana	60	(0)	8	(7)
Orange	64	(13)	14	(8)
TOTAL	144	(69)	39	(19)

* Community in Unincorporated Orange County

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Residential Displacements. Implementation of the (Enhanced) Reduced Build Alternative would result in two single-family residential displacements. This alternative would not displace any multi-family units or mobile homes. The residential displacements are located in Garden Grove and Orange (See Table 4.6-1, Residential Displacements by City). Table 4.6-2, Residential Displacements by Address and Figure 4.6-1, Summary of Displacements & Partial Acquisitions shows the locations of these displacements. See the *FRIR* and *DRIR* for more detailed mapping.

Substantial impacts to community cohesion are not expected due to the location and number of the displaced. First, the displaced properties are at the periphery or at isolated locations of the neighborhood. Also, the number of displaced dwellings comprise a relatively small proportion of the residences in the affected neighborhoods (one unit of approximately 60 in the Garden Grove tract, and one unit of approximately 50 in the Orange tract). Therefore, the displaced properties would have minimal impact on the physical character of the neighborhood and would not fragment or break up the community.

Garden Grove. The (Enhanced) Reduced Build Alternative would result in one owner-occupied residential displacement. This residence is consistent with the current zoning and land use classification of single-family residential. The property at 11831 Trask Ave was identified in the August 2001 DEIR/EIS.

Pearce Street Pedestrian Overcrossing. Changes to the Pearce Street pedestrian overcrossing will not impact community cohesion because community access and community continuity would be maintained. The three potential residential displacements have been avoided by redesigning and relocating the Pearce Street pedestrian overcrossing. The location of the structure has been shifted approximately 110 meters to the east on SR-22. Entrance/exit points on the north side at Flagstone Place remains the same as the existing Pearce Street pedestrian overcrossing location, and the entrance/exit points on the south side is proposed to be moved approximately 100 meters from existing facility location to the east on Pearce Street, utilizing the existing Wintersburg Channel maintenance access road. Access would be maintained for users of the Pearce Street pedestrian overcrossing during construction of the replacement structure (See Section 4.7.1).

Orange. The (Enhanced) Reduced Build Alternative would result in one residential displacement (592 S. Devon), a single-family residence consistent with present zoning classification. This property was identified in the August 2001 DEIR/EIS.

Seal Beach. Residents from the College Park East Community in the City of Seal Beach requested that the Department shift the centerline south (towards the Naval Weapons Station) to avoid right-of-way impacts to their community. The avoidance of these six properties is independent of the proposed acquisition to replace the existing utility easement at the U.S. Naval Weapons Station.

Table 4.6-1
RESIDENTIAL DISPLACEMENTS BY CITY
(ENHANCED) REDUCED BUILD ALTERNATIVE

Jurisdiction	Single-Family Residential		Multi-Family Residential		Mobile Homes		Total Per City	
	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents
Garden Grove	1	1	0	0	0	0	1	1
Orange	1	5	0	0	0	0	1	5
TOTAL	**2**	**6**	**0**	**0**	**0**	**0**	**2**	**6**

Table 4.6-2
RESIDENTIAL DISPLACEMENTS BY ADDRESS
(ENHANCED) REDUCED BUILD ALTERNATIVE

City	Type	Address/City	No. of Units	Subtotal Units per City
Garden Grove	SFR–O	11831 Trask Avenue	1	**1**
Orange	SFR–O	592 S. Devon Road	1	**1**
		Subtotal of SFR	**2**	
		Subtotal of MFR	**0**	
		TOTAL	**2**	

Notes: SFR = Single-family residential; MFR = Multiple-family residential: O = Owner-occupied; T= Tenant-occupied

Partial Residential Acquisitions. With the implementation of the (Enhanced) Reduced Build Alternative, 54 partial acquisitions would take place in Garden Grove (see Table 4.6-3, Partial Residential Acquisitions and Table 4.6-4, Partial Residential Acquisitions by Address). The ten previously identified partial acquisitions in the August 2001 DEIR/EIS have been avoided along Martha Ann Drive in Los Alamitos/Rossmoor and along Enloe Way in Garden Grove. During the public comment period of the August 2001 DEIR/EIS, comments were received from residents of the Community of Rossmoor concerning the proposed six partial acquisitions in Rossmoor. As a result of these comments and more detailed surveys, the Department was able to avoid impacts to this area with refined engineering.

Garden Grove. With the implementation of the (Enhanced) Reduced Build Alternative, partial acquisitions would occur in Garden Grove, where there will be forty multi-family and fourteen single-family partial residential acquisitions. These properties were not previously identified in the August 2001 DEIR/EIS for this alternative since the final right-of-way maps and refined engineering plans were not available.

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Table 4.6-3
PARTIAL RESIDENTIAL ACQUISITIONS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Jurisdiction	Single-Family Residential		Multi-Family Residential		Mobile Homes		Total Per City	
	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents
Garden Grove	14	57	40	246	0	0	**54**	**303**
TOTAL	14	57	40	246	0	0	**54**	**303**

Table 4.6-4
PARTIAL RESIDENTIAL ACQUISITIONS BY ADDRESS
(ENHANCED) REDUCED BUILD ALTERNATIVE

City	Type	Address	No. of Units *	Subtotal Units per City
Garden Grove	SFR	8692 Gloria Ave	1	54
	SFR	8802 Trask Ave	1	
	SFR	13452 Sorrell Dr.	1	
	SFR	13332 Dunklee Ave	1	
	SFR	13322 Dunklee Ave	1	
	SFR	13312 Dunklee Ave	1	
	SFR	13306 Dunklee Ave	1	
	SFR	13302 Dunklee Ave	1	
	SFR	13292 Dunklee Ave	1	
	SFR	13282 Dunklee Ave	1	
	SFR	13272 Dunklee Ave	1	
	SFR	13262 Dunklee Ave	1	
	SFR	13252 Dunklee Ave	1	
	SFR	13242 Dunklee Ave	1	
	MFR	13421 El Prado Ave	4	
	MFR	13401 El Prado Ave	4	
	MFR	12841 Lewis St.	32	
		Subtotal for SFR	**14**	
		Subtotal for MFR	**40**	
		TOTAL	**54**	

Notes: SFR = Single-family residential; MFR = Multiple-family residential
* Table indicates number of units on the parcel. Partial Acquisitions may not affect all units in MFR parcels.

Non-Residential Displacements. The (Enhanced) Reduced Build Alternative would result in the displacement of ten businesses in the City of Orange (See Tables 4.6-5 and 4.6-6, Non-residential Displacements and Non-residential Partial Acquisitions by City). Among the set of probable non-residential property acquisitions, there do not appear to be any businesses that would be expected to cease operation as a result of being displaced. Alternate locations are available within the immediate area, which is expected to minimize down time and increase the likelihood of existing staff being retained. There are no probable business displacements that require freeway visibility to continue operation.

Orange. The (Enhanced) Reduced Build Alternative would result in the displacement of ten businesses with approximately 189 employees in the City of Orange. Four service providers, two government/non-profit organizations, and three unoccupied business spaces, and one parking lot would be displaced.

Table 4.6-5
NON-RESIDENTIAL DISPLACEMENTS BY CITY
(ENHANCED) REDUCED BUILD ALTERNATIVE

Business Type	Orange		Total	
	No. Units	Approx. No. Employees	No. Units	Approx. No. Employees
Retail Trade	0	0	**0**	**0**
Finance	0	0	**0**	**0**
Insurance	0	0	**0**	**0**
Services	4	12	**4**	**12**
Government/ Non-profit	2	177	**2**	**177**
Other	1	0	**1**	**0**
Unoccupied	3	0	**3**	**0**
Total	**10**	**189**	**10**	**189**

Table 4.6-6[2]
NON-RESIDENTIAL DISPLACEMENTS BY ADDRESS
(ENHANCED) REDUCED BUILD ALTERNATIVE

City	Business Name	Address	Type [1]	Approx. Size Sq. Meters (Sq. Feet)
ORANGE	County of Orange (Animal Shelter)	561 The City Drive[3]	G/NP	15,877 (170,898)
	Unoccupied (paved parking lot)	591 The City Drive[3]	O	146.42 (1,576)
	First Choice Messenger Service	595 The City Drive, Ste. 100[4]	S	229.34 (2,475)
	We The People	595 The City Drive, Ste. 200[4]	S	229.94 (2,475)
	Bonding Services	595 The City Drive, Ste. 201[4]	S	229.94 (2,475)
	United Fathers of America	595 The City Drive, Ste. 202[4]	G/NP	229.94 (2,475)
	Eileen McNamara	595 The City Drive, Ste. 203[4]	S	229.94 (2,475)
	Unoccupied (formerly Justice L. Rovin)	595 The City Drive, Ste. 204[4]	U	229.94 (2,475)
	Unoccupied	595 The City Drive, Ste. 205[4]	U	229.94 (2,475)
	Unoccupied (formerly Voyager Insurance)	595 The City Drive, Ste. 206[4]	U	229.94 (2,475)
	TOTAL	**10 businesses**		**18,004.09 (193,794.4)**

Notes: 1. R - Retail Trade, F - Finance, I -Insurance, S - Services, G/NP - Government/Non-profit, O – Other, U – Unoccupied
2. In Table 4.6-10 of the August 2001 DEIR/EIS, the total for non-residential was erroneously calculated at 35, it should be 26, as presented in Figure 2.2-4 of this FEIS/EIR.
3. 561 & 591 City Dr. were listed as "The City Drive South" in the August 2001 DEIR/EIS.
4. Addresses listed as 505 City Dr. in the August 2001 DEIR/EIS Reduced and Full Build alternatives were erroneously listed, they should be 595 City Dr., as shown in the March 2003 (Enhanced) Reduced and Full Build alternatives.

Non-Residential Partial Acquisitions. The (Enhanced) Reduced Build Alternative would result in two partial non-residential, acquisitions in Garden Grove, eight in Orange, two in Santa Ana, one in Seal Beach and one in Los Alamitos/Rossmoor. Generally, the properties proposed for acquisitions consist of landscaping and parking. Refer to Tables 4.6-7, Partial Non-residential Acquisitions and Table 4.6-8, Partial Non-residential Acquisitions by Address) for a summary of partial non-residential acquisitions for the (Enhanced) Reduced Build Alternative.

Garden Grove. Two non-residential, partial acquisitions would occur in Garden Grove. One, Cedar Grove Business Park, is a privately owned business. The Orange County Flood Control District (OCFCD) owns the remaining partial acquisition at the Lewis Channel. It is anticipated that an easement would be required for the replacement of the Pearce Street pedestrian overcrossing along the existing OCFCD maintenance access road to the Garden Grove-Wintersburg Channel, leading into Pearce Street on the south side of SR-22. However, no partial acquisition would be necessary at the Garden Grove-Wintersburg Channel. Therefore, only two non-residential, partial acquisitions would occur in Garden Grove.

Orange. Eight partial acquisitions would occur in Orange. Two would occur at The Block commercial retail center. Three other partial acquisitions would occur at the offices of Amerisource-Bergen (formerly Bergen Brunswig), Carl Karcher Enterprises, and a LA Fitness facility. The three remaining parcels are located at two Southern California Edison (SCE) sub stations and an unoccupied business space (formerly Firestone).

Santa Ana. Two partial, non-residential acquisitions would occur in Santa Ana. Both partial acquisitions involve Mesa Garage Doors on Hesperian Street.

Los Alamitos/ Rossmoor. The singular partial acquisition in Los Alamitos/ Rossmoor occurs at Bixby Channel and Montecito Channel, owned by the Orange County Flood Control District.

Seal Beach. Land on the Naval Weapons Station would be needed for improvements to the SR-22/WOCC project, hence, the Department and its partnering agencies are coordinating with the United States Department of the Navy to utilize the land required. Approximately six meters of the Naval Weapons Station property has been identified to replace the existing utility easement. At this time, the United States Naval Weapons Station has permitted the Department a utility easement at this location.

During the public comment period of the August 2001 DEIR/EIS, the Department and OCTA sought permission to acquire right-of-way from the U.S. Navy at the request of residents from the City of Seal Beach, to avoid right-of-way impacts to the City and particularly the College Park East community. However, the proposed displacements in the College Park East community, identified in the August 2001 DEIR/EIS, were avoided without acquiring land from the naval station.

Table 4.6-7
PARTIAL NON-RESIDENTIAL ACQUISITIONS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Business Type	Garden Grove No. Units	Orange No. Units	Santa Ana No. Units	Seal Beach No. Units	Los Alamitos/ Rossmoor No. Units	Total
Retail Trade	0	2	0	0	0	**2**
Finance	0	1	0	0	0	**1**
Manufacturing	0	0	0	0	0	**0**
Services	0	1	2	0	0	**3**
Government/ Non-profit	1	0	0	1*	1	**3**
Other	1	3	0	0	0	**4**
Unoccupied	0	1	0	0	0	**1**
Total	**2**	**8**	**2**	**1**	**1**	**14**

Note: *The U.S. Naval Weapons Station is shown because the proposed project would require a utility easement on their property.

Table 4.6-8
PARTIAL NON-RESIDENTIAL ACQUISITIONS BY ADDRESS
(ENHANCED) REDUCED BUILD ALTERNATIVE

City	Name	Address/ Location	Type*
Garden Grove	Cedar Grove Business Park	13311 Garden Grove Blvd	O
	Lewis Channel Orange County Flood Control District	SR-22/ Lewis St.	G/NP
	City Subtotal	**3**	
Orange	Amerisource –Bergen (formerly Bergen Brunswig)	4000 W. Metropolitan Dr.	F
	City Plaza, LA Fitness	3901 W. Metropolitan Dr.	S
	The Block at Orange	1 City Blvd. W #1010	R
	The Block at Orange	1 City Blvd. W #1010	R
	Carl Karcher Enterprises	601 S. Lewis Street	O
	Unoccupied (formerly Firestone Store)	3400 W. Metropolitan Dr.	U
	SCE Sub Station	Orange	O
	SCE Sub Station	Orange	O
	City Subtotal	**8**	
Santa Ana	Mesa Garage Doors	3020 N. Hesperian St.	S
	Mesa Garage Doors	3022 N. Hesperian St.	S
	City Subtotal	**2**	
Los Alamitos/ Rossmoor	Bixby Channel/Montecito Channel Orange County Flood Control District	I-405/ I-605 Interchange	G/NP
	City Subtotal	**1**	
Seal Beach	U.S. Naval Weapons Station**	SR-22/ Seal Beach Blvd.	G/NP
	City Subtotal	**1**	
	Total	**14**	

Notes: *R- Retail Trade, F- Finance, I - Insurance, S- Services, G/NP- Government/Non-profit, O– Other, U- Unoccupied
**The U.S. Naval Weapons Station is shown because the proposed project would require a utility easement on their property.

Compensation for Displacements and Partial Acquisitions

The relocation resource area is defined as the area within which occupants of residential and non-residential units displaced by the project would be expected to relocate. For the purposes of this document, the relocation resource area includes those cities within which displacements would occur: Garden Grove and Orange. Criteria used to establish the resource area include local amenities, land use and zoning designations, circulation and access, and comparable property values and socioeconomic characteristics.

Per the Department Relocation Policy (See Figure 4.6-3), relocation housing for displacees will be comparable, affordable and adjusted to normal market demands. Preferences of relocation will be determined through surveys of displacees and taken into consideration. The ages, income, family size and distance to employment are factors that will also be considered during relocation. Displacees' actual needs and preferences will be determined through a personal interview process. In situations where comparable replacement housing is difficult to locate, the Last Resort Housing Program would be used to relocate such households, as outlined in the Relocation Assistance Program in Figure 4.6-3. Where necessary, payments may be required under the Last Resort Housing Program.

Through the Relocation Assistance Program, displaced businesses will be assisted with finding alternative locations, either within or outside the city limits or project area as appropriate. Displaced businesses are also eligible for reimbursement of certain relocation costs, such as the replacement of business stationery or telephone connection fees, and moving costs. In addition, business-specific impacts such as those pertaining to loss of fixed equipment will be evaluated and compensated on a case-by-case basis.

When a business is unable to continue operation in the area after relocation due to a substantial loss of existing patronage (whether clientele or net earnings), the business may be eligible to

receive an "in lieu" payment instead of the actual cost of reimbursements. The "in lieu" payment is based on the previous two taxable years, with certain exceptions. A relocated business may also be eligible to receive compensation for "lost business goodwill," in conformity with the California Code of Civil Procedure, section 1263.510. For more detail, refer to Figure 4.6-3, California Department of Transportation Relocation Policy.

Compensation for Displacements

Residential Displacement. The relocation impact analysis determined that there were over 109 single-family homes for sale and 17 for rent within the relocation resource area (including Cypress) at the time of the DRIR. The (Enhanced) Reduced Build Alternative would potentially result in two single-family displacements. On this basis, numerous opportunities for relocation are expected to be available by the time acquisition occurs.

Non-Residential Displacement. An extensive search for non-residential property found an ample supply of units (similar in size, location and zoning) to relocate the anticipated displacements. Accordingly, numerous opportunities for relocation within the identified relocation area are expected to be available by the time acquisition occurs. Amongst the set of probable non-residential property acquisitions, there do not appear to be any businesses that would be expected to cease operation as a result of being displaced. No probable business displacements would require freeway visibility to continue operation.

Compensation for Partial Acquisitions

Partial Residential Acquisitions. Residential acquisitions would be compensated based on fair market value.

Partial Non-Residential Acquisitions. Loss of parking at businesses would be compensated by provision of parking at other locations in the near vicinity (within 0.4 km), on property acquired on Metropolitan Drive.

Figure 4.6-3

California Dept. of Transportation Relocation Assistance Program

CALTRANS RELOCATION ASSISTANCE PROGRAM

RELOCATION ASSISTANCE ADVISORY SERVICES

The California Department of Transportation (the Department) will provide relocation advisory assistance to any person, business, farm or non-profit organization displaced as a result of the Department's acquisition of real property for public use. The Department will assist displacees in obtaining replacement housing by providing current and continuing information on the availability and prices of houses for sale and rental units that are comparable, "decent, safe and sanitary." Non-residential displacees will receive information on comparable properties for lease or purchase. For business and farm displacements see below.

Residential replacement dwellings will be in equal or better neighborhoods, at prices within the financial means of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include supplying information concerning federal and state assisted housing programs, and any other known services being offered by public and private agencies in the area.

RESIDENTIAL RELOCATION PAYMENTS PROGRAM

The Relocation Payment program will assist eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for, or incidental to, purchasing or renting a replacement dwelling, and actual reasonable moving expenses to a new location within 80 kilometers (50 miles) of displacees' property. Any actual moving costs in excess of 80 kilometers (50 miles) are the responsibility of the displacee. The Residential Relocation Program can be summarized as follows:

Moving Costs

Any displaced person who was "lawfully" in occupancy of the acquired property regardless of the length of occupancy in the property acquired will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 80 kilometers (50 miles), a moving service authorization, or a fixed payment based on a fixed moving cost schedule which is determined by the number of furnished or unfurnished rooms of the displacement dwelling.

Purchase Supplement

In addition to moving and related expenses payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days prior to the date of the first written offer to purchase the property, may qualify to receive a price differential payment, and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. Also the interest differential must be based upon the "lesser of" or lower of either the loan on the displacement property or the loan on the replacement property. The maximum combination of these three supplemental payments that the owner-occupants can receive is $22,500. If the total entitlement (without the moving payments) is in excess of $22,500, the Last Resort Housing Program will be used. Please refer to Last Resort Housing clarification below.

Rental Supplement

Tenants who have occupied the property to be acquired by the Department for 90 days or more and owner-occupants of 90 to 180 days prior to the date of the first written offer to purchase may qualify to

receive a rental differential payment. This payment is made when the Department determines that the cost to rent a comparable and "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitation noted below under the "Down Payment" section (see below). The maximum amount of payment to any tenant of 90 days or more and any owner-occupant of 90 to 179 days, in addition to moving expenses, will be $5,250. If the total entitlement for rental supplement exceeds $5,250, the Last Resort Housing Program will be used. Please refer to Last Resort Housing clarification below.

The rental supplement of $7,500 or less will be paid in a lump sum, unless the displacee requests that it be paid in installments. The displaced person must rent and occupy a "decent, safe and sanitary" replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the Department-acquired property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of 90 to 179 days and tenants with no less than 90 days of continuous occupancy prior to the Department's first written offer to purchase a replacement dwelling. The down payment and incidental expenses cannot exceed the maximum payment of $5,250, unless the Last Resort Housing Program is indicated. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24.404) contain the policy and procedure for implementing the Last Resort Housing Program on federal aid projects. In order to maintain uniformity in the program, the Department has also adopted these federal guidelines on non-federal-aid projects. Except for the amounts of payments and the methods in making them, last resort housing benefits are the same as those benefits for standard relocation as explained above. Last resort housing has been designed primarily to cover situations where available comparable replacement housing, or when their anticipated replacement housing payments, exceed the $2,520 and $22,500 limits of the standard relocation procedures. In certain exceptional situations, last resort housing may also be used for tenants of less than 90 days.

After the first written offer to acquire the property has been made, the Department will, within a reasonable length of time, personally contact the displacees to gather important information relating to:

- Preferences in area of relocation.
- Number of people to be displaced and the distribution of adults and children according to age and sex.
- Location of school and employment.
- Special arrangements to accommodate any handicapped member of the family.
- Financial ability to relocate into comparable replacement dwelling, which will house all members of the family decently.

The above explanation is general in nature and is not intended to be a complete explanation of relocation regulations. Any questions concerning relocation should be addressed to the Department. Any persons to be displaced will be assigned a relocation advisor who will work closely with each displacee in order to see that all payments and benefits are fully utilized, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

THE BUSINESS AND FARM RELOCATION ASSISTANCE PROGRAM

The Business and Farm Relocation Assistance Program provides aid in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance

Program can provide, when requested, a current list of properties offered for sale or rent, suitable for specific relocation needs.

The types of payments available to businesses, farms and non-profit organizations can be summarized as follows:

Moving expenses include the following actual reasonable costs:

- The moving of inventory, machinery, office equipment and similar business-related personal property dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking and reconnecting of personal property.
- Loss of tangible personal property provides payment to relocate for "actual direct" losses of personal property that the owner elects not to move.
- Expenses related to searching for a new business site can be reimbursed up to $1,000 for actual reasonable cost incurred.
- Re-establishment expenses relating to the new business operation.

Payment "in lieu" of moving expense is available to businesses which are expected to suffer a substantial loss of existing patronage as a result of the displacement, or if certain other requirements such as inability to find a suitable relocation site are met. This payment is an amount equal to the average annual net earnings for the last two taxable years prior to relocation. Such payment may not be less than $1,000 and not more than $20,000.

ADDITIONAL INFORMATION

No relocation payment received will be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without being given at least 90 days advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments will not be required to move unless at least one comparable "decent, safe and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex or national origin, is available or has been made available to them by the state.

Any person, business, farm or non-profit organization, which has been refused a relocation payment by the Department, or believes that the payments are inadequate, may appeal for a special hearing of the complaint. No legal assistance is required; however, the displacee may choose to obtain legal council at his/her expense. Information about the appeal procedure is available from the Department's Relocation Advisors.

The information above is not intended to be a complete statement of all of the Department's laws and regulations. At the time of the first written offer to purchase, owner-occupants are given a more detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted immediately after the first written offer to purchase, and also given a more detailed explanation of the Department's relocation programs.

IMPORTANT NOTICE

To avoid loss of possible benefits, no individual, family, business, farm or non-profit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

State of California
Department of Transportation, District 12
3347 Michelson Drive, Suite 100
Irvine, California 92612-2125

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Displacements and Partial Acquisitions. The No Build Alternative would not affect community cohesion. The No Build Alternative would not result in any displacements or partial acquisitions because this alternative only includes improvements to the transportation network that have already been approved and funded. No capital improvements for SR-22 are included under this alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Displacements and Partial Acquisitions. The TSM/Expanded Bus Service Alternative would have no impact to community cohesion. The TSM/Expanded Bus Service Alternative would not result in any displacements or partial acquisitions. This alternative is designed to improve headway and enhance bus service throughout the study area. There would be a greater likelihood that this alternative would be beneficial to communities within the study area, specifically transit-dependent, because residents would be able to travel easier from one place to another.

3. FULL BUILD ALTERNATIVE

Residential Displacements. 144 residential displacements, which includes 35 single family residences, 92 multi-family residences, and 17 mobile homes, would occur under the Full Build Alternative. However, DEIR/EIS listed 189 residential displacements for build this alternative. Several residential displacements that were included in the DEIR/EIS have been avoided in the FEIS/EIR. Table 4.6-9 (Residential Displacements – Full Build Alternative), lists the number of units and approximate number of residents that would be displaced within Garden Grove, Orange and Santa Ana. As previously shown, Figure 4.6-2 illustrates the location of displacements and partial acquisitions relative to the elements of the Full Build Alternative.

Note: Where the Reduced and Full Build Alternatives share common features and the properties have been avoided in the (Enhanced) Reduced Build Alternative, these displacements would also be avoided under the Full Build Alternative.

Garden Grove. Approximately 105 residents in 18 single family residential and 2 multi-family residential units would be displaced by the Full Build Alternative in Garden Grove at the time of the DRIR. Garden Grove has eight mobile home estates within 0.8-kilometers (0.5 miles) of the SR-22 corridor; however, none of these mobile homes would be displaced. The displacements are located in the vicinity of SR-22/ Newhope Boulevard and SR-22/ Lewis Street. Refer to Section 4.6.2.1 for discussion of the Pearce Street Pedestrian Overcrossing.

Santa Ana. Approximately 341 residents in 16 single family residential units, 43 multi-family residential units, and one mobile home unit would be displaced in Santa Ana. The displacements are situated near the I-5/ SR-22/ SR-57 freeway interchange and the intersection of SR-22 and Fairview Street. Improvements to the I-5/SR-22 connector would result in displacements in that area.

Sherwood Lane Homes. The Sherwood Lane housing community in Santa Ana consists of single-family residential homes and is located within the Morrison Park neighborhood association. Fifteen of the residences, located on the north side of Sherwood Lane, would need to be acquired for the Full Build Alternative. These 15 units make up 100

percent of the entire north side of Sherwood Lane. There is one recreational facility (Fallbrook Park) located at the eastern end of Sherwood Lane. Vacancies in this community are rare, which means that residents tend to establish roots in this community. According to 1990 U.S. Census data, the majority of residents in this block group are between the ages 18 to 64 (57.4 percent) with 23.2 percent being between the ages of zero to 17. These age distributions indicate that this neighborhood is most likely family-oriented, with many homes having one or two children. This neighborhood is not located in a minority block group and shows no signs of other cultural or ethnic characteristics that could potentially bond these residents together. The proximity of Fallbrook Park to the subject residences provides an attractive venue for regular interactions between children and adults in this neighborhood. Given the extent of displacements within this community and the likelihood that residents in this neighborhood interact on a regular basis, a substantial impact to community cohesion is anticipated.

City Gardens Apartments. The City Gardens Apartment Complex is a gated multi-family apartment complex in Santa Ana that has two pools, three hot tubs, a play area, and a small grassy area located in the middle of the complex. Of the 274 units in the complex, 43 units would have to be acquired for the Full Build Alternative. These 43 units are located in northwest portion of the complex. Findings of a site assessment included consistent interactions between children and adult residents in the complex. This complex is located in a minority block group where a high proportion of Hispanic residents can be expected. The majority of the residents tend to be below the age of 65 and vacancies are rare. Although this community has a sense of cohesiveness, the loss of 43 of the outside units in not expected to cause a substantial impact to the community as a whole due to the relatively small proportion of displacements and the peripheral location of the displacements.

Otsuka Farm Mobile Home Unit. There would be one mobile home displaced in Santa Ana. The mobile home is on the Otsuka Farm property, which is located between Fairview Street and the Santa Ana River. This displacement would result from construction of a new connection between Civic Center Drive and the proposed arterial within the Pacific Electric right-of-way. The Full Build Alternative would result in the partial acquisition of the total property. Therefore, since this alternative would only acquire a small part of the farm property, the mobile home would be relocated to a new area on the same parcel. Therefore, no relocation site outside of the farm property would be necessary.

Orange. 64 displacements would be located in Orange. A total of 105 residents would be displaced from one single-family residential unit, 47 multi-family units, and sixteen mobile homes. The displaced mobile home units are located at the Creekside Mobile Estates. Other displacements would occur at SR-22/ The City Drive and SR-22/ La Veta Avenue. Improvements to the SR-22/ SR-55 connector would result in displacements in that area.

Park City Ranchos. The Park City Ranchos housing community in Orange consists of 60 duplex units. Sixteen of these are located on the north side of West Balboa Avenue and would be displaced by the Full Build Alternative. These 16 duplex units make up approximately 68 percent of the entire north side of West Balboa Avenue. There are no

recreational facilities located on or near the housing units. Vacancies in this community are very low, which means that residents tend to be more established in the community. According to 1990 U.S. Census block group data, the majority of residents in this block group are between the ages 18 to 64. It was concluded from field evaluation for the DRIR that there are no other special characteristics that could potentially bond these residents together. There were also no signs of children in the area and access to the community would not be impaired. It is assumed that even though a large part of this community would be acquired for right-of-way, there would be less than a minimal impact to community cohesion.

Santiago Creekside Estates Mobile Home Park. Santiago Creekside Estates is located adjacent to southbound SR-55 between La Veta Avenue and Santiago Creek in Orange. The Full Build Alternative would displace 16 mobile homes within the gated Santiago Creekside Estates Mobile Home Park. There are a total of 88 spaces, a community recreation room, swimming pool, and rental office located in the complex. The homes are in fair to good condition with easy access from the street. Yards associated with the homes are small with little room for more than a picnic table and chairs. Currently, vacant mobile home spaces are difficult to locate in Orange. This means that residents do not come and go very often. Residents of this mobile home community are assumed to be older in age, with very few children younger than 18. Although this mobile home park has the potential to be cohesive, displacement of less than a fifth of the units is expected to cause minimal impacts to overall community cohesion. The displacements make up a small proportion of the mobile home park, and the displaced units are located on the outside edge of the park.

Table 4.6-9
RESIDENTIAL DISPLACEMENTS BY CITY
FULL BUILD ALTERNATIVE

Jurisdiction	Single-Family Residential		Multi-Family Residential		Mobile Homes		Total Per City	
	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents	No. of Units	Approx. No. of Residents
Garden Grove	18	96	2	9	0	0	20	105
Santa Ana	16	57	43	280	1	4	60	341
Orange	1	3	47	49	16	53	64	105
Total	**35**	**156**	**92**	**338**	**17**	**57**	**144**	**551**

4.6.2.2 PARKING

Changes to the availability of parking also affect the neighborhood and residents. Parking impacts occur when the loss of parking spaces would create a non-conforming use, require substantial change in the use intensity to maintain conformity with local land use codes, or where loss of on-site parking spaces cannot be offset through the use of nearby parking capacity. These impacts were determined by comparing residual parking to land use code requirements and identifying developed properties close to proposed improvements with off-street parking where additional right-of-way would be needed to implement a project alternative. Residual parking is defined as the remaining parking after the removal of parking spaces or the difference between total existing parking and the number of parking spaces removed.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Parking Impact. As shown in Table 4.6-17, the (Enhanced) Reduced Build Alternative would result in the loss of 472 on-site parking spaces at four locations in Orange—Carl Karcher Enterprises, Amerisource-Bergen (formerly Bergen Brunswig), One City Plaza and The Block at Orange. The residual parking would not meet the requirements of City of Orange land use codes at Carl Karcher Enterprises and Amerisource-Bergen. Therefore, substantial parking impacts are anticipated at these properties. However, due to the fact that One City Plaza and The Block currently share parking, One City Plaza and The Block were examined together. The combined analysis indicates that (Enhanced) Reduced Build Alternative would not have a substantial adverse impact on parking at One City Plaza and The Block. Further detail is provided below.

Table 4.6-17
ON-SITE PARKING IMPACTS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Site Name	Total Parking	Approx. Number Removed	% of Parking Removed	Approx. Parking to Meet Code	Approx. Residual Parking
Carl Karcher Enterprises 601 S. Lewis St.,Orange	129	19	14.7	148	110
Amerisource-Bergen (Formerly Bergen Brunswig) 4000 W. Metropolitan Dr., Orange	235	89	37.8	745	146
One City Plaza, Orange	275	100	36.3	1,488	175
The Block at Orange, 1 City Blvd. W. #1010, Orange	5,556	264	4.7	3,978	5,292
Totals	**6,195**	**472**	**7.6**	**6,359**	**5,723**

Source: City of Orange, 1995

Carl Karcher Enterprises. The (Enhanced) Reduced Build Alternative would have a substantial adverse impact on parking at the Carl Karcher Enterprises, an office complex north of SR-22 at Lewis Street. The alternative would result in the loss of approximately 19 spaces or about 14.7 percent of the total parking. This complex requires 148 spaces to meet the City of Orange's parking requirements.

Amerisource-Bergen. The (Enhanced) Reduced Build Alternative would have a substantial adverse impact on parking at Amerisource-Bergen, a pharmaceutical company located north of SR-22 between Lewis Street and Metropolitan Drive. The (Enhanced) Reduced Build Alternative would result in the loss of approximately 89 parking spaces, or about 38 percent of the total spaces. Based on estimates of existing floor space, 745 spaces are needed to meet the City of Orange's parking requirements.

One City Plaza and The Block at Orange. The (Enhanced) Reduced Build Alternative would result in the loss of approximately 100 parking spaces at the One City Plaza Building and 264 spaces at The Block at Orange (the Block). The residual parking at The Block exceeds the minimum required to meet code by 33 percent (1315 spaces). However, the residual parking at One City Plaza (175 spaces) would not meet code requirements (1,488 spaces).

While each location contains dedicated parking, One City Plaza and The Block also share parking. So, although parking impacts would occur at One City Plaza, when the parking at One City Plaza is examined in conjunction with The Block, the (Enhanced) Reduced Build Alternative would not have a substantial adverse impact on parking at these locations. The combined parking of 5467 spaces would exceed the number of combined parking to meet code (5466 spaces).

The County of Orange Animal Shelter. As part of the Metropolitan Drive Improvements, the adjacent Theo Lacy Jail Facility on east of The City Drive has potential future plans for expansion into the area currently occupied by the Animal Shelter. The (Enhanced) Reduced Build Alternative would result in a potential impact to the planned parking for the potential future expansion of the Theo Lacy Jail Facility. The (Enhanced) Reduced Build Alternative would result in the removal of an estimated 50 proposed parking spaces. This would be a substantial adverse impact on parking at this location. Plans underway prior to this project include relocation of the Orange County Animal Shelter to Tustin, and construction of a parking facility on part of the Theo Lacy Jail recreational area.

The City of Orange has reviewed this proposed Alternative and stated that they would grant the appropriate parking variances because they feel that the benefits of improved access to this area outweigh the loss of parking.

Loss of parking at businesses would be compensated by provision of parking at other locations in the near vicinity (within 0.4 km), on property acquired on Metropolitan Drive.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Parking Impacts. The No Build Alternative would have no effect on existing or planned parking facilities.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Parking Impacts. The TSM/Expanded Bus Service Alternative would not affect off-street parking within the study area. Changes in parking on some arterials would not affect community cohesion.

3. FULL BUILD ALTERNATIVE

Parking Impact. As shown in Table 4.6-18, the Full Build Alternative would result in the loss of 571 on-site parking spaces in Garden Grove, Santa Ana and Orange in a total of six locations. Substantial parking impacts are anticipated at the El Prado Drive Residence, the City Gardens Apartments, Carl Karcher Enterprises and Amerisource-Bergen. However, due to the fact that One City Plaza and The Block currently share parking, One City Plaza and The Block were examined together. The combined analysis indicates that Full Build Alternative would not have a substantial parking impact at One City Plaza and The Block.

Table 4.6- 18
ON-SITE PARKING IMPACTS
FULL BUILD ALTERNATIVE

Site Name	Total Parking	Approx. Number Removed	% of Parking Removed	Approx. Parking to Meet Code	Approx. Residual Parking
Residence 13421 El Prado Drive Garden Grove	8	3	37.5	8	5
City Gardens Apartments Santa Ana	391	134	32.7	542	257
Carl Karcher Enterprises 601 S. Lewis Street Orange	129	15	11.6	148	114
Amerisource-Bergen (Formerly Bergen Brunswig) 4000 W. Metropolitan Drive Orange	235	89	37.8	745	146
One City Plaza Orange	275	100	36.3	1,488	175
The Block at Orange Orange	5,556	230	4.1	3,978	5,326
TOTALS	**6594**	**571**	**8.7**	**6909**	**6023**

Sources: Garden Grove, *Zoning Map and Parking Codes,* 1995; City of Orange, 1995; and Santa Ana, 1993.

El Prado Drive Residences. The El Prado Drive multi-family unit in Garden Grove is anticipated to lose three out of eight covered parking spots. This parking is designated for residents of a four-plex unit on the property. The City of Garden Grove requires this use to have two covered parking spaces per unit for residents and 0.5 spaces per unit for guests. The parking acquisitions would create a deficient amount of parking to meet the requirements. The Full Build Alternative would have a substantial adverse impact on parking at this location.

City Gardens Apartments. The Full Build Alternative would result in a loss of one-third of the parking at the City Gardens Apartments. The complex currently does meet parking code requirements. Therefore, the Full Build Alternative would have a substantial adverse impact on parking at the City Gardens Apartment complex.

In addition, the City of Santa Ana classifies this complex as a designated legal non-conforming use. Legal non-conforming uses are land uses that are not consistent with specific requirements, but are legally justified due to the fact that the land use was in place before the current requirements were instituted (i.e., grandfathered). This complex can remain operating as long as the property retains its current design. Any changes to the property would require the facility to adhere to City requirements. Because portions of the complex would be acquired for the Full Build Alternative, the city could require that it meet the current parking requirements. As a result, 542 parking spots would be needed.

Carl Karcher Enterprises. Carl Karcher Enterprises is an office complex located north of SR-22 at Lewis Street. The (Enhanced) Reduced Build Alternative would result in the loss of approximately 15 spaces or about 11.6 percent of the total parking. This complex requires 148 spaces to meet the City of Orange's parking requirements. The Full Build Alternative would have a substantial adverse impact on parking at this location.

Amerisource-Bergen. Amerisource-Bergen, formerly known as Bergen Brunswig, is a located north of SR-22 between Lewis Street and Metropolitan Drive. The Full Build Alternative would result in the loss of approximately 89

parking spaces, or about 38 percent of the total spaces. Based on estimates of existing floor space, there need to be 745 spaces to meet the City of Orange's parking requirements. Full Build Alternative would have a substantial adverse impact on parking at this location.

One City Plaza and The Block at Orange. The (Enhanced) Reduced Build Alternative would result in the loss of approximately 100 parking spaces at the One City Plaza Building and 230 spaces at The Block at Orange (the Block). The residual parking at The Block exceeds the minimum required to meet code by 33 percent (1348 spaces). However, the residual parking at One City Plaza (175 spaces) would not meet code requirements (1,488 spaces).

While each location contains dedicated parking, One City Plaza and The Block also share parking. So, although parking impacts would occur at One City Plaza, when the parking at One City Plaza is examined in conjunction with The Block, the (Enhanced) Reduced Build Alternative would not have a substantial adverse impact on parking at these locations. The combined parking of 5501spaces would exceed the number of combined parking to meet code (5466 spaces).

The County of Orange Animal Shelter, Orange. As part of the future Metropolitan Drive Improvements, the adjacent Theo Lacy Jail Facility on east of The City Drive has potential future plans for expansion into the area currently occupied by the Animal Shelter. The Full Build Alternative would result in a potential impact to the planned parking for the potential future expansion of the Theo Lacy Jail Facility. The Full Build Alternative would result in the removal of an estimated 50 proposed parking spaces. This would be a substantial adverse impact on parking at this location. Plans underway prior to this project include relocation of the Orange County Animal Shelter to Tustin, and construction of a parking facility on a portion of the Theo Lacy Jail recreational area.

The City of Orange has reviewed this proposed Alternative and stated that they would grant the appropriate parking variances because they feel that the benefits of improved access to this area outweigh the loss of parking.

Loss of parking at businesses would be compensated by provision of parking at other locations in the near vicinity (within 0.4 km), on property acquired on Metropolitan Drive.

Thresholds of Significance for CEQA:

- Substantial change in community character or cohesion due to displacements and partial acquisitions.
- Substantial loss of parking.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Displacements and Partial Acquisition Impacts. The (Enhanced) Reduced Build Alternative would result in minimal impact to community cohesion and character due to residential and nonresidential displacements and partial acquisitions. Displaced properties are at the periphery or at isolated locations of the neighborhood and comprise a relatively small proportion of the residences in the affected neighborhoods. Also, displaced businesses would be able to relocate in the surrounding area. Partial acquisitions generally involve landscaping, parking, or small portions of yards and

therefore, would minimally impact the physical character of a neighborhood and would not result in changes to community cohesion.

Parking Impact. Implementation of the (Enhanced) Reduced Build Alternative would result in the loss of 472 on-site parking spaces at four locations in Orange. Carl Karcher Enterprises, Amerisource-Bergen, and One City Plaza would have a loss of parking due to the (Enhanced) Reduced Build Alternative, resulting in a significant impact. The removal of parking at The Block would not result in a significant impact because the quantity of residual parking exceeds the quantity required to meet code. Furthermore, One City Plaza and The Block currently share parking. When examined together, the combined parking at these locations would exceed the approximate number of combined parking to meet code. Therefore, the (Enhanced) Reduced Build Alternative would not have a substantial adverse impact on parking at One City Plaza and The Block.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Displacements and Partial Acquisition Impacts. The No Build Alternative would not result in any displacements or partial acquisitions.

Parking Impacts. The No Build Alternative would have no effect on existing or planned parking facilities because no improvements would be constructed within the study area.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Displacements and Partial Acquisition Impacts. The TSM/Expanded Bus Service Alternative would not result in any displacements or partial acquisitions.

Parking Impacts. The TSM/Expanded Bus Service Alternative would not affect off-street parking within the study area. On-street parking on some arterials may be removed, but this would not affect existing land uses.

3. FULL BUILD ALTERNATIVE

Displacements and Partial Acquisition Impacts. The Full Build Alternative would result in minimal impact to community cohesion and character due to residential displacements, and nonresidential displacements, and partial acquisitions, except at Sherwood Lane. Generally, displaced properties are at the periphery or at isolated locations of the neighborhood and comprise a relatively small proportion of the residences in the affected neighborhoods. Also, displaced businesses would be able to relocate in the surrounding area. Partial acquisitions generally involve landscaping, parking, or small portions of yard and therefore, would minimally impact the physical character of a neighborhood and would not result in changes to community cohesion. However, given the extent of displacements within the Sherwood Lane community and the likelihood that residents in this neighborhood interact on a regular basis, a substantial impact to community cohesion is anticipated at this location.

Parking Impact. Implementation of the Full Build Alternative would result in the loss of 571 on-site parking spaces at six locations in Garden Grove, Santa Ana and Orange. Of the five affected properties, significant parking impacts are anticipated at two of the residential sites in Garden Grove and Santa Ana. Carl Karcher Enterprises, Amerisource-Bergen, One City Plaza, and The Block at Orange would have a loss of parking due to the Full Build Alternative, resulting in a significant impact. The removal of parking at The Block would not result in a significant impact because the

quantity of residual parking exceeds the quantity required to meet code. Furthermore, One City Plaza and The Block currently share parking. When examined together, the combined parking at these locations would exceed the approximate number of combined parking to meet code. Therefore, the Full Build Alternative would not have a substantial adverse impact on parking at One City Plaza and The Block.

4.6.3 TEMPORARY CONSTRUCTION EASEMENTS

A. PREFFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

During construction of the (Enhanced) Reduced Build Alternative, additional right-of-way would be required to store construction equipment and materials. Whenever possible, these areas, called Temporary Construction Easements (TCE), have been identified at vacant properties along the corridor. However, portions of some occupied properties have also been identified as TCEs. A list of all proposed TCE locations is included in the Final Relocation Impact Report. The project's right-of-way agents will contact the affected property owner(s), and the agents will negotiate with the property owner(s) on the terms of the temporary easement. Following construction of the project, all portions of property used for TCEs would be restored to their original condition.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

There would be no TCEs required for this alternative.

2. TSM/EXPANDED BUS SERVICE

There would be no TCEs required for this alternative, since it does not include capital improvements to the SR-22 corridor. However, if capital improvements occur on adjacent arterials, there may be TCEs required. These have not been identified.

As with the (Enhanced) Reduced Build Alternative, the project's right-of-way agents would contact the affected property owner(s), and they will negotiate with the property owner(s) on the terms of the temporary easement. Following construction of the project, all portions of property used for TCEs would be restored to their original condition. Should the TSM/Expanded Bus Service Alternative be identified as the Preferred Alternative, the TCE impacts would be re-calculated.

3. FULL BUILD ALTERNATIVE

TCEs are the same as the (Enhanced) Reduced Build Alternative, except where they do not share common features such as the Pacific Electric Arterial or direct HOV connectors at I-5 and SR-55. These have not been identified. As with the (Enhanced) Reduced Build Alternative, the project's right-of-way agents would contact the affected property owner(s), and they will negotiate with the property owner(s) on the terms of the temporary easement. Following construction of the project, all portions of property used for TCEs would be restored to their original condition. Should the Full Build Alternative be identified as the Preferred Alternative, the TCE impacts would be re-calculated.

Thresholds of Significance for CEQA:

- Substantial disruption of the community character and cohesion

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would have no significant, long-term impact to community character or cohesion due to TCEs. Following construction of the project, all portions of property used for TCEs would be restored to their original condition.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not require TCEs; therefore, the No Build Alternative would have no impact due to TCEs.

2. TSM/EXPANDED BUS ALTERNATIVES

The TSM/ Expanded Bus Alternative does not require TCEs; therefore, the No Build Alternative would have no impact due to TCEs.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would have no significant, long-term impact to community character or cohesion due to TCEs. Following construction of the project, all portions of property used for TCEs would be restored to their original condition.

4.6.4 ECONOMIC IMPACTS

The potential for economic impacts was determined as follows:

- Employment effects due to construction of proposed infrastructure improvements and business displacements were considered for each alternative. Construction-related employment was estimated using construction cost estimates from the *SR-22/West Orange County Connection Project Report* (December 2000) and FHWA employment factors.
- Local tax revenue effects are attributed predominantly to residential and non-residential displacements.
- Redevelopment potential of each alternative was estimated qualitatively, considering opportunities for assembling excess property from right-of-way acquisitions for development of freeway-oriented uses.

Employment analysis are based on the methodology outlined in FHWA's *Summary: Economic Impacts of Federal-Aid Highway Investment* (FHWA, 2000).[3] For the purposes of this analysis, direct employment involves the jobs directly created by highway construction activity. These jobs include all on-site laborers, specialists, engineers, and managers involved with the highway improvement project. Indirect jobs are workers in industries, which supply highway construction manufacturers with materials and off-site construction industry workers such as administrative, clerical and managerial workers or. These supplying industry jobs include those supported in stone and clay mining and quarrying, petroleum refining, lumber, steel, concrete, and cement products, and

[3] Available at Caltrans, District 12.

miscellaneous professional services. Induced jobs are jobs supported throughout the economy when highway construction industry employees spend their wages. Expenditures by these workers on various goods and services stimulate demand for additional employees in many industries, resulting in jobs being supported throughout the general economy.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Employment. The (Enhanced) Reduced Build Alternative would result in non-residential displacements. However, areas surrounding the project contain a number of potential relocation sites. The relocation resource area (Orange County) contains an ample supply of available parcels with similar zoning to those businesses being displaced. It is anticipated that there would be minimal employment impacts because the businesses would be able to relocate locally.

The (Enhanced) Reduced Build Alternative would also create short-term construction jobs. In the short term, construction would require the direct employment of an approximate maximum of 19,703 people for this alternative. Not all of these employees would be working at the same time. The construction labor that would be required for the (Enhanced) Reduced Build Alternative is presented in Table 4.6-19, Employment Impacts.

Table 4.6-19
EMPLOYMENT IMPACTS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Description	Impacts
Construction Costs	*$468,000,000*[4]
Direct Employment[1]	3,697
Indirect Employment[2]	9,220
Induced Employment[3]	6,786
Total Employment	**19,703**

Source: FHWA, 2000
Notes: [1] Direct - 7,900 per $1 billion construction cost
[2] Indirect - 19,700 per $1 billion construction cost
[3] Induced - 14,500 per $1 billion construction cost
[4] Cost does not include right-of-way

Following construction, the increase in lanes under the (Enhanced) Reduced Build Alternative would require an incremental increase in labor for roadway maintenance and for law enforcement. This small increase in labor would not lead to substantial increases in the necessary labor force. Additional labor would be required for a number of the TSM measures included in this alternative, particularly for the driving and maintenance of the expanded bus fleet. The indirect and induced labor that would be required for the (Enhanced) Reduced Build Alternative is presented in Table 4.6-19, Employment Impacts above.

Local Tax Revenue. Under the (Enhanced) Reduced Build Alternative, the potential loss in sales tax revenue is attributed to disruption of commercial businesses on acquired properties. The majority of the non-residential displacements are either government/non-profit or unoccupied businesses. The loss of sales tax revenue would be small compared to the number of businesses within each city, and is in direct correlation with the number of businesses potentially displaced.

As shown in Table 4.6-20 (Annual Property Tax Impacts), the (Enhanced) Reduced Build Alternative would result in the loss of approximately $18,000 in annual property tax revenue that can be attributed to displacements for residential and non-residential properties. The non-residential partial acquisitions in the City of Garden Grove are landscaping and/or parking spaces which do not affect the requirements of the city ordinances therefore no tax revenue loss is anticipated. The City of Garden Grove would experience a loss of approximately $1,300 in annual property tax revenue, and the City of Orange would experience a potential loss of approximately $16,700.

Overall, the loss of property tax revenue from displacements would be very small in comparison to the annual revenue generated in each of the cities. For both cities, property tax loss would be less than one percent. The availability of suitable relocation sites increases the likelihood that all businesses would relocate within the same city, thereby minimizing any sales tax impacts.

Redevelopment Potential. Upon project completion, any excess property would be available for redevelopment uses.

Table 4.6-20
ANNUAL PROPERTY TAX IMPACTS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Jurisdiction	1998 Property Tax Revenue*	Residential Property Tax Loss	Non-Residential Property Tax Loss	Total Property Tax Loss	Percent of Property Tax Loss Compared to 1998 Revenue
Garden Grove	$7.2	$1,317	$0	$1,317	0.018%
Orange	$9.9	$1,468	$15,223	$16,691	0.17%
Total	**$17.1**	**$2,785**	**$15,223**	**$18,007**	**0.11%**

Source: DataQuick, 1999
Note: * Revenue in millions of dollars.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Employment. The No Build Alternative would not cause additional construction activity or property displacements within the study area. Accordingly, this alternative would not result in direct effects upon employment. However, a potential secondary impact to the job growth rate in the study area, resulting from increasing travel times and costs associated with highway and roadway congestion, is probable over time. A quantified determination of potential job impacts due to congestion of SR-22 is beyond the technical scope of this analysis. Yet, the existing mobility problems presented in Section 1.2 suggest that persistent transportation problems will eventually cause adverse effects.

Local Tax Revenue. The No Build Alternative would not result in direct effects upon local tax revenue, because there would be no change to annual property tax or sales tax revenues. However, study area conditions described in Section 1.2 suggest there may be some likelihood of eventual secondary tax impacts if highway and roadway congestion interferes with commerce efficiency and worker productivity.

Redevelopment Potential. The No Build Alternative would have no direct effect upon redevelopment of adjacent properties, because this alternative will not affect the configuration of parcels or displace existing land uses.

2. TSM/EXPANDED BUS SERVIC ALTERNATIVE

Employment. Implementation of the TSM/Expanded Bus Service Alternative would not result in any non-residential displacements, yet would generate almost 2,863 jobs within the study area. In the long term, additional labor would be required for a number of the TSM measures included in this alternative, particularly for the driving and maintenance of the expanded bus fleet. Compared to the California Employment Development Department *Labor Force Data for Sub-County Areas* (1998 civilian labor force), this alternative would expand employment in the study area cities by 0.8 percent. As shown in Table 4.6-21, this would be a beneficial impact.

TABLE 4.6-21
EMPLOYMENT IMPACTS
TSM/EXPANDED BUS SERVICE ALTERNATIVE

DESCRIPTION	IMPACTS
Construction Costs	*$68,000,000*
Direct Employment[1]	537
Indirect Employment[2]	1,340
Induced Employment[3]	986
Total Employment	**2,863**

Source: FHWA, 2000
Notes: [1] Direct - 7,900 per $1 billion construction cost
[2] Indirect - 19,700 per $1 billion construction cost
[3] Induced - 14,500 per $1 billion construction cost

Local Tax Revenue. The TSM/Expanded Bus Service Alternative would not result in direct effects upon local tax revenue, because there would be no change to annual property tax or sales tax revenues. However, study area conditions described in Section 1.2 suggest that there may be some likelihood of eventual secondary tax impacts if highway and roadway congestion interferes with commerce efficiency and worker productivity.

Redevelopment Potential. The TSM/Expanded Bus Service Alternative would not affect the configuration of parcels or displace existing land uses. Accordingly, there would be no direct effect upon redevelopment of adjacent properties.

3. FULL BUILD ALTERNATIVE

Employment. The Full Build Alternative would result in non-residential displacements. However, areas surrounding the project contain a number of potential relocation sites. The Relocation Resource Area (Orange County) contains an ample supply of available parcels with similar zoning to those businesses being displaced. It is anticipated that there would minimal impacts to employment because they would be able to relocate with the businesses locally.

The Full Build Alternative would also create short-term construction jobs. In the short term, construction would require the direct employment of an approximate maximum of 28,754 people for the Full Build Alternative. Not all of these employees would be working at the same time. The labor required for the actual construction of the Full

Build Alternative would be 5,396. The employment impacts for the Full Build Alternative is presented in Table 4.6-21.

TABLE 4.6-22
EMPLOYMENT IMPACTS
FULL BUILD ALTERNATIVE

DESCRIPTION	IMPACTS
Construction Costs	*$683,000,000*
Direct Employment[1]	5,396
Indirect Employment[2]	13,455
Induced Employment[3]	9,904
Total Employment	**28,754**

Source: FHWA, 2000
Notes: [1] Direct - 7,900 per $1 billion construction cost
[2] Indirect - 19,700 per $1 billion construction cost
[3] Induced - 14,500 per $1 billion construction cost

Following construction, the increase in lanes under the Full Build Alternative, including the new Pacific Electric Arterial, would require an incremental increase in labor for roadway maintenance and for law enforcement. This small increase in labor would not lead to substantial increases in the necessary labor force. Additional labor would be required for a number of the TSM measures included in this alternative, particularly for the driving and maintenance of the expanded bus fleet. The indirect and induced labor that would be required for The Full Build Alternative is presented in Table 4.6-12 above.

Local Tax Revenue. Under the Full Build Alternative, the potential loss in sales tax revenue is attributed to disruption of commercial businesses on acquired properties. The majority of the non-residential displacements are either government/non-profit or unoccupied businesses. The loss of sales tax revenue would be small compared to the number of businesses within each city, and is in direct correlation with the number of businesses potentially displaced.

As shown in Table 4.6-23, the Full Build Alternative would result in a loss of annual property tax revenue of about $173,512 would be due to residential (duplexes, apartments, and mobile homes) and non-residential displacements. The City of Orange would experience a potential loss of approximately $74,033 in annual property tax revenue. The City of Garden Grove would experience a loss of approximately $60,647 in annual property tax revenue. Both Santa Ana and Seal Beach would also experience a loss in property tax revenue, about 0.24 and 0.42 percent of the 1998 total annual property tax revenue.

Overall, the loss of property tax revenue from displacements would be small (less than one percent property tax loss) in comparison to the annual revenue generated in each of the cities. The availability of suitable relocation sites increases the likelihood that all businesses would relocate within the same city, thereby minimizing any sales tax impacts.

TABLE 4.6-23
ANNUAL PROPERTY TAX IMPACTS
FULL BUILD ALTERNATIVE

Jurisdiction	1998 Property Tax Revenue*	Residential Property Tax Loss	Non-Residential Property Tax Loss	Total Property Tax Loss	Percent of Property Tax Loss Compared to 1998 Revenue
Garden Grove	$7.2	$41,249	$19,398	$60,647	0.84%
Santa Ana	$15.4	$19,493	$19,339	$38,832	0.25%
Orange	$9.9	$47,226	$24,807	$74,033	0.75%
Total	**$32.5**	**$107,968**	**$171,512**	**$173,512**	0.53%

Source: DataQuick, 1999
Note: * Revenue in millions of dollars.

Thresholds of Significance for CEQA:

- Substantial loss of employment
- Substantial change in local tax revenue
- Loss of redevelopment potential

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would not result in significant negative impact on employment, tax revenues or redevelopment potential. It is anticipated that there would be minimal employment and tax revenue impacts because displaced businesses would be able to relocate locally and the project construction would create jobs. Also, the loss of property tax revenue from displacements would be small in comparison to the annual revenue generated in each of the cities. The availability of suitable relocation sites and redevelopment sites from excess land after project completion increase the likelihood that all businesses would relocate within the same city, thereby minimizing any tax and redevelopment impacts.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not cause additional construction activity or property displacements within the study area. Accordingly, there would be no direct effect upon employment, tax revenues or redevelopment of adjacent properties.

2. TSM/EXPANDED BUS ALTERNATIVES

The TSM/Expanded Bus Alternative would not result in significant negative impact to employment. The TSM/Expanded Bus Alternative has a positive impact on employment and would generate almost 2,863 jobs within the study area. No change to annual property tax, sales tax revenues, or the configuration of parcels or displacement of existing land uses would occur. Accordingly, there would be no direct effect upon tax revenues or redevelopment of adjacent properties.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not result in significant negative impact on employment, tax revenues or redevelopment potential. It is anticipated that there would be minimal employment and tax revenue impacts because displaced businesses would be able to relocate locally and the project construction would create jobs. Also, the loss of property

tax revenue from displacements would be small in comparison to the annual revenue generated in each of the cities. The availability of suitable relocation sites and redevelopment sites from excess land after project completion increase the likelihood that all businesses would relocate within the same city, thereby minimizing any tax and redevelopment impacts.

4.6.5 COMMUNITY FACILITIES AND SERVICES

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Law Enforcement. The (Enhanced) Reduced Build Alternative would provide enforcement areas on SR-22, increasing the ability for the California Highway Patrol (CHP) to enforce existing traffic laws on the freeway. The response times for CHP would be improved as a result of freeway and roadway improvements. However, the HOV lanes that would be added to SR-22 would require additional CHP manpower to patrol.

Fire Services. The (Enhanced) Reduced Build Alternative would slightly improve response times, benefiting fire protection. Otherwise, fire services would not be affected. No fire stations would be acquired for the project.

Schools. Although no school property would be acquired, three types of impacts to schools immediately adjacent to the proposed (Enhanced) Reduced Build Alternative would occur: air quality and noise impacts (discussed in Section 4.8 and 4.9) in recreation areas and classrooms and visual impacts to recreational areas (discussed in Section 4.13).

The (Enhanced) Reduced Build Alternative would not cause or exacerbate a violation of carbon monoxide or PM_{10} standards at any of the locations analyzed. Any potential hazardous effects of diesel emissions would not be worsened or exacerbated by the (Enhanced) Reduced Build Alternative. During construction, the project would be required to comply with regional rules, Department standard practices and best management practices (BMP) that would prevent substantial short-term air pollutant emissions. The construction contractor will be required to adhere to all laws and regulations for emissions from construction equipment, including those set forth by the South Coast Air Quality. Therefore, the air quality impact to schools immediately adjacent to the SR-22 would be minimal.

The noise and visual impacts are summarized below for the schools immediately adjacent to the SR-22: Bolsa Grande High School, Jordan Intermediate School, Excelsior Elementary School and Eisenhower Elementary School.

Bolsa Grande High School. Noise levels in the recreation area on the Bolsa Grande High School campus would increase from 69 to 74 dBA. At the nearest classroom, noise levels would increase from 50 to 55 dBA. A new noise barrier is proposed as abatement for this impact, reducing the outdoor noise level to 64 dBA and the indoor noise level at the nearest classroom to 50, both below the Caltrans/FHWA criteria for schools. At Bolsa Grande High School, the removal of mature screening vegetation and its replacement with noise barriers would represent a substantial and adverse visual impact. Mitigation for visual impacts calls for replacement of freeway landscaping either within the freeway right-of-way or on adjacent properties, thereby reducing this impact.

Jordan Intermediate School. Noise levels in the recreation area on the Jordan Intermediate School campus would increase from 69 to 71 dBA. At the nearest classroom, noise levels would increase from 59 to 61 dBA. A new noise barrier is proposed as abatement for this impact, reducing the outdoor noise level to 64

dBA and the indoor noise level at the nearest classroom to 56 dBA. The indoor noise level exceeds the Caltrans/FHWA criteria for schools, and additional study and possible mitigation are required to reduce the noise levels even more (see Mitigation Measure NOI-3-(E)RB in Section 4.9). Visual impacts at this school would be minimal.

Excelsior Elementary School. Noise levels in the recreation area on the Excelsior Elementary School campus would increase from 66 to 68 dBA. At the nearest classroom, noise levels would increase from 56 to 58 dBA. A new noise barrier is proposed as abatement for this impact, reducing the outdoor noise level to 64 dBA and the indoor noise level at the nearest classroom to 51 dBA, both below the Caltrans/FHWA criteria for schools. Visual impacts at this school would be minimal.

Eisenhower Elementary School. Noise levels in the recreation area on the Eisenhower Elementary School campus would increase from 66 to 69 dBA. At the nearest classroom, noise levels would increase from 47 to 50 dBA. The outdoor noise level would exceed the Caltrans/FHWA criteria for schools. The existing noise barrier would remain. The highest available noise barrier would not be feasible and would not reduce the noise by at least 5 dBA. Visual impacts at this school would be minimal.

Other Community Facilities. The (Enhanced) Reduced Build Alternative would not affect libraries, city halls, post offices, hospitals or community centers.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Law Enforcement. The No Build Alternative would not affect law enforcement in the study area except that the enforcement areas provided on SR-22 by either build alternative would not be constructed. Also, response time would not be reduced because freeway and roadway improvements would not occur.

Fire Services. The No Build Alternative would not affect fire protection services except that response times would not be reduced because of freeway and roadway improvements.

Schools. The No Build Alternative would not affect schools.

Other Community Facilities. The No Build Alternative would not affect libraries, city halls, post offices, hospitals or community centers.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

See discussion of impacts under NO BUILD ALTERNATIVE, above, for impacts of TSM/Expanded Bus Service Alternative.

3. FULL BUILD ALTERNATIVE

Law Enforcement. See discussion under Law Enforcement for the identified PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above.

Fire Services. See discussion under Fire Services for the identified PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above.

Schools. See discussion under Schools for the identified PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above. Two additional schools would also be affected:

Fairhaven Elementary School. A new noise barrier is proposed as abatement for this impact, reducing the outdoor noise level to 59 dBA and the indoor noise level at the nearest classroom to 46, both below the Department/FHWA criteria for schools. Visual impacts at this school would be minimal.

Spurgeon Intermediate School. Both indoor and outside noise levels are below the Department/FHWA criteria for schools; so no abatement is proposed. At Spurgeon Intermediate School, the placement of an arterial in the open space represented by the former Pacific Electric right-of-way would have a substantial visual impact. The visual impact would also include severing views of the additional agricultural open space north of the right-of-way. Although mitigation for visual impacts requires landscaping to screen the arterial as much as possible, the loss of open space cannot be mitigated.

Other Community Facilities. The Full Build Alternative would not affect libraries, city halls, post offices, hospitals or community centers.

Thresholds of Significance for CEQA:

- Substantial loss in community services (e.g. law enforcement and fire services).
- Substantial change in access to community facilities or services (e.g. libaries, city halls, post offices, hospitals, or community centers.)

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would have no significant impact to community facilities or services. It would have a beneficial effect on police and fire services by improving response times. The (Enhanced) Reduced Build Alternative would not affect libraries, city halls, post offices, hospitals or community centers. The (Enhanced) Reduced Build Alternative would have minimal air quality and noise impacts in recreation areas and classrooms (discussed in Section 4.8 and 4.9) and minimal visual impacts to recreational areas (discussed in Section 4.13).

B. OTHER ALTERNATIVES

3. NO BUILD ALTERNATIVE

The No Build Alternative would not affect community facilities and services.

4. TSM/EXPANDED BUS ALTERNATIVES

The TSM/ Expanded Bus Alternative would not affect community facilities and services.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would have no significant impact to community facilities or services. It would have a beneficial effect on police and fire services by improving response times. The Full Build Alternative would not affect libraries, city halls, post offices, hospitals or community centers. The Full Build Alternative would have minimal air

quality and noise impacts (discussed in Section 4.8 and 4.9) in recreation areas and classrooms and visual impacts to recreational areas (discussed in Section 4.13). However, the Full Build Alternative would impact two more schools than the (Enhanced) Reduced Build Alternative. The Full Build Alternative would have notable visual impact to Spurgeon Intermediate School.

4.6.6 MITIGATION MEASURES

All state and FHWA projects must comply with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601, et seq.), as amended. In accordance with the California Department of Transportation Relocation Assistance Program, residential and non-residential properties displaced by the SR-22/WOCC project would be compensated. For further details, refer to Figure 4.6-3, Relocation Assistance Policy. New construction for parking will employ Best Management Practices (BMP) as required by the NPDES permit to minimize impacts of this new construction. The project area is a built-out, urban environment; in this setting, construction of a parking garage near office buildings in the City of Orange would not have a significant visual impact.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

COM-(E)RB-1. Replacement parking will be provided for Carl Karcher Enterprises in Orange on a nearby off-site location or through construction of a parking garage on the north side of the existing site. The off-site location will be within 0.4 km (0.25 miles) of the office complex.

COM-(E)RB-2. Replacement parking will be provided for Amerisource-Bergen in Orange either by including this site in a shared parking agreement with The Block at Orange and One City Plaza (see COM-(E) RB-3) or by construction of a parking garage on the site.

COM-(E)RB-3. The loss of parking for The Block will be offset by the creation of parking on land on Metropolitan Drive, across the street from existing parking. This creation of parking and the suggested shared use of parking between The Block and One City Plaza would be sufficient to meet the city's parking requirement.

COM-(E)RB-4. During final design, the Department will work with the City of Orange to ensure that the necessary parking for the Theo Lacy Jail expansion is accommodated on land remaining after the construction of Metropolitan Drive. Minor realignment of the SR-57 off-ramp and the I-5/SR-57 to westbound SR-22 connector may be required, as well as reconfiguration of the planned parking. The Department will continue coordination with the City to ensure minimal impacts to Theo Lacy Jail.

Mitigation measures VIS-(E)RB 1, 4, 7, 8 and 12 and NOI-(E)RB 1 through 11 would further address the impacts to the communities along the SR-22 corridor (See Section 4.9 and 4.13).

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

   None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

   None.

3. FULL BUILD ALTERNATIVE

COM-FB-1. Excess property acquired for right-of-way in the Park City Ranchos housing community would be returned to the community for use as a park or community facility.

COM-FB-2. New replacement parking would be provided for 13421 El Prado, Garden Grove on adjacent available land. The adjacent parcel would be acquired by this project and would provide suitable land for replacement parking.

COM-FB-3. City Gardens - There may need to be additional displacements (removal of multi-family units) within the complex as a way to reduce the amount of parking required to meet the current City of Santa Ana parking requirements. It would be speculative at this time to identify additional units as displacements in an effort to meet the current parking requirement. Further analysis would be required in the Final Relocation Impact Report.

COM-FB-4. Replacement parking would be provided for Carl Karcher Enterprises in Orange on a nearby off-site location or through construction of a parking garage on the north side of the existing site.

COM-FB-5. Replacement parking would be provided for Bergen Brunswig in Orange either by including this site in a shared parking agreement with The Block at Orange and One City Plaza (see COM-FB-6) or by construction of a parking garage on the site.

COM-FB-6. The loss of parking for The Block would be offset by the creation of parking on land formerly used by Metropolitan Drive. This creation of parking and the suggested shared use of parking between The Block and the One City Plaza would be sufficient to meet the city's parking requirement.

COM-FB-7. During final design, Caltrans would work with the City of Orange to ensure that the necessary parking for the expanded Theo Lacy jail expansion would be accommodated on the residual land remaining after the construction of Metropolitan Drive. Minor realignment of the SR-57 off-ramp and the I-5/SR-57 to westbound SR-22 connector may be required, as well as reconfiguration of the planned parking.

COM-FB-8. There exists possible difficulty relocating two service stations to similar high-visibility locations. All reasonable attempts will be made to relocate these two service stations to similar high-visibility location, or within the same parcel.

4.6.7 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Land Use Compatibility.
In several areas along the (Enhanced) Reduced Build Alternative, visual impacts would result. As discussed in Section 4.13, not all of these impacts could be mitigated.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Consistency with Land Use Plans. Because the No Build Alternative would not include improvements to major arterials or freeway systems as anticipated in local

land use plans and policy documents, the goals of these cities for overall transportation mobility would go unmet.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Consistency with Land Use Plans. Because the TSM/Expanded Bus Alternative would not include major improvements to arterials or freeway systems as anticipated in local land use plans and policy documents, the goals of these cities for overall transportation mobility would go unmet.

3. FULL BUILD ALTERNATIVE

Consistency with Land Use Plans. Use of the former Pacific Electric right-of-way for motorized vehicles instead of a bikeway would be inconsistent with the land use plans of Garden Grove and Santa Ana.

Land Use Compatibility. In several areas along the Full Build Alternative, visual and noise impacts would result. As discussed in Sections 4.9 and 4.13, not all of these impacts could be mitigated.

Residential Displacements. The acquisition of property for the Full Build Alternative right-of-way at the City Gardens Apartment complex would result in loss of the property's designation as a legal non-conforming use (for parking deficiencies, above, and because the existing multi-family residential land use is zoned for agriculture). Any alteration of the property cancels its legal non-conforming status.

Acquisition of Country Woods Apartments in Garden Grove, which appears to be predominantly Hispanic, would constitute a significant impact as relocation of this cohesive community may not be possible. Removal of houses along one side of Sherwood Lane cannot be avoided, and would also significantly affect this community.

Non-residential Displacements. There are two high-visibility service stations that would be acquired by the Full Build Alternative. If suitable high-visibility locations cannot be found on which to relocate these service stations or within the same parcel, a substantial impact to these businesses could result.

Parking. Parking would be removed at City Gardens Apartment complex, a legally non-conforming land use.

4.6.8 ENVIRONMENTAL JUSTICE

Environmental justice refers to the fair treatment of people of all races, cultures, and income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. For all projects involving federal funds or approval, Environmental Justice seeks to provide an inclusive, representative and equal opportunity for public participation, and to ensure that adverse impacts are not borne disproportionately by minority and/or low-income populations. The concept of Environmental Justice grew out of the Civil Rights Act of 1964 (as amended), culminating in Executive Order 12898 (1994), "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Federal Highway Administration (FHWA) issued its Order on Environmental Justice (Directive #6640.23) in 1998 in support of the Executive Order. Environmental Justice can be summarized in the following fundamental principles:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and/or low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and/or low-income populations.

Environmental Justice analysis begins with identifying ethnic and racial minority and low-income population groups in the affected community, initiating contacts with public officials and environmental justice leaders, and integrating community participation throughout project development. Potential impacts to a resource are then analyzed against affected populations to determine if minority and/or low-income populations do not disproportionately sustain impacts than other demographic groups. If disproportionate impacts appear to exist, further analysis is undertaken to determine the extent of the impacts. This section examines impacts and proposed mitigation for the following areas: Geology and Soils, Hydrology, Floodplains and Water Quality, Biology, Wetlands and Waters of the United States, Cultural Resources, Community Characteristics, Transportation and Circulation, Air Quality, Noise, Parks and Recreation, Utilities, Hazardous Material/Waste, Visual Resources, Energy, and Construction-related Impacts.

The SR-22/WOCC has been developed in accordance with the Civil Rights Act of 1964, as amended and the Executive Order 12898. Minority and low-income communities in the project area were identified through U.S. Census data analysis and observations of the project study area. Low-income populations were identified by comparing census data with the U.S. Department of Health and Human Services (DHHS) poverty guidelines, as defined by DOT Order 5610.2. The 2000 Census indicates that the average number of persons per household is three. The 2001 DHHS poverty guideline states that an income below $14,630 for a family of three is considered below the poverty line. Since the 2000 Census income data is available in $5,000 increments, the closest 2000 Census income level, which would capture the population below the DHHS poverty guideline, is $14,999. Therefore, incomes below $14,999 were used for the analysis of the number of households below the poverty line.

Throughout the development and planning for the SR-22/WOCC, the California Department of Transportation (the Department) has complied with Title VI of the Civil Rights Act of 1964 through its outreach efforts to involve local agencies, the public and all interested parties in the transportation decision-making process. The Department has striven to ensure that the three fundamental Environmental Justice principles are met. The Department's outreach program during scoping and public review of the DEIR/EIS was designed to reach as many stakeholders as possible, especially residents in the project study area. A series of Open House/Public Scoping Meetings was held in the fall of 1998. Upon identification of the four alternatives analyzed in the DEIR/EIS, public meetings were held in September and October of 2001, and notices were also published in four newspapers: two in English, one in Spanish and one in Vietnamese.

4.6.8.1 Environmental Justice Impacts

The study area included 83 census tracts located in the communities of Rossmoor, Los Alamitos, Seal Beach, Westminster, Garden Grove, Santa Ana, Stanton, Orange, Tustin and unincorporated portions of Orange County. The census data were presented in Section 3.6 on Table 3.6-2 (2000 Race/Ethnic Distribution in the Study Area) and 3.6-7 (Incomes in the Study Area). The study area's 2000 population was predominantly non-Hispanic white (51.7 percent) and Hispanic Origin (45 percent). The minority population accounts for approximately 48.3 percent of the study area.

The data for the study area indicates a large area of minority population that spans the jurisdictions of Garden Grove, Westminster, Santa Ana, and Orange. The City of Santa Ana is

predominantly of Hispanic origin. Approximately 76.1 percent of the population are of Hispanic origin. Nearly a third of Garden Grove, Tustin and Orange are of Hispanic origin. The City of Westminster has the highest percentage of Asians (38.1%) compared to the other cities along the SR-22 corridor.

As shown in Section 3.6, the 2000 U.S. Census indicated that the median household incomes for cities along the SR-22 corridor range from $39,172 in Stanton to $86,457 in Rossmoor. The median income for the study area is $44,396. Based on the 2001 DHHS Federal Poverty Guidelines, Seal Beach and Stanton have the greatest percent (approx. sixteen percent) of households at or below the poverty line while Rossmoor has the lowest percentage (approximately four percent). Nearly thirteen percent of the households in the study area are at or below the poverty line.

Upon review of the four alternatives below, each determination concluded that these impacts are distributed throughout the study area and not concentrated in any particular area, therefore the impacts were not disproportional.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Environmental impacts associated with the (Enhanced) Reduced Build Alternative include the following impacts:

- visual impacts related to removal of landscaping and construction of new noise barriers;
- new light sources;
- displacements and partial acquisitions;
- construction impacts due to temporary construction easements (TCE);
- and blockage of freeway-oriented business signs.

Visual and Noise. Visual, additional light sources, noise impacts and blockage of freeway-oriented signs are distributed throughout the study area and not concentrated in a particular community.

Displacements and Partial Acquisitions. This alternative may result in an impact on minority or low-income individuals due to displacements (See Table 4.6-24 and 4.6-25). The (Enhanced) Reduced Build Alternative was modified to reduce the overall amount of displacements and acquisitions from the Reduced Build Alternative, and the severity of the remaining displacements and acquisitions was reduced. The area where the displacements and partial acquisition impacts would occur was reduced from seventeen tracts to eight. This reflects elimination of the Pacific Electric Arterial as well as any acquisitions in the Country Woods Apartment complex, Sherwood Lane Homes and Park City Ranchos.

Displacement impacts would occur in two census tracts with minority populations ranging from 39.2 percent to 69.1 percent (see Table 4.6-12). Census Tracts 888.01 and 891.06, both in Garden Grove, show a population of nearly 50 percent Asians. The remaining census tracts are predominantly Hispanic in Origin. Slightly more than half (five out of eight) of the census tracts impacted by displacements, partial acquisitions and TCEs from the (Enhanced) Reduced Build Alternative contain a minority population percentage greater than the study area. However, the overall population in the impacted census tracts is roughly half majority and half minority. The impacts are distributed across both populations. Therefore, the impacts of displacements, partial acquisitions, and TCE's are not disproportionately borne by minority populations.

The percent of low-income households for the impacted census tracts range from about six to fourteen percent. Only one out of the eight impacted census tracts (888.01 in Garden Grove) has a proportion of persons below the poverty line greater than the study area. Therefore, the impacts of displacements, partial acquisitions, and TCE's are not disproportionately borne by low-income populations.

Temporary Construction Easements. Temporary construction easements (TCE) would occur in six census tracts shown in Table 4.6-24, which shows race and ethnic distribution for these tracts. Impacts due to TCEs are not disproportionately borne by low-income or minority populations as discussed above. Where possible, vacant properties have been identified as TCEs. Furthermore, the TCEs are located close to the area where construction will occur along an existing highway.

Parking. As shown in Table 4.6-17, Implementation of the (Enhanced) Reduced Build Alternative would result in the loss of 472 on-site parking spaces at four non-residential locations in the City of Orange. Parking at these locations is not disproportionately used by minority or low-income residence. Minority or low-income residential communities do not bear a disproportionate share of parking impacts.

The impacts to residents are at least partially offset by benefits to the affected population and to the region as a whole, as indicated below:

- The project would provide clear and needed benefits for the region in terms of congestion relief, safety, and improved air quality (see Sections 2, 4.7 and 4.8 of this FEIS/EIR);
- The (Enhanced) Reduced Build Alternative is the least environmentally damaging alternative which meets the purpose and need;
- All efforts have been made to include the affected populations in planning and scoping; and
- The alternative of building a highway along a new alignment would involve increased costs of an extraordinary magnitude, including displacements of a higher number of residents, whether minority and/or low-income or not.

TABLE 4.6-24
2000 RACE/ETHNIC DISTRIBUTION FOR DISPLACEMENTS, PARTIAL ACQUISITIONS & TEMPORARY CONSTRUCTION EASEMENTS (ENHANCED) REDUCED BUILD ALTERNATIVE

Census Tract	Jurisdiction	DP, PA, or TCE	% NH White	% NH Black	% NH American Indian	% NH Asian	% NaH & OPI	% NH Other	% Hispanic Origin Of Any Race	% Total Minority
753.01	Santa Ana	PA	51.8	3.0	1.1	7.8	0.6	31.1	57.6	48.2
759.02	Santa Ana	TCE	45.6	2.7	0.8	4.1	0.5	43.1	74.7	54.4
760.00	Santa Ana	ALL	72.9	1.7	0.7	3.2	0.1	18.6	37.9	27.1
761.02	Santa Ana & Tustin	PA/ TCE	60.8	2.7	1.0	5.8	0.7	25.2	50.8	39.2
761.03	Garden Grove & Orange	PA/ TCE	42.3	2.2	1.5	23.3	0.8	26.2	49.5	57.7
885.01	Garden Grove	DP	42.8	1.3	0.9	20.9	7.0	28.9	49.1	57.2
888.01	Garden Grove	TCE	35.9	0.7	1.0	46.2	0.2	11.1	22.4	64.1
891.06	Garden Grove	PA/ TCE	30.9	0.8	0.5	50.7	1.8	12.6	26.5	69.1
Total for Enhanced Reduced Build Alternative			42.5	1.8	1.2	22.3	0.8	0.4	49.4	57.5
Study area			51.7	1.7	0.9	19.4	0.4	21.6	45.0	48.3

Source: *2000 U.S. Census of Population and Housing.*
Note: NH = Non-Hispanic; NaH &OPI = Native Hawaiian or Other Pacific Islander
DP = Displacement; PA = Partial Acquisition; TCE = Temporary Construction Easement

TABLE 4.6-25
2000 INCOMES FOR DISPLACEMENTS, PARTIAL ACQUISITIONS & TEMPORARY CONSTRUCTION EASEMENTS (ENHANCED) REDUCED BUILD ALTERNATIVE

Census Tract	Jurisdiction	Median Income	Number of Households	Number of Households >$14,999 Income	% Below $14,999*
753.01	Santa Ana	47688	1544.00	129	8.35
759.02	Santa Ana	43,581	1,091	91	8.34
760.00	Santa Ana	67,404	1,167	78	6.68
761.02	Santa Ana & Tustin	45,830	1,374	80	5.82
761.03	Garden Grove & Orange	42,953	2,397	183	7.63
885.01	Garden Grove	42,901	1,789	166	9.28
888.01	Garden Grove	41,613	1,264	178	14.08
891.06	Garden Grove	48,125	1,179	99	8.40
	Study area	44,396	127,831	16,063	12.57

Source: *2000 U.S. Census of Population and Housing.*
Note: *2001 DHHS Poverty guideline for a family of three is $14, 630.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not change the human health or environmental effects of already approved and funded improvements to the transportation network. Accordingly, there would be no effect upon the proportionality of impacts borne by minority or low-income populations by adopted programs, policies and activities.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not change the human health or environmental effects of already approved and funded improvements to the transportation network. There would be no effect upon the relative proportionality of impacts borne by minority and/or low-income populations.

3. FULL BUILD ALTERNATIVE

Environmental impacts associated with the Full Build Alternative include:

- the preclusion of a planned trail in the former Pacific Electric right-of-way;
- visual impacts related to removal of landscaping and construction of new noise barriers;
- new light sources;
- traffic noise and potential construction noise impacts;
- impacts to community cohesion related to the removal of apartment complexes and household displacements;
- loss of parking;
- loss of open space;
- and blockage of freeway-oriented business signs.

Visual and Noise. Visual, additional light sources, noise impacts, and blockage of freeway-oriented signs are distributed throughout the study area and not concentrated in a particular community.

Displacements and Partial Acquisitions. This alternative may result in an impact on minority or low-income individuals due to displacements (See Tables 4.6-26 and 4.6-27). All impacts except those related to community cohesion are distributed throughout the study area and are not disproportionately borne by minority or low-income groups. However, displacement impacts would affect the minority and low-income residents of areas in Garden Grove, Orange and Santa Ana. Displacement and partial acquisition impacts would occur in twelve census tracts with minority populations ranging from 12.2 percent to 67 percent compared to the study area minority population average of 48.3% (see Table 4.6-12).

The percent of low-income households for the impacted census tracts vary from about six to twenty-five percent. Only one out of the eight impacted census tracts (761.02 spanning Orange, Garden Grove, Anaheim, and Santa Ana) has a proportion of persons below the poverty line greater than the study area. Since the majority of the impacted census tracts exhibit low-income populations less than the study area as a whole, the impacts of displacements, partial acquisitions, and TCE's are not disproportionately borne by low-income populations.

Temporary Construction Easements. TCEs are the same as the (Enhanced) Reduced Build Alternative, except where they do not share common features such as the Pacific Electric Arterial or direct HOV connectors at I-5 and SR-55. The easements needed for the Arterial and additional connectors have not been specifically identified. Overall, impacts due to TCEs are not disproportionately borne by low-income or minority populations as discussed above. Should the Full Build Alternative be identified as the Preferred Alternative, the TCE impacts would be re-calculated.

Parking. Implementation of the Full Build Alternative would result in the loss of 571 on-site parking spaces at six locations in Garden Grove, Santa Ana and Orange. Of the six affected properties, significant parking impacts are anticipated at the El Prado

Drive residential site in Garden Grove and the City Gardens Apartments in Santa Ana. In comparison to the SR-22 study area, the parking impacts are localized to these two residential properties. The El Prado residential site consists of predominantly white population, while the City Gardens Apartments include a high proportion of minority population. However, the parking impacts do not disproportionately affect the minority and low-income population in the census tracts as a whole, since the ethnic and income composition of the two census tracts is consistent with the study area.

The impacts to residents are at least partially offset by benefits to the affected population and to the region as a whole, as indicated below:

- The project would provide clear and needed benefits for the region in terms of congestion relief, safety, and improved air quality (see Sections 2, 4.7 and 4.8 of this FEIS/EIR);
- All efforts have been made to include the affected populations in planning and scoping; and
- The alternative of building a highway along a new alignment would involve increased costs of an extraordinary magnitude, including displacements of a higher number of residents, whether minority and/or low-income or not.

TABLE 4.6-26
2000 RACE/ETHNIC DISTRIBUTION FOR
DISPLACEMENT AREAS & TEMPORARY CONSTRUCTION EASEMENTS
FULL BUILD ALTERNATIVE

Census Tract	Jurisdiction	DP, PA, or TCE	% NH White	% NH Black	% NH American Indian	% NH Asian	% NaH & OPI	% NH Other	% Hispanic Origin Of Any Race	% Total Minority
752.01	Santa Ana	DP	38.6	1.5	1.2	4.1	0.1	49.2	91.2	61.4
753.01	Santa Ana	DP	51.8	3.0	1.1	7.8	0.6	31.1	57.6	48.2
758.06	Orange	DP	70.1	1.8	1.0	6.8	0.3	15.6	36.4	29.9
758.07	Orange	DP	63.8	1.2	1.3	7.8	0.3	22.6	41.1	36.2
758.08	Orange & Tustin	DP	87.8	0.4	0.3	3.6	0.1	4.6	14.1	12.2
760.00	Santa Ana & Orange	ALL	63.8	2.7	1.1	8.9	0.3	19.3	37.1	36.2
761.02	Orange, Garden Grove, Anaheim & Santa Ana	ALL	62.7	4.3	9.0	17.6	0.5	10.9	39.7	37.3
761.03	Garden Grove & Orange	ALL	42.3	2.2	1.5	23.3	0.8	26.2	49.5	57.7
885.01	Garden Grove	DP	42.8	1.3	0.9	20.9	7.0	28.9	49.1	57.2
887.02	Garden Grove	DP	35.1	0.5	0.4	46.9	0.5	12.5	25.8	64.9
888.01	Santa Ana & Tustin	TCE	74.0	1.7	0.6	6.5	0.2	12.7	25.2	26.0
890.03	Garden Grove	DP	33.0	2.6	0.6	30.5	1.0	27.0	52.8	67.0
891.07	GG & SA	DP	41.7	0.9	1.1	26.8	0.6	25.1	48.2	58.3
Total for Full Build Alternative			53.3	2.0	0.9	16.6	0.5	23.0	45.0	46.7
Study Area			51.7	1.7	0.9	19.4	0.4	21.6	45.0	48.3

Source: *2000 U.S. Census of Population and Housing.*
Note: NH = Non-Hispanic; NaH &OPI = Native Hawaiian or Other Pacific Islander
Displ. = Displacement; TCE = Temporary Construction Easement

TABLE 4.6-27
2000 INCOMES FOR
DISPLACEMENTS, PARTIAL ACQUISITIONS & TEMPORARY CONSTRUCTION EASEMENTS
FULL BUILD ALTERNATIVE

Census Tract	Jurisdiction	Median Income	Number of Households	Number of Households >$14,999 Income	% Below $14,999*
752.01	Santa Ana	47,083	1,094	93	8.50
753.01	Santa Ana	47,688	1,544	129	8.35
758.06	Orange	57,682	2,082	206	9.89
758.07	Orange	69,119	1,245	76	6.10
758.08	O & T	77,344	1,145	40	3.49
760.00	SA & (O)	47,148	2,941	333	11.32
761.02	Orange, Garden Grove, Anaheim & Santa Ana	38,527	1,666	427	25.63
761.03	Garden Grove & Orange	42,953	2,397	183	7.63
885.01	Garden Grove	42,901	1,789	166	9.28
887.02	Garden Grove	41,563	1,433	169	11.79
888.01	SA & T	59,439	1,596	81	5.08
890.03	Garden Grove	44,722	834	61	7.31
891.07	GG & SA	57,801	1,253	89	7.10
---	Study area	57,801	127,831	16,063	12.57

Source: *2000 U.S. Census of Population and Housing.*
Note: *2001 DHHS Poverty guideline for a family of three is $14, 630.

4.6.8.3 MITIGATION

Mitigation measures for noise and visual impacts are listed in Sections 4.9.4 and 4.13.8. Mitigation for the displacements, partial acquisitions, and parking has been identified and is outlined in Section 4.6.6. As indicated in 4.6.8.2A, the area where displacements and partial acquisitions would occur has been reduced from 17 Census block groups (in the 1990 Census) to eight (per the Census 2000 map) through development of the Identified Preferred Alternative, considerably reducing the magnitude of displacements. TCEs have been located on unoccupied properties where these are available. See mitigation measure CON-(E)RB-2, regarding temporary construction easements, in Section 4.15.2.

All State and FHWA projects must comply with the provisions of the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 (42 USC 4601, et seq.), as amended. In accordance with the California Department of Transportation Relocation Assistance Program, residential properties displaced by the SR-22/WOCC project would be compensated (see Figure 4.6-3, Relocation Assistance Policy). All displaced households would be eligible to receive both advisory and financial assistance to relocate to comparable or improved housing.

4.7 TRANSPORTATION AND CIRCULATION

The information contained in this section is based on the *SR-22 West Orange County Connection (WOCC) Traffic/Circulation Impact Report* and the *Traffic/Circulation Report Reduced Build Alternative Addendum* (June 2002), both of which are available under a separate cover at the Department and OCTA. These studies analyze the potential impacts to traffic and circulation that would occur from the four alternatives proposed for the SR-22/WOCC. This section includes discussions of impacts and mitigation measures related to traffic and circulation in the study area.

As previously discussed in Section 2.2.1, the (Enhanced) Reduced Build Alternative is a slight modification of the Reduced Build Alternative proposed in the August 2001 DEIR/EIS. The difference between the Reduced Build Alternative and the (Enhanced) Reduced Build Alternative is that the eastern portion of the Mainline, previously proposed to end at Glassell Street, has been extended to approximately SR-55. The direct connector to SR-55 is not part of the (Enhanced) Reduced Build Alternative. An auxiliary lane has been added from Glassell Street to Tustin Avenue in the eastbound direction. Please refer to Table 2.2-1 for the list of features for the (Enhanced) Reduced Build Alternative. Note, the TSM/Expanded Bus Service Alternative was rejected as a standalone proposal; however, elements from this alternative are included in the (Enhanced) Reduced Build Alternative. The refinement to the right-of-way and the modification to the Pearce Street pedestrian overcrossing would have no effects to traffic and circulation.

Some of the revisions to the DEIR/EIS, presented in this section are based on additional engineering work performed, subsequent planning efforts, and comments received from the public during the period of the August 2001 DEIR/EIS. The comments and responses to comments are attached as Appendix A of this FEIR/EIS (Volumes II & III).

The planning horizon for the SR-22/West Orange County Connection project is 2020[1]. For the purposes of traffic analysis, the HOV requirement is assumed to be three or more persons per vehicle (3+) in the Year 2020. This assumption is consistent with other future planning efforts and is based on the analysis of travel forecasts, that predict Orange County's HOV lanes will be congested during peak periods in 2020 with an occupancy requirement of two or more persons per vehicle (2+). Consequently, travel demand forecasts conducted for all four alternatives presume that the full Orange County HOV network would be operating under a 3+ occupancy requirement.

It is important to note, however, that the policy decision to change the HOV vehicle occupancy requirement from 2+ to 3+ has not been made. The current vehicle occupancy requirement for HOV lanes in Orange County is two or more persons per vehicle. For the Full Build and the (Enhanced) Reduced Build Alternatives, it is anticipated that HOV lanes on SR-22 would be open and operating under a 2+ occupancy requirement until such time that a policy decision is made to change the HOV network from 2+ to 3+.

4.7.1 CORRIDOR IMPACTS

4.7.1.1 CORRIDOR TRAVEL TIME SAVINGS

Table 4.7-1 shows the forecast daily and annual corridor travel time savings for all travelers whose trips would either begin or end in the SR-22 corridor in the year 2020. These savings would result from transportation system improvements included in each alternative and are compared with the baseline No Build Alternative. Time savings that take place outside of the corridor due to improvements in traffic flow in the surrounding road network as a result of the proposed project should be noted. These are depicted in Table 4.7-1. These numbers provide an overall assessment of the mobility improvement in SR-22 and the surrounding road network offered by each alternative.

[1] Projections for 2020 have been used in this Final EIR/EIS. At the time the Draft EIR/EIS was prepared, the 1998 RTP was the latest approved regional planning document, and it used 2020 projections. In April 2001, the 2001 RTP was approved; however, to provide consistent analysis over the study documents, 2020 is being used as the planning horizon. The Department is not expecting major changes in traffic volumes between 2020 and 2025.

Table 4.7-1
TIME SAVINGS FOR TRIPS BEGINNING AND/OR ENDING IN SR-22 CORRIDOR

Daily Travel Time Savings (compared to No Build Alternative)			**Annual Travel Time Savings (compared to No Build Alternative)**		
TSM/Expanded Bus Service Alternative	Full Build Alternative	(Enhanced) Reduced Build Alternative	TSM/Expanded Bus Service Alternative	Full Build Alternative	(Enhanced) Reduced Build Alternative
12,190 hours	28,660 hours	19,130 hours	3,658,000 hours	8,597,000 hours	5,740,000 hours

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
Note: annual travel time savings has been rounded to the nearest 1000

A. (ENHANCED) REDUCED BUILD ALTERNATIVE.

The (Enhanced) Reduced Build Alternative would produce the second largest corridor travel time savings. It would produce daily travel time savings for corridor travelers of 19,130 hours and an annual savings of 5,740,000 hours compared to the No Build Alternative. This would represent a 0.7-percent reduction in total corridor travel time for travelers whose trips would either begin or end in the SR-22 corridor. These savings would be generated based upon the addition of HOV lanes to the corridor, which would improve travel times for HOV lane users. In addition, a shift of vehicles to the HOV lanes would allow traffic on the SR-22 mixed-flow lanes to move somewhat faster, reducing travel times. Since these features are less extensive than those of the Full Build Alternative, this alternative would generate smaller travel time savings.

Trask Avenue/Sorrell Drive Synopsis

Background

The structures design team, when reviewing the SR-22 Project plans, identified several locations where there could be potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. As most of the potential conflicts involved City of Garden Grove local streets, the traffic team met with the City to discuss these issues.

It was noted that the widening of the existing SR-22 overcrossing of Trask Avenue, west of Harbor Boulevard, would require additional bridge columns in the median of Trask Avenue. These additional columns in the median supporting the westerly bridge widening will extend through the intersection of Sorrell Drive. Sorrell Drive, a north-south residential street, one block long, presently forms a "T-intersection" with Trask Avenue, an east-west arterial. Extension of the existing median on Trask Avenue westerly through the intersection to protect the new columns will result in limiting access at Sorrell Drive. Access would be limited to westbound right turns from Trask to Sorrell, and southbound right turns from Sorrell to Trask. Widening of the overcrossing would likely require acquisition of the residential property on the northeast corner of Trask/Sorrell. An alternative to the limited access of right turns into and out of Sorrel would be to cul-de-sac Sorrell Drive at Trask Avenue. Both the limited access and the cul-de-sac options would eliminate traffic that is now using Sorrel Drive between Trask Avenue and Banner Drive as an alternate route to avoid the busy intersection of Harbor Boulevard/Trask Avenue to the east. The Department and OCTA will continue its coordination with the City of Garden Grove and affected residents.

A public meeting was held by the City of Garden Grove on October 15, 2002. The City staff noted that the process required for altering access involved three basic steps. The first step is to hold a public meeting with local residents to present the issue, present the options and obtain their concerns and input. The second step is to take the issue to the City Traffic Commission, along with the input from the initial public meeting. The Traffic Commission will make a recommendation and forward it to the City

Council for final action. The City staff indicated they would conduct traffic counts in the area and arrange for an additional public meeting.

Where SR-22 crosses Trask Avenue near Sorrell Drive, the structure is also carrying the westbound (WB) onramp. Widening of the existing over crossing in the vicinity of the northeast (NE) corner of Trask/Sorrell varies between about 40 and 45 feet. Additional bridge columns will be needed in the median area of Trask Avenue, extending to the west of Sorrell. This likely would require acquisition of the property on the northeast (NE) corner.

Subsequent to the public meeting, the City conducted traffic counts on Sorrell Drive and determined the use to be approximately 1,850 vehicles per day. This is approximately 10 times the volume of a local residential street. Most of this traffic is due to motorists using Sorrell Drive as an alternative route to Harbor Boulevard. Between 150-200 vehicles travel on Sorrell Drive in both the AM and PM peak hours.

The existing median on Trask Avenue would need to be extended to the west approximately 75-100 feet which will eliminate the WB to NB left turn. This will in turn eliminate some of the detour traffic. Based on the counts, this would reduce the volumes by about 100 vehicles in the morning and 50-60 in the evening.

While a "right-turn-only" sign for SB Sorrell Drive might be the only additional traffic control needed, a more effective traffic control measure would be to implement channelization that enforces the right-turn-out only movement.

Pearce Street Pedestrian Overcrossing Synopsis

Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Pedestrian overcrossing is in need of replacement since it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately eight feet wide. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. The August 2001 DEIR/EIS assumed the Pearce Street pedestrian overcrossing would be replaced in-kind at the same location as the existing facility. This facility provides access for school children attending Doig Intermediate School, Eisenhower Elementary School, and Santiago High School in the community. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 110 meter (feet) east of the existing overcrossing. Please refer to Figure 2.2-2 b for a schematic of the replacement proposal.

In order to determine the usage of the Pearce Street, surveys were sent to residents within a half-mile radius of the pedestrian overcrossing. During the development of the FEIS/EIR, the proposed ADA compliant pedestrian overcrossing identified three residential displacements that were not previously identified during the DEIR/EIS. As part of the environmental documentation process, the Department's right-of-way staff contacted these three potential displacees. This led to concerns raised by the displacees, and the Department elected to survey the usage of the pedestrian overcrossing and hold a public meeting. At this time, the Department is recommending a right-turn only access from Sorrell Drive to westbound Trask Avenue design; a final decision will be made at the design stage. A Public Meeting was held on December 17, 2002 to present to the community the different plans to replace the existing Pearce Street pedestrian overcrossing. The purpose of the Public Meeting was to supplement the survey by sharing information with the community and to solicit their input on the replacement of the pedestrian overcrossing. Approximately 50 residents in the community attended the meeting. Comment

Forms were available at the meeting and 42 of them were received. The Pearce Street pedestrian overcrossing user survey results, as well as the Public Meeting, and the Comment Form are summarized in Section 2.2 of this chapter. The three potential displacements have been avoided by redesigning and relocating the overcrossing east of the existing location (Please see Figure 2.2-2 b for the modified proposed design of the overcrossing). Additional discussions are in Section 10.5.3, Comments and Coordination.

Entrance/exit points at the north side remains the same as the existing POC location, and the entrance/exit points on the south side is proposed to be moved approximately 100 meters from existing POC location to the east on Pearce Street, utilizing the existing Wintersburg Channel maintenance access road. The location of the POC structure has been shifted approximately 110 meters to the east on SR-22. Access would be maintained for users of the Pearce Street pedestrian overcrossing during construction of the replacement structure. Please refer to Figure 2.2-2 b for a schematic of the replacement facility.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE.

This is the baseline scenario against which the other alternatives were compared. 2. TSM/EXPANDED BUS SERVICE ALTERNATIVE.

The TSM/Expanded Bus Service Alternative would provide a daily travel time saving for corridor travelers of 12,190 hours and an annual saving of 3,658,000 hours compared to the No Build Alternative. This would represent a 0.5-percent reduction in total corridor travel time for travelers whose trips would either begin or end in the SR-22 corridor. These savings would be generated based upon the arterial street improvements included in this alternative and the shift of travelers from auto to transit.

3. FULL BUILD ALTERNATIVE.

The Full Build Alternative would produce the largest travel time savings of the four alternatives, 28,660 daily hours and 8,597,000 annual hours as compared to the No Build Alternative. This would represent a 1.1-percent reduction in total corridor travel time for travelers whose trips would either begin or end in the SR-22 corridor. The savings shown in Table 4.7-2 would be generated based upon the addition of HOV lanes and HOV lane connectors to the corridor, which would improve travel times for HOV lane users. In addition, a shift in vehicles to the HOV lanes would allow traffic on the SR-22 mixed-flow lanes to move somewhat faster, reducing travel times. Finally, the addition of an arterial street on the former Pacific Electric right-of-way would provide reduced travel times for some travelers.

Please see the discussions under 4.7.1.1 (A) for the proposed modifications to the Sorrell Drive/Trask Avenue intersection at the SR-22 overcrossing at Trask Avenue.

Please see the discussions under 4.7.1.1 (A) for the proposed replacement to the Pearce Street pedestrian overcrossing.

4.7.1.2 CORRIDOR VKT (VMT) AND VHT

If an alternative experiences a VKT (VMT) increase, it indicates that more vehicles would be moving through the study area. A VHT reduction and an average corridor speed increase indicate that the vehicles would be moving faster. Table 4.7-2 shows the comparative data between the No Build Alternative and the TSM/Expanded Bus Service, Full Build and (Enhanced) Reduced Build Alternatives.

Table 4.7-2
SR-22 CORRIDOR VKT (VMT) AND VHT SUMMARIES
YEAR 2020 – AVERAGE WEEKDAY

Alternative	Aggregate Summary of all Roadway Facilities		
	VKT (VMT)	VHT	Avg. Speed
No Build	16,155,410 (10,040,650)	311,360	51.8 km/h (32.2 mph)
TSM/Expanded Bus Service	16,273,600 (10,114,110)	309,980	52.5 km/h (32.6 mph)
Full Build	16,820,740 (10,453,790)	312,660	53.7 km/h (33.4 mph)
(Enhanced) Reduced Build	16,591,190 (10,311,130)	310,880	53.4 km/h (33.2 mph)

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
km/h: kilometers per hour; mph: miles per hour

The corridor-wide average speed differential between the No Build Alternative and any of the other alternatives appear to be small since the data in Table 4.7-2 are aggregated over the entire corridor for a 24-hour period and include all freeways and arterials within the defined study area. The aggregation process has diluted some substantial speed benefits gained during peak hours in certain corridor areas, as shown in Table 4.7-3.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE.

The (Enhanced) Reduced Build Alternative would result in an additional travel activity of 435,000-VKT (270,000-VMT), and a reduction of 480 VHT over the No Build Alternative. The ratio of VKT (VMT) and VHT indicates an average speed of 53.4 km/h (33.2 mph) for this alternative.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE.

The No Build Alternative is used as the baseline to which the other alternatives are compared. This alternative has the lowest VKT (VMT) at 16,155,410 (10,040,650), and a relatively high VHT at 311,360. The ratio of VKT (VMT) and VHT indicates an average speed of 51.8 km/h (32.2 mph) for this alternative.

2. TSM/EXPANDED BUS SERVICE.

As seen in Table 4.7-2, this alternative would result in 118,190 additional VKT (73,460 VMT). In addition, the VHT would be reduced by 1,380 hours compared to the No Build Alternative. The ratio of VKT (VMT) and VHT indicates an average speed of 52.5 km/h (32.6 mph) for this alternative.

3. FULL BUILD ALTERNATIVE.

This alternative would result in greater VKT (VMT) and VHT compared to the No Build Alternative; VKT (VMT) would increase by approximately 665,000 (413,000), while VHT would increase by approximately 1,300 over the No Build Alternative. The ratio of VKT (VMT) and VHT indicates an average speed of 53.7 km/h (33.4 mph) for this alternative.

4.7.1.3 PEAK PERFORMANCE AND SCREENLINE ANALYSIS

Table 4.7-3 provides a comparison of forecast year PM peak-period speeds along major segments of the SR-22 freeway among the alternatives. As seen in table 4.7-3, implementing the TSM/Expanded Bus Service, Full Build or (Enhanced) Reduced Build would achieve higher PM peak-period, peak direction travel speeds.

Table 4.7-3
YEAR 2020 PM PEAK PERIOD PERFORMANCE
PEAK DIRECTION SPEED

SR-22 Segments	No Build	TSM/Expanded Bus Service	Full Build	(Enhanced) Reduced Build
Between Orange Crush & City Drive	32 km/h (20 mph)	21 km/h (13 mph)	85 km/h (53 mph)	85 km/h (53 mph)
Between City Drive & Haster Street	43 km/h (27mph)	43 km/h (27mph)	82 km/h (51 mph)	77 km/h (48 mph)
Between Haster Street & Harbor Blvd.	48 km/h (30mph)	48 km/h (30 mph)	71 km/h (44 mph)	64 km/h (40 mph)
Between Harbor Blvd. & Euclid	50 km/h (31 mph)	50 km/h (31 mph)	72 km/h (45 mph)	61 km/h (38 mph)
Between Euclid & Brookhurst Avenue	55 km/h (34 mph)	56 km/h (35 mph)	69 km/h (43 mph)	63 km/h (39 mph)
Between Brookhurst and Magnolia	58 km/h (36 mph)	63 km/h (39 mph)	74 km/h (46 mph)	69 km/h (43 mph)
Between Magnolia & Beach Blvd.	68 km/h (42 mph)	69 km/h (43 mph)	80 km/h (50 mph)	77 km/h (48 mph)

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
* km/h: kilometers per hour; mph: miles per hour

Table 4.7-4 displays the PM peak-period statistics (for both directions) at the four screenlines selected within the study area as described in Section 3.7.1. The results of the screenline analysis are summarized in this table using traffic volumes and average speeds within SR-22 freeway (HOV and GP lanes) and arterials under the study alternatives. The table indicates that implementing the (Enhanced) Reduced Build Alternative, TSM/Expanded Bus Service or Full Build Alternative would not only serve additional traffic demand but would also achieve higher average speeds. The screenline 1 crosses I-405 and the screenline 4 crosses SR-22 and I-5. The screenlines 2 and 3 cross only SR-22. Therefore, screenlines 2 and 3 address the flow in SR-22 more directly than screenlines 1 and 4.

Table 4.7-4
YEAR 2020 PM PEAK PERIOD SCREENLINE COMPARISON
(BOTH DIRECTIONS)

Segment	Alternative	Volume	VKT (VMT)	VHT	GP Lane Speed	HOV Lane Speed	Arterial Speed
1 – West of the SR-22/I-405 Interchange	No Build	133,140	163,260 101,470	4,290	37.89 km/h 23.5 mph	97.2 km/h 60.4 mph	32.7 km/h 20.3 mph
	TSM/Expanded Bus Service	134,700	165,770 103,030	4,330	37.9 km/h 23.6 mph	96.9 km/h 60.2 mph	33.7 km/h 21.0 mph
	Full Build	139,870	172,360 107,120	4,340	38.5 km/h 23.9 mph	101.8 km/h 63.3 mph	33.7 km/h 20.9 mph
	(Enhanced) Reduced Build	**139,530**	**171,990 106,890**	**4,400**	**38.3 km/h 23.8 mph**	**101.0 km/h 62.8 mph**	**32.7 km/h 20.3 mph**
2 – Between Beach Blvd. and Magnolia St.	No Build	75,550	69,650 43.290	1,120	67.2 km/h 41.8 mph	N/A	49.2 km/h 30.5 mph
	TSM/Expanded Bus Service	79,990	70,970 44,110	1,140	67.9 km/h 42.2 mph	N/A	49.6 km/h 30.8 mph
	Full Build	93,110	93,480 58,100	1,330	74.4 km/h 46.2 mph	98.5 km/h 61.2 mph	50.6 km/h 31.5 mph
	(Enhanced) Reduced Build	**89,190**	**86,320 53,650**	**1,190**	**79.3 km/h 49.3 mph**	**109.4 km/h 68.0 mph**	**50.4 km/h 31.3 mph**
3 – Between Harbor Blvd. and Haster St.	No Build	118,370	98,820 61,420	2,390	55.3 km/h 34.4 mph	N/A	33.4 km/h 20.7 mph
	TSM/Expanded Bus Service	122,490	101,270 62,940	2,410	54.6 km/h 33.9 mph	N/A	34.8 km/h 21.6 mph
	Full Build	141,740	147,480 91,660	2,670	73.3 km/h 45.5 mph	96.1 km/h 59.7 mph	45.3 km/h 28.1 mph
	(Enhanced) Reduced Build	**132,200**	**116,170 72,200**	**2,310**	**69.4 km/h 43.1 mph**	**96.5 km/h 60.0 mph**	**37.0 km/h 23.0 mph**
4 – Between Glassell St. and Tustin Ave.	No Build	202,520	129,690 80,600	3,020	42.3 km/h 26.3 mph	73.3 km/h 45.6 mph	34.1 km/h 21.2 mph
	TSM/Expanded Bus Service	204,480	130,680 81,220	3,050	41.8 km/h 26.0 mph	73.8 km/h 45.9 mph	35.6 km/h 22.1 mph
	Full Build	210,000	136,590 84,890	3,170	40.9 km/h 25.4 mph	76.7 km/h 47.7 mph	36.4 km/h 22.6 mph
	(Enhanced) Reduced Build	**206,800**	**133,200 882,600**	**3,140**	**40.8 km/h 25.4 mph**	**77.1 km/h 47.9 mph**	**35.9 km/h 22.3 mph**

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would provide substantial PM peak period speed improvements over the No Build Alternative. Table 4.7-3 indicates that the (Enhanced) Reduced Build Alternative speeds along major segments of the SR-22 freeway are 8 km/h (5 mph) to 53 km/h (33 mph) higher than the No Build Alternative speeds during the peak period.

Table 4.7-4 indicates that at Screenlines 2 and 3, the (Enhanced) Reduced Build Alternative would serve 18 and 12 percent higher traffic volumes, respectively, compared to the No Build Alternative. The average speeds in the general-purpose lanes across the same two screenlines increase by 18 and 25 percent, respectively. The substantial travel speed improvement would be the result of additional roadway capacity that would become available through the proposed HOV lane and the auxiliary lane improvements. Screenline 1 shows more modest increase in volume since no general-purpose lanes would be added as part of the project and the current volume is nearly at capacity. At Screenline 4, only a modest increase in volume is observed due to the relatively minor impact of the proposed improvements on I-5.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE.

The No Build Alternative PM Peak period provides the baseline against which the other alternatives are compared. Table 4.7-3 indicates that the No Build Alternative results in the lowest PM peak period peak direction speeds in 2020. Similarly, Table 4.7-4 indicates that the No Build Alternative results in the lowest volumes, VKT (VHT) and speeds at the screenline locations.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE.

The TSM/Expanded Bus Service Alternative would result in modest PM peak period speed improvements along some of the segments of the SR-22. As seen on table 4.7-3, the implementation of this alternative would increase the speed from 32 km/h (20 mph) to 80 km/h (50 mph) and from 58 km/h (36 mph) to 53 km/h (39 mph) along a few segments. Similarly, Table 4.7-4 indicates VKT (VMT), volumes and speeds increase modestly at some of the screenlines.

3. FULL BUILD ALTERNATIVE.

The Full Build Alternative would provide substantial PM peak period speed improvements over the No Build Alternative. Comparing the Full Build Alternative speeds along major segments of the SR-22 freeway demonstrates distinct speed increases (ranging from 12 km/h (8 mph) to 53 km/h (33 mph)) during the peak period.

Table 4.7-4 indicates that the Full Build Alternative would result in substantial improvements to volumes and speeds at Screenlines 2 and 3. Screenline 1 shows more modest increase in volume since no general-purpose lanes would be added as part of the project and the current volume is nearly at capacity. At Screenline 4, only a modest increase in volume is observed due to the relatively minor impact of the proposed improvements on I-5.

4.7.1.4 CORRIDOR TRAVEL TIME COMPARISON

Table 4.7-5 provides a comparison of forecast year 2020 PM peak-period HOV and SOV average travel times (on the highway system) between selected pairs of trip origins (O) and destinations (D) within the corridor.

Table 4.7-5
PROJECTED SOV AND HOV TRAVEL TIMES IN MINUTES[1]
YEAR 2020 – PM PEAK PERIOD

Origin	Destination	Mode[2]	No Build	TSM/ Expanded Bus Service	Full Build	(Enhanced) Reduced Build
Orange Mall Orange	Seal Beach	SOV HOV	34 34	33 33	32 27	32 28
Orange Mall Orange	Belmont Shore Dr. Long Beach	SOV HOV	45 45	43 43	42 37	43 37
17th St. at Bristol St. Santa Ana	Belmont Shore Dr. Long Beach	SOV HOV	45 45	43 43	42 36	43 37
Transit Center Long Beach	Newport Avenue. Tustin	SOV HOV	55 41	51 38	50 34	50 35
Transit Center Long Beach	Civic Center Santa Ana	SOV HOV	45 37	43 34	42 25	42 29
Jamboree Road Tustin	Seal Beach	SOV HOV	39 31	38 31	35 28	36 28
Chapman Ave. Orange	Compton	SOV HOV	63 54	63 54	60 51	62 51

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
[1] Rounded to the nearest minute
[2] HOV assumed to be 3+ occupants per vehicle in 2020

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative, because of its exclusive HOV lane access on SR-22, would provide a substantial travel time benefit over the No Build Alternative. The SOV travel time savings compared to the No Build Alternative would range between one and five minutes per vehicle and the HOV travel time savings would range between three and seven minutes per vehicle. Comparing HOV and SOV travel times within the (Enhanced) Reduced Build Alternative demonstrates the distinct travel time advantage (ranging between four and 15 minutes) HOV lanes offer over general-purpose lanes during PM peak periods.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Under the No Build Alternative, the travel time difference between SOV and HOV would be zero for all Origin-Destination (O-D) pairs, with the exception of the O-D pairs that have access to other freeways' HOV lanes.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

TSM/Expanded Bus Service Alternative. The TSM/Expanded Bus Service Alternative travel time difference between the SOV and HOV would also be zero for all O-D pairs, except for the O-D pairs that have access to other freeways HOV lanes. The TSM/Expanded Bus Service Alternative would provide a small travel benefit, with approximately two minutes of travel time –savings on most trips over the No Build Alternative.

3. FULL BUILD ALTERNATIVE

Full Build Alternative. The Full Build Alternative, because of its exclusive HOV lane access on SR-22, would provide a substantial travel time benefit over the No Build Alternative. The SOV travel time savings compared to the No Build Alternative would range between 2 and 5 minutes per vehicle and, similarly, the HOV travel time savings would range between 3 and 8 minutes per vehicle. Comparing HOV and SOV travel times within the Full Build Alternative demonstrates the

distinct travel time advantage (ranging between 5 and 17 minutes) offered by HOV lanes over general-purpose lanes during PM peak periods.

4.7.2 FREEWAY MAINLINE IMPACTS

Table 4.7-6 summarizes the No Build, TSM/Expanded Bus Service, Full Build and (Enhanced) Reduced Build Alternatives' V/C ratios and levels of service (LOS) for various SR-22, I-405, I-605 and SR-55 freeway segments. Figure 1.2-3 in Section 1.2 provides a pictorial explanation of LOS. The LOS was determined by freeway operational analysis, which estimated the PM peak-hour V/C ratios by freeway segment. This was done in order to assess the relative traffic service levels of each of the alternatives.

The CMP, according to its traffic impact analysis guidelines, recommends a minimum LOS E standard for all key intersections and freeway segments within Orange County. If the baseline condition (2020 No Build) conforms to that recommendation, i.e., operates at LOS E or better, any proposed alternative that would deteriorate the level of service to worse than LOS E conditions would require mitigation. If the baseline condition is operating at worse than LOS E, then the proposed alternative would require mitigation only if implementing the proposed alternative would cause a 0.10 or more increase in volume-to-capacity (V/C) ratio over that of baseline condition (2020 No Build). If the V/C ratio increases less than 0.10, no mitigation would be planned.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

Implementing the (Enhanced) Reduced Build Alternative would improve the year 2020 peak-hour forecast traffic volumes capacity when compared to the No Build Alternative. Only one of the 30 SR-22 general-purpose lane segments operates at LOS F conditions. Two SR-55 HOV lane segments would also result in threshold violations (V/C increases from 1.12 to 1.38 northbound and from 1.13 to 1.23 southbound).

The SR-22 HOV lanes would generally operate in the LOS C to E range, with a few locations operating better (eastbound from Beach Boulevard to Magnolia Street and westbound between SR-55 and Main Street, and between the I-5/SR-57 Interchange and Haster Street), and one location operating at a worse level of service (westbound between Euclid Street and Brookhurst Street). In this section, the HOV traffic volumes (in the 1,600-vehicle range) would exceed the 1,500 vehicles per hour HOV lane capacity.

The (Enhanced) Reduced Build Alternative would not result in a substantial traffic operations impact on I-405, I-605 and SR-55 general-purpose lane study segments. Implementing the SR-22 HOV lane and particularly the freeway-to-freeway connectors would induce higher volumes on the existing I-405 and SR-55 HOV lanes, resulting in higher V/C ratios and worse LOS. This is true for I-405 and SR-55 because the availability of a SR-22 HOV lane (even without the SR-55 direct connection) would encourage HOVs to use the I-405 and SR-55 HOV lanes to access the SR-22 HOV lanes. The increased volumes in the HOV lanes on I-405 and SR-55 are in large part a result of the diversion of existing HOV trips in the general-purpose lanes or on the parallel arterials into the HOV lanes.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Under the No Build Alternative, 15 of the 30 SR-22 segments would operate at LOS F conditions. Traffic operation on I-405 would operate at LOS F in the two southbound segments. Northbound I-405 as well as the I-605 and SR-55 segments in both directions would be satisfactory (LOS E or better).

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Implementing the TSM/Expanded Bus Service Alternative would result in minor V/C ratio improvements, though the LOS would be similar to those for the No Build Alternative. Fourteen of the 30 SR-22 segments would still operate at LOS F conditions, because this alternative would not add freeway capacity. Traffic operations on I-405, I-605, and SR-55 study segments would be similar to those under the No Build Alternative. The transit improvements proposed would induce some mode

shift from auto to transit. However, the mode shift would not be substantial enough to reduce the demand and achieve the desired LOS. Implementing this alternative would not cause any threshold violations.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would better serve the year 2020 peak-hour forecast traffic volumes than the No Build or TSM/Expanded Bus Service Alternative. In both cases, these are segments that are forecast to operate at LOS E in the No Build condition, thus resulting in a threshold violation. However, in both cases there are auxiliary lanes in these segments that are not included in the capacity calculation. These auxiliary lanes would improve the weaving section to optimize the capacity of the mainline lanes, thus having a mitigating effect and reducing the level of service to less than LOS F. Two SR-55 HOV lane segments would also result in threshold violations (V/C increases from 1.12 to 1.87 northbound and from 1.13 to 1.64 southbound).

The SR-22 HOV lanes in both directions would generally operate in the LOS C to E range, except the eastbound segments between I-405 and Knott Street and between Haster Street and the I-5/SR-57 interchange. In these sections, the HOV traffic volumes (in the 1,500- to 1,700-vehicle range) would exceed the HOV 1,500 vehicles per hour lane capacity. The two-plus sensitivity analysis in shows that the two-plus HOV demand exceeds the capacity and supports the need for a three-plus occupancy policy in 2020.

The Full Build Alternative would not result in a substantial traffic operations impact on I-405, I-605 and SR-55 general-purpose lane study segments. Implementing the SR-22 HOV lane and particularly the freeway-to-freeway connectors would induce higher volumes on the existing I-405 and SR-55 HOV lanes, resulting in higher V/C ratios and worse LOS, particularly on the SR-55 HOV lanes. The increased volumes in the HOV lanes on I-405 and SR-55 are in large part a result of the diversion of existing HOV trips in the general-purpose lanes or on the parallel arterials into the HOV lanes.

Table 4.7-6
FREEWAY V/C RATIO AND LEVEL OF SERVICE
YEAR 2020 PM PEAK HOUR

Study Fwy	Study Segment Between	Year 2020 No Build Alternative				TSM/Expanded Bus Service Alternative				Full Build Alternative				(Enhanced) Reduced Build Alternative			
		General-Purpose		3+ HOV		General-Purpose		3+ HOV		General-Purpose		3+ HOV		General-Purpose		3+ HOV	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
EASTBOUND Direction																	
SR-22	SR-22/I-405 – Valley View Bl.	0.94	E			0.94	E			0.97	E	1.05	F	0.94	E	0.77	D
	Valley View Blvd. – Knott St.	0.97	E			0.97	E			0.98	E	1.15	F	0.96	E	0.86	E
	Knott St. – Beach Blvd.	0.98	E			0.98	E			1.06	F	0.87	E	1.04	F	0.58	C
	Beach Blvd. – Magnolia St.	1.05	F			1.05	F			0.93	E	0.49	C	0.89	E	0.21	A
	Magnolia St. – Brookhurst St.	1.09	F			1.08	F			0.88	E	0.91	E	0.86	E	0.63	C
	Brookhurst. – Euclid St.	1.12	F			1.10	F			0.93	E	0.71	D	0.86	E	0.71	D
	Euclid St. – Harbor Blvd.	1.15	F			1.14	F			0.78	D	0.60	C	0.91	E	0.60	C
	Harbor Blvd. – Haster St.	1.14	F			1.13	F			0.78	D	0.77	D	0.88	E	0.73	D
	Haster St. – The City Dr.	1.20	F			1.18	F			0.62	C	1.01	F	0.72	D	0.79	D
	The City Dr. – Bristol St.	1.26	F			1.26	F			0.80	E	1.01	F	0.84	D	0.79	D
	Bristol St. – I-5/SR-57 IC	1.03	F			1.02	F			0.84	D	1.17	F	0.79	D	0.96	E
	I-5/SR-57 IC – Main St.	1.02	F			1.00	F			0.86	E	0.83	D	0.96	E	0.96	E
	Main St. – Glassell St.	1.01	F			0.99	E			0.84	D	0.84	D	0.96	E	0.96	E
	Glassell St. – Tustin St.	0.92	E			0.91	E			1.06	F	0.75	D	0.92	E	0.67	C
	Tustin St. – SR-55	0.67	C			0.66	C			0.81	D	0.75	D	0.68	D	0.67	C
WESTBOUND DIRECTION																	
SR-22	SR-55 – Tustin St.	0.55	C			0.53	C			0.61	C	0.51	C	0.60	C	0.20	A
	Tustin St. – Glassell St.	0.73	D			0.71	D			0.80	D	0.51	C	0.79	D	0.20	A
	Glassell St. – Main St.	0.77	D			0.74	D			0.61	C	0.61	C	0.79	D	0.37	B
	Main St. – I-5/SR-57 IC	0.84	D			0.82	D			0.67	C	0.53	C	0.82	D	0.56	C
	I-5/SR-57 IC – Bristol St.	0.82	D			0.80	D			0.62	C	0.62	C	0.82	D	0.50	C
	Bristol St. – The City Dr.	1.23	F			1.21	F			0.74	D	0.62	C	0.99	E	0.44	B
	The City Dr. – Haster St..	0.88	E			0.88	E			0.52	C	0.53	C	0.95	E	0.44	B
	Haster St. – Harbor Blvd.	1.18	F			1.19	F			0.75	D	0.96	E	0.89	E	0.87	E
	Harbor Blvd. – Euclid St.	1.16	F			1.18	F			0.81	D	0.49	C	0.91	E	0.68	D
	Euclid St. – Brookhurst St.	1.10	F			1.10	F			0.86	E	0.89	E	0.79	D	1.08	F
	Brookhurst St. – Magnolia St.	1.03	F			1.03	F			0.85	D	0.59	C	0.83	D	0.51	C
	Magnolia St. – Beach Blvd.	0.94	E			0.94	E			0.78	D	0.57	C	0.76	D	0.49	C
	Beach Blvd. – Knott St.	0.83	D			0.83	D			0.88	E	0.66	C	0.87	E	0.58	C

Table 4.7-6 (continued)
FREEWAY V/C RATIO AND LEVEL OF SERVICE
YEAR 2020 PM PEAK HOUR

Study Fwy	Study Segment Between	Year 2020 No Build Alternative				TSM/Expanded Bus Service Alternative				Full Build Alternative				(Enhanced) Reduced Build Alternative			
		General-Purpose		3+ HOV		General-Purpose		3+ HOV		General-Purpose		3+ HOV		General-Purpose		3+ HOV	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
WESTBOUND DIRECTION																	
SR-22	Knott St. – Valley View St.	0.73	D			0.73	D			0.81	D	0.57	C	0.79	D	0.49	C
	Valley View St. – SR-22/I-405	0.75	D			0.75	D			0.81	D	0.65	C	0.79	D	0.57	C
NORTHBOUND DIRECTION																	
I-405	SR-22/I-405 – Seal Beach Blvd.	0.86	E	0.47	C	0.87	E	0.47	C	0.88	E	0.78	D	0.90	E	0.67	C
	Seal Beach Blvd. – I-605	0.84	D	0.63	C	0.84	D	0.63	C	0.85	E	0.78	D	0.87	E	0.75	D
SR-55	SR-22 – Chapman Ave.	0.79	D	1.12	F	0.79	D	1.12	F	0.81	D	1.87	F	0.80	D	1.38	F
I-605	I-405 – Katella Ave	0.63	C			0.64	C			0.67	C	0.73	D	0.70	D	0.75	D
SOUTHBOUND DIRECTION																	
I-405	I-605 – Seal Beach Blvd.	1.08	F	0.95	E	1.09	F	0.95	E	1.09	F	0.93	E	1.09	F	0.84	D
	Seal Beach Blvd. – SR-22/I-405	1.06	F	0.71	D	1.07	F	0.71	D	1.06	F	0.96	E	1.07	F	0.82	D
SR-55	Chapman Ave – SR-22	0.68	D	1.13	F	0.68	D	1.13	F	0.73	D	1.64	F	0.70	D	1.23	F
I-605	Katella Ave – I-405	0.70	D			0.72	D			0.65	C	0.61	C	0.65	C	0.57	C

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis* V/C calculations do not include auxiliary lane capacity in both directions between I-5 and Beach Boulevard, which would reduce LOS.

4.7.3 HOV CONNECTOR IMPACTS

Table 4.7-7 lists the traffic volumes on the proposed HOV direct connectors and the associated general-purpose connectors.

Table 4.7-7
FREEWAY CONNECTOR VOLUMES
AM AND PM PEAK HOUR

General-Purpose Connector	No Build		TSM/Expanded Bus Service		Full Build		(Enhanced) Reduced Build	
	AM	PM	AM	PM	AM	PM	AM	PM
Southbound I-605 to Southbound I-405	2,320	2,600	2,520	2,790	2,410	2,800	2,410	2,830
Northbound I-405 to Northbound I-605	3,470	3,010	3,550	3,040	3,910	2,980	3,970	3,280
Southbound I-405 to Eastbound SR-22	4,190	6,510	4,170	6,470	4,460	6,660	4,250	6,520
Westbound SR-22 to Northbound I-405	6,540	5,160	6,500	5,180	7,020	5,580	6,700	5,470
Eastbound SR-22 to Southbound I-5	2,060	2,140	2,120	2,190	520	690	2,060	2,070
Northbound I-5 to Westbound SR-22	2,390	2,020	2,270	2,090	1,480	1,430	2,360	2,200
Eastbound SR-22 to Northbound SR-55	2,070	2,770	2,010	2,740	2,100	3,420	2,130	2,360
Southbound SR-55 to Westbound SR-22	2,120	1,880	1,890	1,840	2,070	2,000	2,240	2,260
HOV Connector					**AM**	**PM**	**AM**	**PM**
Southbound I-605 to Southbound I-405					760	910	720	850
Northbound I-405 to Northbound I-605					540	1,090	550	1,120
Southbound I-405 to Eastbound SR-22					660	1,580	530	1,150
Westbound SR-22 to Northbound I-405					920	970	710	850
Eastbound SR-22 to Southbound I-5					270	510		
Northbound I-5 to Westbound SR-22					200	210		
Eastbound SR-22 to Northbound SR-55					440	1,120		
Southbound SR-55 to Westbound SR-22					1,630	770		

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis

Capacity of the I-405/I-605 connectors and the SR-22/I-405 connectors is assumed to be the same as the freeway mainline (2,300 vehicles per hour per lane) because of their higher-speed design. Capacity of the I-5/SR-22 and Sr-22/Sr-55 connectors is assumed to be less (2,000 vehicles per hour per lane) because of their geometry.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The volumes on all four general-purpose connector pairs (I-605/I-405, SR-22/I-405, SR-22/I-5, SR-22/SR-55) would generally remain the same as or increase slightly over the No Build Alternative if the (Enhanced) Reduced Build Alternative is constructed. This would occur because the freeway mainline would be moving more smoothly and at a higher speed and it could thus deliver more vehicles to the freeway connectors.

Both HOV connectors included in the (Enhanced) Reduced Build Alternative (I-605/I-405, SR-22/I-405) would meet the 800 vehicles minimum criterion (in at least one peak hour) to avoid the empty lane syndrome perception, and would not exceed the 1,500 vehicles preferred maximum, at which point the connectors' traffic flow could begin to break down.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include any HOV connectors and is the baseline to which the other alternatives are compared.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative does not include HOV connectors. The general-purpose connector volumes vary only slightly compared to the No Build Alternative.

3. FULL BUILD ALTERNATIVE

Three general-purpose connector pairs, I-405/I-605, SR-22/I-405 and SR-22/SR-55, would experience increased volumes with the construction of the HOV connectors. This would occur because the freeway mainline would be moving more smoothly and at a higher speed and it could thus deliver more vehicles to the freeway connectors.

The fourth general-purpose connector pair, I-5/SR-22 would experience a substantial decrease in forecasted demand. This would primarily be a result of including the Pacific Electric Arterial in the Full Build Alternative. The Pacific Electric Arterial would provide drivers an alternative to using the eastbound SR-22 to southbound I-5 general-purpose connector. So a fairly high percentage of the trips would be diverted to the Pacific Electric Arterial. However, the analysis indicates that the reverse movement (northbound I-5 to westbound SR-22) would not experience the same level of trip diversion due to PE Arterial.

Of the four HOV connectors, the one connecting SR-22 and I-5 would carry the fewest vehicles in the peak hour. It would carry less than 800 vehicles in the peak hour and would suffer from "empty lane syndrome." For that reason, this connector would be considered a less effective component of the Full Build Alternative than the other connectors would.

The HOV connector between SR-22 and SR-55 is forecasted to carry 1,630 vehicles southbound in the AM peak hour and 1,120 vehicles northbound in the PM peak hour. These volumes, combined with the forecasted volumes on the SR-55 mainline, HOV lane (2,000 southbound in the AM peak hour and 1,680 northbound in the PM peak hour), would exceed the single HOV lanes capacity on northbound and southbound SR-55 in 2020. Based solely on the traffic volumes, this HOV connector appears to be an effective Full Build Alternative component, but when coupled with the effect it would have on the SR-55 HOV operations, this connector's effectiveness decreases.

The other two HOV connectors (I-605/I-405, SR-22/I-405) would meet the 800 vehicles minimum criteria (in at least one peak hour) to avoid the empty lane syndrome perception, and would not exceed the 1,500 vehicles preferred maximum, when the connectors traffic flow could begin to break down. (The volume on the southbound I-405 to eastbound SR-22 HOV connector would actually exceed 1,500 in the PM peak hour, but by a margin small enough to be discounted.)

4.7.4 ARTERIAL IMPACTS

The study area arterials would also be affected by the proposed alternatives, as can be seen in Table 4.7-8. Table 4.7-8 presents the study area arterials' and connectors' average daily traffic and levels of service, by alternative.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative shows an ADT volume increase on north/south arterials and a volume reduction on two of three east/west arterials. The ADT volume increase in north-south arterials can mainly be attributed to the increased number of commuters using these streets to access the freeway in order to use the additional capacity created by the HOV lanes. In the Full Build Alternative, PE Arterial is anticipated to carry this additional demand; therefore, other arterial streets may not experience increased traffic flows.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

As can be seen in Table 4.7-8, the arterials' LOS range from LOS B on Westminster Boulevard/17th Street to LOS F on Fairview Street. The ADTs range from 12,000 (Fifth Street) to 60,000 (Harbor Boulevard).

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative shows a mixed result in ADT volume changes on east/west and north/south arterials. These volume changes are attributable to the components that would address these main cross-county streets, such as signal synchronization, changeable message signs and closed-circuit surveillance. The TSM/Expanded Bus Service Alternative would have only a negligible impact on the SR-22/I-5 general-purpose connectors forecasted demand.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative includes all the TSM/Expanded Bus Service Alternative elements and serves additional traffic to and from the proposed Pacific Electric Arterial. The Pacific Electric Arterial would provide direct free-flow access into downtown Santa Ana. It would serve forecasted traffic demand of nearly 40,000 vehicles, with peak-hour traffic volumes ranging from 1,400 to 1,800 vehicles in each direction. The Full Build Alternative would accommodate this additional traffic demand, without SR-22 operations deteriorating, primarily resulting from the additional mixed-flow capacity that would become available from the mode shift to HOV lanes.

Table 4.7-8
ARTERIAL AND FREEWAY CONNECTOR LEVEL OF SERVICE (LOS)
YEAR 2020

		No Build		TSM/ Expanded Bus Service		Full Build			(Enhanced) Reduced Build (Identified Preferred)
Arterial		**ADT***	**LOS****	**ADT**	**LOS****	**ADT***	**LOS****	**ADT***	**LOS****
Newhope Street at Westminster Boulevard		29,100	C	30,000	C	28,500	C	31,600	D
Harbor Boulevard at Westminster Boulevard		60,000	C	57,100	C	56,600	C	62,200	D
Fairview Street at Westminster Boulevard		45,800	F	49,200	F	44,700	F	47,900	F
Westminster Boulevard/17th Street at Fairview Avenue		38,700	B	45,000	C	41,700	C	44,600	C
Fifth Street at Fairview Avenue		12,000	E	11,300	D	10,700	D	11,500	E
First Street at Fairview Avenue		44,100	C	43,000	C	34,800	B	41,800	C
Connector		**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
Eastbound SR-22 to southbound I-5	PHV***	2,060	2,140	2,120	2,190	520	690	2,060	2,070
	LOS	C	C	C	C	A	A	C	C
Northbound I-5 to westbound SR-22	PHV***	2,390	2,020	2,270	2,090	1,480	1,430	2,360	2,200
	LOS	F	F	F	F	D	D	F	F

* ADT forecasts were derived from adjusted estimates of daily traffic demand provided by OCTA, December 1999
** LOS designations presented above are for the PM peak hour.
*** PHV = Peak Hour Volume. LOS was estimated using a capacity of 1500 vphpl for the connectors.
Capacity of the I-5/SR-22 and SR-22/SR-55 connectors is assumed to be less than 2,000 vphpl.

The study area arterials would show some change from implementing the Pacific Electric Arterial. ADT volumes on five of the six arterials evaluated would drop by 600 to 9,300 vehicles; only Westminster Boulevard/17th Street is forecast to have an ADT increase. LOS on five of the six arterials would improve or remain unchanged from the No Build condition.

The vehicles using the Pacific Electric Arterial (39,900 per day) would include new trips, but a greater majority would be trips that were formerly on the freeway. This is evident from the forecasted demand change on the eastbound SR-22 to southbound I-5 general-purpose connector. The AM and PM peak-hour volumes would decrease by approximately 1,500 vehicles, suggesting that those vehicles would be using a different route, namely the Pacific Electric Arterial. (See Section 4.7.3 C, HOV Connector Impacts, Full Build Alternative, for additional discussion of the forecasted changes in demand on this connector.) However, the eastbound SR-22 to southbound I-5 connector is forecasted to operate below capacity in the No Build scenario without constructing the Pacific Electric Arterial, so reducing the demand on it would not improve mobility on the connector.

4.7.5 INTERSECTION IMPACTS

Table 4.7-9 summarizes the intersection volume to capacity (V/C) ratio and LOS values for the study alternatives.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

Under the (Enhanced) Reduced Build Alternative, ten of the 37 intersections would operate at LOS F conditions (27 percent). The V/C ratios at the intersections would range between 0.49 and 1.33. The (Enhanced) Reduced Build Alternative would result in improved LOS at 15 intersections while nine would deteriorate. The deterioration of LOS at the Beach Boulevard westbound off-ramp would result from geometric changes proposed for the ramps as part of the Reduced Build Alternative to replace the outdated four-quadrant cloverleaf interchange. Of the ten LOS F intersections, one would exceed CMP impact thresholds because it would deteriorate to LOS F in the AM peak period compared to LOS E under the No Build Alternative. This would occur at the Goldenwest Street/Garden Grove Boulevard westbound off-ramp intersection. This intersection would require mitigation (see Section 4.7.6). Additionally, 21 of the intersections would experience some operational improvements. This is most likely a result of the improved freeway LOS and speed, encouraging drivers to stay on the freeway rather than exiting early and using the surface street network for part of their trip.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Of the 37 intersections studied, 17(about 46 percent) are projected to operate at LOS F levels in the PM peak period (i.e., LOS F conditions). The most congested intersections (V/C over 1.2) are:

- I-605/Katella Avenue northbound on-/off-ramps
- SR-22/Haster Street westbound on-ramp
- SR-22/Fairview Street eastbound on-ramp
- SR-22/Bristol Street eastbound on-/off-ramps
- SR-22/Main Street/Town and Country Road eastbound on-/off-ramps
- SR-22/Glassell Street westbound on-/off-ramps
- SR-22/Tustin Street eastbound off-ramp

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Under the TSM/Expanded Bus Service Alternative, the same 17 intersections would operate at LOS F conditions. However, almost two-thirds of the V/C ratio values are the same as or slightly <u>lower</u> than the No Build Alternative, ranging between 0.51 and 1.36. Although the 16 intersections would operate at LOS F, they still would not exceed the CMP threshold criteria, as identified in Section 4.7.2 of this report.

3. FULL BUILD ALTERNATIVE

Under the Full Build Alternative, of the 37 intersections, only 12 would operate at LOS F conditions (32 percent). The V/C ratios would range between 0.48 and 1.34. Of the 12 LOS F intersections, three would exceed CMP impact thresholds because: 1) they would deteriorate to LOS F compared to LOS E under the No Build Alternative, or 2) the intersection was already operating at LOS F and the V/C ratio would increase by more than 0.10. These intersections include:

- Goldenwest Street westbound off-ramp
- Beach Boulevard westbound off-ramp

- Haster Street westbound off-ramp

These intersections would require mitigation (see Section 4.7.6). The deterioration of LOS at the Beach Boulevard westbound off-ramp would result from geometric changes proposed for the ramps as part of the Full Build Alternative to replace the outdated four-quadrant cloverleaf interchange. Additionally, 27 of the intersections would experience some operational improvements under the Full Build Alternative. This is most likely a result of the improved freeway LOS and speed, encouraging drivers to stay on the freeway rather than exiting early and using the surface street network for part of their trip.

Operations at the two intersections at which new Pacific Electric Arterial connections would be constructed would not experience a negative impact. The Fairview Street and Civic Center Drive intersection would improve from LOS F to LOS E in the PM as a result of adding the ramps to the Pacific Electric Arterial.

Table 4.7-9
INTERSECTION V/C RATIO AND LEVEL OF SERVICE
YEAR 2020 PEAK HOURS

Study Intersection	No Build Alternative				TSM/Expanded Bus Service Alternative				Full Build Alternative				(Enhanced) Reduced Build Alternative			
	V/C		LOS		V/C		LOS		V/C		LOS		V/C		LOS	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
I-605/Katella Ave. northbound ramps	1.25	1.34	F	F	1.25	1.34	F	F	1.19	1.34	F	F	1.17	1.29	F	F
I-605/Katella Ave. southbound ramps	0.86	1.11	D	*F*	0.86	1.11	D	*F*	0.81	0.99	D	E	0.81	0.93	D	E
I-405/Seal Beach northbound ramp	0.60	0.68	A	B	0.58	0.68	A	B	0.57	0.65	A	B	0.55	0.64	A	B
I-405/Seal Beach southbound ramps	0.75	0.75	C	C	0.75	0.73	C	C	0.78	0.72	C	C	0.77	0.74	C	C
SR-22/Valley View St. westbound ramps	0.96	1.10	E	*F*	0.95	1.09	E	*F*	0.88	1.12	D	F	0.96	1.11	D	F
SR-22/Valley View St. eastbound ramps	0.75	0.83	C	D	0.77	0.86	C	D	0.74	0.76	C	C	0.74	0.75	C	C
SR-22/Knott St. westbound ramps	0.73	0.95	C	E	0.73	0.96	C	E	0.83	0.97	D	E	0.75	0.95	C	E
SR-22/Goldenwest St. eastbound ramps	0.64	0.82	B	D	0.68	0.83	B	D	0.68	0.84	B	D	0.68	0.83	B	D
SR-22/Goldenwest St. westbound ramps	0.96	0.89	E	D	0.95	0.95	E	E	1.06	0.99	F	E	1.09	0.98	F	E
SR-22/Beach Blvd. westbound ramps	0.53	0.65	A	B	0.52	0.61	A	B	1.02	0.97	F	E	0.99	0.93	E	E
SR-22/Beach Blvd. eastbound ramps	0.57	0.61	A	B	0.56	0.57	A	A	0.76	0.73	C	C	0.75	0.77	C	C
SR-22/Magnolia St. eastbound ramps	0.97	1.03	E	*F*	0.98	1.06	E	F	0.84	0.90	D	D	0.84	0.90	D	D
SR-22/Magnolia St. westbound ramps	0.59	0.81	A	D	0.68	0.95	B	E	0.68	0.95	B	E	0.67	0.99	B	E
SR-22/Brookhurst St. westbound ramps	0.82	0.91	D	E	0.95	0.96	E	E	0.91	0.97	E	E	0.84	0.93	D	E
SR-22/Brookhurst St. eastbound ramps	0.77	0.93	C	E	0.79	1.00	C	E	0.56	0.96	A	E	0.60	0.98	B	E
SR-22/Euclid St. eastbound ramps	0.68	0.98	B	E	0.67	0.97	B	E	0.60	0.97	B	E	0.67	0.95	B	E
SR-22/Euclid St. westbound ramps	1.11	1.17	F	F	1.19	1.16	F	F	1.01	1.12	F	F	1.09	1.14	F	F
SR-22/Harbor Blvd. westbound ramps	0.75	0.89	C	D	0.74	0.89	C	D	0.80	0.99	C	E	0.79	0.96	C	E
SR-22/Harbor Blvd. eastbound ramps	0.52	0.65	A	B	0.56	0.71	A	C	0.54	0.64	A	B	0.54	0.71	A	C
SR-22/Haster St. westbound off-ramp	0.82	0.94	D	E	0.80	0.91	C	E	0.79	1.06	C	F	0.77	0.85	C	**D**

Table 4.7-9 (continued)
INTERSECTION V/C RATIO AND LEVEL OF SERVICE
YEAR 2020 PEAK HOURS

Study Intersection	No Build Alternative				TSM/Expanded Bus Service				Full Build Alternative				(Enhanced) Reduced Build Alternative			
	V/C		LOS		V/C		LOS		V/C		LOS		V/C		LOS	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
SR-22/Haster St. westbound on-ramp	0.84	1.28	D	*F*	0.93	1.18	E	*F*	0.86	1.10	D	F	0.87	0.93	D	E
SR-22/Fairview St. eastbound on-ramp	1.32	1.21	*F*	F	1.32	1.27	*F*	F	1.34	1.19	F	F	1.33	1.24	F	F
SR-22/Fairview St. eastbound off-ramp	0.81	0.71	D	C	0.76	0.71	C	C	0.78	0.71	C	C	0.79	0.74	C	C
SR-22/The City Dr. westbound ramps	1.04	1.16	*F*	*F*	1.06	0.99	*F*	E	0.64	0.72	B	C	0.62	0.86	B	D
SR-22/The City Dr. eastbound on-/off-ramps	1.05	0.92	F	E	1.11	0.79	F	C	1.03	0.99	F	E	1.03	0.90	F	D
SR-22/Bristol St. eastbound ramps	1.29	1.39	F	*F*	1.27	1.34	F	*F*	1.04	0.90	F	D	0.99	0.93	E	E
SR-22/La Veta Ave. westbound ramps	0.75	0.88	C	D	0.71	0.94	C	E	0.63	1.00	B	E	0.76	0.95	C	E
SR-22/Main St. westbound ramps	0.78	1.14	C	*F*	0.81	1.08	D	F	0.74	0.87	C	D	0.73	0.79	C	C
SR-22/Main St. eastbound ramps**	---	---	*F*	F	---	---	F	F	---	---	F	E	---	---	F	F
SR-22/Glassell St. westbound ramps	1.07	1.29	F	*F*	1.08	1.34	F	*F*	0.78	0.98	C	E	0.74	1.00	C	E
SR-22/Glassell St. eastbound ramps	0.80	1.07	C	F	0.82	1.07	D	F	0.76	0.97	C	E	0.78	0.98	C	E
SR-22/Tustin St. westbound ramps	1.12	0.78	F	C	1.16	0.76	F	C	1.14	0.79	F	C	1.10	0.80	F	C
SR-22/Tustin St. eastbound ramps	0.84	1.39	D	*F*	0.81	1.36	D	*F*	0.81	1.00	D	E	0.80	1.21	C	F
SR-55/Chapman Ave. southbound ramps	0.68	0.65	B	B	0.74	0.68	C	B	0.69	0.65	B	B	0.67	0.64	B	B
SR-55/Chapman Ave. northbound ramps	0.50	0.65	A	B	0.51	0.65	A	B	0.48	0.65	A	B	0.49	0.73	A	C
Fairview St./Civic Center Dr.*	0.90	1.04	D	*F*	0.90	1.04	D	*F*	0.83	0.97	D	E	0.89	1.01	D	F
Raitt St./Santa Ana Blvd.*	0.59	0.65	A	B	0.59	0.65	A	B	0.68	0.76	B	C	0.64	0.69	B	B

Source: OCTAM 2.8 – SR-22 MIS/EIR/EIS Analysis
Shaded intersections require mitigation. See Section 4.7.6 - D.
*Surface-street intersection; includes Pacific Electric Arterial in Full Build Alternative only.
** The intersection is not signalized. The LOS was obtained using the HCM method.

Thresholds of Significance for CEQA:

- Insufficient capacity on SR-55 HOV facility for incoming SR-22 HOV traffic

CEQA Findings:

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative does not include the SR-22/SR-55 HOV connector which is a part of the Full Build Alternative. An HOV connector between SR-22 and SR-55 is projected to increase the demand on SR-55 north of SR-22 to a level that would far exceed the capacity of a single HOV lane. Since this alternative does not include the SR-22/SR-55 HOV connector, the impact on the SR-55 HOV facility resulting from incoming SR-22 HOV traffic would be relatively small.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not have impacts on the SR-55 HOV facility.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22; therefore, it would have negligible impact on the capacity of the SR-55 HOV facility.

3. FULL BUILD ALTERNATIVE

Of the four proposed HOV connectors, only the SR-22/SR-55 connector would result in a negative impact to the SR-55 highway network. Implementation of this connector is projected to increase the demand on SR-55 north of SR-22 to a level that would far exceed the capacity of a single HOV lane. This impact would remain significant unless mitigated. To mitigate impacts to the SR-22/SR-55 HOV connector, it may be necessary to include an additional SR-55 HOV lane in each direction north of SR-22 for some distance until the forecasted demand drops below the single HOV lane capacity. However, this is beyond the scope of the SR-22/West Orange County Connection project and will have to be investigated if the Full Build Alternative is the preferred one. Alternatively, the SR-22/SR-55 HOV connector could be eliminated, but this is inconsistent with the Full Build Alternative.

4.7.6 MITIGATION

Several intersections and freeway mainline segments under any of the alternatives would operate below threshold criteria (below LOS E for freeway mainline segments and intersections). However, for all threshold exceedances that would exist under the baseline conditions (No Build Alternative), others would need to prepare a separate mitigation because these threshold exceedances would not be caused by this project's proposed improvement strategies. For the TSM/Expanded Bus Service, Full Build and (Enhanced) Reduced Build Alternatives' projected threshold exceedances, only those beyond the level predicted to occur with the No Build scenario were evaluated. Alternative modifications have been identified to eliminate potential threshold criteria exceedances.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

TRA-(E)RB-1. One intersection under the (Enhanced) Reduced Build Alternative would exceed CMP threshold criteria. Additional lanes will be required at this intersection. This ramp intersection modification has been incorporated into the (Enhanced) Reduced Build Alternative.

As indicated in Table 4.7-6, increases in V/C ratios in the northbound and southbound HOV lanes of SR-55 would exceed the CMP threshold criteria. Providing a second HOV lane in either direction is not recommended as an immediate mitigation measure, considering the recent widening of SR-55 and the structure replacement/modification costs. Therefore, it is recommended to provide ingress/egress points for vehicles from SR-22 at suitable distances from the interchange where the HOV volumes are lower and the CMP threshold criteria will not be violated.

Traffic flows in the general-purpose lanes of southbound and northbound SR-55 could be impacted by the relatively large number of vehicles transferring between SR-22 and the HOV lanes of SR-55. The impacts of these vehicles on the SR-55 traffic would be evaluated and mitigated through a separate project. Mitigation of the impacts may require adding a second HOV lane and/or auxiliary lanes to a suitable distance from the interchange to prevent ingress and egress of vehicles in the immediate vicinity of the interchange.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None planned.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None planned.

3. FULL BUILD ALTERNATIVE

To mitigate impacts to the SR-22/SR-55 HOV connector it would be necessary to include an additional SR-55 HOV lane in each direction north of SR-22 for some distance until the forecasted demand drops below the single HOV lane capacity. This is beyond the scope of the SR-22/West Orange County Connection. Alternatively, the SR-22/SR-55 HOV connector could be eliminated, but this is inconsistent with the Full Build Alternative.

TRA-FB-1. Three intersections under the Full Build Alternative would exceed CMP threshold criteria. Additional lanes will be required at these intersections. These ramp intersection modifications have been incorporated into the Full Build Alternative.

4.7.7 RESIDUAL IMPACTS AFTER MITIGATION

This section discusses the residual impacts after implementing proposed mitigation. The only mitigation discussed is the intersection mitigation because the other mitigation components included alternative modifications that resulted in reducing the impacts to below threshold levels.

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

Table 4.7-10 presents the (Enhanced) Reduced Build Alternative intersection V/C ratios with and without mitigation. Implementing the proposed mitigation would improve the V/C ratios below threshold conditions. Specifically, in the No Build Alternative all intersections would operate with a V/C ratio less than one. In the unmitigated (Enhanced) Reduced Build Alternative, the SR-22/Goldenwest Street westbound ramp intersection would operate with a V/C ratio greater than one. Increasing the V/C ratio from less than one to more than one would exceed one of the two CMP threshold criteria and, hence, would require mitigation. In the mitigated (Enhanced) Reduced Build Alternative, the SR-22/Goldenwest Street westbound ramp intersection would again operate with a V/C ratio less than one, which would meet the mitigation requirement. Residual impacts to intersections would be less than substantial because the proposed additional lanes on the ramps would be constructed within the existing state right-of-way and within the area that would be affected by construction without the proposed mitigation. As such, the proposed

traffic mitigation would not impact any known sensitive or protected resources beyond those indirect impacts already described in other sections of this report. Further, the air quality analysis was performed for both the unmitigated and mitigated conditions to assess the impact of the traffic mitigation on Air Quality. See Section 4.8.3 for more discussion.

Table 4.7-10
MITIGATED V/C RATIO
YEAR 2020 PEAK HOUR

Study Intersection	No Build Alternative V/C Ratio		Full Build Alternative V/C Ratio		Mitigated Full Build Alternative V/C Ratio		(Enhanced) Reduced Build Alternative V/C Ratio		Mitigated (Enhanced) Reduced Build alternative V/C Ratio	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
SR-22/Goldenwest Street westbound ramps	0.96	0.89	1.06	0.99	0.80	0.76	1.09	0.98	0.82	0.76
SR-22/Beach Boulevard westbound ramps	0.53	0.65	1.02	0.97	0.92	0.87	N/A	N/A	N/A	N/A
SR-22/Haster Street westbound off-ramp	0.82	0.94	0.79	1.06	0.69	0.90	N/A	N/A	N/A	N/A

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Because there is no feasible mitigation for the excess HOV traffic on SR-55 north and south of SR-22, there would be a residual and substantial traffic impact under the Full Build Alternative. The construction of the HOV connectors would require construction of additional HOV lanes on SR-55.

Table 47-10 presents the Full Build Alternative intersection V/C ratios with and without mitigation. As can be seen, implementing the proposed mitigation would improve the V/C ratios below threshold conditions. Specifically, in the No Build Alternative all three intersections would operate with a V/C ratio less than one. In the unmitigated Full Build Alternative, each intersection would operate with a V/C ratio greater than one. Increasing the V/C ratio from less than one to more than one would exceed one of the two CMP threshold criteria and, hence, would require mitigation. In the mitigated Full Build Alternative, each intersection would again operate with a V/C ratio less than one, which would meet the mitigation requirement. Residual impacts to intersections would be less than substantial because the proposed additional lanes on the ramps would be constructed within the existing state right-of-way and within the area that would be affected by construction without the

proposed mitigation. As such, the proposed traffic mitigation would not impact any known sensitive or protected resources beyond those indirect impacts already described in other sections of this report. Further, the air quality analysis was performed for both the unmitigated and mitigated conditions to assess the impact of the traffic mitigation on air quality. See Section 4.8 of this FEIS/EIR for more discussion.

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4.8 AIR QUALITY

The information contained in this section is based on the *SR-22 West Orange County Connection (SR-22/WOCC) Air Quality Technical Report* and the *Air Quality Technical Report Reduced Build Alternative Addendum* (January 2001, revised June 2002) both of which are available under separate cover at the Department and OCTA. These Reports identify air pollutants associated with motor vehicle exhaust and summarize existing and modeled air quality data and effects based on the project alternatives. This section includes discussions of impacts and mitigation measures related to air quality in the study area, and will focus primarily on the identified Preferred Alternative in the context of the No Build, TSM/Expanded Bus Service, Full Build, and Reduced Build Alternatives.

As shown in Table 2.2-1, the (Enhanced) Reduced Build Alternative is essentially the same as the Reduced Build Alternative. Consequently, the air quality analysis presented in this Section for the (Enhanced) Reduced Build Alternative is comparable to the Reduced Build Alternative air quality analysis prepared for the August 2001 DEIR/EIS. In those few instances where there may be a slight difference between the Reduced Build Alternative and the (Enhanced) Reduced Build Alternative with regard to local air quality impacts, supplemental analysis was performed to explicitly address the eastern section of SR-22, between Glassell Street and SR-55. See *Air Quality Technical Report Reduced Build Alternative Addendum* (January 2001, revised June 2002). As previously discussed, the extension of the Mainline essentially incorporates components of the Full Build Alternative's SR-22/SR-55 HOV connector feature, where it would have continued from Glassell Street to SR-55 (analyzed under the Full Build Alternative in the August 2001 DEIR/EIS).

The additional analysis in this section is the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. During the public comment period of the DEIR/EIS, the Department received numerous comments from residents in the Community of Rossmoor, as well as from residents in the City of Seal Beach, concerned with the potential air quality impacts as a result of the implementation of the I-405/I-605 direct HOV connector. To address this issue, additional analyses was conducted to determine the impacts from the I-405/I-605 direct HOV connector. The findings for this analysis as well as discussions of air quality impacts to other portions of the SR-22 corridor are discussed in this section. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

4.8.1 Impact Assessment Methodology

A. POLLUTANTS FOR ANALYSIS

The pollutants that are most important to this air quality impact analysis are those that can be traced principally to motor vehicles. Criteria pollutants are typically analyzed on an individual basis. Ozone (O3) is a photochemical oxidant and the major component of smog. O3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) in the presence of sunlight. Since ozone (O_3) is formed when these chemicals react, it is not individually analyzed. In the project area, Sulfur Dioxide (SO_x) and Lead (Pb) emissions are associated mainly with various stationary sources. Hydrocarbons (HC), NO_x, and $PM_{10/2.5}$ emissions come from mobile and stationary sources. Carbon Monoxide (CO) emissions are predominantly influenced by motor vehicle activity.

HC and NO_x are examined on a regional or "meso-scale" level. In 1997, EPA added two new PM-2.5 standards, set at 15 micrograms per cubic meter (µGA) and 65 µg/m3, respectively, for the annual and 24-hour standards. In addition, the form of the 24-hour standard for PM-10 was changed. EPA is beginning to collect data on PM-2.5 concentrations. Beginning in 2002, based on 3 years of monitor data, EPA will designate areas as nonattainment that do not meet the new PM-2.5 standards. However, for the purpose of this project, a qualitative PM_{10} assessment was conducted based on the Department's screening procedure for PM_{10} hot-spot analysis.

B. NEPA ASSESSMENT

Regional Emissions Analysis
EPA's Transportation Conformity Rule requires that the 2002 RTIP regional emissions be consistent with the motor vehicle emissions budgets in the applicable SIPs (Section 93.118). Consistency with emissions budgets must be demonstrated for each year that the applicable emissions budgets are established. Additionally, the 2002 RTIP regional emissions must be analyzed for the planning horizon year and for all identified milestone years (any two subsequent years that are being analyzed should not be more than ten years apart).

Mesoscale (Regional) Analysis
The regional emissions analysis for the 2001 Regional Transportation Plan (RTP), which includes the proposed project, must meet all of the following requirements for approval:

- The regional emissions must be equal to or less than the emissions budgets.
- The PM_{10} emissions with the proposed projects in the RTP must be less than the no build condition without these projects.
- The Ozone and CO emissions estimated with the proposed projects in the RTP must be less than the no-build condition without these projects and the future year emissions must be less than the 1990 base year emissions.

Microscale (Local) Analysis

Under NEPA, the localized project impacts depend on whether ambient CO levels in the project vicinity would be above or below federal air quality standards. If ambient levels are below the standards, a project is considered to have significant impacts if project emissions would result in an exceedance of one or more of these standards. If ambient levels already exceed the federal standard, project emissions are considered significant if they would increase one-hour CO concentrations by 1.0 parts per million (ppm) or more, or eight-hour CO concentrations by 0.45 ppm or more.

C. CEQA ASSESSMENT

<u>Mesoscale (Regional) Air Quality</u>

Relative regional or "mesoscale" air quality impacts are directly related to how the project affects vehicular emissions. Specific criteria for determining whether the potential air quality impacts of an alternative would be significant are set forth in the SCAQMD's *CEQA Air Quality Handbook* (1993).[11] The criteria include emissions thresholds, compliance with state and national air quality standards and conformity with the existing SIP or with the current AQMP.

The daily operational regional emissions "significance" thresholds are as follows:
- 25 kilograms (55 pounds) per day of reactive organic compounds (ROC) (precursors to ozone)
- 25 kilograms (55 pounds) per day of NO_x
- 250 kilograms (550 pounds) per day of CO
- 70 kilograms (150 pounds) per day of PM_{10}
- 70 kilograms (150 pounds) per day of SO_x

Projects in the South Coast Air Basin with operation-related emissions that would exceed any of the emission thresholds are considered significant by the SCAQMD.

Potential impacts were developed using the Orange County Transportation Analysis Model, ve rterns, vehicle speeds and roadway configuration provided a forecast of future (2020) conditions. Emission burdens were then determined using average hourly VKT (VMT) data for each pollutant.

D. ANALYSIS SITES/RECEPTOR LOCATIONS

Carbon monoxide levels were estimated at 13 locations using the CALINE4 model. The sites selected are listed in Table 4.8-1, Carbon Monoxide Hotspot Analysis Sites, and shown in Figure 4.8-1. Five analysis sites are intersections and eight are freeflow locations. Two of the five intersection sites were chosen using the screening methodology recommended in the Department *Transportation Project-Level Carbon Monoxide Protocol* (1992), UCD-ITS-RR-97-21 (1997) (Department of Transportation CO Protocol)[2]. These sites were supplemented by three additional intersections, Sites A, D and E, selected to address community and public concerns. The free-flow sites were chosen based on traffic volumes and levels of service (LOS). Sites B and C were added to the free-flow sites to address community and public concerns.

Table 4.8-1
CARBON MONOXIDE HOTSPOT ANALYSIS SITES

Site No.	Description
1	Intersection of Valley View Street & SR-22 westbound on-/off-ramps
2	Intersection of Beach Boulevard & SR-22 westbound on-/off ramps
3	SR-22 between Seal Beach Boulevard & Valley View Street
4	SR-22 between Beach Boulevard & Garden Grove Boulevard
5	SR-22 between Beach Boulevard & Magnolia Street
6	SR-22 between Brookhurst Street & Euclid Street
7	SR-22 between Fairview Street & The City Drive
8	SR-22 between Main Street & Glassell Street
A	Intersection of NB I-605 & Katella Avenue
B	I-605 between Shakespeare and Chesney (near Lee Elementary School)
C	SR-22 between Brookhurst Street & Magnolia Street
D	Intersection of SR-22 WB & Brookhurst Street
E	Intersection of SR-22 WB & Euclid Street

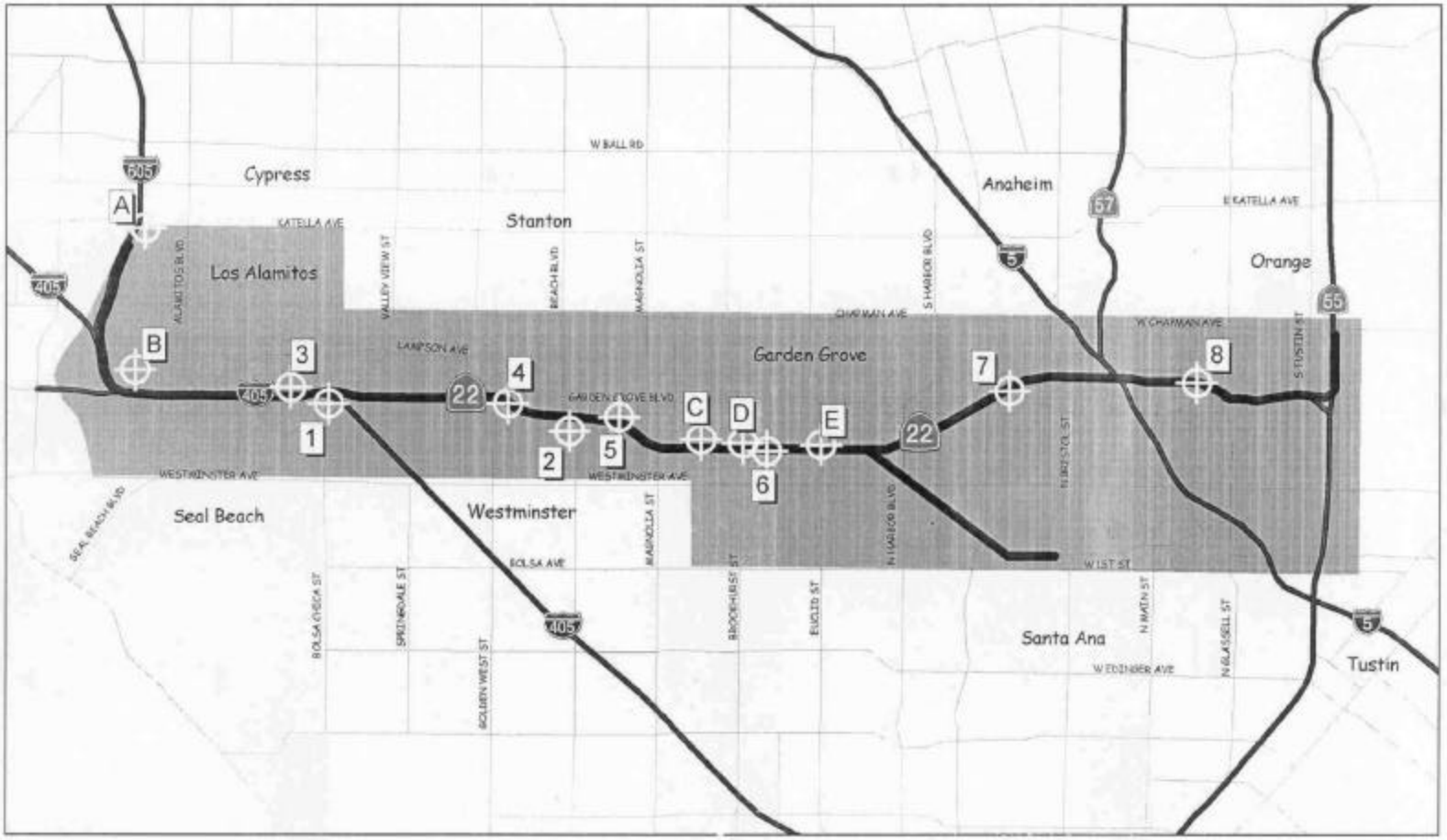
4.8.2 MESOSCALE (REGIONAL) IMPACTS

4.8.2.1 Regional Conformity Analysis

In April 2001, the Southern California Association of Governments (SCAG) completed its transportation modeling and air quality conformity analysis for the South Coast Air Basin (SCAB) as part of the 2001 RTP. All elements of both the Reduced Build and the Full Build Alternatives are included in the SCAG region's constrained list of projects for the 2001 RTP (see Figures 4.8-2 through 4.8-5, from Appendix K of SCAG's list of approved projects). The project elements that make up the identified Preferred Alternative are also included in the adopted 2001 Regional Transportation Plan (RTP).

For the 2001 RTP, SCAG conducted conformity analysis for both a build and a no-build scenario for HC, NO_x, CO and PM_{10}. Future build emissions must be less than the State Implementation Plan's (SIP) emissions budgets or, if no emission budget has been established (PM_{10} and CO), the future build emissions must be less than the future no-build scenario and/or must be less than 1990 emissions. Based on the findings of this regional emissions analysis, the proposed improvements included in the SR-22/WOCC project are not likely to cause new violations or worsen existing conditions, so are in conformity with regional air quality standards. The project is included in the 2002 Regional Transportation Improvement Program (RTIP). See Section 4.8.5, for more details regarding the regional conformity for the SR-22/WOCC project.

[2] Available at the California Department of Transportation, District 12.



Source: ESRI 1998

LEGEND

Freeway

Study Area

Air Quality Analysis Sites

1 0 1 2 Miles

1 0 1 2 Kilometers

N

SR-22 / West Orange County Connection Project

Air Quality Sites

Figure 4.8-1

4.8.3 MICROSCALE (LOCAL) IMPACTS

4.8.3.1 CARBON MONOXIDE (CO)

(Enhanced) Reduced Build Alternative. Carbon Monoxide concentrations at the analysis sites are listed in Tables 4.8-2 (Predicted One-hour pm Peak Worst-case 2020 Carbon Monoxide Concentrations), 4.8-3 (Predicted Eight-hour pm Peak Worst-case 2020 Carbon Monoxide Concentrations), and 4.8-4, (Intersection of SR-22 EB and Tustin Avenue Predicted Worst-case Carbon Monoxide Concentrations). The original sites in Tables 4.8-2 and 4.8-3 include the No Build, TSM/Expanded Bus Service, Full Build, and (Enhanced) Reduced Build Alternative. Table 4.8-4 shows the one-hour and eight-hour average CO concentrations for a supplemental site for the (Enhanced) Reduced Build alternative, and will be explained in more detail below. As discussed earlier, the (Enhanced) Reduced Build Alternative is a slight modification of the Reduced Build Alternative and for air quality conformity purposes, the (Enhanced) Reduced Build Alternative would not differ from the Reduced Build Alternative since the added portions include extension of the HOV on the Mainline and an auxiliary lane. These added features are part of the Full Build Alternative.

Please note the values changed slightly in Tables 4.8-2 and 4.8-3 in this section when compared to the August 2001 DEIR/EIS (Tables 4.8-3 & 4.8-4) because the concentration included a one-hour background level of 8.2 ppm, as presented in Table 4.8-3 of the August 2001 DEIR/EIS, and the one-hour background level has changed to 7.8 ppm in Table 4.8-2 of this section. Similarly, the concentrations included an eight-hour background level of 5.7 in Table 4.8-4 of the August 2001 DEIR/EIS, and it has changed to 5.5 ppm in Table 4.8-3 in this section. The background values were modified based on more recent monitoring data from the Long Beach CO monitoring site operated by the South Coast Air Quality Management District.

The air quality analysis at Site 2, the intersection of Beach Boulevard and SR-22, was modeled with and without traffic mitigation for the Full Build Alternative. The traffic mitigation applied to this site is a lane added to the westbound off-ramp. The predicted CO levels presented are the output from CALINE4 model runs with the one- and eight-hour background levels of 7.8 ppm and 5.5 ppm added respectively. See Table 3.8-1, Federal and State Ambient Air Quality Standards.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE.

All predicted concentrations under the (Enhanced) Reduced Build Alternative are below the applicable Federal and State standards. This alternative would not cause or worsen a violation of the applicable standards at any of the locations analyzed.

As discussed in Section 2.2.1 of the FEIS/EIR, the (Enhanced) Reduced Build Alternative is essentially the same as the Reduced Build Alternative, except for the eastern section of SR-22, between Glassell Street and SR-55, where the HOV lanes are extended and an auxiliary lane is added in the eastbound direction for operational purposes. In order to explicitly address the potential microscale (local) impacts associated with the identified Preferred Alternative, supplemental CO hotspot analysis was conducted at an intersection between Glassell Street and SR-55. The intersection of SR-22 (eastbound) and Tustin Avenue was selected because of its location, a volume to capacity ratio greater than 1.0, and an operating level of service (LOS) of F – factors that all contribute to elevated concentrations of carbon monoxide. In order to place the results of the CO analysis for the (Enhanced) Reduced Build Alternative in context, the supplemental hot spot analysis was also conducted for the No Build, TSM/Expanded Bus Service, Reduced Build and Full Build Alternatives at this location. The methods and models used for the supplementary air quality analysis were the same as those that were used to produce the CO findings shown in Tables 4.8-2 and 4.8-3, Predicted One-hour and Predicted 8-Hour.PM Peak, Worst-Case 2020 Carbon Monoxide Concentrations.

Table 4.8-4, Intersection of SR-22 EB and Tustin Avenue Predicted Worst-case Carbon Monoxide Concentrations, presents the results of the supplemental CO analysis for the (Enhanced) Reduced Build Alternative at an intersection along SR-22 where one would expect to see the greatest difference in CO concentrations when compared to the Reduced Build Alternative. The CO results show no measurable difference between the identified Preferred Alternative and the other alternatives that were

analyzed in the August 2001 DEIR/EIS with regard to predicted air quality impacts. Another key finding is that the predicted concentrations are below the applicable federal and state standards for carbon monoxide. See Table 3.8-1, Federal and State Ambient Air Quality Standards. As presented in Tables 4.8-2 and 4.8-3, the predicted one-hour and eight-hour PM Peak worst-case 2020 CO concentrations for the (Enhanced) Reduced Build Alternative were not statistically different from the Reduced Build Alternative for Sites 1 to E. Therefore, analyses for Sites 1 to E are derived from the original CO hotspot analysis for the Reduced Build. Supplemental CO hotspot analysis for Site F includes the modification to the Reduced Build Alternative. Based on this analysis, it is predicted that the identified Preferred Alternative would not cause or worsen a CO violation.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE.

The No Build Alternative does not include construction other than that addressed in previous environmental documents. No additional impacts to local air quality would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE.

All predicted concentrations under the TSM/Expanded Bus Service Alternative are below the applicable federal and state standards. This alternative would not cause or worsen a violation of the applicable standards at any of the locations analyzed.

3. FULL BUILD ALTERNATIVE.

All predicted concentrations under the Full Build Alternative are below the applicable federal and state standards. The alternative would not cause or worsen a violation of the applicable standards at any of the locations analyzed.

The following discussion on the Pacific Electric Arterial has been added to supplement the analysis provided in the August 2001 DEIR/EIS and applies only to the Full Build Alternative. It is important to note that the Pacific Electric Arterial transportation element is not included in the (Enhanced) Reduced Build Alternative.

<u>Pacific Electric Arterial</u>

Two intersections that would be affected by the proposed Pacific Electric Arterial (PE) ramps, Raitt Street at Santa Ana Boulevard and Fairview Street at Civic Center Drive were screened using the EPA and the Department CO Protocol screening methodologies. The screening analysis is based on level of service (LOS), overall intersection volume and delay. To fail the screening, the intersection's V/C ratio must be higher under the Full Build Alternative when compared to the No Build Alternative, and/or the LOS for the Full Build Alternative must be below C or deteriorate to below C when compared to the No Build Alternative. Intersections that fail the screening analysis undergo a detailed microscale analysis to determine if the project would cause or worsen a violation of the CO standard.

The volume to capacity ratio (V/C) and LOS at the intersection of Fairview Street and Civic Center Drive at the worst traffic hour of the day, the PM peak, would be lower with the Full Build Alternative when compared to the No Build Alternative. At the intersection of Raitt Street and Santa Ana Boulevard, the Full Build Alternative would result in higher V/C and LOS during the PM peak than the No Build. However under the Full Build Alternative, this intersection would still have an LOS of C, which is considered as acceptable under the Department screening criteria.

Both intersections pass the Department CO Protocol screening criteria and are therefore not expected to have an impact on local air quality levels. The PE Arterial would not cause or worsen a violation of the applicable standards at any of the locations analyzed.

Table 4.8-2
PREDICTED ONE-HOUR PM PEAK
WORST-CASE 2020 CARBON MONOXIDE CONCENTRATIONS*

Site No.	Description	Alternative			
		No Build	TSM/ Expanded Bus Service	Full Build	(Enhanced) Reduced Build***
1	Intersection of Valley View Street & SR-22 westbound on-/off-ramps	10.4	10.3	10.6	10.5
2**	Intersection of Beach Boulevard & SR-22 westbound on-/off ramps	9.2	9.2	12.1/ (11.4)	11.9
3	SR-22 between Seal Beach Boulevard & Valley View Street	10.1	10.1	10.5	10.5
4	SR-22 between Beach Boulevard & Garden Grove Boulevard	8.9	8.9	9.7	9.6
5	SR-22 between Beach Boulevard & Magnolia Street	9.2	9.2	9.7	9.5
6	SR-22 between Brookhurst Street & Euclid Street	9.6	9.6	10.2	10.0
7	SR-22 between Fairview Street & The City Drive	9.1	9.1	9.3	8.8
8	SR-22 between Main Street & Glassell Street	9.0	8.9	9.7	9.5
A	Intersection of NB I-605 & Katella Avenue	10.8	10.1	10.8	10.0
B	605 between Shakespeare and Chesney (near Lee Elementary School)	8.6	8.1	8.7	8.1
C	SR-22 between Brookhurst Street & Magnolia Street	9.8	9.9	10.1	9.9
D	Intersection of SR-22 WB & Brookhurst Street	10.8	11.4	11.7	11.8
E	Intersection of SR-22 WB & Euclid Street	11.2	11.3	11.4	10.8

Notes: All concentrations are in parts per million (ppm). Threshold values are 20 ppm (State CO standard) and 35 ppm (Federal CO standard).
* Concentrations include a one-hour background level of 7.8 ppm
** Site is unsignalized in No Build or TSM/Expanded Bus Service Alternative.
Traffic mitigation was applied to this site under the Full Build Alternative.
Modeling results for the Full Build Alternative are presented as Full Build / (Mitigated Full Build).

Table 4.8-3
PREDICTED EIGHT-HOUR PM PEAK
WORST-CASE 2020 CARBON MONOXIDE CONCENTRATIONS*

Site No.	Description	Alternative			
		No Build	TSM/ Expanded Bus Service	Full Build	(Enhanced) Reduced Build
1	Intersection of Valley View Street & SR-22 westbound on-/off-ramps	7.3	7.3	7.5	7.4
2**	Intersection of Beach Boulevard & SR-22 westbound on-/off ramps	6.5	6.5	8.5 (8.0)	8.4
3	SR-22 between Seal Beach Boulevard & Valley View Street	7.1	7.1	7.4	7.4
4	SR-22 between Beach Boulevard & Garden Grove Boulevard	6.3	6.3	6.8	6.8
5	SR-22 between Beach Boulevard & Magnolia Street	6.5	6.5	6.8	6.7
6	SR-22 between Brookhurst Street & Euclid Street	6.8	6.8	7.2	7.0
7	SR-22 between Fairview Street & The City Drive	6.4	6.4	6.6	6.2
8	SR-22 between Main Street & Glassell Street	6.3	6.3	6.8	6.7
A	Intersection of NB I-605 & Katella Avenue	7.6	7.1	7.6	7.0
B	I-605 between Shakespeare and Chesney (near Lee Elementary School)	6.1	5.7	6.1	5.7
C	SR-22 between Brookhurst Street & Magnolia Street	6.9	7.0	7.1	7.0
D	Intersection of SR-22 WB & Brookhurst Street	5.5	5.5	5.5	5.5
E	Intersection of SR-22 WB & Euclid Street	7.9	8.0	8.0	7.6

Notes: All concentrations are in parts per million (ppm). Threshold values are 20 ppm (State CO standard) and 35 ppm (Federal CO standard).
* Concentrations include an eight-hour background level of 5.5 ppm
** Site is unsignalized in No Build or TSM/Expanded Bus Service Alternative.
Traffic mitigation was applied to this site under the Full Build Alternative.
Modeling results for the Full Build Alternative are presented as Full Build / (Mitigated Full Build).

Table 4.8-4
INTERSECTION OF SR-22 EB AND TUSTIN AVENUE (SITE F)
PREDICTED WORST-CASE CARBON MONOXIDE CONCENTRATIONS
YEAR 2020 - PM PEAK

Description	Alternatives				
	No Build	TSM/ Expanded Bus Service	Full Build	Reduced Build	(Enhanced) Reduced Build
One-Hour CO Concentration (ppm)	12.1	11.9	11.9	11.9	11.9
Eight-Hour CO Concentration (ppm)	8.5	8.4	8.4	8.4	8.4

Notes: Threshold values are 20 ppm (State) & 35 ppm (Federal) for 8 hours, & 9.0 ppm (State) & 9 ppm (Federal) for 1 hour.
One-hour concentrations include a background level of 7.8 ppm.
Eight-hour concentrations include a background level of 5.5 ppm.

4.8.3.2 PARTICULATE MATTER (PM_{10})

The project is located in the South Coast Air Basin (SCAB), which is a federal non-attainment area for particulate matter sized 10-microns or less (PM_{10}). There is no EPA-accepted or required protocol for PM_{10} quantitative hot-spot analysis. However, there is a PM_{10} qualitative analysis, the Federal Highway Administration's (FHWA) *Guidance for Qualitative Project Level "Hot Spot" Analysis in PM_{10} Non-Attainment and Maintenance Areas*, September 2001. The Department has developed an initial screening level analysis that is used to determine the potential for a PM_{10} violation that would, in turn, warrant further analysis using the FHWA guidance procedure. FHWA has agreed to accept the Department's initial screening analysis for the PM_{10} qualitative analysis.

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. Of particular concern are those particles that are smaller than or equal to ten microns (PM_{10}) and 2.5 microns ($PM_{2.5}$). The data collected through many nationwide studies indicates that most of the PM_{10} is the product of fugitive dust, wind erosion and agricultural and forestry sources, while a small portion is the product of fuel combustion processes. Major man-made sources of particulate matter include the combustion of fossil fuels in vehicles, power plants and homes; chemical and manufacturing processes; all types of construction; agricultural activities and wood-burning fireplaces. Particulate matter can accumulate in the respiratory system and aggravate health problems such as asthma.

$PM_{2.5}$, is mainly derived from combustion material that has volatilized and then condensed to form primary particulate matter (often after release from a stack or exhaust pipes) or from precursor gases reacting in the atmosphere to form secondary particulate matter. It is also derived from mechanical breakdown of coarse particulate matter such as pollen fragments. Man-made sources of fine particulate matter include combustion of fossil fuel (such as diesel fuel), chemical/industrial processing, and burning of vegetation. Major components include sulfate, ammonium nitrate, organic compounds, trace metals, elemental carbon, and water. Since particulate matter in the ambient air is comprised of a combination of discrete compounds or elements, health effects vary depending on the specific components of the particulate matter in a region. Acid aerosols like sulfuric acid may trigger reactions in pulmonary lung function, while bioaerosols, such as mold spores, may result in allergic reactions related to increased incidences of asthma.

The Department initial screening level procedure is based in part on the inclusion of the proposed project in an approved RTP and TIP, which accounts for the regional PM_{10} emissions in its SIP budget compliance. It is also based on the following summary of Department of Transportation/University of California, Davis (UCD) studies pertaining to PM_{10} violation:

> *If no violations have been recorded in the project vicinity by air district monitors, and the monitored concentrations are not close to the NAAQS (meaning within about 80 to 90 percent of the NAAQS concentration threshold of 150 mg/m^3), Department of Transportation/UCD studies strongly suggest that no PM_{10} hot spot can occur as a result of a typical project.*

The proposed SR-22/WOCC project is consistent with the design concept and scope of the projects listed in SCAG's conforming 2001 RTP, adopted April 12, 2001, and the Transportation Improvement Program, approved August 31, 2001. Excerpted pages from the 2001 RTP are shown as Figures 4.8-2 through 4.8-5, and show the project's inclusion in the RTP. Therefore, the project is not likely to worsen existing conditions regarding regional PM_{10}. The project is included in the 2002 Regional Transportation Improvement Program (RTIP). See Section 4.8.5, for more details regarding the regional conformity for the SR-22/WOCC project.

PM_{10} data monitored at the CARB stations located near the project study area, Anaheim (Harbor Boulevard) and North Long Beach (North Long Beach Boulevard), for the three years 1999 through 2001, indicate that there has been no federal PM_{10} (NAAQS) violation of the 24-hour standard based on the most recent 3-year 99th percentile average: Anaheim (2001) – 114 g/m^3 and North Long Beach (2001) – 92 mg/m^3. The monitored three-year 99th percentile averages are below 80 percent of the NAAQS concentration threshold of 150 mg/m^3 (24-hour standard) stated in the Department of Transportation/UCD studies (i.e., 120 mg/m^3). This finding indicates that a localized PM_{10} violation, due to inclusion of a project whose design concept and scope consistent with the (Enhanced) Reduced Build Alternative, is unlikely.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE.

There are no indications that the (Enhanced) Reduced Build Alternative would contribute to a PM_{10} hot spot that would cause or contribute to violation of the PM_{10} NAAQS. This finding is based in part on the inclusion of the (Enhanced) Reduced Build Alternative in the approved 2001 RTP and 2001 TIP, which accounted for the regional PM_{10} SIP budget compliance. It is also based on the PM_{10} monitored concentrations recorded at the CARB Anaheim-Harbor Boulevard and the North Long Beach-North Long Beach Boulevard Monitoring Stations, closest to the study area, which are below 80 percent of the NAAQS concentration threshold of 150 mg/m^3 for the three years 1999 through 2001. This finding indicates that a PM_{10} violation due to operation of the proposed improvements is not likely to occur.

The following discussion on the I-405/I-605 direct HOV Connector applies to all of the build alternatives and has been added to the FEIR/EIS to supplement the analysis provided in the August 2001 DEIR/EIS in order to address community concerns regarding mobile emissions and particulate matter near this location.

<u>I-405 / I-605 HOV Connector</u>

Future changes in traffic were assessed, both with and without the proposed I-405/I-605 direct HOV Connector as part of the traffic analysis conducted for the August 2001 DEIR/EIS. According to the EPA and the California Air Resources Board, motor vehicles are a known source of hazardous air pollutants, especially diesel exhaust particulate matter. In freeway operations, diesel exhaust particulates are generated by motor vehicles that use diesel fuel. Of particular concern are medium- and heavy-duty trucks, which tend to operate almost exclusively on diesel fuel, whereas the vast majority of autos, pick-ups, and trucks with 2-axles use gasoline and have much lower particulate emissions.

The addition of HOV lanes and direct HOV connectors between I-405 and I-605 is not predicted to change the number or percentage of diesel trucks on this segment of the freeway. By definition, only high occupancy vehicles or buses would use the new lanes. On California freeways, medium- and heavy-duty trucks must remain in the two right-hand lanes and would not be eligible to use the proposed HOV lanes. However, additional express bus service would be provided as part of the (Enhanced) Reduced Build Alternative. This transit service would be provided by Orange County Transportation Authority (OCTA), and some of the express buses would operate along the I-405/I-605 HOV Connector. In keeping with SCAQMD's Rule 1192, OCTA is currently in the process of phasing out its fleet of diesel transit vehicles in favor of zero emissions and ultra low emissions buses. According to the bus replacement schedules developed by OCTA, all of their diesel buses will be retired by the Year 2010. Based on current timetables, the I-405/I-605 HOV Connector would open no sooner than 2010.

Therefore, any potential hazardous effects of diesel emissions would not be worsened by the proposed direct HOV connectors.

C. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE.

The No Build Alternative does not include construction other than that addressed in previous environmental documents. In addition, microscale analysis shows that no local air quality impacts are predicted to occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE.

As with the No Build Alternative, the TSM/Expanded Bus Service Alternative does not include construction

other than that addressed in previous environmental documents. In addition, microscale analysis shows that no local air quality impacts are predicted to occur.

3. FULL BUILD ALTERNATIVE.

Same as (Enhanced) Reduced Build Alternative, 4.8.3 (B). Also see above discussions on the Pacific Electric Arterial and the I-405/I-605 HOV Connector.

4.8.4 CONSTRUCTION IMPACTS ON AIR QUALITY

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

Air emissions from construction activities include airborne dust from grading, demolition, dirt-hauling, gaseous emissions from heavy equipment, delivery and dirt-hauling trucks, employee vehicles, and paints and coatings. Construction activities would vary throughout the SR-22/WOCC project area, and could include demolition of existing structures, roadway excavation, pavement removal, grading and surface preparation, and final paving. During construction, the project would be required to comply with regional rules that would prevent substantial short-term air pollutant emissions. Dust control measures will be required for disturbed and exposed soil areas and stockpiles on the project site that are subject to wind erosion, and when significant wind and dry conditions are anticipated during construction of the project. Dust control shall be applied in accordance with the Department standard practices and Best Management Practices (BMP), and as defined in the most current publication of the Department's Statewide Storm Water Management Plan.

The construction contractor will be required to adhere to all laws and regulations for emissions from construction equipment, including those set forth by the South Coast Air Quality Management District at the time of construction.

In addition, the potential regional effects of particulate emissions attributable to construction activities associated with the SR-22/WOCC project along with other future transportation projects have been included in the regional analysis conducted by SCAG for PM_{10} for the adopted 2001 RTP. The results of this construction-related analysis indicate that future PM_{10} emissions would not exceed the SIP emissions budget.

Structures scheduled for demolition or substantial modification will be surveyed during final design work for the presence of asbestos-containing materials, and notification will be filed as required under Federal and SCAQMD regulations before construction. Effective dust control measures during demolition activities will be required.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. No additional construction-related air quality impacts would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative does not include construction other than that addressed in previous environmental documents. No additional construction-related air quality impacts are expected to occur.

3. FULL BUILD ALTERNATIVE

See the (ENHANCED) REDUCED BUILD ALTERNATIVE in 4.8.4 (A), above.

4.8.5 CONFORMITY STATEMENT

Under the requirements of the CAAA, ISTEA and TEA-21, proposed transportation projects must be derived from a fiscally-constrained Regional Transportation Plan (RTP) that conforms to the State Implementation Plan (SIP). The SIP is the document that sets forth the state's strategies for achieving Federal air quality standards. Projects must also be included in a Federally-approved Transportation Improvement Program (TIP) that conforms with the SIP, and proposed projects must not cause or contribute to localized exceedances in non-attainment and maintenance areas for carbon monoxide (CO) and PM_{10}.

The SCAG Regional Council found the 2001 RTP to conform to the purposes of the SIP and adopted the 2001 RTP for the six-county SCAG region in April 2001. Federal approval of the 2001 RTP was obtained in June 2001. The RTP, known as CommunityLink 21, is a performance-based plan aimed at providing a long-range, coordinated approach to transportation improvements from 2001 through 2025. The RTP is revised and adopted every three years to update policy direction, based on changing transportation infrastructure, financial, technological, and environmental conditions. The RTP describes a financially constrained series of proposed transportation policies, programs and projects that meet the mobility goals and that demonstrate that the SCAG region can meet air quality conformity in 2010 and 2025. The actual strategies employed by each responsible agency will depend on a number of issues, including: policies, programs and projects adopted at the local level; restrictions on federal, state and local transportation funds; the results of feasibility studies for particular corridors; and further environmental review of proposed projects.

The major elements that comprise the design concept and scope of the proposed build alternatives for the SR-22/WOCC project are included in the 2001 RTP and are summarized as follows:

- Mainline: HOV Lanes on SR-22, Valley View to approximately SR-55* (FB, RB, ERB)
- Ramp Improvements on SR-22, @ The City Drive (FB, RB, ERB)
- HOV Connector, SR-22 @ I-5 (FB)
- HOV Connector, SR-22 @ SR-55 (FB)
- HOV Connector, I-405 @ SR-22 (FB, RB, ERB)
- HOV Connector, I-605 @ I-405 (FB, RB, ERB)
- 4-Lane Arterial on Pacific Electric ROW, SR-22 to Raitt St. in Santa Ana (FB)

Note: FB = Full Build; RB = Reduced Build; ERB = (Enhanced) Reduced Build
The Reduced Build and (Enhanced) Reduced Build Alternative is one alternative; the two names are used solely to differentiate that air quality analysis was prepared for the Reduced Build Alternative at the DEIR/EIS phase, and the (Enhanced) Reduced Build Alternative, which is a minor alteration of the Reduced Build Alternative, is discussed and analyzed in this section.

*The original limits of the Mainline portion of the improvements are from Valley View Street to Glassell Street. During the final environmental documentation process, the project limits have been extended from Valley to approximately SR-55. The minor extension of the HOV Mainline was analyzed by SCAG during the initial air quality conformity analysis as part of the I-405/I-605, SR-22/I-405, SR-22/SR-55 HOV Connectors. On April 1, 2002, SCAG wrote a letter clarifying the details of the SR-22 WOCC proposed project limits and the features of the project. Please see Appendix G (Volume IV) of the FEIR/EIS for the SCAG letter.

As previously discussed in the August 2001 DEIR/EIS, the mainline elements of the SR-22/WOCC project are included in the adopted 2001 RTIP for FY 2001-2006 as Project # ORA000195, Build Mainline HOV Lanes on SR-22 from Valley View Street to Glassell Street, as well as ramp improvements on SR-22 in the vicinity of City Drive (Projects #ORA55282 and #ORA990443).

In the current "Final 2002 RTIP (FY 2002/2003-2007/2008)," the mainline elements of the SR-22/WOCC project are included for FY 2003-2008 as Project # ORA000195, on SR-22 (I-405 to SR-55) add 2 HOV lanes/

1 each direction; and 2 auxiliary lanes/1 each direction (from 0-2) (I-5 to Beach) and operating improvements, as well as ramp improvements on SR-22 in the vicinity of City Drive (Projects #ORA55282 and #ORA990443). Note, SCAG loosely defined the project limits of the mainline from I-405 to SR-55; however, the (Enhanced) Reduced Build Alternative mainline project limits are from Valley View to approximately SR-55 (Valley View Street is at the junction of SR-22 and I-405 freeways). As noted above, SCAG had analyzed the extension of the (Enhanced) Reduced Build Alternative's eastern terminus as part of the SR-22/55 direct HOV connector feature of the Full Build Alternative, as presented in the August 2001 DEIR/EIS. The slight extension (from Glassell Street to approximately SR-55) of the SR-22/WOCC (Enhanced) Reduced Build Alternative's HOV mainline at the eastern terminus has been analyzed as part of the SR-22/55 direct HOV connector component of the Full Build Alternative.

The design of the project has been included in the 2002 Regional Transportation Improvement Program (RTIP) with a construction start date of 2003 and a completion date of 2006 (with the design-build concept implemented). (See Figures 4.8-6 through 4.8-7) Therefore, the SR-22/WOCC Project is in conformity with the SIP and is consistent with the requirements of the Transportation Conformity Rule. The 2002 RTIP and Federal Transportation Improvement Programs (FTIP) will likely be approved by FHWA around October 1, 2002 into the Federal Statewide Transportation Improvement Program (FSTIP). The FSTIP is the final conformity document for the TIP. See Figures 4.8-6/7 for the 2002 RTIP list for State Highway Projects.

The results of the air quality analysis indicates that the proposed project will not cause any violations or exceedances of the NAAQS or the AAQS due to the following:

- The project is consistent with the design concept and scope of the project as listed in the SCAG Conformity 2001 Regional Transportation Plan, adopted April 12, 2001, and the Federal Transportation Improvement Program (FTIP) approved by SCAG in August 2001 and by FHWA/FTA in September 2001.

- The project is a Transportation Control Measure(s) (TCM) as defined in the AQMP and SIP, as well as in the RTP and RTIP. TCM is a project or program that is designed to reduce air quality emissions. TCMs are referenced in the State Implementation Plan (SIP) for the applicable air basin and have priority for programming and implementation ahead of non-TCMs projects. As part of SCAG's RTP/RTIP, this project has undergone air quality conformity analysis for the South Coast Air Basin (SCAB).

- Based on quantitative CO and qualitative PM_{10} hot-spot assessments, the project will not cause or contribute to localized violations of NAAQS standards.

- The future PM_{10}, CO, and ozone levels within the SCAG region, which includes the proposed project, are projected to be less than the SIP emissions budget.

4.8.6 MITIGATION

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

None proposed. This alternative would not cause or worsen a violation of the applicable air quality standards in the South Coast Air Basin.

Construction Impacts

Dust control measures will be implemented to comply with all applicable regulations, including South Coast Air Quality Management District rules.

Asbestos surveys will be performed for all structures subject to demolition or structural modification, notification(s) will be filed as required by applicable regulations, and dust control will be utilized to minimize the potential for asbestos emissions during structural demolition and renovation activities.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

See comment under 4.8.6 A. (Enhanced) Reduced Build Alternative, above.

3. FULL BUILD ALTERNATIVE

See comment under 4.8.6 A. (Enhanced) Reduced Build Alternative, above.

4.8.7 RESIDUAL IMPACTS AFTER MITIGATION

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

None.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

None.

2001 RTP * *TECHNICAL APPENDIX* Appendix K * Project Lists

2001 RTP - CONSTRAINED PROJECT LIST

County	Route	Project Limits	Description	Year	Public Cost (97$)*	Private/Other Cost (97$)*
OR	Orangethorpe Corridor	State College in Fullerton	Grade Crossing	2010	$25,000,000	
OR	Orange/Olive Corridor Grade Crossings	Orange/Olive Branch, various locations	Grade separate streets @ railroad tracks (full description provided in expanded list)	2010	$151,000,000	
OR	Other Grade Separations	TBD	Countywide grade separations	2020	$109,000,000	
HOT LANES/TOLLWAYS						
OR	Corridor	SR-241 to Riv Co Line	Corridor	2010		$520,000,000
OR	SR-91 @ SR-241	SR-91 @ SR-241	Add Tollway Connection Ramps	2020		$90,000,000
HOV						
OR	I-5	SR-1 to Pico	Freeway: HOV	2020	$70,000,000	
OR	SR-55	I-5 to Dyer, NB and SB	Extend I-5/SR-55 HOV connector to Dyer as separate HOV lane	2010	$40,000,000	
OR	SR-22 @ I-5	SR-22 @ I-5	HOV Connector	2025	$66,000,000	
OR	SR-22 @ SR-55	SR-22 @ SR-55	HOV Connector	2025	$63,000,000	
OR	I-405 @ SR-22	I-405 @ SR-22	HOV Connector	2010	$60,000,000	
OR	I-605 @ I-405	I-605 @ I-405	HOV Connector	2010	$85,000,000	
OR	I-405 HOV Drop Ramps	@ Von Karman	HOV Drop Ramps	2025	$24,000,000	
MIXED FLOW						
OR	I-405, NB & SB	Magnolia Avenue to Beach Blvd.	Auxiliary Lanes	2010	$8,000,000	
OR	SR-55	I-5 to McArthur Blvd	Auxiliary Lanes	2010	$40,000,000	
OR	SR-57	LA Co Line to SR-22	Add NB Aux Lane from Katella to SR-91 and from Orangethorpe to Imperial Hwy; Add SB Aux Lane from LA County to SR-91; Add NB Truck Climbing Lane from Lambert to Tonner	2010	$186,000,000	
OR	SR-91	SR-57 to I-5 (WB only)	Auxiliary Lanes	2020	$15,000,000	
OR	SR-91 WB	SR-55 to Tustin Ave	Auxiliary Lanes	2010	$25,000,000	
OR	SR-91	SR-241 to SR-71	Auxiliary Lanes	2025	$7,000,000	
OR	SR-91 Freeway	Between SR-71 (Riv County) and Coal Canyon	Auxiliary Lane (WB)	2006	$5,000,000	
OR	I-405 @ SR-55	I-405 @ SR-55 (Bristol Braid)	Interchange Improvement	2020		$32,000,000
OR	I-5 NB & SB	I-5 La Paz to Oso	Add auxiliary lane, widen bridge, intersection improvements	2010	$13,000,000	
OR	I-5, NB & SB	at La Paz Road	Reconstruct interchange	2010	$30,000,000	
OR	I-5, SB	at Alicia Parkway	Auxiliary Lane	2010	$2,000,000	

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Constrained Project List
2001 RTP
Figure 4.8-2

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	RTE	POST MILES BEG	POST MILES END	DESCRIPTION	COMPLETION DATE
SAN JUAN CAPISTRANO	40177	SCAB		5	11.4	.0	SAN JUAN CAPISTRANO NEAR I-5 AND CAMINO CAPISTRANO ENHANCEMENT OF HISTORIC VIEW AND LANDSCAPEING AND HISTORIC PRESERV	__/__/__
LAGUNA HILLS	ORA000122	SCAB		5	16.5	16.5	INTERCHANGE IMPROVEMENTS AT I-5/LA PAZ. EXPAND FROM 2 LANES TO 3 LANES IN EACH DIRECTION ON LA PAZ RD.	20070630
TUSTIN	ORA55262	SCAB		5	29.1	29.1	RED HILL AVE WIDENING AT I-5 FWY BETWEEN EL CAMINO REAL & NIESON RD ADD DEDICATED RIGHT TURN LANE TO FREEWAY ON RAMPS BOTH N/S ADD BIKELANES	__/__/__
CALTRANS	6490	SCAB		5	33.9	43.5	IN ANAHEIM FROM ROUTE 5/22/57 INTERCHANGE TO BEACH BOULEVARD - CONSTRUCT TMA FOR I-5.	__/__/__
ANAHEIM	ORA000100	SCAB	2006	5	34.0	43.5	GENE AUTRY WAY WEST/I-5 FWY CONNECTION AND HWY IMPRV. PROJ. (I-5 HOV TRANSITWAY TO HASTER) ADD OVERCROSSING ON I-5 (S)/MANCHESTER AND EXTEND GENE AUTRY WAY WEST FROM I-5 TO HARBOR.	20030630
CALTRANS	01260FF	SCAB	2006	5	34.0	43.5	IN SANTA ANA FROM ROUTE 22 TO ROUTE 91 - 6 LANE FREEWAY ADD 2 MIXED FLOW LANES, 2 HOV LANES, AND RECONSTRUCT INTERCHANGES INCLUDE GENE AUTRY & ORANGEWOOD	20010130
ANAHEIM	ORA990904	SCAB		5	34.4	43.5	LANDSCAPE I-5 IN ANAHEIM, BUENA PARK, ORANGE AND FULLERTON OUTSIDE STATE ROW. IN CONJUNCTION WITH ORA990905	__/__/__
CALTRANS	10167	SCAB	2009	5	42.1	44.4	IN BUENA PARK FROM SR-91 TO LA LA COUNTY LINE ADD 1 HOV LANE IN EACH DIRECTION	20021201
BUENA PARK	ORA55059	SCAB		5	44.3	.0	ARETESIA/I-5 INTERSECTION IMP FROM KNOTT TO BOTRYOIDES; REALIGN N/B OFFRAMP AND S/B ONRAMP; IN CONJ W/ I-5 WIDENING.	20020620
CALTRANS	ORA000195	SCAB	0202	22	.7	11.8	BUILD MAINLINE HOV LANES ON SR22 FROM VALLEYVIEW TO GLASSELL. DESIGN, ROW, AND CONSTRUCTION. (PROJECT ADMIN. BY OCTA)	20101230
GARDEN GROVE	929369	SCAB		22	1.1	10.0	IN GARDEN GROVE FROM VALLEY VEIW STREET TO BRISTOL STREET INSTALL CLOSED CIRCUIT TELEVISION CAMERAS	__/__/__
CALTRANS	ORA000801	SCAB		22	1.9	6.8	RETROFIT THREE (3) SOUNDWALLS ON SR-22 IN GARDEN GROVE.	20060430

Baseline Projects
Governor's Traffic Congestion Relief Plan
2001 RTP
Figure 4.8-3

2001 RTP * *TECHNICAL APPENDIX*

Appendix K * Project Lists
Orange County State Highways

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	RTE	POST MILES BEG	POST MILES END	DESCRIPTION	COMPLETION DATE
GARDEN GROVE	ORA981104	SCAB		22	7.8	.0	IN GARDEN GROVE RECONSTRUCT HARBOR BLVD INTERCHANGE	20040830
ORANGE, CITY OF	ORA55282	SCAB	2401	22	9.7	.0	BUILD NEW RAMP FROM THE SR-57 TO THE SR22 WEST BOUNDD (INCLS WIDENING OF LEWIS ST BRIDGE FROM LAMPSON TO GARDEN GROVE BL) & BUILD OFFRAMP FROM THE SR-57 DIRECTLY TO THE CITY DRIVE.	20040601
ORANGE, CITY OF	ORA990443	SCAB		22	10.5	.0	SR22 AND CITY DRIVE INTERCHANGE IMPROVEMENTS. RECONFIGURE FREEWAY INTERCHANGE AT SR22 FROM SR57 TO LEWIS STREET.	20041230
HUNTINGTON BEACH	ORA990408	SCAB		39	1.6	.0	Yorktown at Beach Boulevard in HB Intersection Improvement WIDENS NORTHSIDE OF INTERSECTION TO MAXIMUM MPAH WIDTH NO NEW LANES	__/__/__
HUNTINGTON BEACH	ORA000149	SCAB		39	5.7	5.7	BEACH BLVD/EDINGER. WIDEN S/E CORNER TO CONSTRUCT NB RT-TURN LANE TO EDINGER.	__/__/__
BUENA PARK	ORA55025	SCAB		39	14.6	14.6	INTERSECTION IMPROVEMENTS AT ORANGETHORPE/BEACH BOULEVARD. FROM 440' NS ORANGETHORPE TO 400' EW BEACH. WIDEN FROM 6 TO 8 LANES	__/__/__
SANTA ANA	ORA55037	SCAB		55	.0	.0	IN CITY OF SANTA ANA 17TH STREET OVERCROSSING APPROACH WIDENING AT TUSTIN AVE/YORBA STREET	__/__/__
COSTA MESA	ORA000161	SCAB	0205	55	1.5	1.5	NEWPORT BLVD. (SR-55 TO 17TH ST.) / WIDENING FROM 6 TO 8 THROUGH LANES.	20030401
COSTA MESA	ORA015	SCAB		55	5.3	.0	IN COSTA MESA AT BAKER STREET AND SR55 (NB AND SB) INTERSECTION IMPROVEMENT	__/__/__
CALTRANS	2590	SCAB		55	5.7	8.3	IN COSTA MESA AND SANTA ANA FROM ROUTE 405 TO DYER ROAD - ADD AUXILIARY LANE AND RESTRIPE	20000601
COSTA MESA	ORA016	SCAB		55	5.8	.0	IN COSTA MESA PAULARINO AVE INTERSECTION IMPROVEMENT AT PAULARINO AVE. AND NB RAMP	__/__/__
COSTA MESA	ORA017	SCAB		55	5.8	.0	IN COSTA MESA PAULARINO AVE INTERSECTION IMPROVEMENT AT PAULARINO AVE AND SB RAMP	__/__/__

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Baseline Projects, State Highways
2001 RTP
Figure 4.8-4

SOURCE	PROJECT	CATEGORY
LACMTA	Lancaster - Sierra Highway Bikeway - Gap Closure	2000 Abbreviated Call for Projects - STIP Funds
LACMTA	Whittier - Whittier Greenway Trail - Norwalk Blvd to Penn St	2000 Abbreviated Call for Projects - STIP Funds
LACMTA	Compton - Compton Creek Bikeway Extension - Phase III	2000 Abbreviated Call for Projects - STIP Funds
LACMTA	Los Angeles City - San Fernando Rd ROW bike path - Phase II	2000 Abbreviated Call for Projects - STIP Funds
Sierra Madre	Chantry Flats Road restoration	Transportation and Community Systems Preservation Program (TCSP)
OCTA	SR-22 build mainline HOV lanes (1 each dir) from Valley View to SR-55; add 1 continuous auxiliary lane in each direction from I-5 to Beach Boulevard and make operational improvements. Construction begins in 2005 and should be completed by 2008 RTIP ID# ORA000195	TCRP
OCTA	I-5 add 1 MF lane in each direction from SR-91 to LA County Line; completion date 2010	TCRP
OCTA	Orangethorpe Corridor - Track Lowering from Placentia Ave to Kellogg Drive Accomodates Placentia crossings at: Kraemer, Orangethorpe, Tustin/Rose, Jefferson, Van Buren, Richfield, Lakeview, Kellogg. Completion date 2010 (Note: public cost of $28 million is funded by TCRP and in baseline; remaining private/other cost of $318 million is in constrained plan)	TCRP
RCTC	I-10 construct new interchange at Apache Trail Rd (PM R17.8/18.2)	TCRP
RCTC	SR-91 add 1 HOV lane each dir from Mary St to SR-60/SR-91/I-215 interchange	TCRP
RCTC	SR-60 add 1 MF & 1 HOV lane each dir from I-15 to Valley Way	TCRP
RCTC	I-10 construction of Palm Drive interchange	TCRP
RCTC	SR-91 improve Green River interchange and add auxiliary and connector ramp east of the Green River interchange to NB SR-71	TCRP
RCTC	Lovekin Blvd arterial improvement from 0.25 mi north to 0.5 mi south of Seeley Dr	2000 STIP augmentation
RCTC	Hobsonway arterial improvements in Blythe	2000 STIP augmentation
SANBAG	I-215 near Colton and San Bernardino from I-10 to SR-30 (210), reconstruct interchanges, add 1 HOV lane each dir, and operational improvements RTIP ID# 713, 714, 715, 716, 717, 718, 719	TCRP
SANBAG	I-15 southbound truck climbing lanes	TCRP
SANBAG	SR-62 utility undergrounding and ROW	TCRP
SANBAG	Alameda Corridor East grade separations	TCRP
SANBAG	I-10 construct 1 MF lane each dir from Orange St to 0.2 miles east of Ford St, and full widening of 11 bridges	TCRP

Constrained Project List
2001 RTP
Figure 4.8-5

FINAL 2002 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP) (FY 2002/2003-2007/2008) – STATE HIGHWAY PROJECTS[1]

ORANGE COUNTY

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	PROGRAM CODE	RTE	POST MILES BEG	POST MILES END	DESCRIPTION	FUND	YEAR	ENG	ROW	CONS	TOTAL	2002/03	2003/04	2004/05	2005/06-2007/08	PROJECT TOTAL	CONFORMITY CATEGORY
TUSTIN	ORA55262	SCAB		NCRH1	5	29.1	29.1	I-5 @ RED HILL AVE (EL CAMINO REAL & NISSON RD) WIDENING. ADD DEDICATED RIGHT TURN LANE TO FREEWAY ON RAMPS BOTH N/S ADD BIKELANES (97-TUST-RIP-1159)	CITY ORA-BCK ORA-RIP	02/03 02/03 02/03	0 31 0	160 5 0	214 257 257	374 293 257	924	0	0	.0	924	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	6490	SCAB		TDM24	5	33.9	43.5	I-5 (ROUTE 5/22/57 INTERCHANGETO BEACH BLVD) IN ANAHEIM - CONSTRUCT TMA.	IM	02/03	0	0	500	500	500	0	0	.0	500	<OTHER>
ANAHEIM	ORA000100	SCAB	2006	CAN72	5	34.0	43.5	GENE AUTRY WAY WEST@ I-5 (I-5 HOV TRANSITWAY TO HASTER) ADD OVERCROSSING ON I-5 (S)/MANCHESTER AND EXTEND GENE AUTRY WAY WEST FROM I-5 TO HARBOR.	CITY DEMOT21	02/03 02/03	250 0	1750 6750	0 0	2000 6750	8750	0	0	.0	8750	TCM
ANAHEIM	ORA990904	SCAB		NCN46	5	34.4	43.5	I-5 (SR-22/SR-57 TO BEACH BLVD)LANDSCAPING IN ANAHEIM, BUENA PARK, ORANGE AND FULLERTON OUTSIDE STATE ROW. IN CONJUNCTION WITH ORA990905 TEA PROJECT	CITY STPE-L	02/03 02/03	0 0	0 0	208 1526	208 1526	1734	0	0	.0	1734	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	10167	SCAB	2009	CAR62	5	42.1	44.4	I-5 FROM SR-91 TO LA COUNTY LINE IN BUENA PARK - ADD 1 MIXED FLOW LN AND 1 HOV LN IN EACH DIRECTION. FROM 6 - 0 TO 8 - 2 LANES.	NH ORA-FWY NH ST-CASH	02/03 02/03 03/04 03/04	980 11929 0 0	10460 17882 0 0	0 119189 26983 23342	11440 149000 26983 23342	160440	50325	0	.0	210765	TCM
BUENA PARK	ORA55059	SCAB		CARH3	5	44.3	.0	ARETESIA @ I-5 (KNOTT TO BOTRYOIDES) INTERSECTION IMP REALIGN N/B OFFRAMP AND S/B ONRAMP; IN CONJ W/ I-5 WIDENING. FROM 2 TO 3 LANES. I-5 E TO BOTRYOIDES BLVD. (PE ONLY)	CITY ORA-GMA	02/03 02/03	2555 320	0 0	0 0	2555 320	2875	0	0	.0	2875	<OTHER>
ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA000193	SCAB		CAR62	22	.0	.7	SR-22/I-405 INTERCHANGE. DESIGN HOV TO HOV LANE CONNECTORS.	STP	06/07	5000	0	0	5000	0	0	0	5000.0	5000	TCM
CALTRANS	ORA020124	SCAB		NCR42	22	.3	13.2	SR-22 SOUNDWALLS (INCLUDES TCRP/HB311)	ST-CASH TCR-S	02/03 02/03	4400 0	800 200	17800 22100	23000 22300	45300	0	0	.0	45300	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	ORA000195	SCAB	0202	CAR62	22	.7	11.8	ON SR-22 (I-405 TO SR55) ADD 2 HOV LANES/1 EA DIR (PRM 0 - 2); & 2 AUX LANES/1 EA DIR (PRM 0- 2) (I-5 TO BEACH) & OPERATING IMPROVMENTS (SEE COMMENTS)	TCR-S CITY ORA-FWY TCR-S CITY ORA-FWY TCR-S ORA-FWY TCR-S TCR-S	02/03 03/04 03/04 03/04 04/05 04/05 04/05 05/06 06/07	9300 0 0 15630 0 0 15630 0 15630 1010	10000 0 0 20000 0 0 10000 0 1300 100	74800 3500 96500 0 3000 97000 0 9500 0 0	94100 3500 96500 35630 3000 97000 25630 9500 16930 1110	94100	135630	125630	27540.0	382900	TCM
CALTRANS	ORA020123	SCAB		NCR46	22	.7	11.8	SR-22 REPLACMENT PLANTING FOR HOV WIDENING PROJECT	TCR-S TCR-S	03/04 06/07	800 0	0 0	0 10000	800 10000	0	800	0	10000.0	10800	EXEMPT/TRAFFIC SIGNALIZATION
CALTRANS	ORA000801	SCAB		NCR42	22	1.9	6.8	IN GARDEN GROVE (SPRINGDALE TO KNOTT- N AND S SIDES) AND (MAGNOLIA TO EUCLID - S SIDE) RETROFIT THREE (3) SOUNDWALLS ON SR-22.	IM TCR-S	02/03 02/03	3356 0	1000 0	13185 22100	17541 22100	39641	0	0	.0	39641	EXEMPT/TRAFFIC SIGNALIZATION

Note 1. Sorted by county, route, post miles, and project ID. #732 18 v1 17 7/26/2002

Final 2002 RTIP
Figure 4.8-6

FINAL 2002 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP) (FY 2002/2003-2007/2008) – STATE HIGHWAY PROJECTS[1]

ORANGE COUNTY

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	PROGRAM CODE	RTE	POST MILES BEG	POST MILES END	DESCRIPTION	FUND	YEAR	ENG	ROW	CONS	TOTAL	2002/03	2003/04	2004/05	2005/06-2007/08	PROJECT TOTAL	CONFORMITY CATEGORY
GARDEN GROVE	ORA981104	SCAB	0263	CAR63	22	7.8	.0	RECONSTRUCT HARBOR BLVD INTERCHANGE. 4 LANES EACH DIRECTION. (1/4 MILE BEFORE AND AFTER SR-22 RAMPS) 2 HOV LNES(1 E/B & 1 W/B) AND PROPOSED SR-22 HOV LANES.	DEMOT21	02/03	390	0	0	390	3159	5325	0	.0	8484	TCM
									CITY	02/03	104	0	1100	1204						
									LTF	02/03	0	275	1290	1565						
									DEMOT21	03/04	0	0	1110	1110						
									LTF	03/04	0	0	1300	1300						
									ORA-GMA	03/04	0	0	300	300						
									ORA-RIP	03/04	0	0	2615	2615						
ORANGE, CITY OF	ORA55282	SCAB	2401	CARH3	22	9.7	.0	BUILD NEW RAMP FROM THE SR-57 TO THE SR22 WEST BOUND (INCLE WIDENING OF LEWIS ST BRIDGE FROM LAMPSON TO GARDEN GROVE BL) & BUILD OFFRAMP FROM THE SR-57 DIRECTLY TO THE CITY DRIVE.	CITY	03/04	700	0	0	700	0	700	2059	.0	2759	<OTHER>
									CITY	04/05	0	0	2059	2059						
ORANGE, CITY OF	ORA990443	SCAB	0264	CARH3	22	10.5	.0	SR-22 AND CITY DRIVE INTERCHANGE IMPROVEMENTS. RECONFIGURE FREEWAY INTERCHANGE AT SR-22 FROM SR-57 TO LEWIS STREET -- FROM 6/0 TO 6/2 LANES (ADDING 2 HOV LANES)	CITY	02/03	0	1600	0	1600	1600	24791	0	.0	26391	TCM
									CITY	03/04	1650	0	20832	22482						
									ORA-GMA	03/04	0	0	250	250						
									ORA-RIP	03/04	0	0	1636	1636						
									PVT	03/04	0	0	423	423						
HUNTINGTON BEACH	ORA000149	SCAB		NCRH1	39	5.7	5.7	BEACH BLVD @ EDINGER. WIDEN S/E CORNER TO CONSTRUCT NB RT-TURN LANE TO EDINGER. 3 LANES TO 3 LANES.	ORA-IIP	02/03	0	0	418	418	418	0	0	.0	418	EXEMPT/TRAFFIC SIGNALIZATION
COSTA MESA	ORA000161	SCAB	0205	CAR63	55	1.5	2.0	NEWPORT BLVD. (ER-55 TO 17TH ST) - WIDENING FROM 6 TO 8 THROUGH LANES. WIDEN 1 LANE N/B FROM 17TH TO 19TH AND 1 LANE S/B FROM 19TH TO BROADWAY	STPL-R	02/03	320	0	0	320	860	0	0	.0	860	<OTHER>
									ORA-GMA	02/03	60	15	465	540						
COSTA MESA	ORA015	SCAB		NCRH1	55	5.3	5.3	BAKER STREET AND SR-55; N/B & S/B FRONTAGE ROAD IMPROVEMENTS. S/B FREE RIGHT TURN, N/B LEFT-TURN AND 2ND E/B LEFT.	CITY	03/04	90	0	610	700	0	700	0	.0	700	EXEMPT/TRAFFIC SIGNALIZATION
COSTA MESA	ORA016	SCAB	0265	NCRH1	55	5.8	5.8	PAULARINO AVE (SR-55 @ PAULARINO AVE) IN COSTA MESA INTERSECTION IMPROVEMENT. ADDING A N/B RAMP AND W/B RIGHT-TURN-LANE.	CITY	03/04	40	150	0	190	0	190	248	.0	438	EXEMPT/TRAFFIC SIGNALIZATION
									CITY	04/05	0	0	248	248						
COSTA MESA	ORA017	SCAB		NCRH1	55	5.8	5.8	PAULARINO AVE IN COSTA MESA. INTERSECTION IMPROVEMENT ADD S/B RIGHT-TURN LANE.	CITY	03/04	42	0	0	42	0	42	200	.0	242	EXEMPT/TRAFFIC SIGNALIZATION
									CITY	04/05	0	0	200	200						
SANTA ANA	550	SCAB	2204	CAR63	55	7.5	7.6	ALTON AVE IN SANTA ANA CONSTRUCT A NEW 4-LANE (2E/B AND 2W/B) OVERCROSSING & HOV ACCESS RAMPS @SR-55	CITY	02/03	1820	0	0	1820	3500	1500	1500	36600.0	43100	<OTHER>
									ORA-RIP	02/03	1680	0	0	1680						
									CITY	03/04	0	1500	0	1500						
									CITY	04/05	0	1500	0	1500						
									CITY	05/06	0	0	36600	36600						
TUSTIN	ORA55261	SCAB	0266	CARH3	55	9.0	9.4	NEWPORT AVENUE@ SR 55 INTERCHANGE MODIFY NORTHBOUND ROUTE 55 ON AND OFF RAMPS TO CONNECT TO NEWPORT AVE EXTENSION (frm 0 TO 6 LNS) (BTWN EDINGER & VALENCIA) (00-TUST-RIP-3190)	CITY	02/03	0	0	4282	4282	6345	0	0	.0	6345	<OTHER>
									ORA-RIP	02/03	0	0	2063	2063						

Note 1. Sorted by county, route, post miles, and project ID. #732 18 v1 18 7/26/2002

Final 2002 RTIP
Figure 4.8-7

4.9 NOISE

The information contained in this section is based on the *SR-22 West Orange County Connection (SR-22/WOCC) Traffic Noise Impact Technical Report* and *Traffic Noise Impact Technical Report Reduced Build Alternative Addendum* (Parsons Brinckerhoff, December 2000); *Traffic Noise Impact Technical Report and Traffic Noise Impact Technical Report Reduced Build Alternative (Revised) Addendum (December 2002); Traffic Noise Impact Technical Report and Traffic Noise Impact Technical Report Reduced Build Alternative (Revised) Addendum Rossmoor (September 2002); and Traffic Noise Impact Technical Report and Traffic Noise Impact Technical Report Reduced Build Alternative (Revised) Addendum Garden Grove (October 2002),* available under separate cover at the Department and OCTA. These documents describe the traffic noise analyses conducted to simulate conditions that would be expected under the various alternatives, both the methodology and the results. This section includes discussions of impacts and mitigation measures related to traffic noise in the study area for the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative, and other previously reviewed alternatives.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. During the public comment period of the DEIR/EIS, the Department received numerous comments from residents in the Community of Rossmoor as well as in the City of Seal Beach. The residents from these areas were concerned with the potential traffic noise impacts as a result of the implementation of the I-405/605 direct HOV connector. To address this issue, additional analyses were prepared to determine the impacts from the I-405/605 direct HOV connector. In addition, some of the residents along Trask Avenue were concerned with the traffic noise from both Trask Avenue and SR-22. The findings for this analysis as well as discussions of traffic noise impacts to other portions of the SR-22 corridor are discussed in this section. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

The August 2001 DEIR/EIS contained a preliminary traffic noise analysis based on the feasibility and reasonability of noise barriers for the proposed project alternatives. This section of the FEIS/EIR includes a more narrowly defined feasibility and reasonability analysis, and includes noise barriers to address those portions of the (Enhanced) Reduced Build Alternative at the eastern terminus. There are 42 noise barriers that are being considered as part of the (Enhanced) Reduced Build Alternative. 32 noise barriers proposed in the August 2001 DEIR/EIS are no longer being considered in this section of the FEIS/EIR.

Preliminary information on the characteristics of potential noise abatement measures (e.g., physical location, length, and height of noise barriers) is provided in all *Traffic Noise Impact Technical Reports* and is summarized in this section. If pertinent parameters change substantially during the final project design, the preliminary noise abatement design may be changed or eliminated from the final project design. The final design of noise barriers, if included in this project, will be based on the final project design and public involvement processes.

As discussed in sections 2.2 and 4.6, several residential units and businesses would not be displaced or acquired as original proposed in the DEIR/EIS. These include six properties along Martha Ann Drive in Rossmore, six properties along Almond Avenue in Seal Beach, four properties along Enloe Way in Garden Grove, and, two properties along Trask Avenue and eighteen business along Euclid and Trask Avenue in Garden Grove. Additional information can be found in Section 2.2. However, these changes would not impact the predicted noise levels and noise abatement outcome as presented in this section. The specific identification sites are asterisked and noted in tables 4.9-2, 4.9-4, 4.9-11 and 4.9-14.

4.9.1 FEDERAL AND STATE POLICIES AND PROCEDURES

Under NEPA, noise impacts and measures to mitigate adverse impacts must be identified, including impacts for which no or only partial noise abatement/mitigation is possible. Under FHWA's traffic noise abatement requirements, traffic noise impacts must be considered for abatement when the predicted noise levels would "approach or exceed" the agency's noise abatement criteria (NAC) (Table 4.9-1) or when the predicted noise levels would substantially exceed existing noise levels and it is both reasonable

and feasible to provide noise abatement. The representative noise-sensitive land uses used in the SR-22/WOCC noise analyses are classified as activity categories B, C, and E.

Table 4.9-1
FHWA NOISE ABATEMENT CRITERIA (NAC)

Activity Category	Leq(h) for Noisiest Traffic Hour (dBA)	Description of Activity
A	57 (Exterior)	Land 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 purposes.
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.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

The interior noise levels (activity) apply to:
(1)Indoor activities for those parcels where no exterior noise-sensitive land uses or activities have been identified, and
(2)Those situations where the exterior activities are either remote from the highway or shielded in some manner so that the exterior activities will not be affected by the noise, but the interior activities will.
Note: Leq(h) is the one-hour energy equivalent sound level.
Source: FHWA, 1994

Under CEQA, a substantial noise increase may result in a significant adverse environmental effect and, if it does, it must be mitigated or identified as a noise impact for which it is likely that no or only partial abatement measures are available. Specific economic, social, environmental, legal and technological conditions may make additional noise abatement/mitigation measures infeasible. For the purpose of this document, the terms abatement and mitigation are used interchangeably. However, according to the Department's Traffic Noise Analysis Protocol (1998), "if a project will have a significant adverse environmental effect due to noise, the proposed noise abatement measure is called *noise mitigation*. Otherwise, it should be referred to as *noise abatement*."
The Department defines traffic noise impacts as:

- When there is a substantial noise increase, i.e., when the predicted noise levels with the project would exceed existing noise levels by 12 dBA or more, Leq(h)
- When predicted noise levels approach (come within one dBA) or exceed the NAC

If traffic noise impacts are predicted, the Department requires that noise abatement measures be evaluated and considered. These measures would usually include noise barriers constructed within the highway right-of-way. If, as a result of a proposed freeway project, noise levels in classrooms of public or private elementary or secondary schools exceed 52 dBA Leq (h), the Department shall provide abatement to reduce classroom noise equal to or below the criteria in accordance with Streets and Highways Code, Section 216. If the classroom noise exceeds the criteria before and after the freeway project, the Department shall provide noise abatement to reduce classroom noise to pre-project noise levels.

4.9.2 PREDICTED FUTURE NOISE LEVEL

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Under the (Enhanced) Reduced Build Alternative, traffic lanes would be moved nearer to noise-sensitive receivers and the noise levels would change. Table 4.9-2 shows the predicted noise levels and the noise increases/decreases (where applicable) at each of the receivers. As shown on this table, 71 of the 75 sites are predicted to approach or exceed the applicable NAC.

Table 4.9-2
EXISTING AND PREDICTED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Site ID No.	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA	Predicted Noise Level (highest noise hour) in Leq(h), dBA	Noise Increase or Decrease	Impact Type (Note: Approaches means comes within one dBA of NAC)
1-A	68	69	+1	Approaches/exceeds NAC (category B – 67 dBA)
1-G	63	64	+1	None
1-K	60	60	+0	None
3	63	66	+3	Approaches/exceeds NAC (category B – 67 dBA)
Blue Bell Park	67	69	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
B	67	69	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
Almond Park	68	70	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
5	67	75	+ 8 [a]	Approaches/exceeds NAC (category B – 67 dBA)
5-A*	67	75	+ 8 [a]	Approaches/exceeds NAC (category B – 67 dBA)
5-B	66	76	+ 10 [a]	Approaches/exceeds NAC (category B – 67 dBA)
6-a	74	74	+0	Approaches/exceeds NAC (category B – 67 dBA)
6-e	73	74	+1	Approaches/exceeds NAC (category B – 67 dBA)
6-j	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
7	73	74	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
C	74	75	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
8	74	75	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
9	74	75	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
10	72	73	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
10-A	72	73	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
11	71	72	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
12	68	69	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
M-1	65	68	+3	Approaches/exceeds NAC (category B – 67 dBA)
M-11	64	65	+1	None
13	69	70	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
14	73	75	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
15	70	72	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
D	66	68	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
15-A	65	67	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
16	68	72	+ 4	Approaches/exceeds NAC (category B – 67 dBA)
16-A	75	78	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
16-B	73	73	0	Approaches/exceeds NAC (category B – 67 dBA)
17	66	71	+ 5	Approaches/exceeds NAC (category B – 67 dBA)
18*	70	76	+ 6	Approaches/exceeds NAC (category B – 67 dBA)
Bolsa Grande High School Playground	69	74	+ 5	Approaches/exceeds NAC (category B – 67 dBA)
19	68	74	+ 6	Approaches/exceeds NAC (category B – 67 dBA)
20	69	74	+ 5	Approaches/exceeds NAC (category B – 67 dBA)
E	71	73	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
21	72	74	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
Excelsior Elem. School Playground	70	72	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
21-A	72	74	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
22	68	69	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
22-A	65	67	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
22-B*	70	70	0	Approaches/exceeds NAC (category B – 67 dBA)
23	66	68	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
23-A	72	73	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
24	66	68	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
25	67	70	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
F	66	69	+ 3	Approaches/exceeds NAC (category B – 67 dBA)

* These sites had properties that were either proposed for displacements or acquisitions during the DEIR/EIS. However, the displacements or acquisitions are no longer applicable at these sites.

Table 4.9-2 (continued)
EXISTING AND PREDICTED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Site ID No.	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA	Predicted Noise Level (highest noise hour) in Leq(h), dBA	Noise Increase or Decrease	Impact Type (Note: Approaches means comes within one dBA of NAC)
Eisenhower Elem. School Playground	66	69	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
26	66	68	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
27	66	68	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
27-A	73	76	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
27-B	72	75	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
G	63	66	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
G-A	64	67	+ 3	Approaches/exceeds NAC (category B – 67 dBA)
27-I	65	67	+2	Approaches/exceeds NAC (category B – 67 dBA)
40-W	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
28	65	73	+ 8 [b]	Approaches/exceeds NAC (category B – 67 dBA)
28-A	68	70	+ 2	Approaches/exceeds NAC (category B – 67 dBA)
28-B	65	69	+ 4	Approaches/exceeds NAC (category B – 67 dBA)
28-C	61	68	+ 7 [b]	Approaches/exceeds NAC (category B – 67 dBA)
29	67	68	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
29-B	63	64	+ 1	None
29-c	65	67	+2	Approaches/exceeds NAC (category B – 67 dBA)
29-M	63	66	+3	Approaches/exceeds NAC (category B – 67 dBA)
29-M1	65	66	+1	Approaches/exceeds NAC (category B – 67 dBA)
29-C	67	72	+ 5	Approaches/exceeds NAC (category B – 67 dBA)
29-D	69	70	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
30-A	68	70	+2	Approaches/exceeds NAC (category B – 67 dBA)
31	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
H-6	70	72	+2	Approaches/exceeds NAC (category B – 67 dBA)
H-26	74	75	+1	Approaches/exceeds NAC (category B – 67 dBA)
H-29	70	71	+1	Approaches/exceeds NAC (category B – 67 dBA)
31-B	73	75	+2	Approaches/exceeds NAC (category B – 67 dBA)
32-2	66	69	+3	Approaches/exceeds NAC (category B – 67 dBA)

a The future predicted noise levels would be much higher because the existing non-state wall that shields receiver would be removed as part of the (Enhanced) Reduced Build Alternative.
b The future predicted noise levels would be much higher because buildings and noise barriers that shield receiver would be removed as part of the (Enhanced) Reduced Build Alternative.

The preliminary analysis of the interior noise levels at the interiors of school buildings nearest to the (Enhanced) Reduced Build Alternative improvements is summarized in Table 4.9-3. This table shows that the school interior NAC would be exceeded at three out of four schools within the (Enhanced) Reduced Build Alternative study area, Bolsa Grande High School, Jordan Intermediate School, and Excelsior Elementary School. At both Jordan Intermediate School and Excelsior Elementary School, the NAC is exceeded in the existing condition also.

Table 4.9-3

EXISTING AND PREDICTED FUTURE NOISE LEVELS AT SCHOOL BUILDING INTERIORS (ENHANCED) REDUCED BUILD ALTERNATIVE

School	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA		Predicted Noise Level (highest noise hour) in Leq(h), dBA		Impact Type
	Outside	Inside (less 10 dBA if not air-conditioned; less 20 dBA if air-conditioned)	Outside	Inside (less 10 dBA if not air-conditioned; less 20 dBA if air-conditioned)	(Note: Approaches means comes within one dBA of NAC)
Bolsa Grande High School Bldg. Interior (not air-conditioned)	60	50	65	55	Approaches/exceeds NAC (category E – 52 dBA)
Jordan Intermed. School Bldg. Interior (not air-conditioned)	69	59	71	61	Approaches/exceeds NAC (category E – 52 dBA)
Fairhaven Elem. School Bldg. Interior (air-conditioned)	69	49	70	50	None
Excelsior Elem. School Bldg. Interior (not air-conditioned)	66	56	68	58	Approaches/exceeds NAC (category E – 52 dBA)

ROSSMOOR STUDY AREA
(SEAL BEACH BOULEVARD AT SR-22 TO KATELLA AVENUE AT I-605)

The predicted future build traffic noise levels include both the SR-22 mainline roadway and the elevated I-405 and I-605 HOV Connector roadways. The future traffic noise levels for both the SR-22 mainline and HOV Connector, modeled at 30 sites, are expected to be in the range of no change to 4 dBA higher than the existing worst-case traffic noise levels (Table 4.9-4). The Department/FHWA NAC is predicted to be approached or exceeded at 15 sites where noise abatement measures will be further considered.

Traffic noise predictions were modeled for the three school buildings closest to the project alignment. At each of these schools the modeled worst-hour traffic noise levels outside the school building was found not to approach the exterior NAC of 67 dBA. The modeled noise levels outside the school building were adjusted to predict the interior noise levels using the FHWA building noise reduction values for typical building structures.

The predicted interior noise levels are presented in Table 4.9-5. It was assumed that windows would be open in school buildings that are not air-conditioned, providing a 10 dBA noise reduction between outside and inside the building. For school buildings that are air-conditioned, it was assumed that windows would be closed, providing a building noise reduction of 20 dBA. Based on the analyses, the estimated interior noise levels at these three schools would not approach or exceed the Department/FHWA interior NAC of 52 dBA.

Table 4.9-4
EXISTING AND PREDICTED FUTURE NOISE LEVELS
ROSSMOOR STUDY AREA

Site ID No.	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA	Predicted Noise Level (highest noise hour) in Leq(h), dBA	Noise Increase or Decrease	Impact Type (Note: Approaches means comes within one dBA of NAC)
Lee Elementary School	58	59	+1	None
1-15A	67	68	+1	Approaches/exceeds NAC (category B – 67 dBA)
1-15B	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
1-24	67	68	+1	Approaches/exceeds NAC (category B – 67 dBA)
1A-15A	62	64	+2	None
1A-15B	61	63	+2	None
Weaver Elementary School	57	59	+2	None
1B-15A*	60	64	+4	None
1B-15B*	59	61	+2	None
1M-A	60	64	+4	None
1M-B	59	62	+3	None
1MA-A	61	64	+3	None
1MA-B	59	62	+3	None
2-15A	62	64	+2	None
2-15B	59	61	+2	None
2M	62	64	+2	None
2M-A	66	68	+2	Approaches/exceeds NAC (category B – 67 dBA)
2-24	68	70	+2	Approaches/exceeds NAC (category B – 67 dBA)
2-24MB	67	69	+2	Approaches/exceeds NAC (category B – 67 dBA)
2A-15A	70	72	+2	Approaches/exceeds NAC (category B – 67 dBA)
2A-15B	63	65	+2	None
2AM-A	63	66	+3	Approaches/exceeds NAC (category B – 67 dBA)
2AM-B	66	68	+2	Approaches/exceeds NAC (category B – 67 dBA)
Francis Elementary School	63	64	+1	None
2B-15A	67	69	+1	Approaches/exceeds NAC (category B – 67 dBA)
2B-15B	64	66	+2	Approaches/exceeds NAC (category B – 67 dBA)
3A-15A	68	69	+1	Approaches/exceeds NAC (category B – 67 dBA)
3-15A	68	70	+2	Approaches/exceeds NAC (category B – 67 dBA)
3-15B	68	70	+1	Approaches/exceeds NAC (category B – 67 dBA)
3-24	71	71	+0	Approaches/exceeds NAC (category B – 67 dBA)

* These sites had properties that were either proposed for displacements or acquisitions during the DEIR/EIS. However, the displacements or acquisitions are no longer applicable at these sites.

Table 4.9-5
EXISTING AND PREDICTED WORST-HOUR FUTURE NOISE LEVELS
AT SCHOOL BUILDING INTERIORS
ROSSMOOR STUDY AREA

School	Existing Modeled Noise Level, dBA		Predicted Future Noise Level, dBA		Impact Type* (S, A/E, CR, or None)
	Outside	Inside	Outside	Inside	
Lee Elementary School Building	58	38	59	39	None
Weaver Elementary School Building	56	36	58	38	None
Francis Elementary School Building	62	42	64	44	None

**Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC, CR = Classroom Noise*

GARDEN GROVE STUDY AREA
(MAGNOLIA STREET TO NEWHOPE STREET)

The predicted future noise levels, which includes the traffic noise for both the SR-22 freeway and Trask Avenue, are expected to be in the range of no change to 4 dBA higher than the existing worst-hour traffic noise levels (Table 4.9-6). The future traffic noise levels for both the SR-22 freeway and Trask Avenue traffic is predicted to approach or exceed the Department/FHWA NAC at 18 of the 19 modeling sites.

Traffic noise predictions were modeled for the three school buildings closest to the project alignment. At the each of these schools, the modeled future worst-hour traffic noise levels outside the school building closest to the SR-22 alignment was found to approach or exceed the exterior NAC of 67 dBA. The modeled noise levels outside the school buildings were adjusted to predict the interior noise levels using the FHWA building noise reduction values for typical building structures.

To predict the interior noise level at these school classrooms, the measured building attenuation is subtracted from the predicted (modeled) outside traffic noise levels contributed by SR-22 and Trask Avenue. Interior noise levels were calculated with either windows closed for air-conditioned rooms and windows opened for non air-conditioned rooms. Based on the analyses, the estimated interior noise levels at classrooms without air conditioning at two schools would approach or exceed the Department/FHWA interior NAC of 52 dBA.

Table 4.9-6
EXISTING AND PREDICTED FUTURE NOISE LEVELS
GARDEN GROVE STUDY AREA

Site ID No.	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA	Predicted Noise Level (highest noise hour) in Leq(h), Dba	Noise Increase or Decrease	Impact Type (Note: Approaches means comes within one dBA of NAC)
18-A	74	75	+1	Approaches/exceeds NAC (category C – 72 dBA)
T-1	73	74	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-2M	74	77	+3	Approaches/exceeds NAC (category C – 72 dBA)
T-2	69	71	+2	Approaches/exceeds NAC (category B – 67 dBA)
T-3	69	70	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-4	71	72	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-24A	71	72	+1	Approaches/exceeds NAC (category B – 67 dBA)
19-A	74	74	+0	Approaches/exceeds NAC (category C – 72 dBA)
T-5M	74	75	+1	Approaches/exceeds NAC (category C – 72 dBA)
T-5	60	62	+2	None
T-6M	74	74	+0	Approaches/exceeds NAC (category C – 72 dBA)
T-6	70	71	+1	Approaches/exceeds NAC (category B – 67 dBA)
20-A	70	74	+4	Approaches/exceeds NAC (category C – 72 dBA)
T-7	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-8	72	73	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-24B	68	70	+2	Approaches/exceeds NAC (category B – 67 dBA)
T-9	67	69	+2	Approaches/exceeds NAC (category B – 67 dBA)
T-10	66	67	+1	Approaches/exceeds NAC (category B – 67 dBA)
T-11	71	72	+1	Approaches/exceeds NAC (category B – 67 dBA)

Table 4.9-7
EXISTING AND PREDICTED WORST-HOUR FUTURE NOISE LEVELS AT SCHOOL BUILDING INTERIORS GARDEN GROVE STUDY AREA

School	Existing Modeled Noise Level, dBA		Predicted Future Noise Level, dBA		Impact Type* (S, A/E, CR, or None)
	Outside	Inside	Outside	Inside	
Sunnyside Elementary School Building – Closest air-conditioned building to Trask Ave. (Classroom 40)	66	43	67	44	None
Sunnyside Elementary School Building – Closest building without air-conditioning to Trask Ave. (Classroom 25)	63	53	64	54	A/E
Mitchell Elementary School Building - Closest building without air-conditioning to Trask Ave. (Classroom 4)	70	62	70	62	A/E

**Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC, CR = Classroom Noise*

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

No construction is proposed under the No Build Alternative other than for those future transportation projects that have been previously approved and funded for implementation by the year 2020. These are assumed to be addressed in other environmental documents. Thus, future noise levels under this alternative would be similar to the existing conditions modeled for the highest noise hour. Table 3.9-1 (Existing Noise Levels) in Section 3.9 indicates that 62 of the 78 noise-sensitive receivers identified (not including indoor noise levels at schools) approach or exceed the NAC for the applicable activity category under the existing condition. That is, they have a highest-noise-hour noise level of 66 Leq(h) dBA or more for activity category B, or 71 Leq(h) dBA or more for activity category C, or 51 Leq(h) dBA or more for category E.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not result in changes in traffic patterns that would place travel lanes closer to noise-sensitive receivers; thus, future noise levels under this alternative would be similar to the existing conditions modeled for the highest noise hour. Table 3.9-1, Existing Noise Levels, in Section 3.9 indicates that 62 of the 78 noise-sensitive receivers identified (not including indoor noise levels at schools) approach or exceed the NAC for the applicable activity category under the existing condition. That is, they have a highest-noise-hour noise level of 66 Leq(h) dBA or more for activity category B or 71 Leq(h) dBA or more for activity category C, or 51 Leq(h) dBA for category E.

3. FULL BUILD ALTERNATIVE

The predicted future noise levels for noise impact areas of the Full Build Alternative are described within Section 4.9.2.A for (Enhanced) Reduced Build Alternative, including the Rossmoor and Garden Grove study areas. The predicted noise levels for Pacific Electric Arterial, SR-22/SR-55 Interchange, and City Drive where the (Enhanced) Reduced Build and Full Build Alternatives do not share common project features can be found in Tables 4.9-8 and 4.9-11. Table 4.9-8 shows the predicted noise levels and the noise increases/decreases (where applicable) at each of the receivers. As shown on this table, 9 of the 11 remaining sites modeled for the Full Build Alternative are predicted to approach or exceed the applicable NAC. (Also, see the discussion of interior noise at school, below.) At three sites,

Site 33 (Willowick Royal Mobile Home Park, Santa Ana), Site 33-A (Boyer Avenue, Santa Ana), and the Willowick Municipal Golf Course, there would be a substantial increase (12 dBA or more). Under California Environmental Quality Act, a substantial noise increase may result in a significant adverse environmental effect and if so, must be mitigated. In this case, noise abatements are proposed in Section 4.9.4.2.B.3 to abate noise at the above three sites.

Table 4.9-8
EXISTING AND PREDICTED FUTURE NOISE LEVELS
FULL BUILD ALTERNATIVE

Site ID No.	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA	Predicted Noise Level (highest noise hour) in Leq(h), dBA	Noise Increase Or Decrease	Impact Type (Note: Approaches means comes within one dBA of NAC)
G	63	73	+ 10 [a]	Approaches/exceeds NAC (category B – 67 dBA)
J	65	65	0	None
31-A	69	70	+ 1	Approaches/exceeds NAC (category B – 67 dBA)
I	70	70	0	Approaches/exceeds NAC (category B – 67 dBA)
32	67	67	0	Approaches/exceeds NAC (category B – 67 dBA)
32-A	68	68	0	Approaches/exceeds NAC (category B – 67 dBA)
33	51	75	+ 24 [b]	Substantial noise increase (12 dBA or more) Approaches/exceeds NAC (category B – 67 dBA)
33-A	51	70	+ 19 [b]	Substantial noise increase (12 dBA or more) Approaches/exceeds NAC (category B – 67 dBA)
Willowick Muni. Golf Course	51	70	+ 19 [b]	Substantial noise increase (12 dBA or more) Approaches/exceeds NAC (category B – 67 dBA)
Spurgeon Intermed. School Playground	56	65	+ 9 [b]	None
34	56	66	+ 10 [b]	Approaches/exceeds NAC (category B – 67 dBA)

[a] The future predicted noise levels would be much higher because buildings that shield receiver would be removed as part of the Full Build Alternative.
[b] The future predicted noise levels would be much higher because there would be a new arterial (new noise source) within a currently vacant right-of-way.

In addition to the schools studied under (Enhanced) Reduced Build Alternative including the Rossmoor and Garden Grove study areas, the preliminary analysis of the interior noise levels at the interiors of school buildings nearest to the Full Build Alternative improvements is summarized in Table 4.9-9. This table shows that the school interior NAC would be not exceeded at Spurgeon Intermediate School.

Table 4.9-9
EXISTING AND PREDICTED FUTURE NOISE LEVELS AT SCHOOL BUILDING INTERIORS
FULL BUILD ALTERNATIVE

School	Existing Modeled Noise Level (highest noise hour) in Leq(h), dBA		Predicted Noise Level (highest noise hour) in Leq(h), dBA		Impact Type (Note: Approaches means comes within one dBA of NAC)
	Outside*	Inside (less 10 dBA if not air-conditioned; less 20 dBA if air-conditioned)	Outside*	Inside (less 10 dBA if not air-conditioned; less 20 dBA if air-conditioned)	
Spurgeon Intermed. School Bldg. Interior (air-conditioned)	< 63	< 43	63	43	None

- Noise level at building exterior.

4.9.3 CONSTRUCTION NOISE

Construction noise represents a short-term impact on the noise environment. The duration and level of construction noise are variable, depending upon the following phases of activity:

- Ground-clearing, demolition, and removal of existing structures, trees, rocks and soil
- Excavation
- Placement of foundations and roadbeds
- Erection of structures, including bridges and retaining walls
- Finishing, including filling, grading, paving, landscaping and cleanup operations

Typically, the first two phases (ground clearing and excavation) generate the highest noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators, can reach levels in the range of 67 to 98 dBA at 15 meters (50 feet). The EPA's Noise Control Program (40 CFR 204) regulates some construction equipment noise emissions. Presently, air compressors are the only equipment under regulation.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Noise levels for equipment that might be used for the excavation and construction of the (Enhanced) Reduced Build Alternative are listed in Table 4.9-10. The levels listed are at 15 meters (50 feet) from the noise source. For each doubling of distance, the noise decreases by approximately six dBA. So at 30 meters (100 feet), the noise levels would be about six dBA less than shown. Similarly, at 60 meters (200 feet), the noise levels would be 12 dBA less than shown. Intervening structures or topography can act as a sound barrier and also reduce noise levels further.

Table 4.9-10
CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Maximum Level, dBA At 15 meters (50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration, 1995

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

No construction is proposed under the No Build Alternative other than for those future transportation projects that have been previously approved and funded for implementation by the year 2020. These are assumed to be addressed in other environmental documents. Thus, there would not be additional construction noise impacts.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would largely consist of operational and system improvements, with only minor construction. Thus, there would be no construction noise impacts.

3. FULL BUILD ALTERNATIVE

Noise levels for equipment that might be used for the excavation and construction for the Full Build Alternative are listed in Table 4.9-10, Construction Equipment Noise Levels.

4.9.4 NOISE ABATEMENT/MITIGATION

4.9.4.1 Summary of Preliminary Noise Abatement Analysis

Under the Department's *Traffic Noise Analysis Protocol* (October 1998), noise abatement measures must be considered when traffic noise impacts have been identified. Preliminary noise abatement design includes acoustical considerations such as noise barrier heights, lengths and location. A minimum of a five-dBA reduction in noise levels must be achieved at the impacted receiver for the proposed noise abatement measure to be considered feasible. Different noise barrier heights are considered when assessing feasibility. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may also be affected by physical constraints, such as topography, driveways, ramps, cross streets, other noise sources in the area, and safety considerations. The final noise abatement analysis will be conducted at final design.

Whether a noise barrier wall is *reasonable* is a more complicated determination that includes the following considerations:

1. Cost of the abatement
2. Absolute noise levels
3. Change in noise levels
4. Noise abatement benefits
5. Date of development along the highway
6. Life cycle of abatement measures
7. Environmental impacts of abatement construction
8. Social, economic, environmental, legal and technological factors
9. Opinions of impacted residents
10. Input from the public and local agencies

The first five of these considerations were analyzed for this DEIR/EIS and the results are included in Appendix J, Preliminary Noise Abatement Analysis. Reasonable cost allowances are evaluated for those barriers, at highest height, that was determined to be feasible and reasonable. For any of the noise barriers to be considered reasonable from a cost perspective, the *total estimated cost* of the barrier must be at or below the *total allowance* calculated for each noise barrier. The *total allowance* for each noise barrier is established by considering the total number of residences benefited multiplied by the allowance per residence, a factor that varies depending upon local conditions. A critical noise receptor is selected, which is the receiver which would have the highest predicted future traffic noise levels and represents the highest increase between existing and future build noise levels. (These cost allowance calculations are included in the *Traffic Noise Impact Technical Report*, *Traffic Noise Impact Technical Report Reduced Build Alternative Addendum, Traffic Noise Impact Technical Report and Traffic Noise Impact Technical Report Reduced Build Alternative (Revised) Addendum Rossmoor, and Traffic Noise Impact Technical Report and Traffic Noise Impact Technical Report Reduced Build Alternative (Revised) Addendum Garden Grove*).

The *total estimated cost* of a noise barrier is based on an engineer's preliminary estimate that includes all items appropriate or necessary for the construction of the barrier, such as traffic control, drainage modification, retaining walls, etc. A summary of the results of the reasonable analysis, including the number of residence benefited from each noise barrier, is presented in Appendix J.

The life cycle of noise abatement (factor 6) is considered when planned future use would limit the useful life of the abatement measure to less than 15 years. Considerations 7 and 8 are analyzed throughout this FEIS/EIR, with the impacts, if any, specifically described (particularly in Sections

4.10, Parks and Recreation, and 4.13, Visual Resources). Based on this feasibility and reasonability analysis, the *Preliminary Noise Abatement Decision* has been made, which is presented in Figures 4.9-1 (Noise Barrier Locations), and Tables 4.9-11 to 4.9-14. During the public review period for the DEIR/EIS, impacted residents, the general public, and local agencies had the opportunity to comment on the *Preliminary Noise Abatement Decision*. These opinions, which represent the last two considerations for reasonability, are weighed in order to make the *Final Noise Abatement Decision,* which is presented in the Final EIS/EIR.

Preliminary information on the characteristics of potential noise abatement measures (e.g., physical location, length, and height of noise barriers) is provided in all *Traffic Noise Impact Technical Reports* and is summarized in this section. If pertinent parameters change substantially during the final project design, the preliminary noise abatement design may be changed or eliminated from the final project design. The final design of noise barriers, if included in this project, will be based on the final project design and public involvement processes.

Noise abatement for impacted commercial properties with outdoor use areas is considered differently. If noise barriers are feasible (that is, if they would result in a noise reduction of at least five dBA), then they may be provided if they are desired by the commercial property owners. Businesses such as automobile sales and fast-food restaurants often partially depend on freeway visibility for business, so noise barriers are not always desirable. Consultation with the property owners occurs during the public review process of the DEIR/EIS and during final project design to determine whether noise barriers would be provided.

4.9.4.2 ABATEMENT/MITIGATION

A. PREFERRED ALTERNATIVE / (ENHANCED) REDUCED BUILD ALTERNATIVE

<u>Traffic Noise Abatement – Preliminary Noise Abatement Decision</u>.

In summary, a total of 26 noise barriers considered for abatement were found to be feasible and reasonable under the Preferred Alternative / (Enhanced) Reduced Build Alternative. Two of these noise barriers (NB-11 and NB-12) are proposed for Bolsa Grande High School, Jordan Intermediate School, and Fairhaven Elementary School, while retrofitting (air conditioning) is proposed for Sunnyvale Elementary and Mitchell Elementary Schools. Jordan Intermediate School may also require retrofitting in the form of air-conditioning. For the three elementary schools in the Rossmoor Study area (Lee, Weaver, and Francis), at each of these schools the current and predicted traffic noise levels outside the school building were found not to approach the exterior NAC of 67 dBA and no abatement is proposed. At Eisenhower Elementary (air-conditioned), the existing 10 foot barrier will remain because extending the height of the barrier would not achieve the necessary 5 dBA reduction to be considered feasible.

<u>NOI-(E)RB-1</u>. Based on the *Traffic Noise Impact Technical Reports* (December 2000) and *Traffic Noise Impact Technical Report Addendum* (December 2002), noise barriers are proposed for the (Enhanced) Reduced Build Alternative, as shown in Figure 4.9-1 Noise Barrier Locations (at the end of this section) and Table 4.9-11, Existing, Predicted and Abated Future Noise Levels. A total of 28 noise barriers considered for abatement were found to be feasible. These noise barriers are the highest that are considered feasible. As shown in Table 4.9-11, each of these noise barriers would result in at least a five-dBA noise reduction at the critical receiver.

Table 4.9-11
EXISTING, PREDICTED AND ABATED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
1-A	68	69	**New noise barrier (NB-C1)[2].** Up to 4.9-meter-high (16-foot-high)	63	6
1-G	63	64	**New noise barrier (NB-C1)[2].** Up to 4.9-meter-high (16-foot-high)	55	9
1-K	60	60	**New noise barrier (NB-C1)[2].** Up to 4.9-meter-high (16-foot-high)	51	9
3	63	66	**None.** Existing 4.3-meter (14-foot) noise barrier[2] will remain. Highest available noise barrier not feasible (will not reduce by at least 5 dBA).	66	---
Blue Bell Park	67	69	**None.** Existing 4.9- to 5.5-meter (16- to 18-foot) This noise barrier[2] is highest available (16 feet).	69	---
B	67	69	**None.** Existing 4.9- to 5.5-meter (16- to 18-foot) This noise barrier[2] is highest available (16 feet)	69	---
Almond Park	68	70	**None.** Existing 4.9- to 5.5-meter (16- to 18-foot) This noise barrier[2] is highest available (16 feet)	70	---
5	67	75	**None.** Noise barrier (NB-2) will not be constructed because existing sound wall[2] (replaced by NB-2) will not be removed as originally planned. Therefore, NB-2 located at this location will not be constructed.	68	7
5-A*	67	75	**None.** Noise barrier (NB-2) will not be constructed because existing sound wall[2] (replaced by NB-2) will not be removed as originally planned. Therefore, NB-2 located at this location will not be constructed.	68	7
5-B	66	76	**None.** Noise barrier (NB-2) will not be constructed because existing sound wall[2] (replaced by NB-2) will not be removed as originally planned. Therefore, NB-2 located at this location will not be constructed.	66	10
6-a	74	74	**New noise barrier (NB-3).** Up to 4.9-meter-high (16-foot-high)	67	7
6-e	73	74	**New noise barrier (NB-3).** Up to 4.9-meter-high (16-foot-high)	65	9
6-j	66	67	**New noise barrier (NB-3).** Up to 4.9-meter-high (16-foot-high)	61	6
7	73	74	**New noise barrier (NB-5).** Up to 4.9-meter-high (16-foot-high)	66	8
C	74	75	**New noise barrier (NB-4).** Up to 4.9-meter-high (16-foot-high)	66	9
8	74	75	**New noise barrier (NB-4).** Up to 4.9-meter-high (16-foot-high)	66	9
9	74	75	**New noise barrier (NB-7).** Up to 4.9-meter-high (16-foot-high)	66	9
10	72	73	**New noise barrier (NB-6).** Up to 4.9-meter-high (16-foot-high)	66	7
10-A	72	73	**New noise barrier (NB-6).** Up to 4.9-meter-high (16-foot-high)	66	7

Table 4.9-11 (CONTINUED)
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
11	71	72	**New noise barrier (NB-7).** Up to 4.9-meter-high (16-foot-high)	67	5
12	68	69	**New noise barrier (NB-8).** Up to 4.9-meter-high (16-foot-high)	61	8
M-1	65	68	**New noise barrier (NB-29).** Up to 4.9-meter-high (16-foot-high)	62	6
M-11	64	65	**New noise barrier (NB-29).** Up to 4.9-meter-high (16-foot-high)	58	7
13	69	70	**New noise barrier (NB-8).** Up to 4.9-meter-high (16-foot-high)	62	8
14	73	75	**New noise barrier (NB-9).** Up to 4.9-meter-high (16-foot-high)	68	7
15	70	72	**New noise barrier (NB-9).** Up to 4.9-meter-high (16-foot-high)	67	5
D	66	68	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 67 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	68	---
15-A	65	67	**New noise barrier (NB-9).** Up to 4.9-meter-high (16-foot-high)	62	5
16	68	72	**New noise barrier (NB-10).** Up to 4.9-meter-high (16-foot-high)	63	9
16-A	75	78	**New noise barrier (NB-9).** Up to 4.9-meter-high (16-foot-high)	63	15
16-B	73	73	**New noise barrier (NB-9).** Up to 4.9-meter-high (16-foot-high)	58	15
17	66	71	**New noise barrier (NB-10).** Up to 4.9-meter-high (16-foot-high)	62	9
18*	70	76	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	64	12
Bolsa Grande High School Playground	69	74	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	64	10
19	68	74	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	65	9
20	69	74	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	64	10
E	71	73	**New noise barrier (NB-12).** Up to 4.9-meter-high (16-foot-high)	64	9
21	72	74	**New noise barrier (NB-12).** Up to 4.9-meter-high (16-foot-high)	64	10
Excelsior Elem. School Playground	70	72	**New noise barrier (NB-12).** Up to 4.9-meter-high (16-foot-high)	64	8
21-A	72	74	**New noise barrier (NB-12).** Up to 4.9-meter-high (16-foot-high)	66	8
22	68	69	**New noise barrier (NB-13).** Up to 4.9-meter-high (16-foot-high)	63	6
22-A	65	67	**New noise barrier (NB-13).** Up to 4.9-meter-high (16-foot-high)	58	9
22-B*	70	70	**New noise barrier (NB-13A).** Up to 4.9-meter-high (16-foot-high)	62	8
23	66	68	**New noise barrier (NB-14).** Up to 4.9-meter-high (16-foot-high) *(Although this noise barrier not feasible for this receiver site, it is feasible for other sites in the same area, such as 23-A.)*	67	1

Table 4.9-11 (CONTINUED)
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
23-A	72	73	**New noise barrier (NB-14).** Up to 4.9-meter-high (16-foot-high)	65	8
24	66	68	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	68	---
25	67	70	**None.** Existing 3.0-meter (10-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 4 dBA to 66 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	70	---
F	66	69	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 69 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	69	---
Eisenhower Elem. School Playground	66	69	**None.** Existing 3.0-meter (10-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 3 dBA to 66 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	69	---
26	66	68	**None.** Existing 3.0-meter (10-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1].	68	---
27	66	68	**New noise barrier (NB-16).** Up to 4.9-meter-high (16-foot-high) *(Although this noise barrier not feasible for this receiver site, it is feasible for other sites in the same area, such as 27-A.)*	64	4
27-A	73	76	**New noise barrier (NB-16).** Up to 4.9-meter-high (16-foot-high)	69	7
27-B	72	75	**New noise barrier (NB-15).** Up to 4.9-meter-high (16-foot-high)	67	8
G	63	66	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 65 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	66	---
G-A	64	67	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 66 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	67	---
27-I	65	67	**None.** Noise barrier (NB-30) not reasonable.	62	5
40-W	66	67	**None.** Noise barrier (NB-28) not reasonable.	62	5
28	65	73	**New noise barrier (NB-18).** Up to 4.9-meter-high (16-foot-high)	64	9

Table 4.9-11 (CONTINUED)
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
(ENHANCED) REDUCED BUILD ALTERNATIVE
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
28-A	68	70	**New noise barrier (NB-18).** Up to 4.9-meter-high (16-foot-high)	65	5
28-B	65	69	**New noise barrier (NB-18).** Up to 4.9-meter-high (16-foot-high)	65	4
28-C	61	68	**New noise barrier (NB-18).** Up to 4.9-meter-high (16-foot-high)	60	8
29	67	68	**None.** Existing 3.7- to 4.3-meter (12- to 14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 67 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	68	---
29-c	65	67	**None.** Highest available noise barrier (16-foot NB-19) not feasible (will not reduce by at least 5 dBA).	63	4
29-M	63	66	**None.** Highest available noise barrier (16-foot NB-19) not feasible (will not reduce by at least 5 dBA).	63	3
29-M1	65	66	**None.** Highest available noise barrier (16-foot NB-19) not feasible (will not reduce by at least 5 dBA).	65	1
29-B	63	64	**None.** Existing 3.7- to 4.3-meter (12- to 14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 63 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	64	---
29-C	67	72	**New noise barrier (NB-20).** Up to 4.9-meter-high (16-foot-high)	64	8
29-D	69	70	**New noise barrier (NB-21).** Up to 4.9-meter-high (16-foot-high)	61	9
30	67	68	**New noise barrier (NB-21).** Up to 4.9-meter-high (16-foot-high)	62	6
30-A**	68	70	**New noise barrier (NB-22).** Up to 4.9-meter-high (16-foot-high)	*65*	*5*
H-29**	70	71	**None.** Raise from existing 2.4-meter (8-foot) up to 4.9-meter-high (16-foot-high) not reasonable.	66	5
H-26**	74	75	**None.** Raise from existing 2.4-meter (8-foot) up to 4.9-meter-high (16-foot-high) not reasonable.	64	11
H-6**	70	72	**New noise barrier (NB-31).** Up to 4.9-meter-high (16-foot-high)	63	9
31**	66	67	**New noise barrier (NB-23).** Up to 4.9-meter-high (16-foot-high)	59	8
31-B**	73	75	**New noise barrier (NB-23).** Up to 4.9-meter-high (16-foot-high)	64	11
32-2**	66	69	**None.** Noise barrier (NB-32) not reasonable.	64	5

1. The policy issue regarding feasibility criteria for the height extension of the existing noise barrier will be further analyzed during the final design phase.
2. The endings of each proposed/existing noise barrier will be further analyzed and evaluated during the design phase.
* These sites had properties that were either proposed for displacements or acquisitions during the DEIR/EIS. However, the displacements or acquisitions are no longer applicable at these sites.
**These sites were added for the noise study as a result of the extension of the eastern terminus from Glassell Street to approximately SR-55

In order to make the proposed noise barriers reasonable, the construction cost of the proposed noise barrier needs to be lower than the total reasonable allowance cost. If the construction cost is higher than the allowance cost, such noise barrier will be considered not reasonable and will not be proposed. The final reasonableness determination will be made during the design phase.

NOI-(E)RB-2. Noise abatement at schools is shown in Table 4.9-12. At Jordan Intermediate School, predicted interior traffic noise levels at the closest school building to SR-22 would be 61 dBA and would be reduced to 56 dBA with the proposed noise abatement (NB-11). The school buildings are not air-conditioned; therefore, the expected interior noise levels would exceed the NAC of 52 dBA at the closest building. This school is a large campus with many buildings that, because of their location, provide additional noise reduction in the form of shielding to other buildings on campus. Please note that NB-11 is currently under construction in order to reduce the noise at Jordan Intermediate School. Further study will be conducted to determine if after the construction of NB-11, additional noise abatement is required for the school's classrooms. This additional abatement could take the form of air-conditioning to those classrooms that would be impacted to allow windows to be closed when those rooms are used. After abatement, noise levels are expected to be below 51 dBA at the closest school building to SR-22.

Table 4.9-12
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS AT SCHOOL INTERIORS
(ENHANCED) REDUCED BUILD ALTERNATIVE
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	**Existing Modeled Noise Level** in Leq(h), dBA	**Predicted Noise Level Without Abatement** in Leq(h), dBA	**Abatement** *(Noise barriers numbers cross-reference to Figure 4.9-1)*	**Predicted Noise Level With Abatement** in Leq(h), dBA	**Noise Reduction** in dBA
Bolsa Grande High School Bldg. Interior (not air-conditioned)	50	55	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	50	5
Jordan Intermed. School Bldg. Interior (not air-conditioned)	59	61	**New noise barrier (NB-11).** Up to 4.9-meter-high (16-foot-high)	56	5
Excelsior Elem. School Bldg. Interior (not air-conditioned)	56	58	**New noise barrier (NB-12).** Up to 4.9-meter-high (16-foot-high)	51	7
Fairhaven Elem. School Bldg. Interior (air-conditioned)	49	50	**None required.** **New noise barrier (NB-23).** 4.9-meter-high (16-foot-high) *(Although this noise barrier not required or feasible for this receiver site, it will be provided for other sites in the same area, such as 31 and 31-B.)*	46	4
Eisenhower Elem. School Bldg. Interior (air-conditioned)	47	50	**None required.** Existing 3.0-meter (10-foot) noise barrier will remain.	50	---

At Excelsior Elementary School, predicted interior traffic noise levels at the closest school building to SR-22 would be 58 dBA and would be reduced to 51 dBA with the proposed noise abatement (NB-12). The school buildings are not air-conditioned; therefore, the expected interior noise levels would approach (come within one dBA of) the NAC of 52 dBA at the closest building. Further study will be conducted to determine if, after the construction of NB-12, additional noise abatement is required for the school's classrooms. If required, this abatement could take the form of air-conditioning to those classrooms that would be impacted to allow windows to be closed when those rooms are used. After abatement, noise levels are expected to be below 51 dBA at the closest school building to SR-22.

Construction Noise Abatement/Mitigation.

NOI-(E)RB-3. The contractor will comply with the noise ordinances of the County of Orange and the Cities of Los Alamitos, Seal Beach, Westminster, Garden Grove, Santa Ana and Orange. These ordinances regulate the level of noise that may be generated as a result of construction activity. The specific requirements of these noise ordinances, which primarily regulate the hours of the day when construction activity is allowed, are listed in Table 4.9-13.

Table 4.9-13
Local Noise Ordinance Construction ABATEMENT/Mitigation

City	Noise Abatement/Mitigation Measures
Los Alamitos	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and holidays.
Seal Beach	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and holidays.
Westminster	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and holidays.
Garden Grove	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and federal holidays.
Orange	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and federal holidays.
Santa Ana	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and holidays.
Tustin	Construction limited to the hours of 7 a.m. to 6 p.m., Monday through Friday; 9 a.m. to 5 p.m., Saturday. No construction allowed on Sundays and holidays.
Orange County and Rossmoor	Construction limited to the hours of 7 a.m. to 8 p.m., Monday through Saturday. No construction allowed on Sundays and federal holidays.

NOI-(E)RB-4. As the site-specific construction plan is developed, existing natural and artificial barriers, such as ground elevation changes and existing buildings, shall be considered for use as shielding against construction noise.

NOI-(E)RB-5. Noise barriers and noise barrier additions required for long-term noise abatement/mitigation will be constructed during the initial stages, where feasible, to reduce the impacts of construction noise.

NOI-(E)RB -6. In areas where pile driving and similar activities would occur in close proximity to noise-sensitive land uses, alternate methods of construction will be used where feasible. For pile driving, possible alternate methods include vibration or hydraulic insertion of piles or drilled holes for cast-in-place piles.

NOI-(E)RB -7. The contractor shall comply with the Department's Standard Specifications, "Sound Control Requirements," and all local sound-control and noise level rules, regulations and ordinances that apply.

NOI-(E)RB -8. Each internal combustion engine used for any purpose on the construction of the project or related to the project will be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without such a muffler.

NOI-(E)RB -9. Community meetings will be held to explain to the area residents about the construction work, time involved and the control measures to be taken to reduce the impact of the construction noise.

ROSSMOOR STUDY AREA
(SEAL BEACH BOULEVARD AT SR-22 TO KATELLA AVENUE AT I-605)

NOI-(E)RB-10. Based on the *Traffic Noise Impact Technical Report Rossmoor Addendum* (September 2002), noise barrier (NB-R1) is proposed for Rossmoor Area, as shown in Figure 4.9-1 (at the end of this section) and Table 4.9-14. This barrier would fill the gap between two existing state noise barriers and at a height of 4.9 m (16 ft) would provide 5 dBA or more noise reduction.

Table 4.9-14
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
ROSSMOOR STUDY AREA
(NB-R1 ALONG I-405/I-605 MAINLINE)
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement In Leq(h), dBA	Noise Reduction in dBA
1-15A	67	68	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 ft).	68	---
1-15B	66	67	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 feet).	67	---
1-24	67	68	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 ft).	68	---
1A-15A	62	64	**None.** Existing 4.9-meter (16 foot) This noise barrier is highest available (16 feet).	64	---
1A-15B	61	63	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 feet).	63	---
1B-15A*	60	64	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 feet).	64	---
1B-15B*	59	61	**None.** Existing 4.9-meter (16-foot) This noise barrier is highest available (16 feet).	61	---
2-15A	62	64	**New noise barrier (NB-R1).** Up to 4.9-meter-high (16-foot-high)	59	5
2-15B	59	61	**New noise barrier (NB-R1).** Up to 4.9-meter-high (16-foot-high)	61	0
2-24	68	70	**New noise barrier (NB-R1).** Up to 4.9-meter-high (16-foot-high)	62	8
2A-15A	70	72	**New noise barrier (NB-R1).** Up to 4.9-meter-high (16-foot-high)	63	9
2A-15B	63	65	**New noise barrier (NB-R1).** Up to 4.9-meter-high (16-foot-high)	64	1
Francis Elementary School	62	64	**None.** Existing 3.7-meter (12-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 64 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	64	---
2B-15A	67	69	**None.** Existing 3.7-meter (12-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 3 dBA to 66 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	69	---

* These sites had properties that were either proposed for displacements or acquisitions during the DEIR/EIS. However, the displacements or acquisitions are no longer applicable at these sites.

Table 4.9-14 (CONTINUED)
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
ROSSMOOR STUDY AREA
(NB-R1 ALONG I-405/I-605 MAINLINE)
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement *(Noise barriers numbers cross-reference to Figure 4.9-1)*	Predicted Noise Level With Abatement In Leq(h), dBA	Noise Reduction in dBA
2B-15B	64	66	**None.** Existing 3.7-meter (12-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 65 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	66	---
3A-15A	68	69	**None.** Existing 3.7-meter (12-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	69	---
3-15A	68	70	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 2 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	70	---
3-15B	68	70	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 2 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	70	---
3-24	71	71	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 1 dBA to 70 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	71	--

[1]. The policy issue regarding feasibility criteria for the height extension of the existing noise barrier will be further analyzed during the final design phase

In addition, Noise Barrier NB-C2 is being considered for construction on the elevated northbound 1-405/I-605 HOV Connector. The noise barrier would add to the noise reduction provided by NB-R1 and NB-C1 (for College Park West Community). However, adding a noise barrier on the I-405/I-605 Connector (NB-R2) would result in minimal additional noise reduction to the residences that would be benefited by NB-R1. This is because the HOV Connector is further from the residences and would have lower traffic volumes than I-405 and I-605.

In order to make the proposed noise barrier NB-C2 reasonable, the construction cost of the proposed noise barrier needs to be lower than the total reasonable allowance cost. If the construction cost is higher than the allowance cost, such noise barrier will be considered not reasonable and will not be proposed. A preliminary reasonableness determination is prepared and presented in Appendix J. Any remaining allowance from constructing NB-R1 and NB-C1 would be used to construct NB-C2 (on HOV connector), however final determination on NB-C2 will be made during final design after considering public input, safety of sight distance, comparability with other connectors, and other design and construction constraints.

GARDEN GROVE STUDY AREA
(MAGNOLIA STREET TO HAVENWOOD STREET)

NOI-(E)RB-11. Based on the Traffic Noise Impact Technical Report Garden Grove Addendum (October 2002), noise barriers (NB-G1, NB-G2, and NB-G3) are proposed for the Garden Grove area as shown in Table 4.9-15. These three noise barriers have been determined to be feasible as they provide a minimum of 5 dBA or more noise reduction at the lots of various car dealerships and outdoor eating area of an In-N-Out restaurant, but not at the residential and school sites north of Trask Avenue. Noise barriers within the freeway right-of-way are not feasible at the residential and school sites located north of Trask Avenue primarily because the reduction in SR-22 freeway traffic noise provided by noise barriers is negated by the traffic noise from Trask Avenue

These noise barriers would provide noise abatement for the commercial uses (car lots) and In-N-Out restaurant. Typically, such noise barriers will not be acceptable by car dealerships or commercial property due to loss of visibility from the freeway. Therefore, public involvement will be a factor in the final decision on barrier construction. Consultation with the property owners during the public review process of the FEIS/EIR and during final project design will determine whether noise barriers would be provided. At this time, the location of these noise barriers is not shown in Figure 4.9.1.

Table 4.9-15
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
GARDEN GROVE STUDY AREA
(FOR PROPOSED HEIGHT OF NOISE BARRIER, SEE APPENDIX J)

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
18-A	74	75	**None proposed.** Noise barrier (NB-G1) not reasonable.	68	7
T-1	73	74	**None proposed.** Noise barrier (NB-G1) not reasonable.	71	3
T-2M	74	77	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	69	8
T-2	69	71	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	67	4
T-3	69	70	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	69	1
T-4	71	72	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	70	2
T-24A	71	72	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	69	3
19-A	74	74	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	66	8
T-5M	74	75	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	69	6
T-5	60	62	**New noise barrier (NB-G2).** Up to 4.9-meter-high (16-foot-high)	59	3
T-6M	74	74	**New noise barrier (NB-G3).** Up to 4.9-meter-high (16-foot-high)	68	6
T-6	70	71	**New noise barrier (NB-G3).** Up to 4.9-meter-high (16-foot-high)	68	3
20-A	70	74	**New noise barrier (NB-G3).** Up to 4.9-meter-high (16-foot-high)	64	10
T-7	66	67	**New noise barrier (NB-G3).** Up to 4.9-meter-high (16-foot-high)	66	1
T-8	72	73	**None (Not Feasible)**	70	3
T-24B	68	70	**None (Not Feasible)**	66	4
T-9	67	69	**None (Not Feasible)**	66	3
T-10	66	67	**None (Not Feasible)**	63	4
T-11	71	72	**None (Not Feasible)**	68	4

NOI-(E)RB-12. Noise abatement at schools in the Garden Grove Study Area is shown in Table 4.9-16. At Classroom 24 of Sunnyside Intermediate School, predicted future worst-hour interior noise level of 54 dBA with the windows opened would exceed the Caltrans/FHWA interior NAC of 52 dBA. Air-conditioning would be provided as noise abatement for this school building, which includes Classrooms 21, 22, 23, 24, 25, 26 & 27. With the windows closed, the predicted future worst-hour interior traffic noise levels would be 41 dBA, which would not approach or exceed the Caltrans/FHWA interior NAC of 52 dBA.

At Classroom 4 of Mitchell Elementary School, the predicted future worst-hour interior noise levels of 62 dBA, with the windows opened, would exceed the Caltrans/FHWA interior NAC of 52 dBA. There is one other classroom in this building and four classrooms in two other buildings, which are not air-conditioned, that would also be impacted. Since these other classrooms have the same traffic noise exposure and the same exterior window/wall construction as Classroom 4, the predicted interior noise levels would be the same as Classroom 4. As noise abatement for this school, air-conditioning would be provided for six rooms, Classrooms 3, 4, 6, 7, K-A, and K-B. With the windows closed, the predicted future worst-hour interior noise levels would be 49 dBA,

which would not approach or exceed the Caltrans/FHWA interior NAC of 52 dBA.

Table 4.9-16
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS AT SCHOOL INTERIORS
GARDEN GROVE STUDY AREA

Site ID No.	Existing Modeled Noise Level In Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
Sunnyside Elementary School Building – Closest building without air-conditioning to Trask Ave. (Classroom 25)	53	54	**Air Conditioning**	41	13
Mitchell Elementary School Building – Closest building without air-conditioning to Trask Ave. (Classroom 4)	62	62	**Air Conditioning**	49	13

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Although there are existing conditions (No Build Alternative conditions) that exceed the FHWA NAC, no noise abatement/mitigation is proposed for the No Build Alternative. Because the No Build Alternative does not include a build project, there would be no mechanisms in this alternative to allow construction of noise abatement.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Although there are existing conditions that exceed the FHWA NAC and these conditions would not be changed under the TSM/Expanded Bus Service Alternative, no noise abatement/mitigation is proposed. Because this alternative does not propose construction on the freeways, there would be no mechanisms in this alternative to allow construction of noise abatement

3. FULL BUILD ALTERNATIVE

The preliminary noise abatement decision for the Full Build Alternative is covered in Section 4.9.4.2.A for (Enhanced) Reduced Build Alternative including Rossmoor and Garden Grove study areas. The preliminary noise abatement decision for the Pacific Electric Arterial, SR-22/SR-55 Interchange, and City Drive where the (Enhanced) Reduced Build and Full Build Alternatives do not share common project features is discussed herein.

NOI-FB-1. Based on the *Traffic Noise Impact Technical Reports* (December 2000), additional noise barriers are proposed for the Full Build Alternative, as shown in Figure 4.9-2 Noise Barrier Locations (at the end of this section) and Table 4.9-17, Existing, Predicted and Abated Future Noise Levels. A total of 3 additional noise barriers considered for abatement were found to be feasible. These noise barriers are the highest that are considered feasible.

As shown in Table 4.9-17, each of these noise barriers would result in at least a five-dBA noise reduction at the critical receiver.

Table 4.9-17
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS
FULL BUILD ALTERNATIVE

Site ID No.	Existing Modeled Noise Level In Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement[2] *(Noise barriers numbers cross-reference to Figure 4.9-2)*	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
G	63	73	**New noise barrier (NB-17).** 4.9-meter-high (16-foot-high)	66	7
J	65	65	**None required.** Existing 3.7- to 4.3-meter (12- to 14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 65 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	65	---
31-A	69	70	**None.** Existing 3.7-meter (12-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce 3 dBA to 67 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	70	---
I	70	70	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 70 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	70	---
32	67	67	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 67 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	67	---
32-A	68	68	**None.** Existing 4.3-meter (14-foot) noise barrier will remain. Extending noise barrier to 4.9 meter will reduce less than 0.5 dBA to 68 dBA which will not meet feasible criteria (will not reduce by at least 5 dBA)[1]	68	---
33	51	75	**New noise barrier (NB-24).** 4.9-meter-high (16-foot-high)	62	13
33-A	51	70	**New noise barrier (NB-25).** 4.9-meter-high (16-foot-high)	58	12
Willowick Muni. Golf Course	51	70	**New noise barrier (NB-25).** 4.9-meter-high (16-foot-high)	60	10
34	56	66	**None proposed.** Noise barrier (NB-26) not reasonable.	66	---

1. The policy issue regarding feasibility criteria for the height extension of the existing noise barrier will be further analyzed during the final design phase.
2. The endings of each proposed/existing noise barrier will be further analyzed and evaluated during the design phase.

In addition to the schools studied under (Enhanced) Reduced Build Alternative including the Rossmoor and Garden Grove study areas, the preliminary analysis of the noise abatement for the interiors of school buildings nearest to the Full Build Alternative improvements is summarized in Table 4.9-18. This table shows that the school interior NAC would be not exceeded at Spurgeon Intermediate School. Therefore, no abatement for interior noise will be proposed.

Table 4.9-18
EXISTING, PREDICTED, AND ABATED FUTURE NOISE LEVELS AT SCHOOL INTERIORS
FULL BUILD ALTERNATIVE

Site ID No.	Existing Modeled Noise Level in Leq(h), dBA	Predicted Noise Level Without Abatement in Leq(h), dBA	Abatement	Predicted Noise Level With Abatement in Leq(h), dBA	Noise Reduction in dBA
Spurgeon Intermed. School Bldg. Interior (air-conditioned)	< 43	43	**None required.**	43	---

NOI-FB-2. Multiple reflections between reflective parallel noise barriers (noise barriers on each side of a roadway) can potentially reduce the acoustical performance of each individual barrier. How much degradation takes place depends on the final site geometry and barrier configurations. An important relationship is the ratio of the separation between two parallel barriers (W) and their average height (H-Average). As a general rule, if the W/H-Average ratio is 10:1 or greater, the insertion loss degradation is less than three dBA, and not noticeable to the human ear. Assuming the maximum noise barrier height of 4.9 meters (16 feet), the width separating each of the parallel noise barriers on this project would be greater then 10:1 throughout the Full Build Alternative, with the exception of the location along the Pacific Electric Arterial, where NB-24 and NB-25 are parallel. Additional study will be required during final design to determine how to mitigate the potential performance degradation of parallel noise barriers NB-24 and NB-25. Measures to reduce the sound reflections between these two parallel barriers could include providing a sound absorptive finish to the traffic side of each barrier.

4.9.5 RESIDUAL IMPACTS AFTER NOISE ABATEMENT/MITIGATION

Residual impacts after noise abatement/mitigation would remain at some locations because either no abatement is proposed for a substantial impact or because the impacts would not be mitigated to less than substantial by the proposed abatement. There would be no impacts that cannot be fully mitigated to less than substantial, as defined by the Department (i.e., a 12 dBA increase).

A. PREFERRED ALTERNATIVE / (ENHANCED) REDUCED BUILD ALTERNATIVE

Under CEQA, a project would have a significant effect on the environment if it would increase substantially the ambient noise levels (CEQA Guidelines) for adjoining areas, which is defined by the Department as an increase of 12 dBA. There would be no locations where a 12-dBA increase would remain after abatement; hence, residual noise impact would be minimal for the (Enhanced) Reduced Build Alternative.

The federal and state noise abatement criterion of 67 dBA for category B uses would be approached or exceeded after abatement at 30 receivers for the (Enhanced) Reduced Build Alternative. At 15 of these, there would be an increase in the noise levels attributable to the (Enhanced) Reduced Build Alternative that will not or cannot be fully abated to less than or equal to the existing noise levels. (At 15 additional sites, noise levels after abatement would be above the NAC, but these levels would be at or below the existing level, so all impacts resulting from the (Enhanced) Reduced Build Alternative would be fully abated.) Thus, residual noise levels after abatement resulting from the (Enhanced) Reduced Build Alternative would occur at 15 category B receivers, but none of these would represent a substantial residual noise impact as defined by the Department standards.

ROSSMOOR STUDY AREA
(SEAL BEACH BOULEVARD AT SR-22 TO KATELLA AVENUE AT I-605)

The federal and state noise abatement criterion of 67 dBA for category B uses would be approached or exceeded after abatement at 9 receivers at Rossmoor Area for the (Enhanced) Reduced Build Alternative. At 8 of these, there would be an increase in the noise levels attributable to the (Enhanced) Reduced Build Alternative that will not or cannot be fully abated to less than or equal to the existing noise levels. Thus, residual noise levels after abatement resulting from the (Enhanced) Reduced Build Alternative would occur at only 8 category B receiver, but none of these would represent a substantial residual noise impact as defined by the Department.

GARDEN GROVE STUDY AREA
(MAGNOLIA STREET TO HAVENWOOD STREET)

The federal and state noise abatement criterion of 67 dBA for category B uses would be approached or exceeded after abatement at 11 receivers in the Garden Grove area for the (Enhanced) Reduced Build Alternative. However, none of these would result in an increase in the noise levels attributable to the (Enhanced) Reduced Build Alternative that will not or cannot be fully abated to less than or equal to the existing noise levels. None of the commercial sites will approach the federal and state noise abatement criterion of 72 dBA for category C uses after abatement. Thus, after abatement, these increases resulting from the (Enhanced) Reduced Build Alternative would not represent a substantial residual noise impact as defined in the Department‘s standards.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Since there are existing conditions (No Build Alternative conditions) that exceed the FHWA NAC and no abatement is proposed for the No Build Alternative beyond the existing Community Noise Abatement program, these existing impacts would remain. Because the No Build Alternative would not result in a 12-dBA increase in noise, no residual noise impact would occur, as defined by the Department standards.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Because there are existing conditions that exceed the FHWA NAC and that would not be improved under the TSM/Expanded Bus Service Alternative beyond the existing Community Noise Abatement program, and because no abatement is proposed, these existing impacts would remain. Because the TSM/Expanded Bus Service Alternative would not result in a 12-dBA increase in noise, no residual noise impact would occur, as defined by the Department standards.

3. FULL BUILD ALTERNATIVE

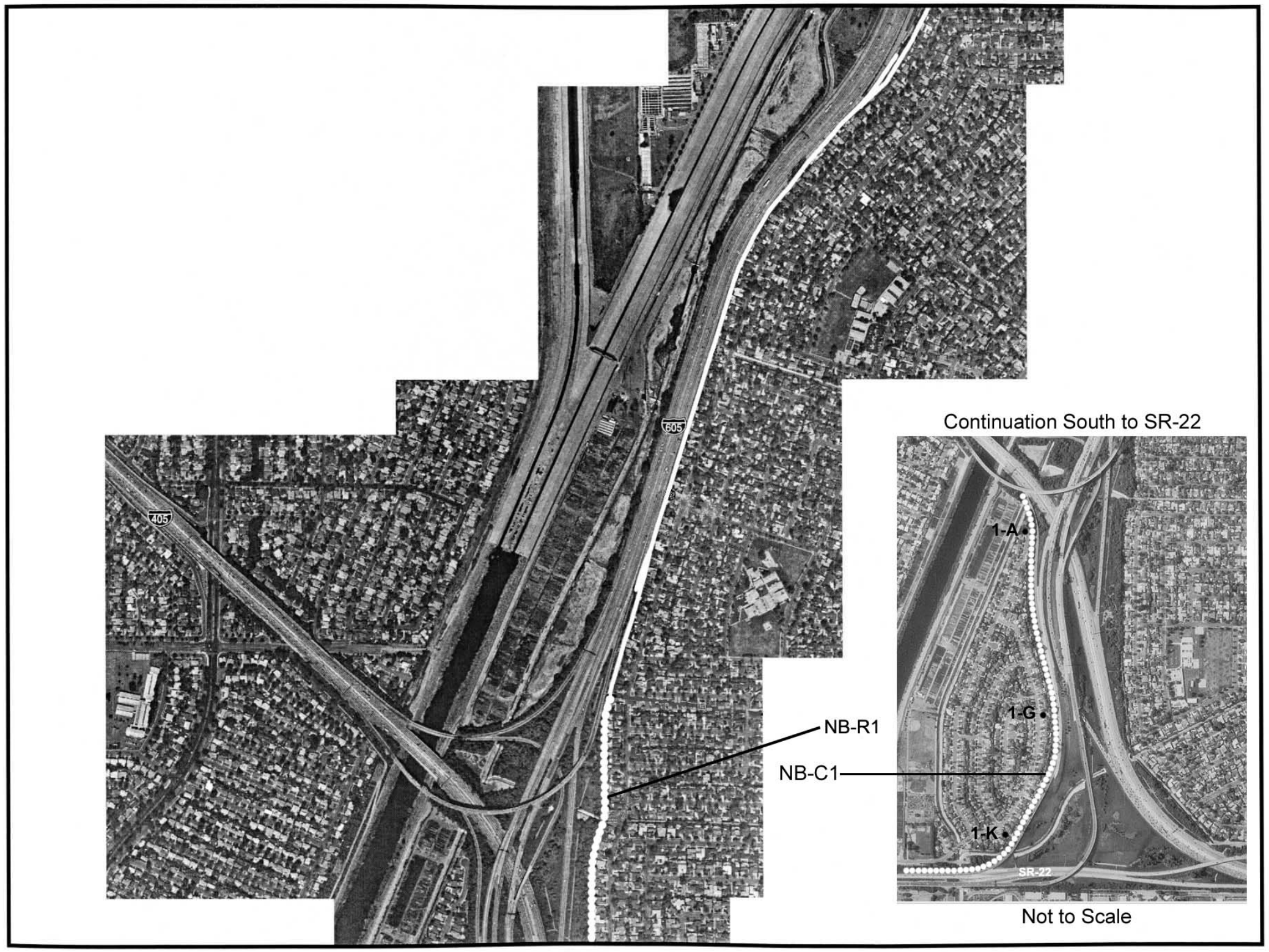
Under CEQA, a project would have a significant effect on the environment if it would increase substantially the ambient noise levels for adjoining areas; such increase is defined by the Department as an increase of 12 dBA. There would be no locations where a 12-dBA increase would remain after abatement, so minimal residual noise impact would remain under the Full Build Alternative.

In additional to the residual impact under (Enhanced) Reduced Build Alternative (Section 4.9.5.A), the federal and state noise abatement criterion of 67 dBA for category B uses would be approached or exceeded after abatement at additional 6 receivers for the Full Build Alternative. At three of these, there would be an increase in the noise levels that is attributable to the Full Build Alternative that will not or cannot be fully abated to less than or equal to the existing noise levels. Thus, residual noise levels after abatement resulting from

the Full Build Alternative would occur at three category B receivers, but none of these would represent a substantial residual noise impact, as defined by Caltrans.

A final noise abatement analysis will be conducted during final design to reevaluate sensitive receptors where predicted noise would increase 12 or more decibels over ambient or where noise levels would approach or exceed the category B NAC (i.e., 66 dBA or greater). A final decision on the installation of noise abatement measures will be made upon completion of the project design and the public involvement process. Decisions on final design will be consistent with the latest FHWA/Department criteria (23 CFR Part 772) and state noise policies at the time the project is advertised for construction. If additional significant noise impacts would occur, as defined by CEQA, supplemental documentation would be required.

Construction noise is only considered to be substantial in exceptional cases, such as pile driving and crack and seal pavement rehabilitation operations. Otherwise, the Department's Standard Specifications (Section 7 and 42) and Standard Special Provisions provide limits on construction noise levels, with normal construction noise levels not exceeding 86 dBA at a distance of 15 meters (50 feet). The Full Build Alternative may require pile driving and/or crack and seal pavement rehabilitation, however, the use of alternate method would reduce this impact to less than substantial.



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhanced) Reduced Build Alternative

LEGEND

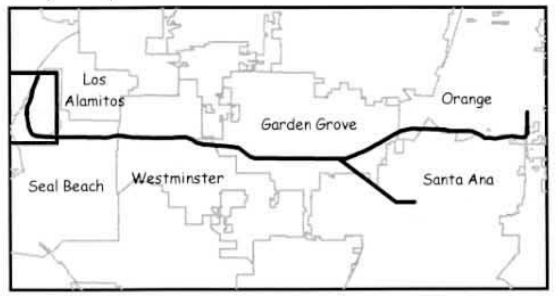
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

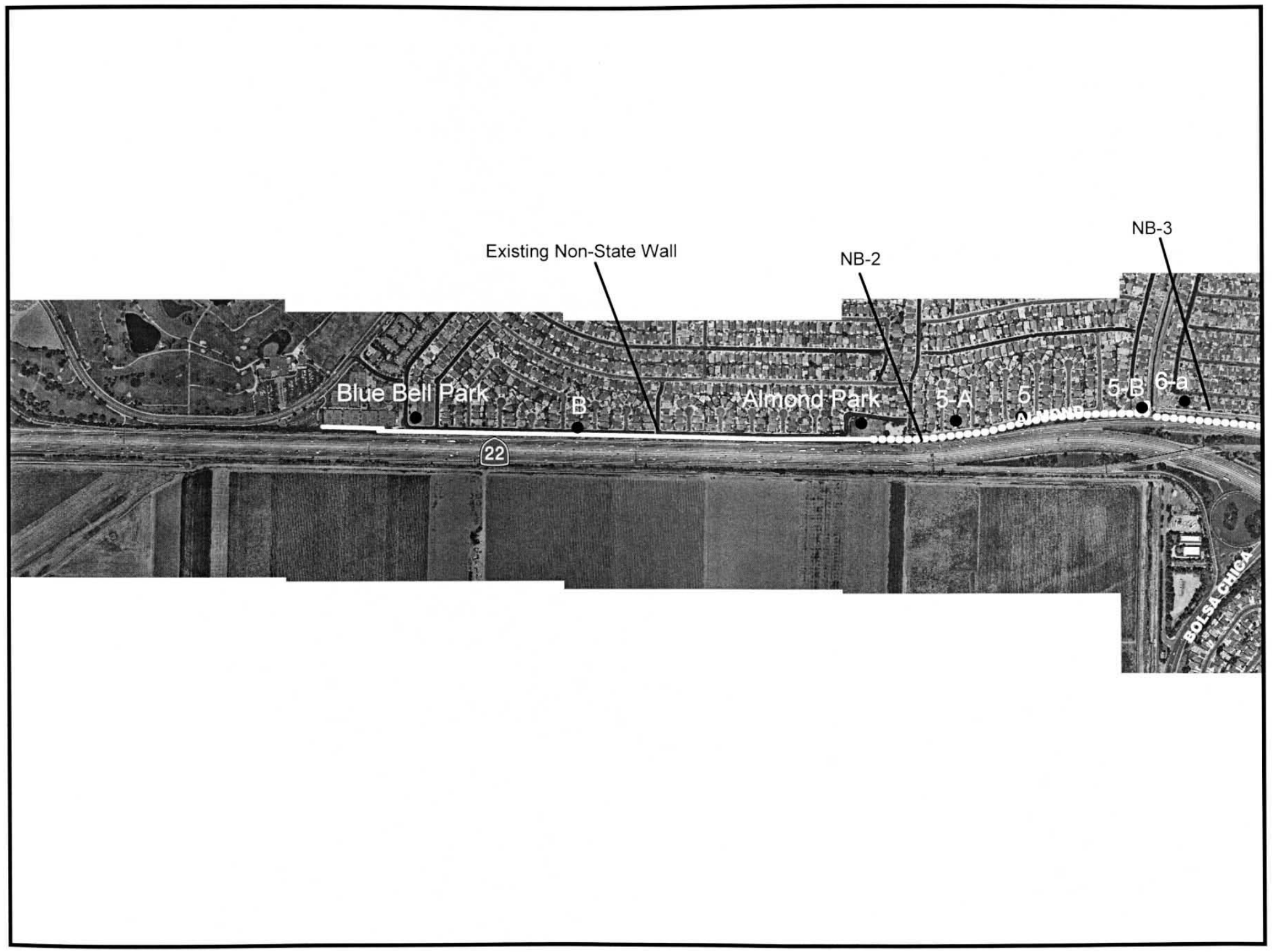
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1A



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhaced) Reduced Build Alternative

LEGEND

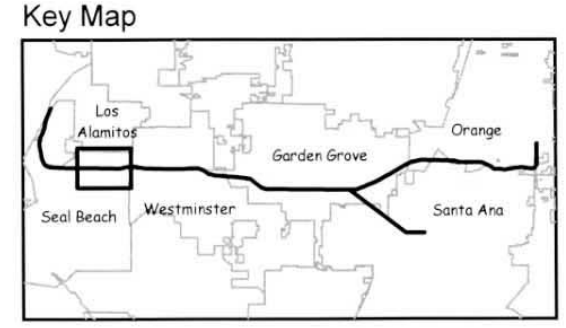
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

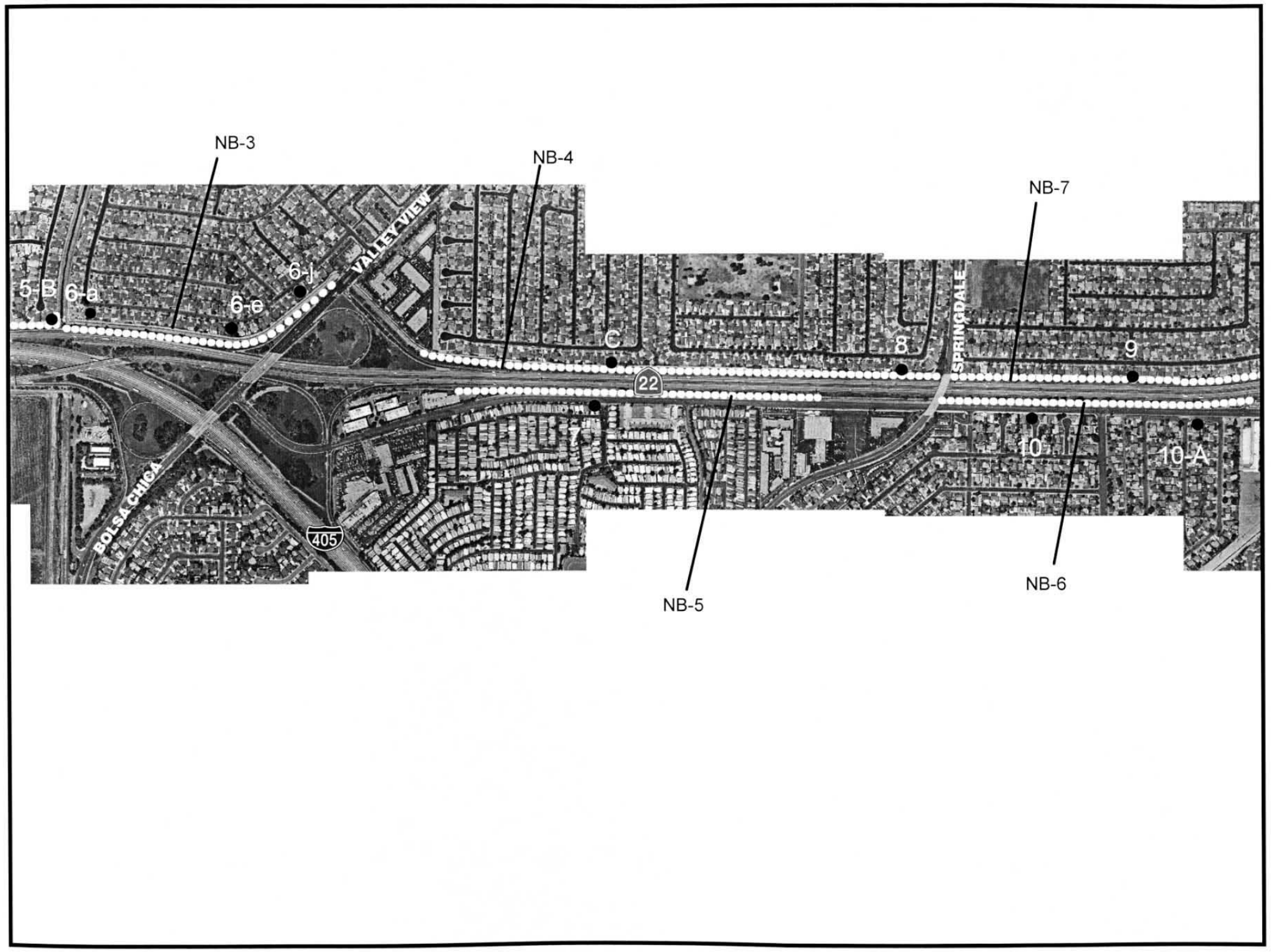
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1B



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhanced) Reduced Build Alternative

LEGEND

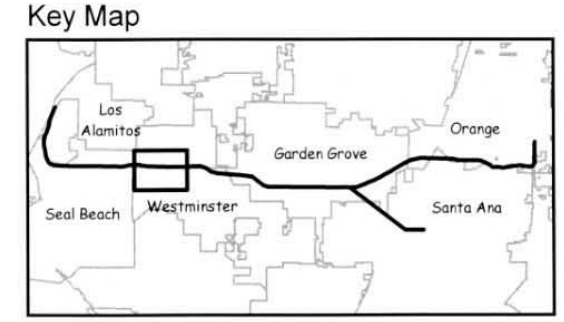
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

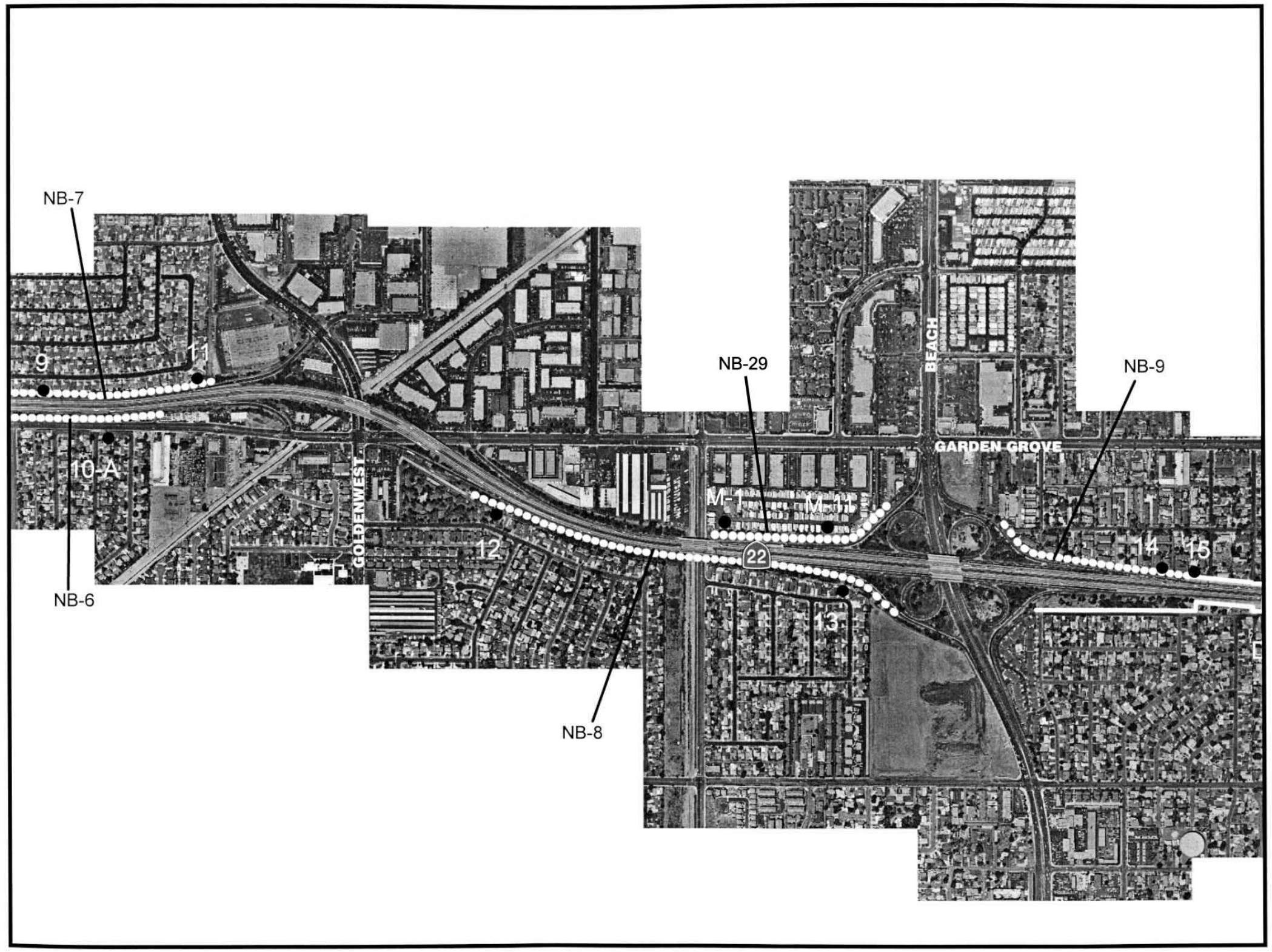
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1C



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhanced) Reduced Build Alternative

LEGEND

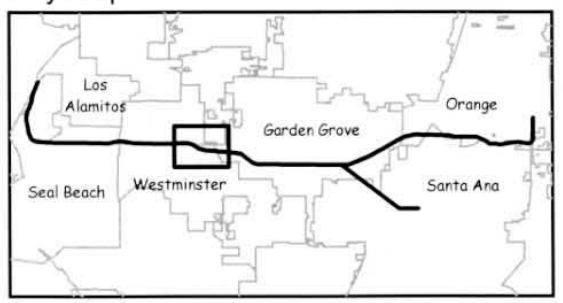
- ● Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision*.

Note: Noise barrier locations are approximate only.

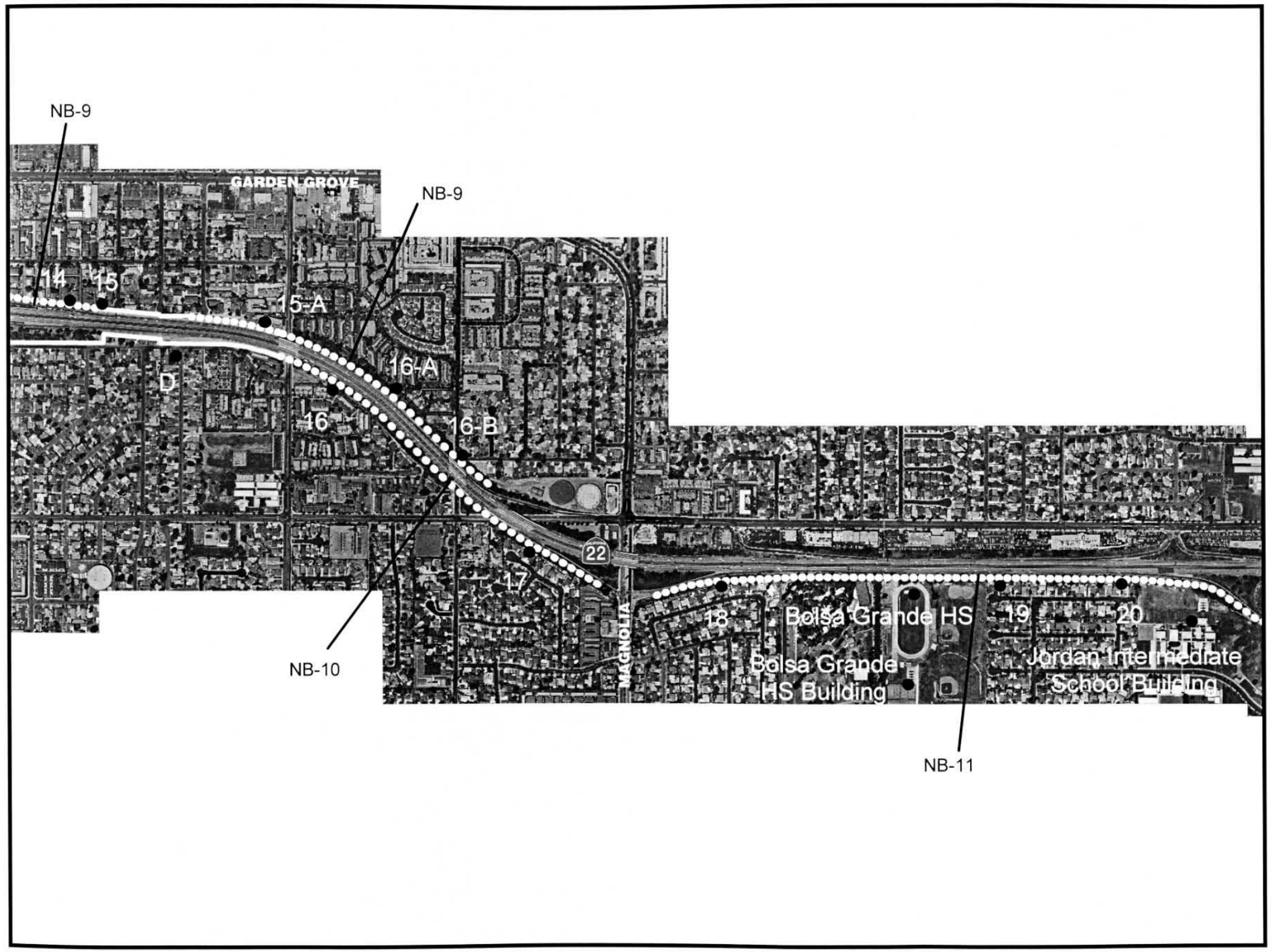
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1D



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhanced) Reduced Build Alternative

LEGEND

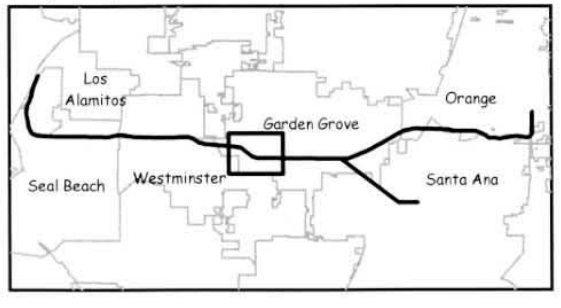
- ● Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision*.

Note: Noise barrier locations are approximate only.

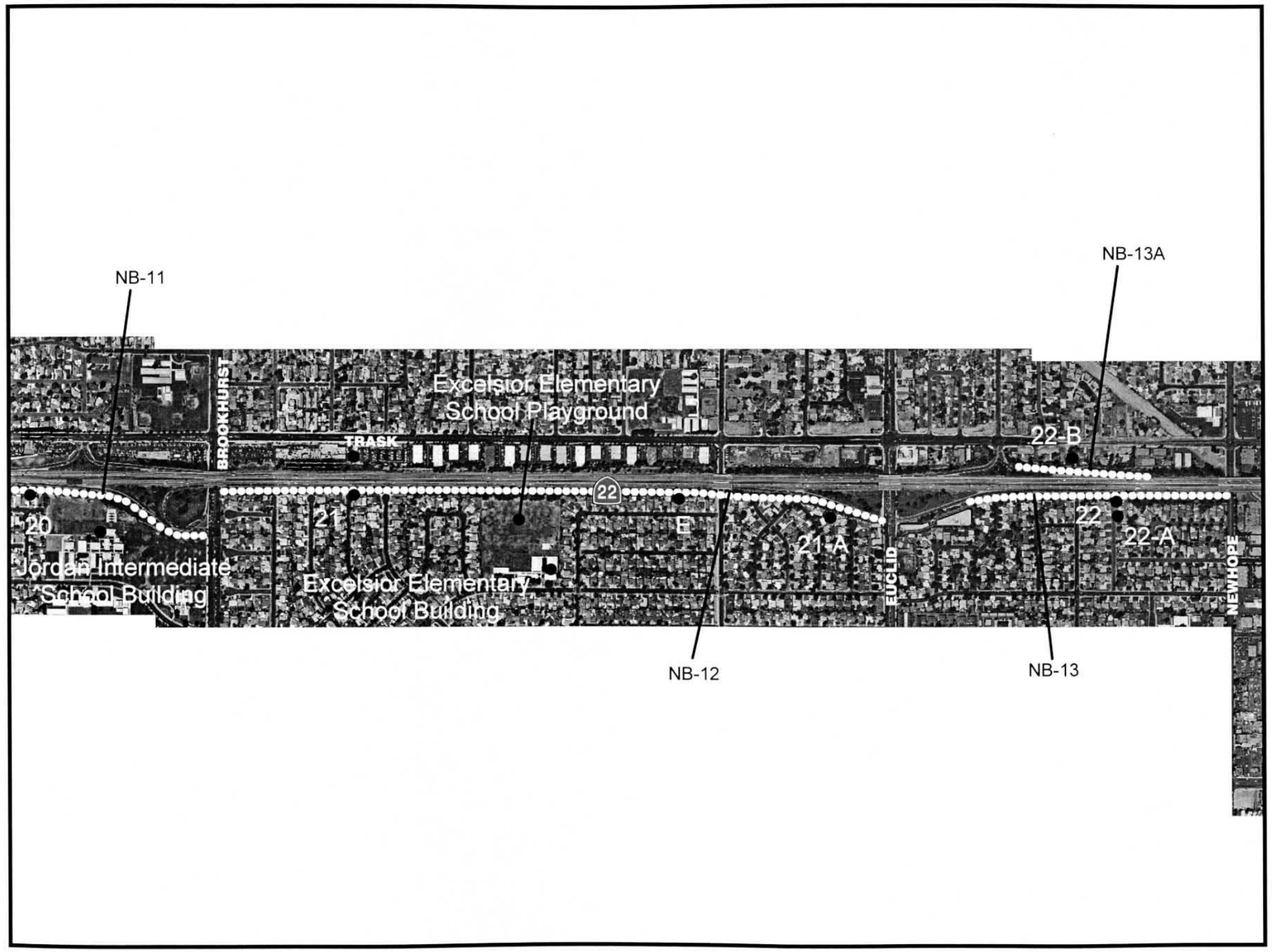
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1E



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhaced) Reduced Build Alternative

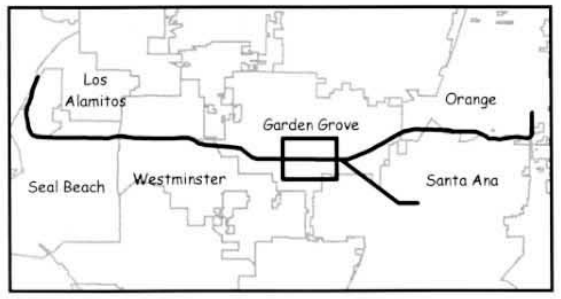
LEGEND

- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision*.

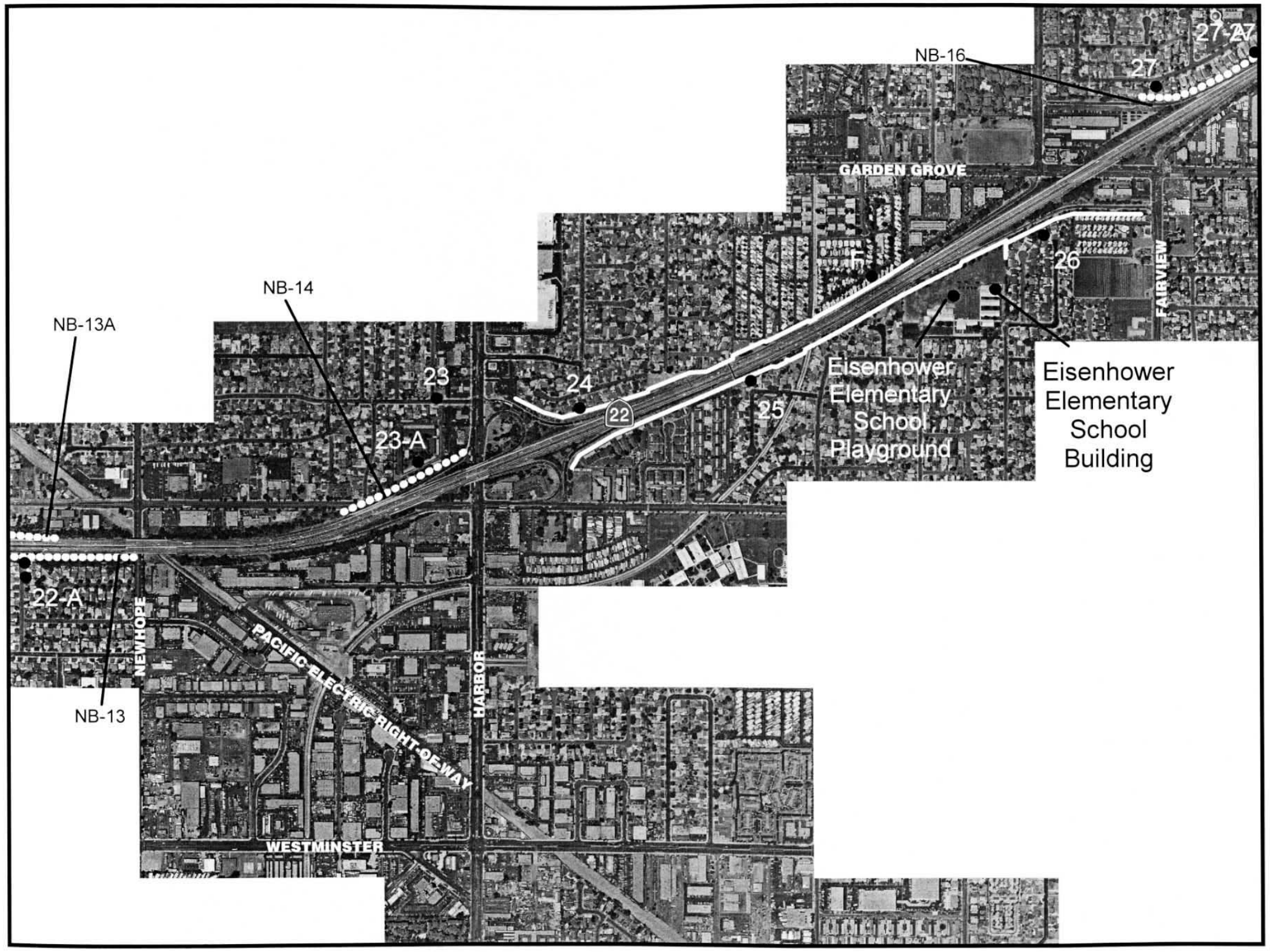
Note: Noise barrier locations are approximate only.



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1F



SR-22/West Orange County Connection Project

Proposed Noise Barriers (Enhanced) Reduced Build Alternative

LEGEND

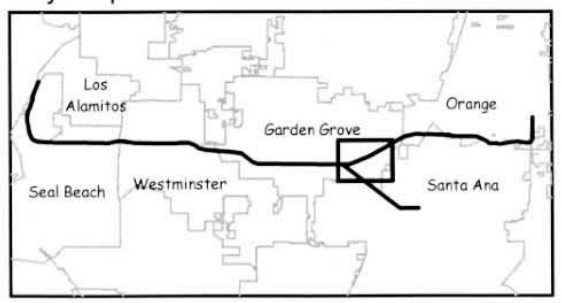
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

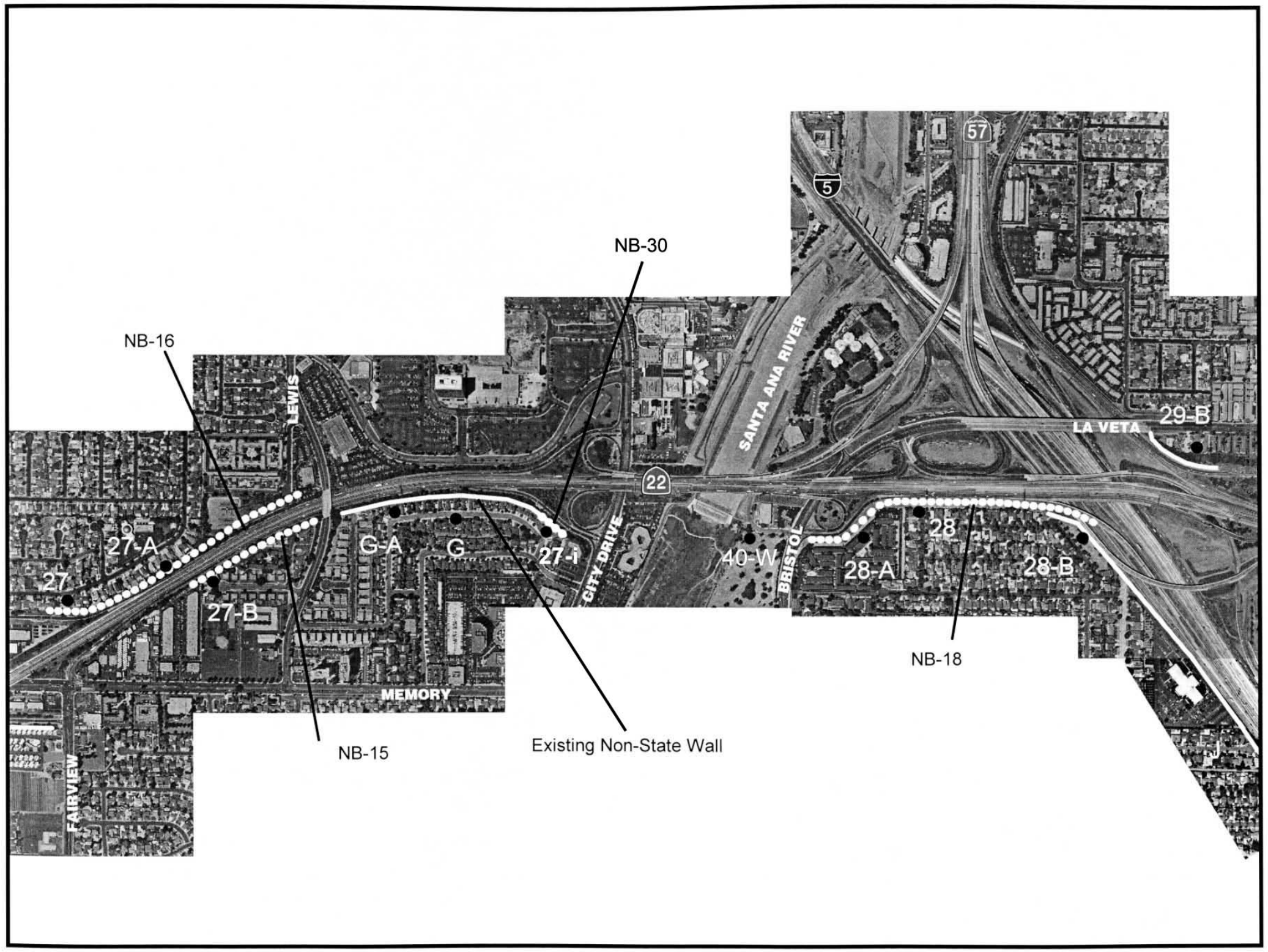
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1G



SR-22/West Orange County Connection Project

Proposed Noise Barriers
(Enhanced) Reduced Build Alternative

LEGEND

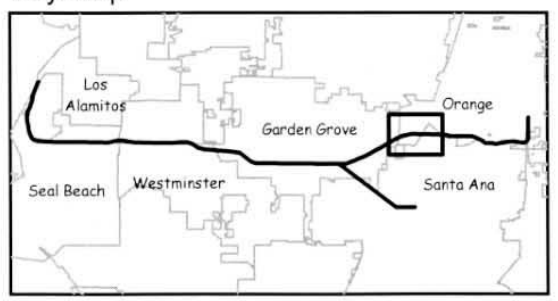
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

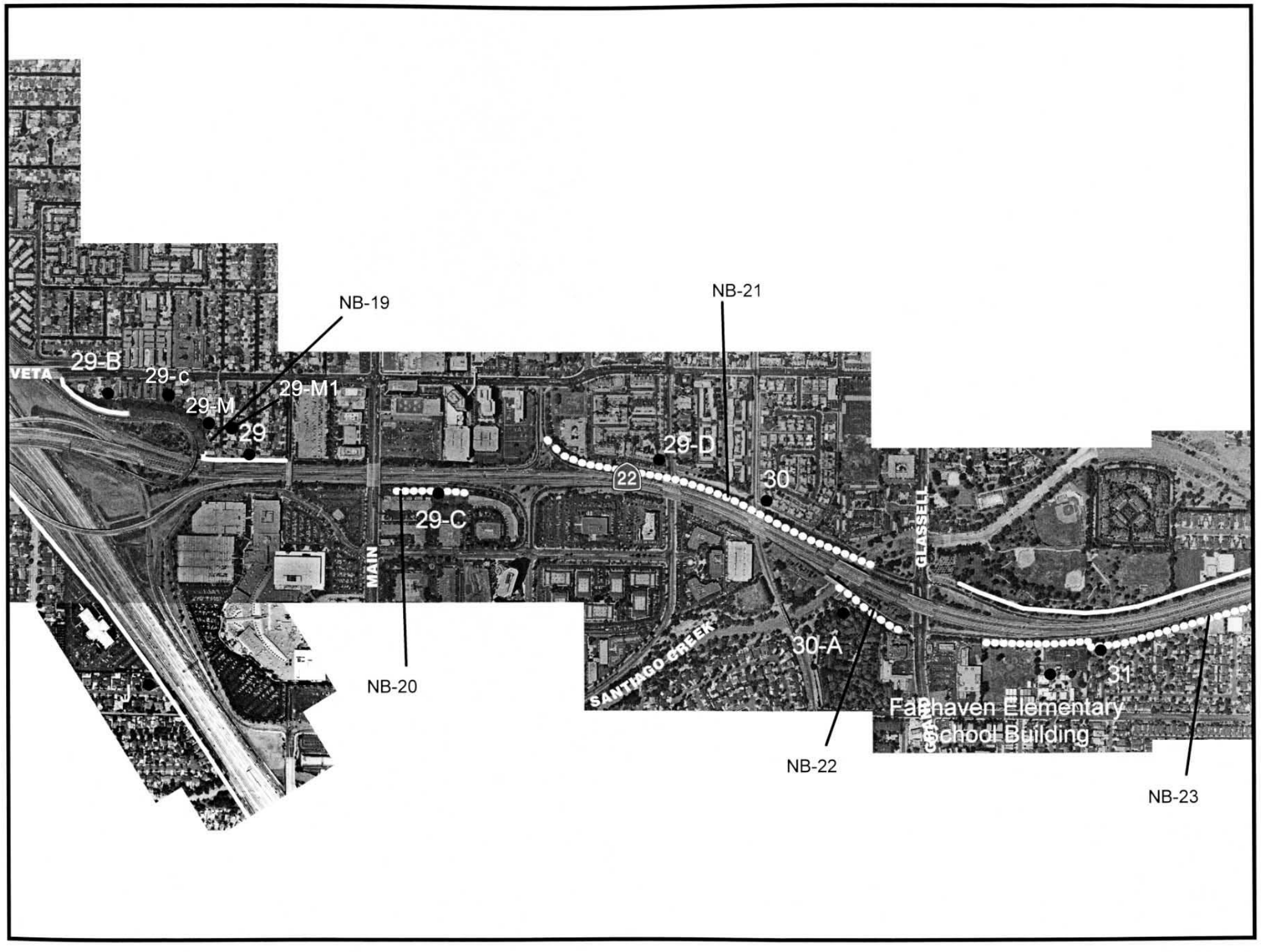
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-1H



SR-22/West Orange County Connection Project

Proposed Noise Barriers
(Enhanced) Reduced Build Alternative

LEGEND

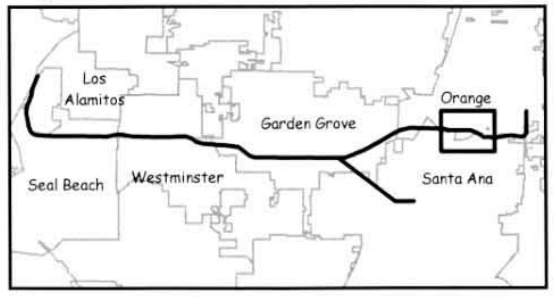
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

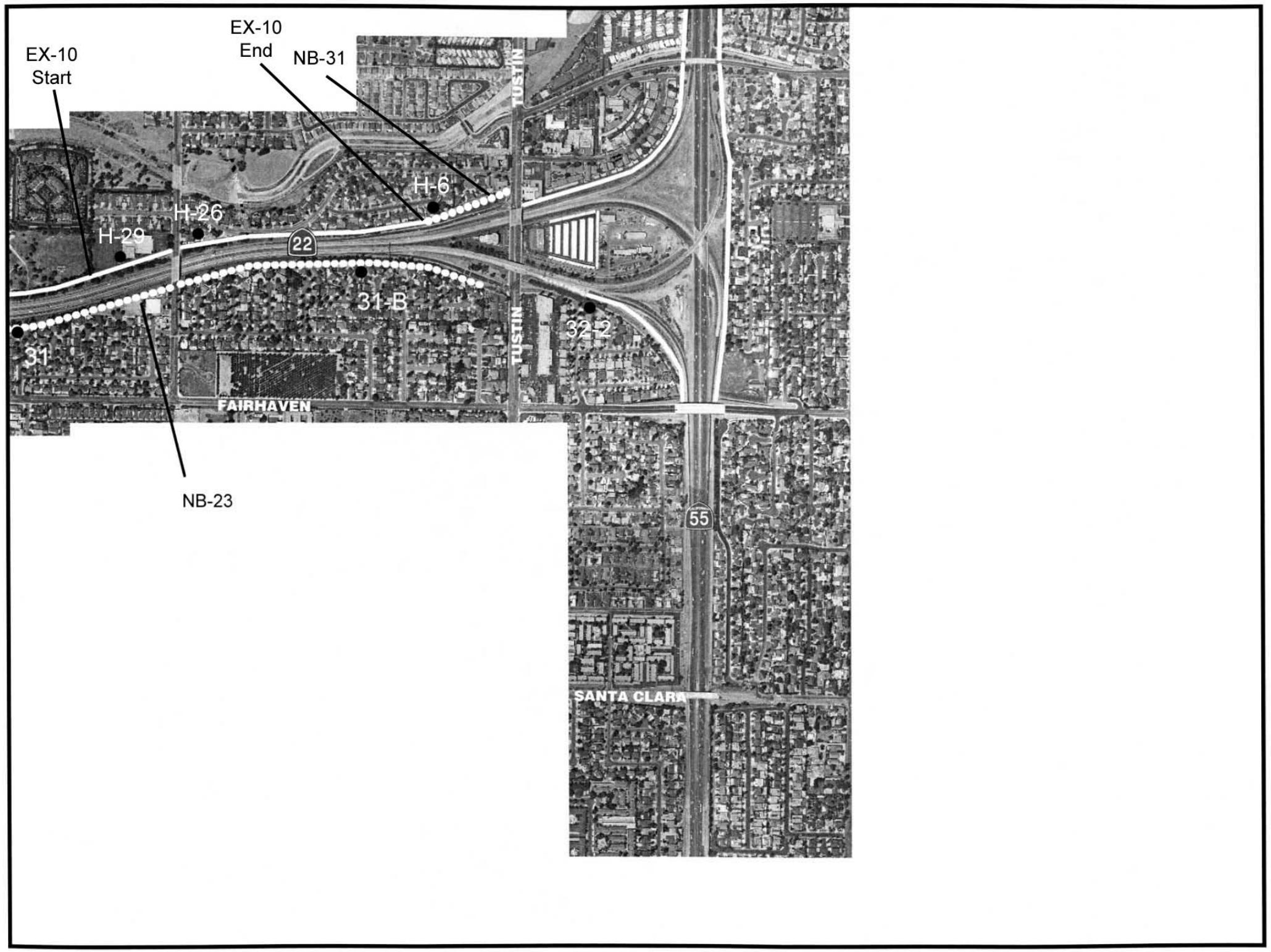
Note: Noise barrier locations are approximate only.

Key Map



0.1 0 0.1 0.2 Miles
0.1 0 0.1 0.2 Kilometers

Figure 4.9-1 I



SR-22/West Orange County Connection Project

Proposed Noise Barriers
(Enhanced) Reduced Build Alternative

LEGEND

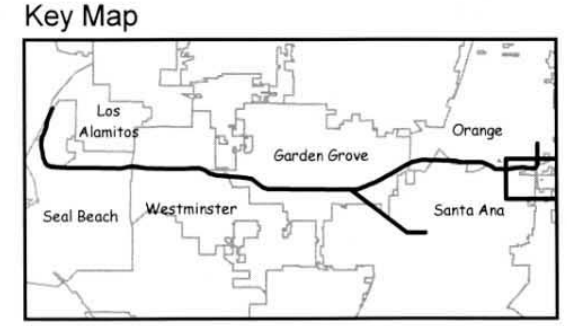
- Noise Measurement and/or Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

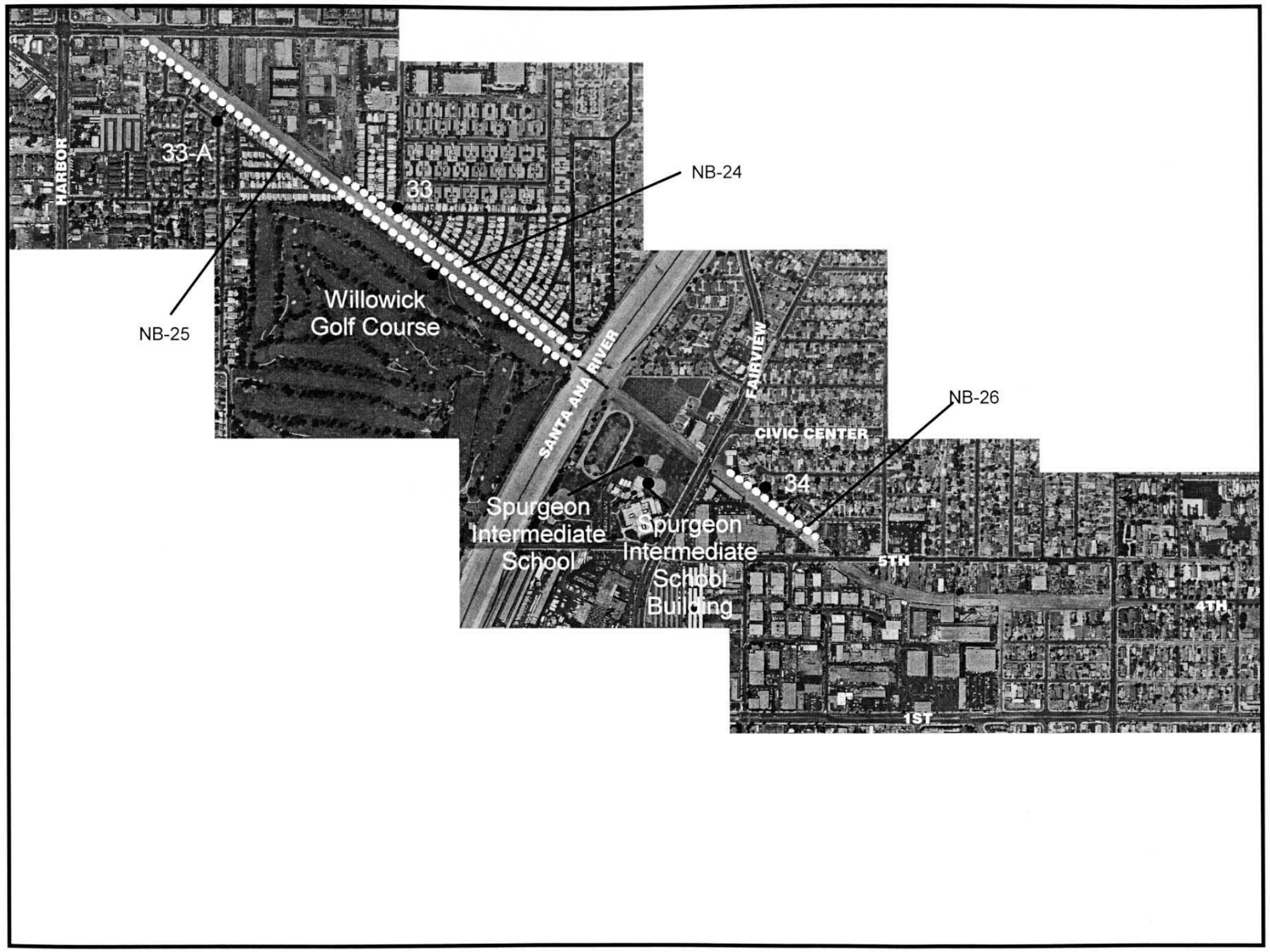
Note: Noise barrier locations are approximate only.

Key Map



0.1 0 0.1 0.2 Miles
0.1 0 0.1 0.2 Kilometers

Figure 4.9-1J



SR-22/West Orange County Connection Project

Proposed Noise Barriers Full Build Alternative

LEGEND

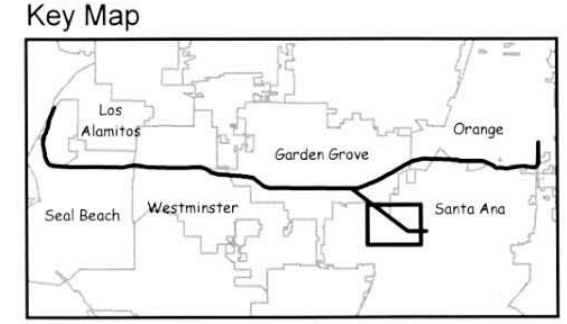
- ● Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision*.

Note: Noise barrier locations are approximate only.

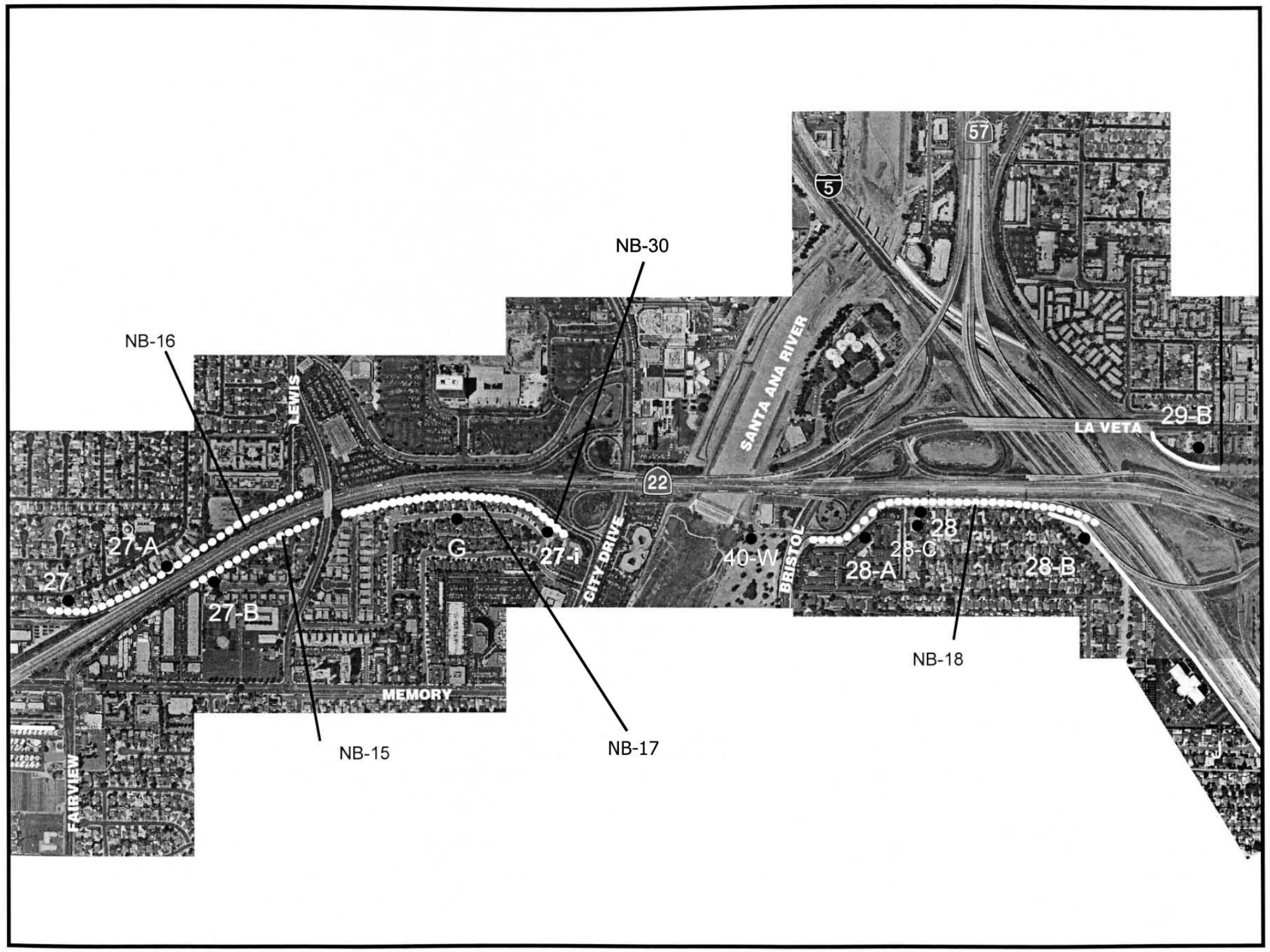
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-2A



SR-22/West Orange County Connection Project

Proposed Noise Barriers
Full Build Alternative

LEGEND

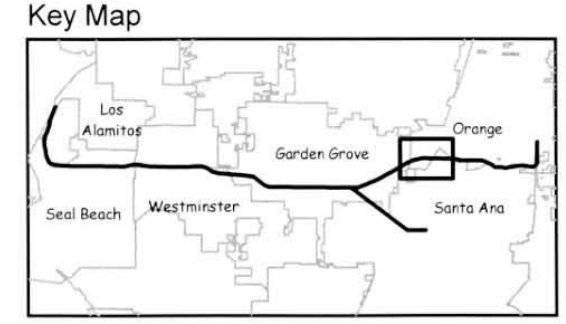
- ● Noise Measurement and/or Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision*.

Note: Noise barrier locations are approximate only.

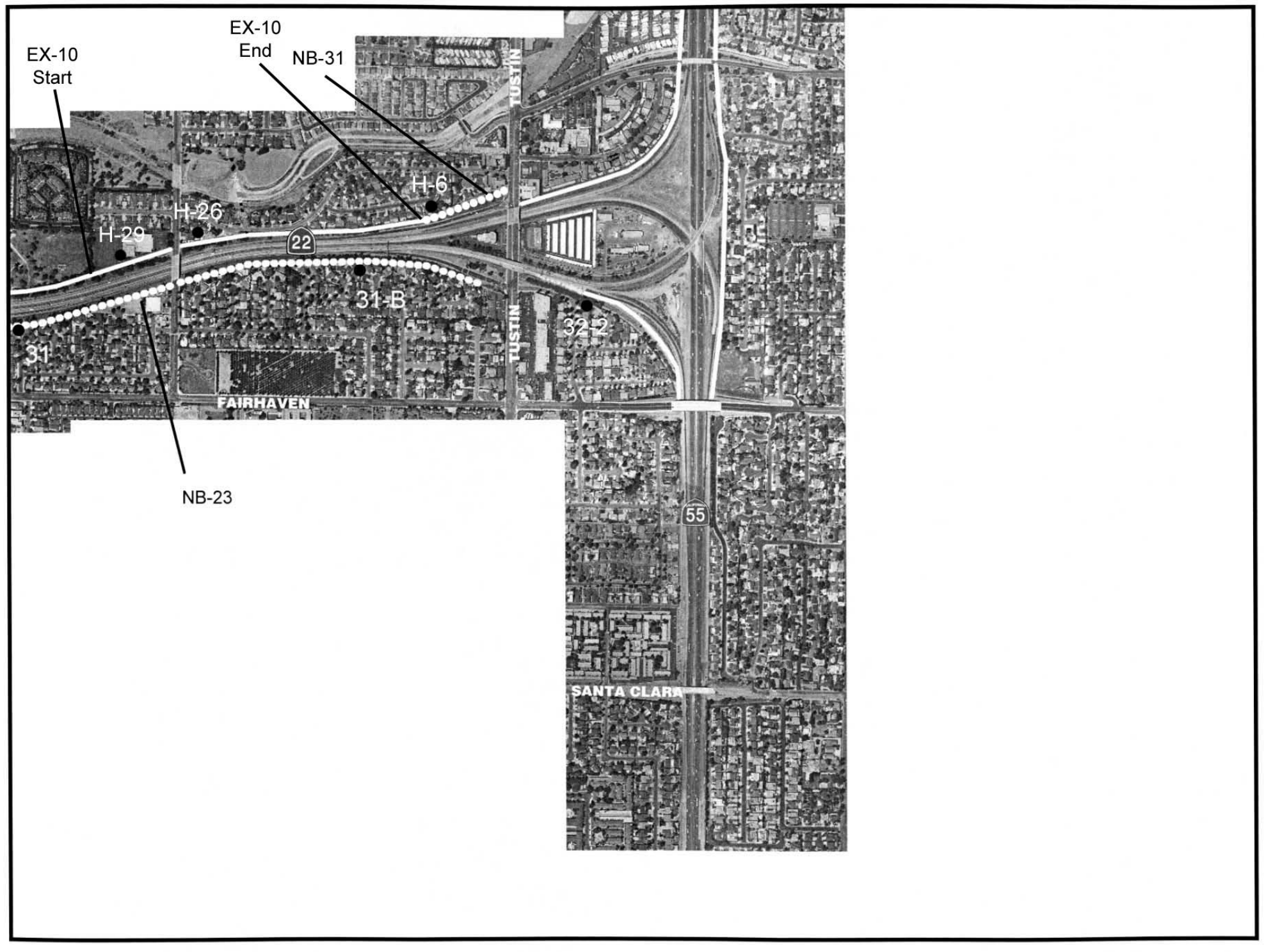
Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-2B



SR-22/West Orange County Connection Project

Proposed Noise Barriers
Full Build Alternative

LEGEND

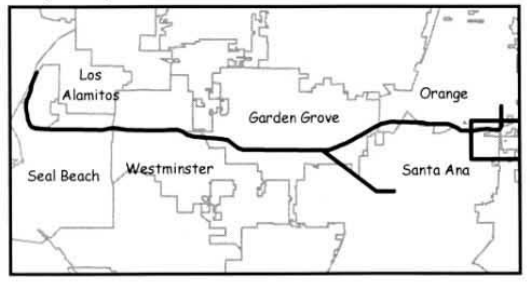
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

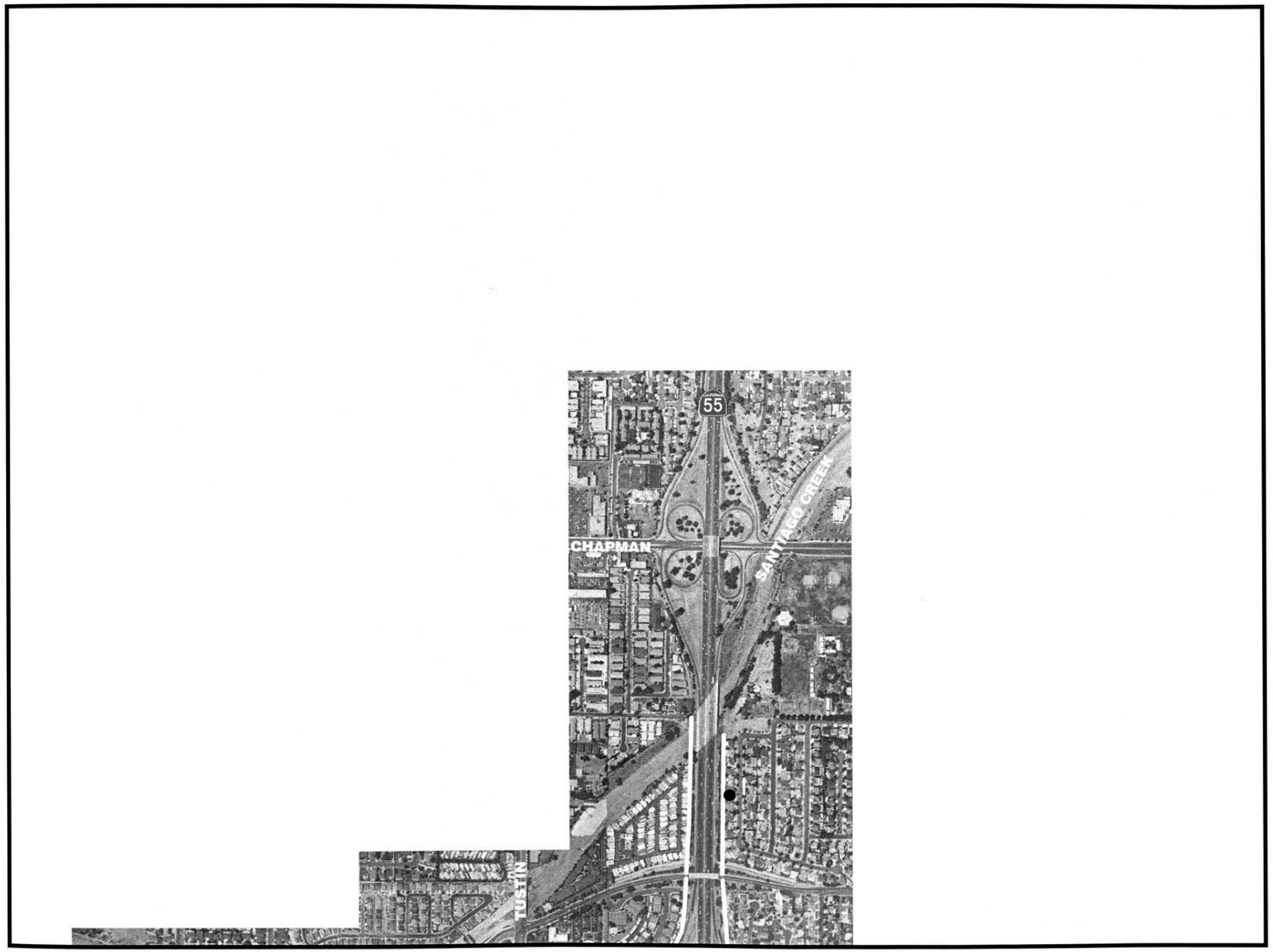
Note: Noise barrier locations are approximate only.

Key Map



0.1 0 0.1 0.2 Miles
0.1 0 0.1 0.2 Kilometers

Figure 4.9-2C



SR-22/West Orange County Connection Project

Proposed Noise Barriers Full Build Alternative

LEGEND

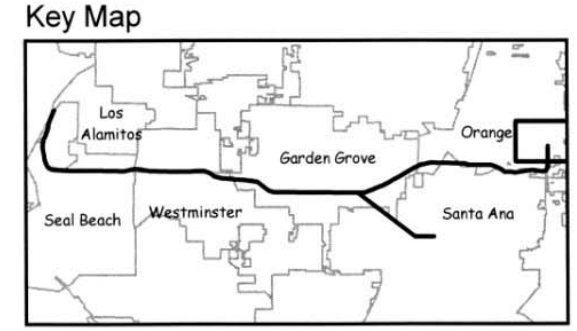
- Noise Measurement and Modeling Sites
- Existing Noise Barriers
- Proposed Noise Barriers*

Source: Orthographic Photograpy: Landata Airborne Systems, Inc. January, 1997.

*Based on *Preliminary Noise Abatement Decision.*

Note: Noise barrier locations are approximate only.

Key Map



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 Kilometers

Figure 4.9-2D

4.10 PARKS AND RECREATION

This section includes discussions of impacts and mitigation measures related to parks and recreation in the study area. This section will focus primarily on the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. As discussed in Section 2.2-1, the added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to Parks and Recreational facilities. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (volumes II & III).

4.10.1 PUBLIC PARKS AND GOLF COURSES

This section discusses potential impacts to parks, golf courses, tennis facilities, trails and schools along the SR-22/West Orange County Connection study area. Please refer to Figure 3.10-1, City/regional Parks and Golf Courses along the study area. The impacts discussed will pertain to noise, visual and right-of-way. As discussed in Sections 4.9 and 4.13, landscaping will be removed in portions of the SR-22 corridor to accommodate the proposed widening. Since these public parks and golf courses are adjacent to the freeway, the noise level as well as the view of the freeway may be altered slightly as a result of the vegetation removal. Where applicable, the possible impacts will be discussed at each location below. Further information regarding the TSM Expanded Bus Service, Full Build and Reduced Build Alternatives can be found in Section 4.10 of the August 2001 DEIR/EIS.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Edison Park (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of Edison Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would also be minimal.

Rossmoor Park (Rossmoor). The (Enhanced) Reduced Build Alternative would not require any of Rossmoor Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would also be minimal.

Old Ranch Tennis Club (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of the Old Ranch Tennis Club for right-of-way. Visual impacts and impacts to accessibility would be altered slightly due to vegetation removal from the freeway and possible short-term construction impacts. Noise impacts would also be minimal.

Blue Bell Park (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of the Blue Bell Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise levels would be minimally increased.

Aster Park (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of Edison Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would be minimal.

Almond (Shapell) Park (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of the Almond Park for right-of-way. Accessibility to this park would not be affected. Noise levels would increase minimally.

Heather Park (Seal Beach). The (Enhanced) Reduced Build Alternative would not require any of Heather Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would be minimal

Westgrove Park (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any of Westgrove Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly; noise impacts would be minimal.

Edgar Park (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any of Edgar Park for right-of-way. Visual impacts would be altered slightly due to vegetation removal from the freeway, and accessibility may be temporarily affected due to possible short-term construction impacts.

Golden West Park (Westminster). The (Enhanced) Reduced Build Alternative would not require any of Golden West Park for right-of-way. Visual impacts and impacts to accessibility would be altered slightly due to vegetation removal from the freeway and possible short-term construction impacts. Noise impacts would be minimal.

Garden Grove Park (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any of the Garden Grove Park for right-of-way. Impacts to accessibility would be minimal during construction activities. Noise levels would increase minimally.

Woodbury Park (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any of Woodbury Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would be minimal.

Twin Lakes Park (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any of Twin Lakes Park for right-of-way. Visual impacts would be minimal, as the view of the freeway could change slightly. Noise impacts would be minimal.

Santiago Park (Santa Ana). The (Enhanced) Reduced Build Alternative would not require any of Santiago Park for right-of-way. Visual impacts would be altered slightly due to vegetation removal from the freeway, and accessibility may be limited temporarily due to short-term construction impacts.

Pacific Electric Commemorative Area (Garden Grove). This commemorative area, which is owned by OCTA, functions as a passive open space/park. Currently screened from the elevated SR-22 by vegetation within the freeway right-of-way, this passive park would be affected by a substantial reduction in the screening vegetation, as described in Section 4.13. The loss of mature vegetation would be a potential substantial visual impact to this park-like setting. Noise levels are high at this location, over 70 dBA based on the nearest receiver analyzed in Section 4.9, and would increase slightly, but this impact is not considered extensive by the Department because the noise level increase would be less than 12 dBA. No noise barriers are proposed at this location, which is surrounded by commercial uses and busy surface streets. There would be minimal impacts to accessibility. Access to the park would not be affected. Although there would be indirect impacts to the commemorative area, they would not substantially impair its use. No land currently used for the commemorative area would be acquired for the right-of-way.

River View Public Golf Course (Santa Ana). The (Enhanced) Reduced Build Alternative would not cause substantial impact to River View Public Golf Course. No land would be acquired for right-of-way from the recreational facility. As described in Section 4.13, the visual impacts at this location would be minimal. Noise and accessibility impacts would also be minimal.

Colonel William W. Eldridge (Fallbrook) Park (Santa Ana). The (Enhanced) Reduced Build Alternative would not require direct use of any of the Eldridge Park property for right-of-way. There would be minimal impacts to accessibility. However, there would be few visible physical changes, so visual and traffic noise impacts would be minimal.

Hart Park (Orange). The (Enhanced) Reduced Build Alternative would not require any of Hart Park for right-of-way. Visual impacts would be altered slightly due to vegetation removal from

the freeway, and accessibility would be temporarily affected due to short-term construction impacts.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Because the No Build Alternative would not include construction, except as addressed in previous environmental documents, there would be no impacts to any parks or recreational facilities related to this alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Because the TSM/Expanded Bus Service Alternative would include only minor construction, no impacts to any parks or recreational facilities related to this alternative are expected to occur. In some cases, parks may become more accessible due to improved transit provided by this alternative.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not require any of the following recreational facilities: Old Ranch Tennis Club, Blue Bell Park, Almond/Shapell Park (Seal Beach), Garden Grove Park (Garden Grove), Santiago Park, Colonel William W. Eldridge/Fallbrook Park, Willowick Municipal Golf Course (Santa Ana), Hart Park, Yorba Park (Orange).

Pacific Electric Commemorative Area (Garden Grove). This commemorative area, which is owned by OCTA, functions as a passive open space/park. Currently screened from the elevated SR-22 by vegetation within the freeway right-of-way, this passive park would be affected by a substantial reduction in the screening vegetation, as described in Section 4.13.

River View Public Golf Course (Santa Ana). The Full Build Alternative would not cause substantial impact to River View Public Golf Course. See discussion in (A) PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above.

Spurgeon Park (Santa Ana). This park is adjacent to Spurgeon Intermediate School, south of the former Pacific Electric right-of-way segment. Implementation of the Pacific Electric Arterial would remove the existing historical bridge visible from the park and place an elevated structure in the right-of-way, along with off-ramps. The addition of an elevated structure in an area currently used as visual open space would be a potentially substantial visual impact. Increases in ambient noise levels are not anticipated to affect this park due to its distance from the right-of-way. The visual impacts would not affect use of the facility, and there would be no impacts to accessibility or access to the park under this alternative.

For a complete discussion of impacts of the Full Build Alternative on parks in the project area, refer to Section 4.10 of the August 2001 DEIR/EIS.

4.10.2 TRAILS/BIKEWAYS

Impacts to trails and bikeways are discussed below. A “bikeway” refers to a paved Class I (off-road) route, and “trail” to an unpaved Class I route.

A. PREFERRED ALTERNATIVE /(ENHANCED) REDUCED BUILD ALTERNATIVE

Los Alamitos Coyote Creek Channel Bikeway (Los Alamitos). The class I Los Alamitos/Coyote Creek Channel Bikeway runs parallel to I-605 within the study area and would not be physically affected by any right-of-way expansion proposed by the (Enhanced) Reduced Build Alternative. Visual impacts would be minimal.

Hoover Street Bikeway (Westminster). The (Enhanced) Reduced Build Alternative would have minimal impact to the class II Hoover Street Bikeway. SR-22 would be slightly widened at the point where it passes over the existing Hoover Street Bikeway, resulting in minimal impacts. The trail would remain open during construction except under the freeway; detours will be developed in coordination with the City of Westminster and bicycle advocacy groups as part of the Traffic Management Plan.

Santa Ana River Trail and Bikeway (Santa Ana). The (Enhanced) Reduced Build Alternative would include widening of the SR-22 bridge deck at this class I trail, and two new structures crossing the trails (northbound I-5/southbound SR-57 connector to westbound SR-22 and the new Metropolitan Drive/The City Drive off-ramp from the southbound SR-57). The Santa Ana River Trail and Santa Ana River Bikeway are 100-percent physically separated from vehicular traffic. The SR-57 off-ramp to Metropolitan Drive/The City Drive would sever the Santa Ana River Trail and Bikeway, unless grade separations are provided at the new crossing. (Bicycles, pedestrians and equestrians would not be allowed within the right-of-way of the new roadway, so they would not be able to cross, even at grade.) Grade separations are included in the project design. This would also constitute a substantial visual impact. This facility will remain open during construction; a temporary detour plan will be provided in coordination with the City of Orange.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Because the No Build Alternative would not include construction, except as addressed in previous environmental documents, there would be no impacts to trails related to this alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts to trails.

3. FULL BUILD ALTERNATIVE

Los Alamitos Coyote Creek Channel Trail (Los Alamitos). The class I Los Alamitos/Coyote Creek Channel Trail runs parallel to I-605 within the study area and would not be physically affected by any right-of-way expansion proposed by the Full Build Alternative. Visual impacts would be minimal.

Hoover Street Trail and Bikeway (Westminster). The Full Build Alternative would have minimal impact to the class II Hoover Street Trail. SR-22 would be slightly widened at the point where it passes over the existing Hoover Street Trail, resulting in minimal impacts.

Santa Ana River Trail and Bikeway (Santa Ana). The Full Build Alternative would include widening of the SR-22 bridge deck at this class I trail and bikeway, two new structures crossing the trails (northbound I-5/southbound SR-57 connector to westbound SR-22 and the new Metropolitan Drive/The City Drive off-ramp from the southbound SR-57), and another new structure crossing the trail carrying the Pacific Electric Arterial. The Santa Ana River Trail/Bikeway is 100-percent physically separated from vehicular traffic. The widened SR-22

structure and the structure carrying the northbound I-5/southbound SR-57 connector to the westbound SR-22 would not substantially impair the trail because these structures would be elevated above the trail. However, the SR-57 off-ramp to Metropolitan Drive/The City Drive and the west end of the Pacific Electric Arterial bridge (but not the elevated east end) would each sever the Santa Ana River unless grade separations are provided at the new crossings. (Bicycles, pedestrians, and equestrians would not be allowed within the right-of-way of the new roadways, so they would not be able to cross, even at grade.) This would also be a potentially substantial visual impact. Mitigation is proposed in Section 4.10 to vertically re-align the trail at both of these locations to provide grade separations and allow continued and full use of the Santa Ana River Trail/Bikeway once construction is completed.

Santiago Creek Trail (Santa Ana and Orange). The Full Build Alternative would have minimal impact on the class I and II Santiago Creek Trail. As part of the proposed improvements within this segment, there would be a slight widening of the SR-22 bridge deck where it crosses the trail. A small amount of vegetation would be removed, but these physical changes would have a minimal visual impact. There would be continual use of this facility with a detour.

Pacific Electric Right-of-Way Trail. The Full Build Alternative would preclude the use of the former Pacific Electric right-of-way as a class I trail, as proposed in the City of Santa Ana Circulation Element of their General Plan

Thresholds of Significance for CEQA:

- Preclusion of the Pacific Electric right-of-way trail and break in continuity of Santa Ana River Trail

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Santa Ana River Trail and Bikeway (Santa Ana). The (Enhanced) Reduced Build Alternative would include widening of the SR-22 bridge deck at this class I trail and bikeway, and two new structures crossing the trails (northbound I-5/southbound SR-57 connector to westbound SR-22 and the new Metropolitan Drive/The City Drive off-ramp from the southbound SR-57). The Santa Ana River Trail and Bikeway are completely separated from vehicular traffic. The SR-57 off-ramp to Metropolitan Drive/The City Drive would sever the Santa Ana River Bikeway and Trail, unless grade separations are provided at the new crossing. (Bicycles, pedestrians and equestrians would not be allowed within the right-of-way of the new roadway, so they would not be able to cross, even at grade.) The residual impacts would be less than significant with mitigation incorporated.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to trails.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts to trails.

3. FULL BUILD ALTERNATIVE

Santa Ana River Trail/Bikeway (Santa Ana). The Full Build Alternative would include widening of the SR-22 bridge deck at this class I trail and bikeway, two new structures crossing the trails (northbound I-5/southbound SR-57 connector to westbound SR-22 and the

new Metropolitan Drive/The City Drive off-ramp from the southbound SR-57), and another new structure crossing the trail carrying the Pacific Electric Arterial. The severance of the Santa Ana River Trail/Bikeway would be a potentially significant visual impact.

Pacific Electric Right-of-Way Trail. The Full Build Alternative would preclude the use of the former Pacific Electric right-of-way as a class I trail, as proposed in the City of Santa Ana Circulation Element of their General Plan. The Santa Ana River trail would have grade separations to maintain the trail's continuity. The residual impacts would be less than significant with mitigation incorporated.

A full discussion of impacts of the Full Build Alternative on the Pacific Electric right of way and continuity of the Santa Ana River Trail/Bikeway is in the August 2001 DEIR/EIS.

4.10.3 SCHOOLS WITH RECREATIONAL FACILITIES

The impacts to schools with recreational facilities within the proposed project area are discussed below. Analysis is given even though the stated schools' recreational facilities are not generally open to the public. All districts within the study area have closed campus policies, with use of campus facilities only available by permission of school officials.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

A complete discussion of schools affected by the (Enhanced) Reduced Build Alternative can be found in Section 4.6.5 of this document.

Bolsa Grande High School (Garden Grove). The (Enhanced) Reduced Build Alternative would not require any Bolsa Grande High School property for right-of-way.

Jordan Intermediate School/Jordan Secondary Learning Center (Garden Grove). The (Enhanced) Reduced Build Alternative would not require right-of-way at Jordan Intermediate School, and visual impacts would be minimal.

Excelsior Elementary School (Garden Grove). Impacts to this elementary school would be minimal. No right-of-way would be needed at this site.

Sunnyside Elementary School (Garden Grove). Located north of SR-22, this elementary school has distant views of SR-22. The site is separated by the parking lots of car dealerships. Visible physical changes at this location would be minor reductions in landscaping. This would result in minimal visual impact to the school. Noise levels would not increase beyond the FHWA/Department criteria.

Dwight D. Eisenhower Elementary School (Garden Grove). Eisenhower Elementary School is currently separated from SR-22 by a noise barrier and vegetation. A full discussion of impacts at all of these schools by the (Enhanced) Reduced Build Alternative is in the August 2001 DEIR/EIS, under "Reduced Build Alternative."

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Because the No Build Alternative would not include construction, except as addressed in previous environmental documents, there would be no impacts to recreational facilities at schools related to this alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts to recreational facilities at schools.

3. FULL BUILD ALTERNATIVE

This alternative would not require right-of-way at any of the following schools' recreational facilities: Bolsa Grande High School, Excelsior Elementary School, Jordan Intermediate School/Jordan Secondary Learning Center, Sunnyside Elementary School, Dwight D. Eisenhower Elementary School (Garden Grove), Fairhaven Elementary (Santa Ana), Spurgeon Intermediate School (Santa Ana).

A full discussion of impacts at schools throughout the project area by the Full Build Alternative is in Section 4.10 of the August 2001 DEIR/EIS.

4.10.4 MITIGATION MEASURES

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

PAR-(E)RB-1. At all crossings of the Santa Ana River trail, grade separations for the trail will be provided in order to maintain its continuity.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

PAR-FB-1. At all crossings of the Santa Ana River trail and bikeway, grade separations will be provided in order to maintain the trail's continuity.

4.10.5 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None

3. FULL BUILD ALTERNATIVE

Because the Full Build Alternative would preclude the class I trail proposed by the City of Santa Ana for the former Pacific Electric right-of-way, and because no mitigation is available to prevent this impact, an impact to this proposed trail would remain after mitigation.

Substantial visual impacts would remain after mitigation at the following parks and recreation resources: Pacific Electric Commemorative Area and Willowick Municipal Golf Course. See Section 4.13.

4.11 UTILITIES

This section includes discussions of impacts and mitigation measures related to utilities in the study area. This section will focus primarily on the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. Some of the modifications in this section include more narrowly defined impacts to utility services, as compared to the August 2001 DEIR/EIS, Utility Section 4.11. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

4.11.1 Alternatives

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would not require new or expanded utility services. In the August 2001 DEIR/EIS, an inclusive list of all potential utility relocations was provided (August 2001 DEIR/EIS, Table 4.11-2). Due to additional planning efforts and refined engineering, these potential relocations have been reduced to the three locations identified below. The final selection of utility relocations will be determined at the final design stage. The (Enhanced) Reduced Build Alternative is located within a developed area with adequate existing utility services. Two Southern California Edison (SCE) substations and one ductbank have been identified for partial acquisition. The two power substations and one ductbank are located in the City of Orange at the following locations:

1) Two overhead SCE 138 kV High Voltage Transmission circuits are on separate lattice towers which cross the SR-22 Freeway west of Hoover Street. The existing transmission cables associated with both systems are directly above the location of the proposed westerly bridge abutments for the SR-22 widening, therefore, vertical clearances below the high voltage conductors are extremely limited and must be carefully considered by the Design Contractor;
2) An overhead SCE 66 kV High Voltage Transmission system on steel poles crosses above the SR-22 Freeway along the east side of Yockey Street. The existing steel poles are located just outside the SR-22 right-of-way, where the bridge is proposed to be widened in the eastbound and westbound lanes;
3) SCE operates an underground high voltage ductbank north of the SR-22 and west of The City Drive, within Metropolitan Dr., which will be re-aligned to accommodate the new southbound SR-57 to westbound SR-22 on-ramp.

Since the two substations and one ductbank are greater than 50,000 kV, they will be subject to the Public Utilities Commission (PUC) General Order No. 131-D. This Rule and subsequent sections are applied to the planning and construction of electric generation, transmission/power/distribution line facilities, and substations located in California.

Compliance with Sections X (EMF) and XI (Notice) of General Order No. 131-D will be needed as part of the Permit to Construct request. Compliance with Section IX (Transmission Line Facilities of 200 kV and Over) is specifically exempted under Section III B(f). Under Section X (Potential Exposure to Electric and Magnetic Fields (EMF)), the following must be adhered to at the Design Stage:

Section X-A. Application for CPCN or Permit to Construct

Applications for a CPCN (Permit to Construct) shall describe the measures taken or proposed by the utility to reduce the potential exposure to electric and magnetic fields generated by the proposed facilities, in compliance with Commission order. This information may be included in the Proponent's Environment Assessment (PEA) required by Rules of Practice and Procedure 17.1.

Section X-B. EMF Technical Assistance

The EMF education program administered by the California Department of Health Services for regulated electric utility facilities, established in Investigation (I.) 9 l-01-012, is available to provide independent information about EMF to local government, other state agencies, and the public to assist in their consideration of the potential impacts of facilities proposed by electric utilities. Local government and the public should first contact their public health department.

Section XI-B Power Line Facilities between 50kV and 200kV and Substations Designed to Operate Over 50kV

The utility shall give notice of the construction of any power line facilities or substations between 50 kV and 200 kV deemed exempt pursuant to Section III herein, not less than 30 days before the date when construction is intended to begin by:

1. Direct mail to the planning director for each county or city in which the proposed facility would be located and the Executive Director of the Energy Commission; and
2. Advertisement, not less than once a week, two weeks successively, in a newspaper or newspapers of general circulation in the county or counties in which the proposed facility would be located, the first publication to be not later than 45 days before the date when construction is intended to begin; and
3. By posting a notice on-site and off-site where the project would be located; and
4. Filing an informational advice letter with the CACD in accordance with General Order 96-A, which includes a copy and distribution list of the notices required by items 1-3 herein. On the same day, a copy of the advice letter must be delivered to the CPUC Public Advisor.

The existing SCE Lampson substation is located on the north side of SR-22 west of Lewis Street. The substation is fed from 66kv overhead conductors on wood poles located along the east side of Lewis Street south of and crossing SR-22 to the SCE substation, whose southerly property line is adjoined with the existing SR-22 right-of-way line. There are four steel poles along the north side of SR-22 supplying the 66-kV feed to the substation that will be impacted by the SR-22 widening. The length of the 66-kV relocation could exceed 400 meters.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative assumes that no improvements would be made to the existing area beyond those already planned and approved. Therefore, negligible impacts to utility use or availability would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include only minor construction. There would be negligible impacts to utilities.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not require new or expanded utility services.

Thresholds of Significance for CEQA:

- Disruption of utility service or damage to utilities

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would not require new or expanded utility services. The alternative is located within a developed area with adequate existing utility services.

Improvements proposed by the (Enhanced) Reduced Build Alternative would result in utility relocations where utilities conflict with widening of the freeways, improvements of interchanges, and construction activities. Utilities could be temporarily or permanently relocated. Relocations could result in short-term service interruptions, although with standard construction practices, such interruptions would be minimal. Relocations and construction easements would be identified during final design, and the appropriate utility companies would be contacted prior to construction activities. These minimal impacts would be less than significant.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to utility use or availability.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include only minor construction. There would be no impacts to utilities.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not require new or expanded utility services. The alternative is located within a developed area with adequate existing utility services. The only exception is in the proposed arterial in the former Pacific Electric right-of-way. For this new street, electricity, irrigation water, and stormwater drainage would need to be provided. There is adequate capacity in adjacent areas to serve these needs.

Improvements proposed by the Full Build Alternative would result in utility relocations where utilities conflict with widening of the freeways, improvements of interchanges, development of the arterial, and construction activities. As previously discussed, relocations of utilities could result in short-term service interruptions, although with standard construction practices, such interruptions would be minimal. These minimal impacts would be less than significant. Refer to Section 4.11.3 for discussions on the potential protection-in-place locations with the Full Build Alternative.

4.11.2 Mitigation

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

UTI-(E)RB-1. The project will comply with the standard construction practices and procedures as required by the Department for relocation and protection of existing utilities, including the Department's Policy on High- and Low-Risk Underground Facilities within Highway Rights-of-way.

UTI-(E)RB-2. The project will comply with the provisions of PUC General Order No. 131-D, pertaining to the planning and construction of electric generation, transmission/power/distribution line facilities and substations located in California. During the release of the DEIR/EIS for public

review/comments, the California Public Utilities Commission was notified, and received a copy of the DEIR/EIS document.

UTI-(E)RB-3. Prior to start of construction, a set of signed, final plans will be made available to affected utility surveyors in order to identify underground facilities and provide design alterations.

UTI-(E)RB-4. Designers will provide "signed" final plans and subsequent revisions to the Southern California Gas Company. A minimum of 12 weeks is required to analyze the plans and design alterations due to conflicting facilities. Upon request, at least two days prior to the start of construction, the Southern California Gas Company will mark underground facilities at no cost.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would not require new or expanded utility services. The alternative is located within a developed area with adequate existing utility services. The only exception is in the proposed arterial in the former Pacific Electric right-of-way. For this new street, electricity, irrigation water, and storm water drainage would need to be provided. There is adequate capacity in adjacent areas to address these needs.

The mitigation measures listed above for the Preferred Alternative/(Enhanced) Reduced Build Alternative also apply to the Full Build Alternative.

4.11.3 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFEERED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Less than substantial.

4.12 HAZARDOUS MATERIALS AND/OR WASTE

The information contained in this section is based on the *SR-22 West Orange County Connection (SR-22/WOCC) Initial Site Assessment (ISA)* and the *ISA Reduced Build Alternative Addendum* (June 2000) and the Supplemental ISA (Enhanced) Reduced Build Alternative (December 2002), all of which are available under separate cover at the Department and OCTA. These technical studies identify potential contaminant sources adjacent to and within the project area that may have an impact on proposed improvements. This section includes discussions of impacts and possible mitigation measures related to hazardous materials and/or waste in the study area, and will focus primarily on the identified Preferred Alternative, (Enhanced) Reduced Build Alternative.

As a result of more detailed survey engineering plans, two Southern California Edison substations have been identified as partial acquisitions for both the (Enhanced) Reduced Build and the Full Build alternatives (See Table 4.6-8 and 4.6-16. The two substations have been analyzed and there are no hazardous waste issues associated with them.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. The added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial to Hazardous Materials and/or Waste. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

4.12.1 SOURCE OF CONTAMINATION

There are several ways in which a project can be affected by or cause impacts related to hazardous materials and waste:

First, previously identified hazardous materials or waste may lie within the path of construction, potentially exposing construction workers or the general public to impacts. These previously identified sites may include:

- Contaminated soil, either from intentional dumping or accidental spills or leaks
- Above-ground or underground storage tanks, pipes, reservoirs, etc., some of which may be leaking
- Debris or other above-ground or underground materials from an existing or previous land use, including industrial sites, commercial businesses, or landfills
- Materials contained within structures scheduled for demolition (such as lead paint or asbestos)

Another source of potential impacts is encountering the above-listed contaminants in previously unidentified sites.

A third type of potential impacts relates to migration of hazardous materials or waste through soil and water. A project may place people in an area previously affected by migration from hazardous sites, or may change the soil or drainage conditions in such a way that migration from hazardous sites is altered, impacting previously unaffected sites. This can expose people on the project site or in other areas to hazards.

A fourth source of potential hazardous impacts is the potential for exposing people to naturally occurring hazardous materials such as radon or methane gas. Construction may either release these materials or cause them to become more concentrated; either condition may be hazardous.

During construction, some materials used in roadway construction may be hazardous. The use of these materials may result in impacts to the general public and to construction workers. During operation of the facility hazardous materials such as pesticides and cleaning materials may also be used.
Finally, hazardous materials that are being transported over the project roadways may be accidentally spilled (or intentionally dumped).

4.12.2 PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

A. POSSIBLE ACQUISITION SITES WITH IDENTIFIED HAZARDOUS WASTE

In the DEIR/EIS, it was indicated that the following two sites are considered potential contaminant sites and need to be investigated further. However, based on information received from the Orange County Health Care Agency, the corrective action was completed for one of these sites, Firestone store #71F6, and the case closure was granted. These two sites may be acquired for the project, pending project approval, funding and final design decisions. Note: The Arco service station at 13511 Euclid Avenue, Garden Grove, shown as an acquisition in the DEIR/EIS, would not be acquired under the (Enhanced) Reduced Build Alternative. This non-residential property was eliminated as an acquisition due to refined engineering, which led to more narrowly defined right-of-way limits for the project.

1) Former UNOCAL 76 Service Station #5618

This property, located at 591 The City Drive in the City of Orange, may be fully acquired. This site was a UNOCAL service station and currently is a paved vacant lot with 17 monitoring wells on site. Based on the Santa Ana Regional Water Quality Control Board's (SARWQCB) records for this site, the groundwater beneath the site is contaminated due to leaking underground fuel tanks. Several phases of assessment and remedial activities have been conducted at the site. The property is currently subject to groundwater monitoring by the SARWQCB through August 2003.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned before it can be transferred. However, if the site is not remediated before it is transferred to the Department for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil related to prior unauthorized release
- Contamination of nearby properties, surface water or groundwater during removal of underground storage tanks and associated pipes

See Figures 4.12-1 and 4.12-2 on the following page for photos of Former UNOCAL 76 Service Station #5618.

Figure 4.12-1
Former UNOCAL 76 Service Station, view looking South, SR-22 can be seen in the background.

Figure 4.12-2
Former UNOCAL 76 Service Station, view looking East

2) Firestone Store #71F6

This property, located at 3400 Metropolitan Drive in the City of Orange, may be partially acquired. This site was a Firestone Tire Store and is currently abandoned. See figures 4.12-3 and 4.12-4 to view photos of this location. Database records for this site indicate that there was an unauthorized release of petroleum products. Due to tank leakage, the soil beneath the site was contaminated. According to the Orange County Health Care Agency, the clean up of the impacted soil and mitigation process has been completed.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned before it can be transferred. However, if the site is not remediated before it is transferred to the Department for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil related to prior unauthorized release
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes.

Figure 4.12-3
Firestone Store, North Elevation View

Figure 4.12-4
Firestone Store, South Elevation View

B. ACQUISITION SITES WITH PREVIOUSLY UNIDENTIFIED HAZARDOUS WASTE

There are five potential residential displacements and nine potential non-residential displacements included in the (Enhanced) Reduced Build Alternative (see Section 4.6). These properties may be acquired for the project, pending project approval, funding and final design decisions. Some of these structures may contain asbestos or lead-based paint. Inhalation of asbestos fibers can have serious health effects. It can cause asbestosis, a scarring of the lungs that leads to breathing problems and heart failure. Inhalation of asbestos can also cause lung cancer and mesothelioma, a rare cancer of the lining of the chest and abdomen. Lead poisoning can cause reduced intelligence, behavioral problems, learning disabilities and permanent brain damage (HUD, 2000). During demolition of structures containing these materials, construction workers may be exposed to these types of hazards.

There is a potential that unidentified hazardous material and waste sites within the study area may affect the (Enhanced) Build Alternative. Although state and federal records were checked, it is possible that some sites are not yet listed. There is also a potential for spills or discharges of hazardous materials that have not been reported. In addition, the soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with lead from vehicle emissions (known as aerially deposited lead or ADL). Any of these unknown hazardous materials or wastes could affect construction workers and/or the general public if exposed during construction.

C. MIGRATION OF HAZARDOUS WASTE

In addition to the potential acquisition sites with previously identified or unidentified hazards that are located within the construction area for the (Enhanced) Reduced Build Alternative, there is a potential for the migration of hazardous materials to the construction site. Disturbance of the ground surface can result in changes in migration of contaminants from on-site to off-site, from off-site to on-site, or across the site. Table 4.12-1 lists sites within the study area associated with the (Enhanced) Reduced Build Alternative that may have contamination that could potentially migrate.

Table 4.12-1
NON-ACQUISITION SITES ASSOCIATED WITH THE (ENHANCED) REDUCED BUILD ALTERNATIVE THAT MAY HAVE CONTAMINATION THAT MAY MIGRATE

Site Name	Address	Site Status
Arco (former Thrifty Oil)	13511 Euclid Avenue, Garden Grove, CA	This well-kept site, adjacent to the alignment, is an acquisition property, which has had an unauthorized release of product from an UST. Existing files were unclear regarding the current status of remediation.
1-Day Paint and Body	13612 Harbor Boulevard, Garden Grove, CA	This moderately kept site, adjacent to the alignment, is a RCRA generator (large).
Continental Mfg Systems (former)	13331 Garden Grove Boulevard, Garden Grove, CA	This moderately kept site, on the alignment, is a RCRA generator (small).
Exxon Service Station #3792	13681 Magnolia Street, Garden Grove, CA	This well-kept site, adjacent to the alignment, (under construction/ excavation) has a LUST.
Mai's Auto	13631 Harbor Boulevard, Garden Grove, CA	This unorganized site, adjacent to the alignment, is a RCRA generator (large) and has containers and drums on the site.
Nevada Investment Holdings (former)	13881 Brookhurst Street, Garden Grove, CA	This well-kept site, adjacent to the alignment, has a LUST.
OCTA Base 4	11790 Cardinal Circle, Garden Grove, CA	This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST, well casing/heads, a pump, and a large propane tank on the site.
Shell Service Station	13642 Euclid Street, Garden Grove, CA	This moderately kept site, adjacent to the alternative, is a RCRA generator (large) and has a LUST, containers, drums and well casing/heads on the site.
Smith Kline Beecham(former) Currently is Bromar Inc.	13272 Garden Grove Boulevard, Garden Grove, CA	This moderately kept site, on the alignment, is a RCRA generator (small).
Todd Pipe & Supply	13591 Harbor Boulevard, Garden Grove, CA	This well-kept site, adjacent to the alignment, has a LUST and containers on the site.
Unocal Service Station #6355	12139 Trask Avenue, Garden Grove, CA	This vacant lot, adjacent to the alignment, has a LUST.
Slide Master (former)	1111 Town & Country Road, Orange, CA	This well-kept site, adjacent to the alignment, is a RCRA generator (large).
Arco (former Thrifty Oil)	2940 Bristol Street, North, Santa Ana, CA	This well-kept site, adjacent to the alignment, is an acquisition property. Existing files were unclear regarding the current status of remediation, however did show record of a waste oil tank removal in 1988.
GTE - Alamitos Central Office	2400 Beverly Manor Road, Seal Beach, CA	This moderately kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST.
Chevron (former)	13102 Goldenwest Street, Westminster, CA	This vacant lot, adjacent to the alignment, has a LUST.
Harley Davidson Westminster	13031 Goldenwest Street, Westminster, CA	This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has drums on the site.
Joe's Quality Cleaners	13079 Springdale Street, Westminster, CA	This unorganized site, adjacent to the alignment, is a RCRA generator (large).

Table 4.12-1 (continued)
NON-ACQUISITION SITES ASSOCIATED WITH THE (ENHANCED) REDUCED BUILD ALTERNATIVE THAT MAY HAVE CONTAMINATION THAT MAY MIGRATE

Site Name	Address	Reason for Concern
Orange Gate Investors	5455 Garden Grove Boulevard, Westminster, CA	This well-kept site, adjacent to the alignment, has a LUST.
Sunset Ford	5440 Garden Grove Boulevard, Westminster, CA	This well-kept site, adjacent to the alignment, has a LUST and is a RCRA generator.

D. NATURALLY OCCURRING HAZARDOUS MATERIALS

There is a potential for naturally occurring materials such as radon and methane to surface as a result of the (Enhanced) Reduced Build Alternative. Disturbing the ground for the construction of the (Enhanced) Reduced Build Alternative may release radon and methane gases in the area. Exposure to these materials could threaten the health of people in the vicinity of the project, especially those working on it.

E. MATERIALS USED IN CONSTRUCTION AND MAINTENANCE

There may be hazardous materials used in the construction of the (Enhanced) Reduced Build Alternative. Because this alternative includes construction of roadway and connectors, a number of materials that may be hazardous may be used, including paving materials, chemicals and paints. During operation, pesticides and herbicides may be used in landscape maintenance. These materials may be a health threat to those people working on the project as well as others in the vicinity.

F. TRANSPORT OF HAZARDOUS MATERIALS

The (Enhanced) Reduced Build Alternative would not increase traffic volumes, but may relocate them. It would not generate hazardous materials or wastes that would require transport so it would not increase the risks related to transport of these materials. Inasmuch as the (Enhanced) Reduced Build Alternative improves roadway efficiency, accidents (including those involving transported hazardous materials) would be expected to decrease.

4.12.3 OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative assumes that no improvements would be made to the existing area beyond those already planned and approved. There would be no hazardous waste impacts resulting from the No Build Alternative beyond those addressed in previous environmental documents.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Since the TSM/Expanded Bus Service Alternative would not include any construction on SR-22, there would be negligible impacts related to hazardous materials and wastes.

3. FULL BUILD ALTERNATIVE

A. ACQUISITION SITES WITH PREVIOUSLY IDENTIFIED HAZARDS

There are five properties that may be acquired for the Full Build Alternative that are contamination sites. Two of those properties are listed in the (Enhanced) Reduced Build Alternative, Sec. 4.12.1A.

1) Arco (formerly Thrifty Oil), 13511 Euclid Avenue, Garden Grove. This well-kept site would be acquired to allow widening of SR-22. Database records indicate that there was an unauthorized release of a product from an underground storage tank. The records are unclear as to the current status of remediation. Figure 4.12-5 shows this site.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil related to prior unauthorized release

Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes.

Figure 4.12-5
Arco, 13511 Euclid Avenue, Garden Grove

2.) Arco (formerly Thrifty Oil), 2940 North Bristol Street, Santa Ana. This well-kept site would be acquired to allow widening of SR-22 and improvements to the Bristol Street/La Veta Avenue eastbound off-ramp. Database records indicate that a waste oil tank was removed in 1988. The records are unclear as to the current status of remediation. Figure 4.12-6 shows this site.

Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is

transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank
- Exposure to previously contaminated soil
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes

Figure 4.12-6
Arco, 2940 North Bristol Street, Santa Ana

3.) Orange County Transportation Authority (OCTA) Base 4, 11790 Cardinal Circle, Garden Grove. This well-kept site would be acquired to provide for right-of-way for the Pacific Electric Arterial and its interchange with the SR-22. Database records indicate that the site is a RCRA generator (large) and has a LUST, well casing/heads, a pump, and a large propane tank on the site. This property is a partial acquisition. The portion of the property that would be acquired is currently used for parking. Figure 4.12-7 shows this site.

Figure 4.12-7
OCTA, 11790 Cardinal Circle, Garden Grove

Right-of-way for the Pacific Electric Arterial would require acquisition of a portion of this property that is currently used for parking. This area is separate from where hazardous materials are stored and handled. If the parcel for the property were to be split, it would be possible to avoid the area with hazardous materials.

If the whole site were acquired, remediation would be required at the site. Generally, site remediation is the responsibility of the current owner and the property must be cleaned up before it can be transferred. However, if the site is not remediated before it is transferred to Caltrans for use as right-of-way, impacts to construction workers and/or the public could occur. These impacts could include:

- Exposure to hazardous building materials during demolition (asbestos, lead-based paint, etc.)
- Exposure to hazardous materials/wastes during removal of underground storage tank and propane tank
- Exposure to previously contaminated soil
- Contamination of nearby properties, surface water, or groundwater during removal of underground storage tanks and associated pipes

B. ACQUISITION SITES WITH PREVIOUSLY UNIDENTIFIED HAZARADOUS WASTE

There are 189 residential displacements (128 of which are in multi-family buildings) and 35 non-residential displacements included in the Full Build Alternative (see Section 4.6). Some of these structures may contain asbestos or lead-based paint. Asbestos fibers can have serious health effects if inhaled. It can cause asbestosis, a scarring of the lungs that leads to breathing problems and heart failure. Inhalation of asbestos can also cause lung cancer and mesothelioma, a rare cancer of the lining of the chest and abdomen lining. Lead poisoning can cause reduced intelligence, behavioral problems, learning disabilities, and permanent brain damage (HUD, 2000). During demolition of structures containing these materials, construction workers may be exposed to these types of hazards.

There is a potential that unidentified hazardous material and waste sites within the study area may affect the Full Build Alternative. Although state and federal records were checked, it is possible that some sites may not yet be listed. There is also a potential for there to be spills or discharges of hazardous materials that have not been reported. In addition, the soil in unpaved areas next to the traffic lanes or shoulders might be contaminated with lead from vehicle emissions (known as aerially deposited lead or ADL). Any of these unknown hazardous materials or wastes could affect construction workers and/or the general public if exposed during construction.

C. MIGRATION

In addition to identified and unidentified sites located within the construction area for the Full Build Alternative, there is also the potential for the migration of hazardous materials to the construction site. Disturbance of the ground surface can result in changes in migration of contaminants from on-site to off-site, from off-site to on-site, or across the site. Table 4.12-1 lists the number of sites within the study area associated with the Full Build Alternative that potentially may have contamination that may migrate.

Table 4.12-2
NON-ACQUISITION SITES ASSOCIATED WITH THE FULL BUILD ALTERNATIVE THAT POTENTIALLY MAY HAVE CONTAMINATION THAT MAY MIGRATE

Site Name	Address	Site Status
1-Day Paint and Body	13612 Harbor Boulevard, Garden Grove, CA	This moderately kept site, adjacent to the alignment, is a RCRA generator (large).
Best Metal Polishing	13782 A Better Way, Garden Grove, CA	This moderately kept site, adjacent to the alignment, has a LUST
Cay's Sewing	11611 Salinaz Drive, Garden Grove, CA	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
Continental Mfg Systems (former)	13331 Garden Grove Boulevard, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
CSL Sportswear	13841 West Street, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
Exxon Service Station #3060	13512 Euclid Street, Garden Grove	This well-kept site, adjacent to the alignment, is a UST site
Exxon Service Station #3792	13681 Magnolia Street, Garden Grove	This well-kept site, adjacent to the alignment, (under construction/ excavation) has a LUST.
Filong Auto Body	13812 West Street, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
H-Auto Dismantling	13781 West Street, Garden Grove	This well-kept site, adjacent to the alignment, has a LUST and containers on the site.
J&F Machining (former), currently is South Coast Bobcat	13821 West Street, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
Mai's Auto	13631 Harbor Boulevard, Garden Grove, CA	This unorganized site, adjacent to the alignment, is a RCRA generator (large) and has containers and drums on the site.
Mobil Service Station #18-GX7	13172 Garden Grove Blvd, Garden Grove	This well-kept site, adjacent to the alignment, is a UST site
Nevada Investment Holdings (former)	13881 Brookhurst Street, Garden Grove, CA	This well-kept site, adjacent to the alignment, has a LUST.
PL Sunrise	13832 West Street, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
Pool Water Products (PWP)	11572 Salinaz Drive, Garden Grove	This moderately kept site, adjacent to the alignment, is a RCRA generator (small).
Seal Black Company Inc.	13182 A Better Way, Garden Grove	This unorganized site, adjacent to the alignment, is an ERNS site and has a LUST.
Shell Service Station	13642 Euclid Street, Garden Grove, CA	This moderately kept site, adjacent to the alternative, is a RCRA generator (large) and has a LUST, containers, drums and well casing/heads on the site.
Smith Kline Beecham(former) Currently is Bromar Inc.	13272 Garden Grove Boulevard, Garden Grove, CA	This moderately kept site, on the alignment, is a RCRA generator (small).
Todd Pipe & Supply	13591 Harbor Boulevard, Garden Grove, CA	This well-kept site, adjacent to the alignment, has a LUST and containers on the site.

Table 4.12-2 (continued)
NON-ACQUISITION SITES ASSOCIATED WITH THE FULL BUILD ALTERNATIVE THAT POTENTIALLY MAY HAVE CONTAMINATION THAT MAY MIGRATE

Site Name	Address	Site Status
Unocal Service Station #6355	12139 Trask Avenue, Garden Grove, CA	This vacant lot, adjacent to the alignment, has a LUST.
Unocal Service Station #4872	13152 Garden Grove Blvd., Garden Grove	This well-kept site, adjacent to the alignment, is a UST site
Shell Station 204-5664-1008	889 South Tustin/Fairhaven, Orange	This well-kept site, adjacent to the alignment, is a RCRA generator (large).
Slide Master (former)	1111 Town & Country Road, Orange, CA	This well-kept site, adjacent to the alignment, is a RCRA generator (large).
Auburn Brass Inc.	2501 5th Street, West, Santa Ana	This well-kept site, adjacent to the alignment, is a RCRA generator (large).
Chemlink Petroleum Company	2310 West Cape Cod Way, Santa Ana	This well-kept site, adjacent to the alignment, is a RCRA generator (Small).
Nuart Signmakers (former)	2317 2nd Street West, Santa Ana	This moderately kept vacant site, has a LUST.
Santa Ana Auto & Transmission	625 N. Fairview Street, Santa Ana	This moderately kept site, is a RCRA generator (small)
Santa Ana Electric Motors	2225 2nd Street West, Santa Ana	This moderately kept site, is a RCRA generator (large)
Shell Station 204-6936-2303	1220 E. Fairhaven Avenue, Santa Ana	This former service station lot, is now empty and is a RCRA generator (large)
Tri Level Inc.	2341 W. Cape Cod Way, Santa Ana	This well-kept site, adjacent to the alignment, is a RCRA generator (small).
GTE - Alamitos Central Office	2400 Beverly Manor Road, Seal Beach, CA	This moderately kept site, adjacent to the alignment, is a RCRA generator (large) and has a LUST.
Chevron (former)	13102 Goldenwest Street, Westminster, CA	This vacant lot, adjacent to the alignment, has a LUST.
Harley Davidson Westminster	13031 Goldenwest Street, Westminster, CA	This well-kept site, adjacent to the alignment, is a RCRA generator (large) and has drums on the site.
Joe's Quality Cleaners	13079 Springdale Street, Westminster, CA	This unorganized site, adjacent to the alignment, is a RCRA generator (large).
Orange Gate Investors	5455 Garden Grove Boulevard, Westminster, CA	This well-kept site, adjacent to the alignment, has a LUST.
Sunset Ford	5440 Garden Grove Boulevard, Westminster, CA	This well-kept site, adjacent to the alignment, has a LUST and is a RCRA generator.

D. NATURALLY OCCURRING HAZARDOUS MATERIALS

There is a potential for naturally occurring materials such as radon and methane to affect the Full Build Alternative. Disturbing the surface of the ground for the construction of the Full Build

Alternative may release radon and methane gases in the area. The Pacific Electric Arterial, in particular, is a potential concern for the Full Build Alternative because it would require a high level of ground preparation. Exposure to these materials could threaten the health of people in the vicinity of the project, especially those people working on the project.

E. MATERIALS USED IN CONSTRUCTION AND MAINTENANCE

There may be hazardous materials used in the construction of the Full Build Alternative. Because the Full Build Alternative includes construction of roadway, connectors, and the Pacific Electric Arterial, a number of materials that may be hazardous may be used. These materials may include paving materials, chemicals, and paints. During operation, pesticides and herbicides may be used in landscape maintenance. These materials may be a potential health threat to those people working on the project as well as others in the vicinity.

F. TRANSPORT OF HAZARDOUS MATERIALS

The Full Build Alternative would not increase traffic volumes, but may relocate them. It would not generate hazardous materials or wastes that would require transport (except those discussed above in E, Materials Used in Construction and Maintenance), so it would not increase the risks related to transport of these materials. In as much as the Full Build Alternative improves roadway efficiency, accidents, including those involving transported hazardous materials, would be expected to decrease.

4.12.4 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

HAZ-(E)RB-1. An Initial Site Assessment (ISA) will be conducted during project design to identify the potential contamination sources within the existing and proposed right of way that may have an impact on proposed improvements. The ISA process involves an environmental database search to identify regulated sites, a historical review to determine past operational and land uses of the site(s) and adjacent areas, and a site inspection to determine evidence of potential contamination. Based on the results of the ISA, the need for intrusive Site Investigation (SI) work can be better evaluated.

The SI process includes sampling and analysis of impacted soil or groundwater at the sites with the potential for encountering contamination during project activities. The SI may detect the presence of contamination, and it may provide preliminary estimates of the nature and extent of the contamination through sampling and analysis of soil and water. If necessary, the SI will indicate if there is a need for the remedial and clean up action.

Given the nature of the sites identified in the Initial Site Assessment, it is likely that some level of SI investigation will be required for acquisition properties. Because there are properties that are not subject to acquisition but are also potential contamination sources that could affect the project, it is probable that some level of SI work will be required within the project's right-of-way limits to evaluate potential impacts to the project from these off-site sources. In addition, it may be appropriate to perform some level of systematic groundwater sampling within areas where groundwater could be encountered during construction. Such sampling may be performed in conjunction with other SI efforts. Soil samples will be collected, tested and analyzed for lead contamination during the Plans, Specifications and Estimates (PS&E) stage of this project. The design consultant will conduct the lead investigation during the early stage of design. If lead contamination is found, the results/conclusions will be included in the PS&E package and the Resident Engineer's File by the design consultant.

There are many processes for mitigating hazardous materials impacts. The mitigation measures to be used must be determined during the SI process. If at any time in the design and

construction phases prescribed mitigation is not carried out, additional environmental documentation pursuant to NEPA and CEQA must be completed to disclose unmitigated impacts.

During construction, the contractor will implement procedures developed during the ISA/SI and supplemental environmental analysis. These may include implementation of a site-specific health and safety plan, site-specific contaminant management plans, removal of storage tanks, and a general construction contingency plan.

HAZ-(E)RB-2. A health and safety plan will be developed to guide all construction activities. A certified industrial hygienist will prepare the plan based on evaluations of the proposed construction activities and the potential hazards identified in the ISA/SI. The plan will contain specific procedures for encountering both expected and unexpected contaminants. The plan will prescribe safe work practices, contaminant monitoring, personal protective equipment, emergency response procedures and safety training requirements for the protection of construction workers and third parties. The health and safety plan will meet the requirements of 29 CFR 1910 and all other applicable federal, state and local regulations and requirements.

HAZ-(E)RB-3. A soils and groundwater contaminant management plan will be implemented during construction if the SI finds or suspects contamination. The plan will include procedures for contaminant monitoring and identification, temporary storage, handling, treatment and disposal of materials in accordance with applicable federal, state and local regulations and requirements.

HAZ-(E)RB-4. Removal of above-ground and underground storage tanks, if present, may also be required. All procedures for removing tanks, including sampling procedures, must be in accordance with all applicable federal, state, and local regulations. Old abandoned tanks that are not registered could possibly be present within the project limits. The contractor must be prepared to handle these types of tanks during construction, as described in the next mitigation measure.

HAZ-(E)RB-5. Before construction begins, a contingency plan will be in place to address such events as discovery of unidentified underground storage tanks, hazardous material(s), petroleum hydrocarbons, or hazardous or solid wastes during construction. This contingency plan will address underground storage tank decommissioning, field screening and material testing methods, mitigation and contaminant management requirements, and health and safety requirements for construction workers. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified and clean up coordinated with environmental agencies.

HAZ-(E)RB-6. All structures that would be demolished as part of construction will undergo an evaluation for the presence of asbestos-containing materials prior to demolition. The exact number and location of acquisitions will be identified during final design.

Sample collection procedures will be based on the Asbestos Hazard Emergency Response Act (AHERA) protocols and Environmental Protection Agency (EPA) guidelines. Surveys will be conducted following modified AHERA, Occupational Safety and Health Administration (OSHA) Asbestos Construction Standard, 29 CFR 926.1101, and applicable regulations under the federal National Emission Standard for Hazardous Air Pollutants (NESHAP). State and local regulations will be incorporated where applicable. An EPA/AHERA-certified building inspector will collect samples.

Standard procedures for surveys include:

- Initial facility walk-through
- Review of facility drawings for accuracy
- Identification of suspected asbestos-containing materials
- Collection of suspect material samples and placement into separate, sealed sample bags
- Assignment of a unique sample number

- Recording of data on sample bags and information on samples onto field notes
- Recording sample locations on plan drawings
- Decontamination of sampling tools after collection of each sample
- Delivery of samples to an accredited laboratory for analysis, accompanied by a completed chain of custody form

Laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) will analyze samples.

The samples will be analyzed using the following methods:

- EPA Interim Method for the Detection of Asbestos in Bulk Insulation Samples EPA 600/M4-82020 (December 1982)
- McCrone Research Institute's *The Asbestos Particle Atlas*

The samples will be analyzed using Polarized Light Microscopy (PLM) visual area estimation (VAE). Materials containing less than ten percent asbestos by PLM-VAE may be re-analyzed by PLM point counting. Additional treatment and tests may be used as required to accurately define the composition (i.e., washing, extractions, and transmission electron microscopy).

Classifications and determination of asbestos-containing material (ACM) is to be based upon all current regulatory information including NESHAP clarifications and multi-layered systems as published in the *Federal Register*.

HAZ-(E)RB-7. All structures that would be demolished as part of construction will also undergo an evaluation for the presence of lead-based paint (LBP) prior to demolition. The Resource Conservation Recovery Act (RCRA), 40 CFR 261, requires the generator of construction demolition waste to characterize the wastes to determine if they are “hazardous wastes” with special disposal requirements. If LBP is discovered, proper disposal procedures will be enacted.

HAZ-(E)RB-8. Any soil adjacent to existing highways to be disturbed during construction that will be reused will be tested for Aerially Deposited Lead (ADL). If the total lead concentration is less than or equal to 1496 milligrams per kilogram (mg/kg) (1496 ppm), the soil may be reused under the following circumstances:

If the soluble lead concentration is less than or equal to 0.5 mg/liter (using de-ionized water as a buffer) and the pH is greater than or equal to 5.0, the soil can be reused with the following restrictions:

- It must be placed 1.5 meters (five feet) above the high water-table mark; and
- It must be covered with 0.3 meter (one foot) of non-hazardous soil.

If the soluble lead concentration is less than 50 mg/liter (using de-ionized water as a buffer), the soil can be reused with the following restrictions:

- It must be placed 1.5 meters (five feet) above the high water-table mark; and
- It must be covered with pavement.

If the lead-contaminated soil does not meet these restrictions it cannot be reused and must be disposed of at a Class I disposal site.

HAZ-(E)RB-9. Areas prone to radon gas will be tested prior to demolition or construction operations for the project. The EPA recommends both long-term (90-day) and short-term (two-day) testing of structures to determine levels of radon gas. If hazardous levels of radon are found, measures will be taken to reduce risk.

HAZ-(E)RB-10. Areas prone to methane gas will be tested prior to demolition or construction operations for the project. If hazardous levels of methane are found, measures will be taken to reduce risk.

HAZ-(E)RB-11. Materials used in construction and maintenance of the project will be evaluated prior to use for their level of hazard. Manufacturer's directions and warnings will be followed during use. In addition, recommended appropriate safety equipment will be used for each material.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would require the same mitigation measures as listed above under (Enhanced) Reduced Build Alternative.

4.12.5 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Less than substantial.

C. FULL BUILD ALTERNATIVE

Less than substantial.

4.13 VISUAL RESOURCES

Information contained in this section is based on the *SR-22/West Orange County Connection Visual Impact Assessment* and the *Visual Impact Assessment Reduced Build Alternative Addendum* (December 2000), and the *Visual Impact Assessment Reduced Build Alternative (Revised) Addendum* (December 2002) (under separate cover). This section analyzes the potential impacts and mitigation measures to visual quality that would occur from implementation of the State Route 22/West Orange County Connection project. Detailed information for the TSM/Expanded Bus Service, Full Build, and Reduced Build Alternatives can be found in the August 2001 DEIR/EIS. However, a summary is provided in this document.

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. During the public comment period of the DEIR/EIS, the Department received numerous comments from residents in the Community of Rossmoor as well as from residents in the City of Seal Beach. The residents from these areas were concerned with the potential visual impacts as a result of the implementation of the I-405/605 direct HOV connector. To address this issue, additional analyses were prepared to determine the impacts from the I-405/605 direct HOV connector. The findings for this analysis as well as discussions of visual impacts to other portions of the SR-22 corridor are discussed in this section. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

The I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the alignment as shown in the August 2001 DEIR/EIS of the proposed connector structure occurred at approximately 29 meters high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one preferred design solution has been identified that reduces the height of the HOV connector by shifting the alignment of the proposed HOV connector southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment shown in the FEIS/EIR is approximately 22 meters high where the connector crosses over the eastbound SR-22 connector (approximately 700 meters east of the previously identified peak elevation point). See Figures 2.2-1a,b, & c for more detail on the I-405/605 HOV connector realignment.

Note, Appendix F in Volume IV of this FEIS/EIR includes different viewpoints for the additional analysis of the I-405/605 HOV connector, as well as the replacement of the Pearce Street pedestrian overcrossing.

4.13.1 Visual Impacts at Key Viewpoints

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Suburban Landscape Unit. Figures 4.13-1 and 4.13-2 include photos of existing conditions and proposed simulations of how the key viewpoints for the Suburban Landscape Unit would appear under the (Enhanced) Reduced Build Alternative. These photos are further studies of the Suburban Landscape Unit that take into account the residents near the proposed I-405/I-605 HOV connector as well as the Pearce Street pedestrian overcrossing. The viewers are almost exclusively residents, and most of them are homeowners. Residents are among the most sensitive viewers to visual quality change. At the Suburban Key Viewpoint, there would be some visible changes along the entire route.

One of the visible changes would be the modified proposed HOV connector at I-405/I-605 as well as at I-405/SR-22. The I-405/605 HOV connector shown in Figure 4.13-2 is the modified connector (see discussions above). The realigned I-405/605 HOV connector height is reduced by shifting the alignment of the proposed HOV connector southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this

alignment shown in the FEIS/EIR is approximately 22 meters high where the connector crosses over the eastbound SR-22 connector (approximately 700 meters east of the previously identified peak elevation point).

The widening of SR-22 would cause few physical changes visible to the Suburban Landscape Unit. One visible change would be the Pearce Street pedestrian overcrossing across SR-22. The replacement Pearce Street pedestrian overcrossing proposed in this FEIS/EIR is ADA compliant, and would be approximately 110 meters and located east of the existing overcrossing. Since the facility is shifted east, there would be new views for those residents on the north and south side of SR-22 near the location of the replacement overcrossing. However, residents having views of the overcrossing at it's current location may lose view of it upon relocation further east on SR-22.

Another example of such a physical change along SR-22 would be the addition of soundwalls along the corridor. The HOV connector would have some impact to residents living next to the freeway due to the new views of the connector. As a whole, after project construction, vividness, intactness and unity are of moderate perceptual quality. With proper mitigation and enough right-of-way, the HOV connector may have a less than significant impact to the Suburban Landscape Unit. A minimum of thirty of feet setback from the edge of shoulder is required for tree planting on State right-of-way, per *Plant Setback Spacing Guide* (California Department of Transportation, January 1998).

View From the Freeway. Figures 4.13-3 & 4.13-4 contain photos of both existing conditions and proposed simulations of how the View From the Freeway would appear under the (Enhanced) Reduced Build Alternative. These photos are further studies of the View From the Freeway, which include various locations along the corridor. The simulation in Figure 4.13-2 is representative of the type of impacts that would occur throughout the (Enhanced) Reduced Build Alternative, with frequent removal of landscaping and additional pavement. Thus, this type of high and adverse visual impact would be common throughout the corridor. The loss of landscaping is further discussed in Section 4.13-5 of the DEIR/EIS of August 2001.

Existing Suburban Landscape Units:

Figure 4.13-1
These images represent the suburban landscape throughout the project area.

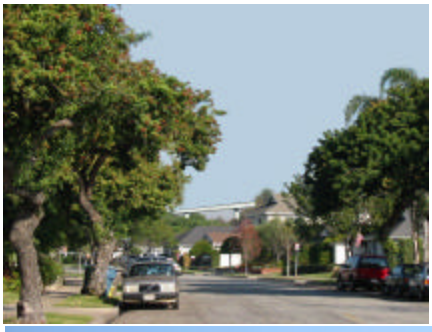
Image Perspectives:

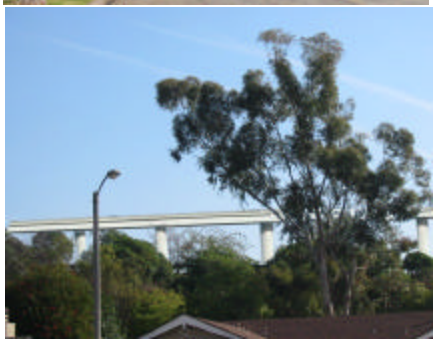
1. College Park Drive: East view
2. Yale Lane: East view
3. Harvard Lane: East view
4. College Park Drive: East View
5. Harvard Lane: North view
6. Yale Lane: North view
7. Pearce Street Overcrossing: view from Flagstone Place
8. Pearce Street Overcrossing: view from Pearce Street

SR-22 / West Orange County Connection Project

Proposed Suburban Key Views: (Enhanced) Reduce Build Alternative-
Figure 4.13-2
These images represent the new views from the residential neighborhood. The views below are taken on College Park Drive, looking north.

Existing **Proposed**





Existing **Proposed**

SR-22 / West Orange County Connection Project

Existing Views From The Freeway:
Figure 4.13-3
These images represent views along the Mainline of SR-22.

SR-22 / West Orange County Connection Project

Views From the Freeway: Proposed (Enhanced) Reduced Build Alternative: Figure 4.13-4
These images depict areas along the Mainline after construction.

Existing **Proposed**

Existing **Proposed**

SR-22 / West Orange County Connection Project

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative assumes that no improvements would be made to the existing area beyond those already planned and approved. No additional impacts at key viewpoints would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements at the key viewpoints. Negligible impacts at key viewpoints would occur.

3. FULL BUILD ALTERNATIVE

Suburban Landscape Unit. The Suburban Key Viewpoint exemplifies one of the most adverse visual impacts that would result from implementation of the Full Build Alternative. With the loss of homes and landscaping and the new direct views of freeway elements, vividness, intactness, and unity would be dramatically affected at this key viewpoint. Overall, visual quality would drop

from moderately high to low, a high level of adverse visual quality change. A full discussion of the visual impacts is in Section 4.13 of the DEIR/EIS, August 2001.

Open Landscape Unit. At the Open Key Viewpoint, physical changes after construction would include widening of the bridge and freeway, moving it closer to the viewer, removal of buildings on the far side of the Santa Ana River near the freeway, and removal of the billboard in this same location. These changes would result from the realignment and widening of the Bristol Street/La Veta Avenue off-ramp and the eastbound SR-22 connector to southbound I-5.

View from the Freeway The impacts to the View From the Freeway in the Full Build Alternative are the same as those of the (Enhanced) Reduced Build Alternative.

Thresholds of Significance for CEQA:

- Reduction of visual quality in residential neighborhoods from home loss and landscaping.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

With the (Enhanced) Reduced Build Alternative, which was developed to reduce impacts related to the removal of houses and landscaping, there would be relatively few areas where the visual impacts would significantly lower the visual quality in these residential neighborhoods. It is anticipated that the visual impacts to residential neighborhoods would be less than significant with proper mitigation and sufficient right-of-way.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impacts at key viewpoints.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements at the key viewpoints. No significant impacts at key viewpoints are anticipated to occur.

3. FULL BUILD ALTERNATIVE

With the loss of homes, landscaping and the new direct views of freeway elements, visual quality would be dramatically affected in residential neighborhoods. It is anticipated that there would be potentially significant impacts to visual quality in residential neighborhoods.

4.13.2 New Public Views

If a project provides access – physically or visually – to new areas, new public views are created. The potential for new views is provided below.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative includes primarily highway widening and alteration of existing interchanges. Some examples of new public views that may be created include the proposed I-405/I-605 HOV connector, the I-405/SR-22 HOV connector, the proposed soundwalls along the SR-22 corridor, and greater visibility of existing commercial businesses. These new views are from the freeway as well as of the freeway. Some of these views are anticipated to be potentially significant without proper mitigation.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. No new views would be created.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not create new views.

3. FULL BUILD ALTERNATIVE

New views would be provided for motorists using the arterial in the former Pacific Electric right-of-way. Currently, this right-of-way is not generally open to the public, and is often located at the back of parcels not visible to the public. From the new arterial, especially at locations where it is elevated, motorists would have a view of a variety of adjacent land uses. Much of the surrounding area is industrial and the views in this area would be mostly of the backs of these industrial properties. The view would also include the Willowick Golf Course and the Santa Ana River. In some areas, noise barriers would block views of the surrounding land uses.

Thresholds of Significance for CEQA:

- Reduction of visual quality related to views of the freeway
- Visual quality of the proposed I-405/I-605 direct HOV connector
- Reduction of visual quality related to views from the freeway

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

New views would be created due to the construction of sound barriers that will alter the views of drivers traveling on the freeway and will also create new views of the freeway for the public. The proposed HOV connectors at I-405/I-605 and at I-405/SR-22 will create new views from the freeway. The impacts may include new views from the freeway, the view of the HOV structure, and the limited views due to new soundwalls. The new views related to the (Enhanced) Reduced Build Alternative are anticipated to be significant without proper mitigation.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impacts to views of or from the freeway.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no significant impacts to views of or from the freeway.

3. FULL BUILD ALTERNATIVE

New views that are not currently visible to the public would be created throughout the proposed arterial on the former Pacific Electric right-of-way. Motorists would have a new view of the backs of parcels and a variety of adjacent land uses. The new views related to the Full Build Alternative are anticipated to be significant.

Impacts of the I-405/I-605 and I-405/SR-22 direct HOV connectors are the same as those of the (Enhanced) Reduced Build alternative.

4.13.3 Visual Impacts at Important Visual Resources

Important visual resources include areas where the visual environment is particularly important to the function of the land use. In the SR-22/West Orange County Connection study area, these include parks, recreational areas, trails and historic properties.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Table 4.13-1 lists the important visual resources where physical changes under the (Enhanced) Reduced Build Alternative would result in substantial visual impacts. As shown in the table, the result of the implementation of this alternative would be a decrease in visual quality at three of these resources. The DEIR/EIS originally indicated four resources; however, due to refined engineering, one resource (Almond Park) was avoided. At Garden Grove Park and Bolsa Grande High School, the removal of mature screening vegetation and its replacement with noise barriers would represent a substantial and adverse visual impact. The Santa Ana River Trail would be interrupted in up to two locations if grade-separated crossings were not provided. This impact would also affect the trail's use; the impact has been avoided with mitigation. (See Sections 4.10, 4.13, and 9.0.)

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. There would be no impacts to important visual resources.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include construction in the vicinity of important visual resources. There would be no impacts to important visual resources.

3. FULL BUILD ALTERNATIVE

Table 4.13-2, Impacts to Important Visual Resources, shows where physical changes under the Full Build Alternative would result in substantial visual impacts. As shown in the table, the result of the implementation of this alternative would be a decrease in visual quality at seven of these resources and the elimination of two others. Almond Park has been removed from this table due to refined engineering subsequent of the DEIR/EIS.

Thresholds of Significance for CEQA:

- Impacts to the continuity of trails

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The Santa Ana River Trail would be affected, interrupted in up to two locations if grade-separated crossings were not provided. This impact would also significantly affect the trail's use. Mitigation measures would reduce impacts to the trail to less than significant (see VIS-(E) RB-6).

Table 4.13-1
IMPACTS TO IMPORTANT VISUAL RESOURCES
(ENHANCED) REDUCED ALTERNATIVE

Important Visual Resource	Existing Visual Quality	Description of Visible Changes	Proposed Visual Quality
Parks			
Garden Grove Park	High	Removal of screening vegetation, including mature trees, to accommodate widening of SR-22; replacement with noise barrier, introducing a hard surface in place of landscaping.	Moderate
Trails			
Santa Ana River Trail	High	Widening of SR-22 overcrossing of trail. Two new structures crossing (and possibly interrupting) trail north of SR-22 (I-5/SR-57 connector to SR-22 and SR-57 to Metropolitan Drive off-ramp) – possibly interrupting trail.	If interrupted, low; also would impact use
Other Recreational Facilities			
Bolsa Grande High School	High	Removal of screening vegetation, including mature trees, to accommodate widening of SR-22; replacement with noise barrier, introducing a hard surface in place of landscaping.	Moderate

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impact to trails.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no significant impacts to trails.

3. FULL BUILD ALTERNATIVE

Trails would be affected in two locations. The Santa Ana River Trail would be interrupted in up to three locations if grade-separated crossings were not provided. The proposed Pacific Electric Trail would be precluded completely. Both of these impacts would be significant not just to their visual quality but also to their utility. However, if mitigation were implemented for the Santa Ana River Trail, the impacts to this resource would be less that significant (see VIS-FB-8).

Table 4.13-2
IMPACTS TO IMPORTANT VISUAL RESOURCES
FULL BUILD ALTERNATIVE

Important Visual Resource	Existing Visual Quality	Description of Visible Changes	Proposed Visual Quality
Parks			
Garden Grove Park	High	Removal of screening vegetation, including mature trees, to accommodate widening of SR-22; replacement with noise barrier, introducing a hard surface in place of landscaping.	Moderate
Eldridge Park	High	Removal of houses, with one across the street from the park, to accommodate realigned frontage road; resulting open space would be visible and might not be maintained.	Moderately high
Trails			
Santa Ana River Trail	High	Widening of SR-22 overcrossing of trail. Two new structures crossing (and potentially interrupting) trail north of SR-22 (I-5/SR-57 connector to SR-22 and SR-57 to Metropolitan Drive off-ramp) – potentially interrupting trail. New structure crossing (and potentially interrupting) trail for Pacific Electric Arterial. Removal of businesses and billboards visible from trail.	If interrupted, low; also would impact use
Pacific Electric Trail *(proposed)*	Moderate	Total displacement of proposed trail by Pacific Electric Arterial.	Not applicable; resource precluded
Other Recreational Facilities			
Bolsa Grande High School	High	Removal of screening vegetation, including mature trees, to accommodate widening of SR-22; replacement with noise barrier, introducing a hard surface in place of landscaping.	Moderate
Pacific Electric Railway Commemorative Area	Moderate	Removal of large amount of screening vegetation for widening of SR-22 and for Pacific Electric Arterial on-ramp.	Moderately low
Willowick Municipal Golf Course	High	New Pacific Electric Arterial in open space corridor adjacent to golf course; probably requirement for protective fencing to prevent wayward golf balls from landing in adjacent arterial; arterial would be elevated near eastern end of golf course.	Moderately high
Spurgeon Intermediate School	Moderate	New elevated Pacific Electric Arterial and Civic Center Drive off-ramp in open space corridor adjacent to school play areas; interrupting of view to additional agricultural open space north of right-of-way.	Moderately low
Cultural Resources			
Pacific Electric Santa Ana River Bridge	Moderately high	Removal of bridge.	Moderately high

Table 4.13-3
VISUAL POLICY DOCUMENTS APPLICABLE TO THE VIEWSHED

Agency	Documents
Orange County	• *Master Plan of Freeway and Transit Corridor Enhancements* (December 1995) • *Orange County Commuter Bikeways Strategic Plan* (May 1995) • *Resources Element of the Orange County General Plan* (April 1994)
Los Alamitos	• *Los Alamitos General Plan* (1980)
Seal Beach	• *Seal Beach General Plan – Scenic Highways Element* (1975) • *Seal Beach General Plan – Open Space/Recreation/Conservation Element* (October 1997)
Westminster	• *1996 General Plan* (March 1996)
Garden Grove	• *City of Garden Grove General Plan* (October 1995) • *Harbor Corridor Specific Plan* (April 1990)
Santa Ana	• *Revised Draft Urban Design Element of the Santa Ana General Plan* (June 1998) • *Circulation Element of the Santa Ana General Plan* (February 1998) • *Final North Harbor Specific Plan* (1992)
Orange (City)	• *City of Orange General Plan* (August 1989) • *The City Center Mills Specific Plan* (1996)
Tustin	• *Tustin General Plan* (February 1994)
Caltrans	• *Project Development Procedures Manual,* Chapter 29, Landscape Architecture (updates through June 3, 2000) • *Plant Setback Spacing Guide* (updates through June 3, 2000) • *Highway Design Manual,* Chapter 900, Landscape Architecture (updates through June 3, 2000

4.13.4 Visual Policy Document Consistency

Policy documents of the seven cities and the County of Orange within the SR-22/West Orange County Connection viewshed include areas classified as scenic resources, visual resources, aesthetic assets, open space and other similar designations.[1] In addition, various local jurisdictions as well as the Department have policies about visual quality in the viewshed. These policies are too numerous to list here, but the policy documents are listed in Table 4.13-3 and the discussions that follow identify any conflict with policies within these documents. (All of the policies are discussed in the *SR-22/West Orange County Connection Visual Impact Assessment* in Appendix K of the DEIR/EIS, August 2001). There are no scenic highways identified by the state in the viewshed.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Table 4.13-4 lists the physical changes that would occur under the (Enhanced) Reduced Build Alternative at the visual resources identified in applicable policy documents. As shown in the table, the result of the implementation of this alternative would be a decrease in visual quality at two of these resources. Although not reflected in the table, the (Enhanced) Reduced Build Alternative would remove less landscaping than the Full Build Alternative would. Regarding landscaping, this alternative, like the Full Build Alternative, would be incompatible with the Department policies. In addition to the visual resources identified in the policy documents applicable to the viewshed, the (Enhanced) Reduced Build Alternative would not be compatible with several other policies related to visual quality. These documents are fully described in the DEIR/EIS of August 2001, Section 4.13.

- Bikeways (*Orange County Commuter Bikeways Strategic Plan*);
- Local Review of Designs (*City of Garden Grove General Plan*);
- Freeway Landscaping (*City of Garden Grove General Plan*, *Revised Draft Urban Design Element of the Santa Ana General Plan,* and *City of Orange General Plan*);
- Visual Enhancement (*City of Garden Grove General Plan* and *Revised Draft Urban Design Element of the Santa Ana General Plan*);
- Freeway On- and Off-Ramps (*Revised Draft Urban Design Element of the Santa Ana General Plan*);

[1] Local policy documents cited herein are available at OCTA.

Table 4.13-4
IMPACTS TO VISUAL RESOURCES IDENTIFIED IN POLICY DOCUMENTS
(ENHANCED) REDUCED BUILD ALTERNATIVE

Visual Resource	Existing Visual Quality	Description of Visible Changes	Proposed Visual Quality
Seal Beach Boulevard (Seal Beach)	Moderately high	I-405 overpass would be rebuilt; removal of some landscaping at the I-405 interchange.	Moderate
SR-22 (Garden Grove Freeway) (Garden Grove)	Low to moderately high	Removal of much of the landscaping along the freeway to allow widening; noise barriers in some areas.	Very low to moderate

- See Section 4.13 of the DEIR/EIS of August 2001 for a discussion of The *Project Development Procedures Manual,* the Department *Plant Setback and Spacing Guide,* and the Department's *Highway Design Manual* in greater detail.

The (Enhanced) Reduced Build Alternative would remove a large amount of freeway landscaping (though slightly less than the Full Build Alternative), and in many cases there would be little space available for replacement landscaping, either within the right-of-way or in the adjacent densely developed properties. Thus, it is unlikely that all of the recommendations of the Department policy documents can be fulfilled within the design of the (Enhanced) Reduced Build Alternative, rendering it incompatible with many of the Department's freeway landscaping policies.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. There would be no impacts to visual resources identified in policy documents. Because there would be no changes to SR-22, there would also be no opportunity to enhance the freeway, as called for in several policy documents, including the Orange County *Master Plan of Freeway and Transit Corridor Enhancements,* the *City of Garden Grove General Plan,* the *Revised Draft Urban Design Element of the Santa Ana General Plan,* and the *City of Orange General Plan.*

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include construction in the vicinity of visual resources identified in policy documents. There would be no impacts to visual resources identified in policy documents. Because there would be no changes to the SR-22, there would also be no opportunity to enhance the freeway, as called for in several policy documents, including the Orange County *Master Plan of Freeway and Transit Corridor Enhancements,* the *City of Garden Grove General Plan,* the *Revised Draft Urban Design Element of the Santa Ana General Plan,* and the *City of Orange General Plan.*

3. FULL BUILD ALTERNATIVE

Table 4.13-5 lists the physical changes that would occur under the Full Build Alternative at the visual resources identified in applicable policy documents. As shown in the table, the result of the implementation of this alternative has been revised from the DEIR/EIS and would be a decrease in visual quality at three of these resources.

Table 4.13-5
IMPACTS TO VISUAL RESOURCES IDENTIFIED IN POLICY DOCUMENTS
FULL BUILD ALTERNATIVE

Visual Resource	Existing Visual Quality	Description of Visible Changes	Proposed Visual Quality
Seal Beach Blvd. (Seal Beach)	Moderately high	I-405 overpass would be rebuilt; removal of some landscaping at the I-405 interchange.	Moderate
SR-22 (Garden Grove Freeway) (Garden Grove)	Low to moderately high	Removal of much of the landscaping along the freeway to allow widening; noise barriers in some areas.	Very low to moderate
Willowick Municipal Golf Course (Santa Ana)	High	New Pacific Electric Arterial in open space corridor adjacent to golf course; probable requirement for protective fencing to prevent wayward golf balls from landing in adjacent arterial; arterial would be elevated near eastern end of golf course.	Moderately high

In addition to the visual resources identified in the policy documents applicable to the viewshed, the Full Build Alternative would not be compatible with several other policies related to visual quality (listed above under the A. (Enhanced) Reduced Build Alternative).

The Full Build Alternative would remove a large amount of freeway landscaping, and in many cases there would be little space available for replacement landscaping, either within the right-of-way or in the adjacent densely developed properties; therefore, it is unlikely that all of the recommendations of the Department's policy documents can be fulfilled within the design of the Full Build Alternative. Thus, this alternative would be incompatible with many of the Department's freeway landscaping policies outlined in the discussion of the (Enhanced) Reduced Build Alternative, above.

If the Full Build Alternative were not to include the appropriate *North Harbor Specific Plan* guidelines in the design of the Pacific Electric Arterial, it would not be compatible with the policies contained therein. Without enhancement and streetscapes described in the *Urban Design Element* included in the project design, this alternative would also be incompatible with the urban design policies (See Section 4.13 of the DEIR/EIS of August 2001 for the details of these planning documents). Because the Full Build Alternative would remove the historic Pacific Electric Santa Ana River Bridge, it would be incompatible with the policy related to preserving such views.

The Pacific Electric Arterial would represent a new gateway into Santa Ana, a direct link between the heart of the city and points west. Without the inclusion of unique and distinctive streetscaping in the design of the arterial, the Full Build Alternative would be incompatible with the City's policy related to gateways.

Thresholds of Significance for CEQA:

- Potential conflict with Orange County's Master Plan of Freeway and Transit Corridor Enhancements
- Inconsistency with Department's visual policy

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Landscaping would be greatly reduced along the entire SR-22 freeway. In addition to the visual resources identified in the policy documents applicable to the viewshed, the (Enhanced) Reduced Build Alternative would not be compatible with several other policies related to visual quality. With mitigation measures applied, it is anticipated that impacts to visual quality as they relate to plans and policies would be less than significant (see VIS-(E)RB -5, VIS-(E)RB -7, VIS-(E)RB-10, VIS-(E)RB-11).

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impact on consistency with plans or policies.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no significant impact on consistency with plans or policies.

3. FULL BUILD ALTERNATIVE

Landscaping would be greatly reduced along the entire SR-22 freeway. In addition to the visual resources identified in the policy documents applicable to the viewshed, the Full Build Alternative would not be compatible with several policies related to visual quality. After mitigation measures are implemented, it is anticipated that impacts to visual quality as they relate to plans and policies would be less that significant (see VIS-FB-3, VIS-FB-5, VIS-FB-9, and VIS-FB-10, VIS-FB-11, VIS-FB-13, VIS-FB-16 in the DEIR/EIS of August 2001).

4.13.5 Impacts to Freeway Landscaping

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

In order to widen or realign the freeways within the SR-22/West Orange County Connection viewshed or to make improvements to interchanges, existing landscaping would need to be removed. The (Enhanced) Reduced Build Alternative would remove approximately 90 hectares (220 acres) or about 60 percent of the existing landscaping within the viewshed. (Note: This is slightly less than the 66 percent of the landscaping removed by the Full Build Alternative. Many of the elements that are not part of the (Enhanced) Reduced Build Alternative are located within areas with very little landscaping, such as the former Pacific Electric right-of-way, the I-5/SR-22 interchange, and SR-55. Thus, the impacts to freeway landscaping under the (Enhanced) Reduced Build Alternative would not be much different from under the Full Build Alternative.) In many areas, such as through much of Garden Grove, almost all of the landscaping would be removed under the (Enhanced) Reduced Build Alternative, except at interchanges. Where the freeway would be elevated and noise barriers would be constructed, the noise barriers would be placed at the edge of the freeway shoulder, since placement further away from the shoulder (and necessarily further down the embankment) would eliminate or reduce the noise-abating qualities of the noise barrier. In these areas, there would be no area to replant (except for outside the freeway). Figure 4.13-2 shows that the views from the freeway will be impacted. Along I-605 and I-405, the existing landscaping is not as dense because of past improvements that removed the planting.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. There would be no impacts to freeway landscaping.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include only minor construction. Therefore, no impacts to freeway landscaping would occur.

3. FULL BUILD ALTERNATIVE

See the discussion under A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above. The Full Build alternative would remove approximately 100 hectares (250 acres) or about 66 percent of the existing landscaping within the viewshed.

The former Pacific Electric right-of-way is vegetated mostly with grasses and small plants. The Full Build Alternative would remove these plants, but it would result in negligible visual impact.

Thresholds of Significance for CEQA:

- Loss of freeway landscaping
- Replacement of landscaping with hard surfaces such as soundwalls and structures

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Widening and realignment of SR-22 would require the removal of approximately 60 percent of existing vegetation. In areas where the freeway would be elevated and noise barriers would be constructed, there would be minimal replanting. Impacts to freeway vegetation are potentially significant for the (Enhanced) Reduced Build Alternative.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Under the No Build Alternative, there would be no loss or replacement of landscaping. Therefore, impacts to freeway landscaping under the No Build Alternative would not be significant.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include only minor construction. It is anticipated that impacts to freeway landscaping would not be significant.

3. FULL BUILD ALTERNATIVE

See comments under A. (Enhanced) Reduced Build Alternative for Thresholds of Significance for the Full Build Alternative

4.13.6 Impacts to Freeway-Oriented Signage

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Build Alternative would include widening of existing roadways or realignment of interchanges. Although the DEIR/EIS proposed that five signs oriented to viewers on the freeways would be removed, further studies and refined engineering have determined that sign removal would not be necessary.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative does not include construction other than that addressed in previous environmental documents. There would be no impacts to freeway-oriented signage.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative does not include right-of-way changes. There would be no impacts to freeway-oriented signage.

3. FULL BUILD ALTERNATIVE

Impacts of freeway-oriented signage are the same as those of the (Enhanced) Reduced Build Alternative.

Thresholds of Significance for CEQA:

- Proposed project's impact on freeway signage

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The (Enhanced) Reduced Alternative would have no significant impacts to freeway-oriented signage.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impacts to freeway-oriented signage.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative does not include right-of-way changes. There would be no significant impacts to freeway-oriented signage.

3. FULL BUILD ALTERNATIVE

The Full Build Alternative would have no significant impacts to freeway-oriented signage.

4.13.7 Impacts Related to Shade, Shadow, Light and Glare

Shade is defined as an area blocked from direct sunlight for at least several hours during the day. Construction or removal of large structures can result in changes in shade patterns, which can affect the visual environment both directly (the visual environment is darker or brighter) or indirectly (the darker/brighter environment changes landscape viability). Shadows are more temporary shade features created by smaller structures. Shadows do not typically result in indirect impacts to vegetation; their impact is generally minimal unless the structure creates an unusual or disruptive shadow pattern.

Light impacts occur when there are new sources of light (such as new streetlights) or when existing lights are removed. Glare impacts occur when light is directed from the light source directly into the eyes of viewers, either directly from the source (such as headlights) or by reflection (such as sunlight reflected from a “glass box”-type building).

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

<u>Shade</u>. The (Enhanced) Reduced Build Alternative would slightly increase the areas shaded by overhead structures because some of these structures would be widened or there would be new overhead structures. The areas that would be visually impacted by shade are the new HOV connec-

tors between I-405/I-605 and I-405/SR-22, and the Santa Ana River crossings where the SR-22 mainline bridge would be widened. This impact would affect the motorists using the freeway and the connectors crossing above them, and the recreational users of the trail. A bridge proposed as a connector from the southbound SR-57 to the westbound SR-22 will not dramatically change shade impacts within the surrounding area.

Shadow. The (Enhanced) Reduced Build Alternative would create no unusual or disruptive shadow patterns. The overhead HOV connectors would cast new shadows but this would only add to the existing shadows cast by the existing structures.

Light. New light sources would be minimal for the (Enhanced) Reduced Build Alternative. Although new streetlights will be added to the I-405/I-605 HOV connector as well as the entire SR-22 corridor, the new light source will not be significant but only supplement the existing street lights.

Glare. There would be no impact associated with glare from the (Enhanced) Reduced Build Alternative. The alignment would be generally straight or gently curving, resulting in headlight paths that would be contained within the right-of-way. The (Enhanced) Reduced Build Alternative would not include reflective elements and would not locate facilities in new areas affected by glare.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would include only minor construction. There would be no impacts related to shade, shadow, light or glare.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would include only minor construction. There would be no impacts related to shade, shadow, light or glare.

3. FULL BUILD ALTERNATIVE

Shade. The Full Build Alternative would slightly increase the areas shaded by overhead structures because some of these structures would be widened or there would be new overhead structures. The visual impacts of shade are the same as for the (Enhanced) Reduce Build Alternative.

Shadow. The Full Build Alternative would create no unusual or disruptive shadow patterns.

Light. New light sources would be minimal for the Full Build Alternative with the exception of the vicinity of the Pacific Electric Arterial and the HOV connectors. At the Pacific Electric Arterial location, most of the empty right-of-way is currently unlit. New streetlights would be installed along the arterial. Although much of the right-of-way is bordered by industrial uses or by areas primarily used during the day (such as the golf course and intermediate school), there are some homes and mobile homes bordering the alignment that would be affected by the new light levels. For the area near the proposed I-405/I-605 and I-405/SR-22 HOV connectors, the addition of streetlights would cause the same impacts as the (Enhanced) Reduce Build Alternative.

Glare. There would be no impact associated with glare from the Full Build Alternative. The alignment, especially along the HOV connectors, would be generally straight or gently curving, resulting in headlight paths that would be contained within the right-of-way. Even on the Pacific Electric Arterial, headlight glare would not be an issue because of the lack of turning movements (vehicles cannot turn onto or off of the arterial except on existing streets at the eastern terminus). The Full Build Alternative would not include reflective elements nor locate facilities in new areas affected by glare.

Thresholds of Significance for CEQA:

- New light sources or light levels
- New sources of shade and shadow

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

This alternative would have less than significant impacts related to light sources and light levels since such sources would be minimal. This is because the new streetlights are complementing the existing lights along the corridor and no new light sources will be created. There are no significant impacts related to shade and shadow in this alternative. The proposed overhead HOV connectors would slightly increase the shaded areas underneath. The proposed construction will be in areas where overhead bridges exist, thereby causing minimal disturbance to the area.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no significant impacts related to light.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

There is only minor construction associated with the TSM/Expanded Bus Service Alternative; therefore, there would be no significant impacts related to light.

3. FULL BUILD ALTERNATIVE

New sources of light and new sources of shade and shadow would occur along the former Pacific-Electric right-of-way and the new overhead structures would slightly increase the amount of shade. Impacts associated with the addition of light sources are expected to be significant.

4.13.8 Mitigation

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

It is advisable that an aesthetic committee be formulated at the beginning of the design phase to ensure that mitigation measures are in the best interest of the members of the communities. The committee members may include local agencies, OCTA, the Department, and community members who live and work along the corridor. The mitigation measures identified must follow the policies as shown on Table 4.13-3 as well as the Department's landscape standards and planting setback guidelines.

<u>VIS-(E)RB-1</u>. At locations where residential structures are removed and neighboring residences and/or parks are exposed to new views of the freeways or freeway structures, or intactness of the neighborhood is affected, additional landscaping will be provided within the right-of-way or in remnant parcels remaining after acquisition of the homes. This landscaping could be designed to provide a transition between the residential level of landscaping and the freeway, and to create a buffer between the freeway and the residences, not necessarily completely screening the freeway from view. All features of the residential community that can be retained, especially sidewalks and street trees, will be retained.

<u>VIS-(E)RB-2</u>. As much as possible, existing landscaping within the state right-of-way will be preserved. Areas needed for construction will be minimized where feasible while maintaining safety for construction workers and the public.

VIS-(E)RB-3. Where freeway landscaping is removed due to the widening of the freeway or the re-alignment of ramps, and where enough right-of-way is available, replacement landscaping will be provided at a minimum of one-to-one ratio. If necessary, available areas outside the state right-of-way could be used for replacement landscaping, if long-term maintenance by the local community can be assured. Replacement planting shall be provided with sufficient irrigation and maintenance to ensure survival.

VIS-(E)RB-4. Noise barriers and other large structures shall be visually softened through the use of vines, at a minimum, with shrubs and trees used where sufficient right-of-way exists. This planting will be used to reduce the visual impact for both the viewers on the outside of the noise barriers (adjacent land uses) and viewers on the freeways/arterial. Where there is no room for landscaping because the barrier is placed at the edge of shoulder but there is available land on the outside of the barrier, vines will be planted behind the barrier and trained to spill over the top. Enhanced noise barrier design such as bas-relief designs could be used, similar to those existing along SR-22 and SR-55 in the project study area. Graffiti-resistant surfaces shall be used.

VIS-(E)RB-5. California native wildflowers will be included at a minimum level of 0.25 percent of total planting and irrigation budget.

VIS-(E)RB-6. For any new or widened crossings of the Santa Ana River trail, grade separations shall be provided in order to maintain the trail's continuity.

VIS-(E)RB-7. The project designers shall work with the Deparment and the local governments to provide freeway landscaping consistent with local policies, and to integrate the facility with adjacent communities, where feasible. Cooperative agreements shall be executed for any funding, installation and maintenance of this landscaping.

VIS-(E)RB-8. Where possible, views of the freeway and associated elements, including noise barriers, shall be buffered from homes, schools, parks and similar uses by planting.

VIS-(E)RB-9. Where possible, objectionable views from the freeway, such as of open storage for industrial uses, shall be screened from view by use of highway planting. Replacement planting outside the right-of-way could be used for this purpose if maintenance by local communities or landowners can be assured.

VIS-(E)RB-10. Highway planting shall be appropriately scaled and oriented to the freeway viewer.

VIS-(E)RB-11. Highway planting should be selected based on maximum benefit for the long-term costs involved. Plant materials that can withstand the difficult roadside conditions and survive with limited irrigation and minimal maintenance should be used. Use of native California plants is encouraged; invasive species shall be avoided. Other considerations recommended in the *Highway Design Manual*[2] will be incorporated into designs, including avoidance of brittle trees, monocultures, edible plants and poisonous plants.

VIS-(E)RB-12. Highway planting near the I-405/I-605 interchange will be chosen to reduce the visibility of the existing structures through the use of tall, fast growing trees or shrubs. Where possible, provide trees near the existing soundwall to create a buffer between the highway and the residential community. The intent of this type of mitigation is to visually screen the existing two structures with plant material, thereby creating only one visible overhead structure.

[2] Available at Caltrans, District 12.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

The Mitigation Measures for the Full Build Alternative are listed in the DEIR/EIS of August 2001.

4.13.9 Residual Impacts After Mitigation

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Fewer houses would be removed under the (Enhanced) Reduced Build Alternative than with the Full Build Alternative, but impacts related to the visual disruption of neighborhoods would occur in some locations, particularly at the I-405/I-605 connector. Until the plant material reaches maturity, the residual visual impact would be views of the freeway. However, once the plants fill in and mature, the visual impacts would be less than significant in this area.

The removal of landscaping for widening the freeway Mainline and realignment of interchanges cannot be fully mitigated due to the lack of available area for replanting either within or outside the future right-of-way and the addition of soundwalls. The loss of landscaping would be a substantial visual impact.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

In locations where houses are removed, the visual impact to the remaining residential viewers cannot be fully mitigated and a residual visual impact would remain. Figure 4.13-7 in the DEIR/EIS of August 2001 illustrates the Suburban Key Viewpoint after mitigation.

The removal of landscaping for widening of the freeways and realignment of interchanges cannot be fully mitigated due to the lack of available area for replanting either within or outside the future right-of-way. The loss of landscaping would be a substantial visual impact. Figure 4.13-6 illustrates the View From the Freeway after mitigation.

The preclusion of the proposed class I trail in the former Pacific Electric right-of-way would be a impact that cannot be mitigated (see Sections 4.10 and 9.0). Use of the right-of-way would also lead to the following visual impacts that also cannot be reduced to less than substantial after mitigation: the removal of open space, the addition of new light sources, and the removal of the historic Pacific Electric Santa Ana River Bridge.

The addition of elevated connectors to and from the Pacific Electric Arterial would also result in blockage of views of signs that cannot be mitigated, at the following businesses: the Shell Gas Station, Garden Grove Storage, and Allspace Storage.

For additional information, see Sections 4.10, 4.13 and 9.0 of the DEIR/EIS of August 2001 for a discussion of residual impacts after mitigation for the Full Build Alternative.

4.14 ENERGY

This section includes discussions of impacts and mitigation measures related to transportation-related energy consumption in the study area. This section will focus primarily on the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative is the identified Preferred Alternative. The analysis estimates the total amount of energy expected to be consumed. Both direct (operational) energy and indirect (construction) energy impacts were assessed. (Note: Because the models used for calculating energy use are only in English units, such as British thermal units and miles, this discussion is only in English units. However, the results are converted into metric units.)

The additional analyses in this section were the result of refined engineering, responding to comments received during the public comment period of the August 2001 DEIR/EIS, and/or additional planning efforts. The added limits to the (Enhanced) Reduced Build Alternative would not contribute to any new environmental impacts. Potential environmental impacts from this added portion have been previously analyzed as part of the Full Build Alternative (SR-22/SR-55 HOV connector) and determined not to be substantial in regards to Energy. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

Direct energy consumption involves energy used by the operation of vehicles. In assessing the direct energy impact, consideration was given to the following factors:

- Vehicle mix, including light-duty vehicles (LDV), medium trucks (MT), and heavy trucks (HT)
- Annual Vehicle Miles Traveled (VMT)
- Variation of fuel consumption rates by vehicle type

The direct energy analysis for each alternative was based on projected year 2020 corridor traffic volumes and total VMT. The 2020 daily traffic volumes for the study corridor were obtained from the traffic analysis contained in Section 4.7 of this document, and Section 4.7 of the August 2001 DEIR/EIS for previously reviewed alternatives. The daily VMT was annualized using a factor of 335 days/year. The VMT Fuel Consumption Method utilized for this project is outlined in the *Energy and Transportation Systems* manual (California Department of Transportation, 1983). Energy consumption factors for the various modes identified in Table 4.14-1, were developed by Oak Ridge Laboratory and published in the 1996 *Transportation Energy Data Book: Edition 16.*[1]

Table 4.14-1
ENERGY CONSUMPTION FACTORS

Mode	Factor
Passenger Vehicles (auto, van, light truck)	6,233 BTU[a]/Vehicle Mile
Heavy Truck	22,046 BTU/Vehicle Mile
Transit Bus (all vehicle types)	41,655 BTU/Vehicle Mile
Rail (light or heavy)	77,739 BTU/Vehicle Mile
Commuter Rail (Metrolink)	100,000 BTU/Vehicle Mile

Source: Oak Ridge Laboratory, 1996
Note:[a] BTU= British Thermal Unit, equal to the amount of heat required to raise one pound of water one degree Fahrenheit at one atmosphere of pressure

Indirect or construction energy effects involve the one-time, non-recoverable energy costs associated with construction of roadways, structures, and vehicles. The indirect energy analysis was conducted using the Input-Output Method. This method converts either VMT or 2000 construction dollars into energy consumption, based on existing data from other roadway improvement projects in the U.S., utilizing the conversions listed in Table 4.14-2, Construction Energy Consumption Factors.

Utilizing the annual direct energy savings and the energy consumed for construction, a payback period was calculated. The energy payback period is the amount of time it takes to recover the quantity of

[1] Both these publications are available at the California Department of Transportation, District 12.

energy expended for the construction of a project. The energy payback period is determined by dividing the construction energy by the annual operational energy savings due to the project (see example below).

Example Alternative
Construction Energy / Operational Energy Savings (Example Alternative - No Build) = Payback Period
240,000 barrels of oil /31,000 barrels of oil = 7.7 years

If the project would use more operational energy than the No Build Alternative, there is no annual energy savings compared to the No Build Alternative, and the payback period would never be met. A payback period of under five years is considered an excellent investment, while a payback period of greater than 20 years will generally be beyond the foreseeable future of the project (California Department of Transportation, 1983).

Table 4.14-2
CONSTRUCTION ENERGY CONSUMPTION FACTORS

Mode	Factor
Construction	
Automobiles and Trucks (manufacturing)	1,410 BTUs/Vehicle Mile[a]
Bus (manufacturing)	3,470 BTUs Vehicle Mile[a]
Roadway (construction)	27,500 BTUs/1977$[a,b]
Electrical (TSM Elements)	4,688 BTUs/1982$[a,b]
Maintenance	
Automobiles and Trucks	1,400 BTUs/Vehicle Mile[a]
Bus	13,142 BTUs/Vehicle Mile[a]

Source: [a] California Dept. of Transportation, 1983
Note: [b] 2001$ converted to 1977$ and 1982$

Both direct and indirect energy consumption are measured in British Thermal Units (BTUs). One BTU is the quantity of energy necessary to raise one pound of water one degree Fahrenheit at one atmosphere of pressure. BTUs have been converted to the equivalent barrels of crude oil for the comparison of alternatives.

4.14.1 DIRECT ENERGY (OPERATIONAL)

In the energy analysis, potential energy consumption of each alternative is compared to the No Build condition, rather than existing conditions. See discussion below and Table 4.14-3, Annual 2020 Direct Energy Consumption, which summarizes each alternative.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Under the (Enhanced) Reduced Build Alternative, 2020 VMT for automobiles, trucks, and buses within the corridor, is forecast to be approximately 3.45 billion miles, the second highest of any of the alternatives. The increased VMT over the No Build and TSM/Expanded Bus Service Alternatives would result from an increase in the number of vehicles desiring to use SR-22 (added capacity would be an attraction to the facility) and additional buses operating within the corridor. Vehicles operating within the corridor are anticipated to expend approximately 25,500 billion BTUs or about 915 million liters (4.40 million barrels) of oil. Overall, the Full Build Alternative would result in the highest energy consumption for all alternatives. Annually, the Full Build Alternative would consume nearly 25 million more liters (118,903 more barrels) of oil than the No Build Alternative.

Table 4.14-3
ANNUAL 2020 DIRECT ENERGY CONSUMPTION

Description	No Build	TSM/Expanded Bus Service	Full Build	(Enhanced) Reduced Build
Vehicle Miles Traveled				
Light-duty Vehicles	3,202,164,098	3,225,591,961	3,387,137,475	3,288,482,985
Heavy Trucks	94,181,297	94,870,352	99,621,690	96,720,088
Buses	67,272,355	67,764,537	71,158,350	69,085,777
BTUs Consumed[a]				
Light-duty Vehicles (billions)	19,959	20,105	21,112	20,497
Heavy Trucks (billions)	2,076	2,092	2,196	2,132
Buses (billions)	2,802	2,823	2,964	2,878
Total BTUs Consumed (billions)	**24,838**	**25,019**	**26,272**	**25,507**
Total Barrels of Oil Consumed	**4,282,350**	**4,313,680**	**4,529,724**	**4,397,790**
Total Liters of Oil Consumed	**890,728,800**	**897,245,440**	**942,182,530**	**914,740,320**
Change in BTUs vs. No Build (billions)	**---**	**182**	**690**	**670**
Change in Barrels vs. No Build	**---**	**31,330**	**118,903**	**115,440**
Change in Liters vs. No Build	**---**	**6,516,640**	**24,731,865**	**24,011,520**

Source: [a] Oak Ridge National Laboratory, 1996

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Under the No Build Alternative, the annual VMT for automobiles and trucks within the corridor is forecast to be 3.36 billion miles in 2020. Given the VMT and vehicle fuel consumption on an annual basis, vehicles operating within the corridor are anticipated to expend approximately 24,800 billion BTUs or about 891 million liters (4.28 million barrels) of crude oil. Overall, the No Build Alternative would result in moderate energy consumption. This is primarily due to the additional 20 million annual VMT this alternative has over the Build Alternative.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have a higher VMT than the No Build or the Full Build Alternative, mostly as a result of the expanded bus service. The VMT for this alternative would be approximately 3.38 billion miles in 2020. With this VMT, the energy consumption would be approximately 25,020 billion BTUs or about 897 million liters (4.31 million barrels) of oil. This alternative would have the second highest energy consumption of any of the alternatives.

3. FULL BUILD ALTERNATIVE

Under the Full Build Alternative, 2020 VMT for automobiles, trucks, and buses within the corridor, is forecast to be nearly 3.55 billion miles in 2020. Vehicles operating within the corridor are anticipated to expend approximately 26,272 billion BTUs or about 950 million liters (4.59 million barrels) of oil. Overall, the Full Build Alternative consumes the most energy of all the alternatives. On an annual basis, this alternative would consume approximately 24.7 million liters more (nearly 119,000 more barrels) of oil than the No Build Alternative.

The California Energy Commission periodically forecasts the projected demand and supply of petroleum products, including gasoline and diesel. These products are market-driven commodities for which adequate supplies are anticipated through 2015. Because sufficient supplies of gasoline and diesel are expected to be available, the impact associated with an increase in energy, in regards to the Full Build Alternative, would be less than significant.

Thresholds of Significance for CEQA:

- Impacts to energy consumption

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

On an annual basis, the (Enhanced) Reduced Build Alternative would consume approximately 24 million more liters (115,440 more barrels) of oil than the No Build Alternative. Sufficient supplies of gasoline and diesel are expected to be available, therefore, this alternative is anticipated to have no significant impact on energy consumption.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

This alternative is used as the baseline for comparison for all other alternatives. Predicted energy consumption in 2020 for the No Build Alternative would be about 891 million liters (4.28 million barrels) of crude oil. This alternative is anticipated to have no significant impact on energy consumption.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

This alternative would have the second highest energy consumption among the alternatives under study, with a consumption of about 897 million liters (4.31 million barrels) of oil. However, this alternative is anticipated to have no significant impact on energy consumption because sufficient supplies of gasoline and diesel are projected.

3. FULL BUILD ALTERNATIVE

See the Full Build Alternative discussions above regarding energy consumption. This alternative is anticipated to have less than significant impact on energy consumption.

4.14.2 INDIRECT ENERGY (CONSTRUCTION)

The indirect energy consumption for each alternative is summarized in Table 4.14-4, Indirect Energy Consumption, and is discussed below.

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Structures and roadway construction costs of the (Enhanced) Reduced Build Alternative would consume nearly 1,512,000 barrels of oil, which is slightly less than the Full Build Alternative. Maintenance of vehicles within the study corridor would also be slightly less than the Full Build Alternative, and consume approximately 5,647 billion BTUs or about 973,660 barrels of crude oil. Overall energy consumption would be lower than the Full Build Alternative, consuming approximately 14,415 billion BTUs or about 517 million liters (2.49 million barrels) of oil. As shown in Table 4.14-4, Indirect Energy Consumption, there would be no direct energy savings associated with this alternative. As a result, there would be no energy savings to payback construction and maintenance costs.

Table 4.14-4
INDIRECT ENERGY CONSUMPTION

Description	No Build	TSM/ Expanded Bus Service	Full Build	(Enhanced) Reduced Build
Construction				
Corridor Annual VMT	*3,363,617,750.00*	*3,388,226,850.00*	*3,557,917,516*	*3,454,288,850.00*
Vehicles - Auto Mfg.[a] (BTUs)	4,647,847,006,950	4,681,851,861,330	4,913,330,442,918	4,773,136,332,930
Vehicles - Bus[a] (BTUs)	233,435,071,850	235,142,943,390	246,919,475,576	239,727,646,190
Roadway[a] (BTUs)			5,397,591,054,313	3,634,601,485,149
Electrical (TSM)[a] (BTUs)		120,719,744,409	120,719,744,409	120,719,744,409
Subtotal BTUs	*4,881,282,078,800*	*5,037,714,549,129*	*10,557,840,972,807*	*8,768,185,208,627*
Subtotal Barrels of Oil	*841,600*	*868,571*	*1,820,317*	*1,511,756*
Maintenance				
Auto Maintenance[a] (BTUs)	4,614,883,553,000	4,648,647,238,200	4,881,462,831,266	4,739,284,302,200
Bus Maintenance[a] (BTUs)	884,093,289,410	890,561,545,254	935,163,039,774	907,925,281,334
Subtotal BTUs	*5,498,976,842,410*	*5,539,208,783,454*	*5,816,625,871,040*	*5,647,209,583,534*
Subtotal Barrels of Oil	*948,099*	*955,036*	*1,002,866*	*973,657*
TOTAL BTUs	**10,380,258,921,210**	**10,576,923,332,583**	**16,374,466,843,847**	**14,415,394,792,212**
TOTAL BARRELS OF OIL	**1,789,700**	**1,823,607**	**2,823,183**	**2,485,413**
TOTAL LITERS	**372,257,600**	**379,310,256**	**587,222,064**	**516,965,904**
DIRECT ENERGY SAVINGS	**N/A**	**no savings**	**no savings**	**no savings**
PAYBACK PERIOD	**N/A**	**N/A**	**N/A**	**N/A**

Sources: [a] California Dept. of Transportation, 1983

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

There would be no construction costs beyond vehicle manufacturing associated with the No Build Alternative. The only indirect energy associated with the No Build Alternative would be the manufacturing and maintenance of vehicles within the study corridor. Automobile and bus manufacturing and maintenance would consume approximately 10,380 billion BTUs or about 372 million liters (1.79 million barrels) of crude oil. This alternative would consume the least amount of indirect energy.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Construction costs associated with this alternative would be primarily for signal synchronization/controller upgrades, automated response plan, highway advisory radio, changeable message signs, fleet management system, and transit intersection priority system. Indirect energy associated with these systems in addition to manufacturing and maintenance of vehicles would be approximately 10,577 billion BTUs or about 379 million liters (1.82 million barrels) of crude oil. Table 4.14-3, Annual 2020 Direct Energy Consumption, shows that there would be no direct energy savings associated with this alternative. As a result, there would be no energy savings to pay back construction and maintenance costs as shown in Table 4.14-4.

3. FULL BUILD ALTERNATIVE

Table 4.14-4, Indirect Energy Consumption, shows that structures and roadway construction costs would substantially add to the indirect energy consumed, while vehicle manufacturing

would be similar to other alternatives. The indirect energy associated with construction of the Full Build Alternative would be approximately 10,557 billion BTUs or about 1,820,317 barrels of oil. Maintenance of vehicles within the study corridor would be similar to the other alternatives, consuming approximately 5,816 billion BTUs or about 1,002,866 barrels of crude oil. Overall energy consumption would be the highest of all alternatives, consuming approximately 16,374 billion BTUs or approximately 587 million liters (2.82 million barrels) of oil. Therefore, there would be no annual energy savings.

4.14.3 MITIGATION

Due to the higher overall VMT associated with the TSM/Expanded Bus Service, (Enhanced) Reduced Build or the Full Build Alternatives, measures would have to be implemented to reduce the VMT to below the No Build Alternative, and to provide savings in direct energy. However, the impacts on energy usage would be small, so mitigation is not required.

Further improvements in the energy efficiency would require an increase in HOV lane usage (if available) and transit ridership through measures such as:

- Expanded marketing programs
- Increased connectivity of the transit system serving the area
- Improved patron access to station areas via expanded feeder service, pedestrian amenities, convenient parking and facilities supporting other non-motorized modes of station access

4.14.4 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Less than substantial.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Less than substantial.

3. FULL BUILD ALTERNATIVE

Less than substantial.

4.15 CONSTRUCTION-RELATED IMPACTS

Construction-related impacts are short-term impacts that would occur only during the construction of the proposed project and would not occur once construction is complete.

This section includes discussions of impacts and mitigation measures related to construction activities in the study area. The following is a summary of the construction impacts, most of which are discussed in detail in the individual topic sections (Sections 4.1 through 4.14). For the purpose of including analysis of the other alternatives considered, a brief discussion will be presented below.

The additional analyses in this section were the result of refined engineering, responses to comments received on the August 2001 DEIR/EIS, and/or additional planning efforts. Some of the modifications with construction-related impacts have been more specifically identified. The comments and responses to comments are attached as Appendix A of this FEIS/EIR (Volumes II & III).

The Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section (HOV lanes in each direction from Glassell to approximately SR-55) without the HOV freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction (approximately 1.77 km [1.1 miles]). The extended portion of the Mainline, approximately 1.93 km (1.2 miles) at the eastern terminus of the project limits, was analyzed as part of the Full Build Alternative in the August 2001 DEIR/EIS. The added feature to the Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the creation of the (Enhanced) Reduced Build Alternative.

4.15.1 IMPACTS

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Geology and Soils. The (Enhanced) Reduced Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction. Consequently, the potential exists for disturbed soil to erode and for sediments to be transported by water. (Section 4.1.5)

During construction, sites, structures, materials, and equipment are particularly vulnerable to impacts associated with earthquakes. Slopes that have not been stabilized can fail, incomplete structures can fall, materials stockpiles can collapse, and equipment can topple over, endangering construction workers and the public.

Isolated lenses of shallow groundwater may be encountered during construction. This may impact construction and result in polluted runoff.

Wetlands and Waters of the United States. The study area for the (Enhanced) Reduced Build Alternative supports a total of 0.615 hectares (1.52 acres) of wetlands. None of these wetlands are within the proposed right-of-way, but the wetlands could be affected by runoff or erosion from the project area during construction activities. These wetlands are located along Los Alamitos Channel. (Section 4.4.2)

The (Enhanced) Reduced Build Alternative would cross several waters of the United States. Although none of these support habitat and permanent impacts would be below the thresholds set for appropriate nationwide permits under Section 404 of the Clean Water Act, temporary impacts for construction would affect these waters. This impact would be minimal. Temporary impacts are listed in Table 4.4-1, Potential Impact to Waters of the United States, (Enhanced) Reduced Build.

During construction, access areas will be limited to those that will minimize disturbance to the beds and banks of the Santa Ana River and Santiago Creek.

Land Use. During construction, property would be occupied to accommodate construction equipment. Such areas, called Temporary Construction Easements (TCEs), may occur on occupied, private property, although vacant sites have been identified where available. TCEs occupy small portions of the properties, usually along the back or side of a parcel. TCEs will be required for testing, wall construction, retaining wall construction, and other construction-related activities. The affected property owner(s) will be contacted by the project's right-of-way agents, and they will negotiate with the property owner(s) on the terms of the temporary easement.

Employment. The (Enhanced) Reduced Build Alternative would create short-term construction jobs. An estimated maximum of 13,548 short-term employees would be required. Not all of these employees would be working at the same time. (Section 4.6.4)

Traffic Disruption. Widening of the freeways that are part of the (Enhanced) Reduced Build Alternative and interchange improvements, would result in traffic disruptions and detours. Temporary lane, interchange, and street closures would be required. There is potential for localized congestion and traffic delays. Parallel roadways can be expected to experience increased traffic during construction.

Schools located near the proposed construction could experience detours to pedestrian and vehicular traffic. In addition, emergency vehicles could also experience detours.

A Transportation Management Plan (TMP) will be prepared prior to construction activities to address construction-related impacts to the surrounding communities. In place over a longer period of time, sometimes implemented up to a year or more prior to the start of actual construction, with specific elements often implemented incrementally to coincide with construction phasing.

TMP is a method for minimizing activity-related traffic delay and accidents by the effective application of traditional traffic handling practices and an innovative combination of public and motorist information, demand management, incident management, system management, construction strategies, alternate routes and other strategies.

All TMPs share the common goal of congestion relief during the project period by managing traffic flow and balancing traffic demand with highway capacity through the project area, or by using the entire corridor.

A TMP typically involves several strategies and elements to ensure that the construction of a project proceeds expeditiously while minimizing as much impacts as possible to the affected communities. These elements include: public information; motorist information strategies; incident management; construction strategies; demand management; and alternative route strategies. The public information element usually involves brochures, mailers, and media releases to educate and inform the public of the construction activities. The motorist information strategies include message signage and highway advisory radio to alert the motorists of road closures and/or detours. The incident management element includes call boxes, traffic control officers, and Transportation Management Centers. The construction strategies element include project phasing, ramp metering, and incentive/disincentive clauses. The demand management element includes park-and-ride lots, ridesharing marketing, and shuttle service incentives to reduce the volumes of impacted areas. The alternate route strategies include ramp closures, provide temporary lanes/shoulder use, and reversible lanes.

Air Quality. During construction, the (Enhanced) Reduced Build Alternative would require the implementation of dust control measures for disturbed and exposed soil areas and stockpiles on the project site that are subject to wind erosion. These dust control measures would also need to

be implemented when significant wind and dry conditions are anticipated during construction of the project. Dust control shall be applied in accordance with the Department standard practices and as defined in the most current publication of the Department's Storm Water Management Plan. The construction contractor will be required to adhere to all laws and regulations for emissions from construction equipment, including those set forth by the South Coast Air Quality Management District at the time of construction.

Noise and Vibration. Construction noise represents a short-term impact on the environment. The duration and level of construction noise are variable, depending upon the following phases of activity:

- Ground-clearing, demolition and removal of existing structures, trees, rocks and soil
- Excavation
- Placement of foundations and roadbeds
- Erection of structures, including bridges and retaining walls
- Finishing, including filling, grading, paving, landscaping and cleanup operations

Typically, the first two phases (ground clearing and excavation) generate the highest noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers, and portable generators, can reach levels in the range of 67 to 98 dBA at 15 meters (50 feet). The EPA's Noise Control Program (40 CFR 204) regulates some construction equipment noise emissions. Presently, air compressors are the only equipment under regulation.

Construction noise is only considered to be substantial in exceptional cases, such as pile driving and crack and seal pavement rehabilitation operations. Otherwise, the Department's Standard Specifications (Section 7 and 42) and Standard Special Provisions provide limits on construction noise levels, with normal construction noise levels not exceeding 86 dBA at a distance of 15 meters (50 feet). The Full Build Alternative may require pile driving and/or crack and seal pavement rehabilitation, and substantial short-term impacts would occur. (Section 4.9.3)

The movement of heavy equipment during grading operations and the use of other equipment such as pile drivers, would be expected to create vibrations that would be felt by nearby residents. Such vibrations could affect nearby receptors, but are not expected to be of sufficient magnitude to cause structural damage to buildings located along the proposed right of way.

Utilities. Improvements proposed by the (Enhanced) Reduced Build Alternative would result in temporary utility relocations where utilities conflict with construction activities. Any service lines located in streets crossing over SR-22, where overcrossings are to be replaced or widened, could be in conflict with construction operations. Any aerial utility lines, signals or street lighting (including pole cross-arms) which are within, adjacent to or hang over right-of-way areas, could be in conflict with construction operations. Relocations could result in short-term service interruptions, although with standard construction practices, such interruptions would be minimal. (Section 4.11.3)

Hazardous Materials and Wastes. Two previously identified hazardous materials or wastes sites lie within the path of construction for the (Enhanced) Reduced Build Alternative, potentially exposing construction workers to contaminated soil; underground and above-ground storage tanks, pipes, reservoirs, etc.; debris or above-ground or underground materials from an existing or previous land use; and materials contained within structures scheduled for demolition, including lead paint and asbestos. The previously identified sites are:

- Former UNOCAL 76 Service Station
- Former Firestone Store at 3400 Metropolitan Drive

There are five residential and five non-residential displacements required for the (Enhanced) Reduced Build Alternative. Some of the structures associated with these displacements may

contain asbestos or lead-based paint. During demolition of structures containing these materials, construction workers may be exposed to hazards from these materials.

There is a potential that the (Enhanced) Reduced Build Alternative may affect unidentified hazardous materials and waste sites within the area to be disturbed. Construction workers may be exposed to these previously unidentified hazards.

Soil in unpaved areas next to traffic lanes and shoulders might be contaminated with lead from vehicle emissions (ADL). Construction workers may be exposed to these hazardous soils.

Naturally occurring hazardous materials, such as radon and methane, could be encountered during construction, exposing construction workers to danger.

Hazardous materials may be used during construction of the (Enhanced) Reduced Build Alternative, such as paving materials, chemicals, and paints. These materials may be a potential health threat to people working on the project. Transporting these materials to the job site may create additional hazards related to traffic and handling accidents. (Section 4.5.4)

Visual Quality. Storage of construction vehicles, equipment and materials in staging areas would result in a short-term reduction of visual quality. Precise locations of construction staging areas have not yet been defined.

Energy. The construction (indirect) energy associated with construction of the (Enhanced) Reduced Build Alternative would be approximately 8,768 billion BTUs or about 1,512,000 barrels of oil. (Section 4.14.2)

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

Since the No Build Alternative would not include any major capital improvements to SR-22 other than adjacent projects that were analyzed in other environmental documents, no additional substantial construction-related impacts would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Only minor construction is proposed under the TSM/Expanded Bus Service Alternative. Construction would include minor work for such TSM measures as signal synchronization/controller upgrades, automated response plan, highway advisory radio, changeable message signs, fleet management system, and transit intersection priority system. Thus, construction impacts would be negligible.

The construction (indirect) energy associated with construction of the TSM/Expanded Bus Service Alternative would be associated with signal synchronization/controller upgrades, automated response plan, highway advisory radio, changeable message signs, fleet management system and transit intersection priority system. This would result in energy consumption of approximately 5,037 billion BTUs or about 868,570 barrels of oil. (Section 4.14.2)

3. FULL BUILD ALTERNATIVE

Geology and Soils. The Full Build Alternative would require the disturbance of soil and sediments in upland areas and in riverbeds during construction.

During construction, sites, structures, materials, and equipment are particularly vulnerable to impacts associated with earthquakes.

Isolated lenses of shallow groundwater may be encountered during construction. This may impact construction and result in polluted runoff.

Biology. Maternity colonies of Big Brown Bats and Mexican free-tailed bats are reported to occur at the SR-55 bridges crossing over Santiago Creek. If project construction occurs between March 1 and August 31, it would result in disturbances and possible destruction of the bridge nooks used by the bats. This would be a substantial impact, because maternity colonies of bats are rare. In addition, the bridge provides nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts.

Wetlands and Waters of the United States. The study area for the Full Build Alternative supports a total of 0.629 hectare (1.55 acres) of wetlands. None of these wetlands are within the proposed Full Build Alternative right-of-way, but runoff or erosion from the project area during construction activities could affect the wetlands.

The Full Build Alternative would cross several waters of the United States. Although none of these support habitat and permanent impacts would be below the thresholds set for appropriate nationwide permits under Section 404 of the Clean Water Act, temporary impacts for construction would affect these waters.

Land Use. During construction, temporary construction easements on adjacent properties may be necessary. If these easements result in impacts that would make the affected property unusable for its existing use, substantial impacts would occur.

Employment. The Full Build Alternative would create short-term construction jobs. An approximate maximum of 21,528 short-term employees would be required. Not all of these employees would be working at the same time.

Traffic Disruption. Widening of the freeways that are part of the Full Build Alternative and interchange improvements would result in traffic disruptions and detours. Temporary lane, interchange, and street closures would be required.

Please see Section 4.15.1 (a) for discussions on the TMP.

Air Quality. During construction, the Full Build Alternative would be required to comply with regional rules, which would prevent substantial short-term air pollutant emissions. Compliance with the regional rules is assumed for the project and, thus, substantial short-term impacts would not occur.

Noise and Vibration. Construction noise represents a short-term impact on the noise environment. The duration and level of construction noise is variable, depending upon the following phases of activity:

- Ground-clearing, demolition, and removal of existing structures, trees, rocks, and soil
- Excavation
- Placement of foundations and roadbeds
- Erection of structures, including bridges and retaining walls
- Finishing, including filling, grading, paving, landscaping, and cleanup operations

Utilities. Improvements proposed by the Full Build Alternative would result in temporary utility relocations where utilities conflict with construction activities. Any service lines located in streets crossing over SR-22, where overcrossing are to be replaced or widened, could be in conflict with construction operations. Any aerial utility lines, signals, or street lighting

(including pole cross-arms), which are within, adjacent to, or hang over right-of-way areas could be in conflict with construction operations.

Hazardous Materials and Wastes. Previously identified hazardous materials or wastes sites lie within the path of construction for the Full Build Alternative, potentially exposing construction workers to contaminated soil; underground and above-ground storage tanks, pipes, reservoirs, etc.; debris or above-ground or underground materials from an existing or previous land use; and materials contained within structures scheduled for demolition, including lead paint and asbestos.

There are 144 potential residential and 35 potential non-residential displacements required for the Full Build Alternative. Some of the structures associated with these displacements may contain asbestos or lead-based paint. During demolition of structures containing these materials, construction workers may be exposed to hazards from these materials.

Hazardous materials may be used during construction of the Full Build Alternative, such as paving materials, chemicals, and paints. These materials may be a potential health threat to people working on the project.

Visual Quality. Storage of construction vehicles, equipment, and materials in staging areas would result in a short-term reduction of visual quality. Precise locations of construction staging areas have not yet been defined.

Energy. The construction (indirect) energy associated with construction of the Full Build Alternative would be approximately 10,558 billion BTUs or about 1,820,300 barrels of oil.

Thresholds of Significance for CEQA:

- Substantial impacts on construction from shallow groundwater lenses and potential pollution of runoff during de-watering operations
- Substantial impacts from temporary construction easements, preventing use of adjacent land for intended uses or causing long-term impacts
- Substantial visual impacts associated with views of construction staging areas
- Substantial traffic disruption during construction
- Substantial traffic disruption during construction affecting school bus and emergency response routes
- Substantial danger to construction workers and the general public due to potential earthquake damage during construction
- Substantial impact on capacity of landfills from demolition.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Under the (Enhanced) Reduced Build Alternative, isolated lenses of shallow groundwater may be encountered during construction, and temporary construction easements on adjacent properties may be necessary. Widening of the freeways that are part of the (Enhanced) Reduced Build Alternative and interchange improvements would result in traffic disruptions and detours. Storage of construction vehicles, equipment and materials in staging areas would result in a short-term reduction of visual quality. After mitigation, the impacts outlined above are anticipated to be less than significant (see CON-(E)RB-1, CON-(E)RB-2, CON-(E)RB-3, CON-(E)RB-PA-4, CON-(E)RB-5, CON-(E)RB-6, CON-(E)RB-PA-7).

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not have impacts to the above construction activities.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Only minor construction is proposed under the TSM/Expanded Bus Service Alternative. All impacts related to construction are anticipated to be less than significant.

3. FULL BUILD ALTERNATIVE

Under the Full Build Alternative, isolated lenses of shallow groundwater may be encountered during construction, and temporary construction easements on adjacent properties may be necessary. Widening of the freeways that are part of the Full Build Alternative and interchange improvements would result in traffic disruptions and detours. Storage of construction vehicles, equipment, and materials in staging areas would result in a short-term reduction of visual quality. After mitigation, the impacts outlined above are anticipated to be less than significant.

4.15.2 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

See Sections 4.1 through 4.14 for mitigation measures for the (Enhanced) Reduced Build Alternative. In addition, the following mitigation measures are required:

CON-(E)RB-1. If shallow groundwater lenses are encountered during construction, appropriate dewatering measures will be used to prevent impacts on construction and to ensure that polluted runoff does not leave the site. Disposal of the excess water shall be in compliance with the applicable NPDES permit and the Department's standards.

CON-(E)RB-2. If temporary construction easements result in an inability for landowners to use their property as intended, additional substantial impacts not foreseen in this document could occur. Following construction, affected properties will be returned to their pre-construction condition.

CON-(E)RB-3. Where appropriate and feasible, construction staging areas will be located inconspicuously to minimize adverse visual effects upon residential and recreational areas.

CON-(E)RB-4. During final design, the Department will work closely with the affected local agencies to coordinate traffic control plans, construction schedules, and necessary detours for both motorized and non-motorized vehicles. The Department will establish a Transportation Management Plan (TMP) consistent with the Department's standard procedures to minimize localized congestion and travel delays during construction. Development and implementation of this plan shall be coordinated with local agencies and transit districts. The TMP will include provisions for public notification through various forms of media. Construction will begin after right-of-way acquisitions and final designs are complete. The TMP will ensure that the construction activities of the project will not negatively impact school bus and emergency services, and any other essential services. There will be a public hotline for concern citizens to report any construction activities that are negatively impacting their community.

CON-(E)RB-5. Prior to beginning construction, the Department will submit a copy of the proposed construction schedule and detour information to all potentially affected school districts

and associated transportation departments so that school bus routes and emergency vehicle routes can be revised.

CON-(E)RB-6. The Department will require all construction contractors to integrate recycling or material reuse programs into their bid proposals.

CON-(E)RB-7. Construction techniques will be used to ensure the safety of construction workers and the general public in the event of an earthquake. Such techniques will include the use of shoring and falsework to support structures under construction and limiting access to dangerous areas, such as the foot of newly constructed slopes, areas around equipment, and materials storage areas.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None required.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None required.

3. FULL BUILD ALTERNATIVE

See Sections 4.1 through 4.14. In addition, mitigation measures CON-PA 1 through CON-PA 7 (listed under the PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE) are required.

4.15.3 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

It is unlikely that all construction staging areas can be located inconspicuously in the dense urban areas that border the project. Therefore, substantial short-term impacts would remain after mitigation for the construction period.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Less than substantial.

3. FULL BUILD ALTERNATIVE

See A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE, above.

SECTION 5.0
UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

5.0 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The following sections discuss the unavoidable adverse environmental impacts that would not be mitigated to less than substantial. In some cases, these sections include discussions of potential impacts that cannot be determined at this time. These impacts would be determined at the final design phase.

As previously discussed, the (Enhanced) Reduced Build Alternative is a slight modification of the Reduced Build Alternative proposed in the August 2001 DEIR/EIS. The difference between the Reduced Build Alternative and the (Enhanced) Reduced Build Alternative is that the eastern terminus, previously proposed at Glassell Street, has been extended to approximately SR-55. The direct HOV connector to SR-55 is not part of the (Enhanced) Reduced Build Alternative. An auxiliary lane has been added from Glassell Street to Tustin Avenue in the eastbound direction, and HOV lanes have been extended from Glassell Street to Tustin Avenue in both directions. Please refer to Table 2.2-1, (Enhanced) Reduced Build Alternative Features. All of the elements of the TSM/Expanded Bus Alternative are included in the (Enhanced) Reduced Build.

Some of the additional analysis in this section may have been the result of refined engineering, responses to comments received during the public comment period of the DEIR/EIS, and/or additional planning efforts. The comments and responses to comments are attached as Appendix A (Volumes II and III) of this FEIS/EIR.

5.1 (ENHANCED) REDUCED BUILD ALTERNATIVE

5.1.1 Cultural Resources

During construction of the (Enhanced) Reduced Build Alternative, there is potential for unearthing unknown buried cultural materials and disturbing unknown human remains and associated artifacts that have not been located or catalogued. Procedural mitigation measures have been proposed should such materials be encountered. Residual impacts cannot be determined at this time. Earth moving activities will be monitored, and work will be halted if cultural materials or human remains are encountered. Appropriate Health and Safety Codes will be followed. Further mitigation will be in accordance with 36 CFR 800.13.

5.1.2 Community Impacts

Implementation of the (Enhanced) Reduced Build Alternative will result in the loss of 472 on-site parking spaces at four business locations in the City of Orange. Only two locations, Carl Karcher Enterprises and Amerisource-Bergen, would experience a loss of parking, resulting in a substantial impact. Additionally, Theo Lacy jail facility, east of the City Drive, would experience a potential impact to the planned parking for the expanded facility, resulting in the removal of an estimated 50 proposed parking spaces. The City of Orange stated appropriate parking variances would be granted to lessen the impacts of the project. However, it is important to note that determination of right-of-way impacts will not be finalized until the approval of final design.

5.1.3 Noise

Construction noise is only considered to be substantial in exceptional cases, such as pile driving and crack and seal pavement rehabilitation operations. Otherwise, the Department's Standard Specifications (Sections 7 and 42) and Standard Special Provisions provide limits on construction noise levels, with normal construction noise levels not exceeding 86 dBA at a distance of 15 meters (50 feet). The (Enhanced) Reduced Build Alternative may require pile driving and/or crack and seal pavement rehabilitation, and substantial short-term impacts would occur (see Section 4.9).

5.1.4 Visual Resources

The removal of landscaping for widening of the freeways and realignment of interchanges cannot be fully mitigated due to the lack of available area for replanting either within or outside the future right-of-way. The loss of landscaping would be a substantial visual impact (see Section 4.13). Existing landscaping within State right of way will be preserved and lost landscaping will be replaced where feasible. The replacement of landscaping with hard surfaces, such as soundwalls and structures would occur with implementation of the project. Use of vines, trees, and shrubs will be used to soften the effects of hard surfaces. Wall surfaces will be a potential substantial visual impact.

It is unlikely that all construction staging areas can be located inconspicuously, so short-term residual impacts would occur (see Section 4.15).

Subsequent to the release of the draft environmental document for this proposed project , there were numerous comments from the Rossmoor/Los Alamitos residents stating their concerns about the SR-22/I-405/I-605 HOV connector. These comments included what the residents termed "degradation of the western viewshed." These comments and the responses to them are included in Appendix A, Volumes II and III.

5.1.5 Construction Impacts

The (Enhanced) Reduced Build Alternative may require pile driving and/or cut and seal pavement rehabilitation, and substantial short-term impacts would occur (see Sections 4.9.3 and 4.15.1). In addition, there may be work conducted in the Santiago Creek and possibly in the Santa Ana River bed, which will require mitigation measures and permits from Resources Agencies.

OTHER ALTERNATIVES

5.2 NO BUILD ALTERNATIVE

5.2.1 Community Impacts

Since the No Build Alternative would not include improvements to major arterials or freeway systems as anticipated in local land use plans and policy documents, the goals of the cities along the SR-22 corridor to attain overall transportation mobility would go unmet (see Section 4.6).

5.3 TSM/EXPANDED BUS SERVICE ALTERNATIVE

5.3.1 Community Impacts

The TSM/Expanded Bus Service Alternative is not consistent with land use policies of local jurisdictions that anticipate improvements to mobility and transportation facilities (see Section 4.6).

5.3.2 Air Quality

Under current operating conditions, the TSM/Expanded Bus Service Alternative could result in increases in the pollutant burden over the No Build Alternative that would exceed the SCAQMD thresholds for nitrogen oxides. However, the SCAQMD's implementation of Rule 1192 requires all "…public transit fleet operators to acquire alternative-fuel heavy-duty vehicles when procuring or leasing these vehicles to reduce air toxic and criteria pollutant emissions." The assumption is that all future procurements for the Orange County Transportation Authority (OCTA) would be alternative fuel buses and this would not lead to exceedance in nitrogen dioxides for this alternative.

5.4 FULL BUILD ALTERNATIVE

5.4.1 Environmental Impacts

During construction of the Full Build Alternative, there is the potential for unearthing unknown buried cultural materials. The implementation of the Full Build Alternative would result in the removal of the Pacific Electric Santa Ana River Bridge, which is eligible for the National Register of Historic Places (see Section 4.5). There is no prudent and feasible avoidance for this impact (see Section 9.0) if the Full Build Alternative is chosen. However, the (Enhanced) Reduced Build Alternative, which is the identified Preferred Alternative, does not include removal of the Pacific Electric Santa Ana River Bridge.

5.4.2 Community Impacts

The removal of the former Pacific Electric right-of-way for an arterial in the Full Build Alternative would be inconsistent with the land use plans for the cities of Santa Ana and Garden Grove. The City of Santa Ana has designated the former Pacific Electric right-of-way as a class I bicycle trail, and as one of the variety of uses designated by the City of Garden Grove. However, this inconsistency could be mitigated if the designation is changed by the City of Santa Ana.

In addition, the removal of houses from one side of the street along Sherwood Lane in Santa Ana cannot be avoided under the Full Build Alternative. Since it would be difficult to relocate this community as a whole, substantial impacts to community cohesion that cannot be mitigated would occur.

Implementation of the Full Build Alternative will result in the loss of 571 on-site parking spaces at four business and two residential locations. Two business locations, Carl Karcher Enterprises and Amerisource-Bergen, and both residential locations at the City Gardens Apartments and the El Prado Drive residences would experience a substantial impact due to a loss of parking. Additionally, Theo Lacy jail facility, east of the City Drive, would experience a potential impact to the planned parking for the expanded facility, resulting in the removal of an estimated 50 proposed parking spaces. The City of Orange stated appropriate parking variances would be granted to lessen the impacts of the project. However, it is important to note that determination of right-of-way impacts will not be finalized until the approval of final design.

At the City Gardens Apartment complex in Santa Ana, the Full Build would remove existing parking and some residential units. The Full Build Alternative would result in a loss of one- third of the parking at the City Gardens Apartments. The complex currently does meet parking code requirements. Therefore, the Full Build Alternative would have a substantial adverse impact on parking at the City Gardens Apartment complex. The site is a legal non-conforming use because it does not have sufficient parking and because it is zoned for agriculture, not multi-family residential. Since the Full Build Alternative would make alterations to the site, it would lose its legal non-conforming use status, and can legally be forced by the City of Santa Ana to comply with the zoning and/or parking ordinances. This would lead to conversion to agriculture (and removal of all multi-family residences) and/or the creation of additional parking. Since there is not sufficient land available to add parking, at the least, additional units may have to be removed to create sufficient parking to meet the requirements. 542 parking spots would be needed to meet code.

5.4.3 Transportation and Circulation

The Full Build Alternative would result in HOV traffic entering the northbound SR-55 HOV lane in excess of its capacity. Since mitigation for this impact is not feasible, this would result in a substantial and unavoidable adverse traffic impact under this alternative (see Section 4.7).

5.4.4 Air Quality

The Full Build Alternative would result in increases in the pollutant burden over the No Build Alternative that would exceed the SCAQMD thresholds for nitrogen oxides. Because mitigation for nitrogen oxides is most effective on a regional scale, and because some of the elements of the Full Build Alternative are not

included in the existing (1998) RTP, this alternative would not conform with the existing RTP. This impact is considered substantial by SCAQMD.

5.4.5 Noise

Construction noise is only considered to be substantial in exceptional cases, such as pile driving and crack and seat pavement rehabilitation operations. These impacts would only be temporary due to construction activities. Otherwise, Caltrans' Standard Specifications (Section 7 and 42) and Standard Special Provisions provide limits on construction noise levels, with normal construction noise levels not exceeding 86 dBA at a distance of 15 meters (50 feet). The Full Build Alternative may require pile driving and/or crack and seat pavement rehabilitation, and substantial short-term impacts would occur (see Section 4.9).

5.3.6 Parks and Recreation

Since the Full Build Alternative would preclude the class I trail proposed by the City of Santa Ana for the former Pacific Electric right-of-way, and since no mitigation is available to prevent this impact, a substantial impact to this proposed trail would remain after mitigation (Section 4.10).

Substantial visual impacts would remain after mitigation at the following parks and recreation resources: Pacific Electric Commemorative Area and Willowick Municipal Golf Course (see Section 4.13).

5.3.7 Visual Resources

In locations where houses are removed, the visual impact to the remaining residential viewers cannot be fully mitigated and a residual visual impact would remain.

The removal of landscaping for widening of the freeways and realignment of interchanges cannot be fully mitigated due to the lack of available area for replanting either within or outside the future right-of-way. The loss of landscaping would be a substantial visual impact.

The use of the former Pacific Electric right-of-way for an arterial would also lead to the following visual impacts that also cannot be reduced to less than substantial after mitigation: the removal of open space, the addition of new light sources, and the removal of the historic Pacific Electric Santa Ana River Bridge.

The addition of elevated connectors to and from the Pacific Electric Arterial would also result in unmitigatable blockage of views of signs at the following businesses: the Shell Gas Station, Garden Grove Storage, and Allspace Storage (see Section 4.13).

It is unlikely that all construction staging areas can be located inconspicuously, so short-term residual impacts would occur (see Section 4.15).

5.3.8 Construction Impacts

The Full Build Alternative may require pile driving and/or crack and seat pavement rehabilitation, and substantial short-term impacts would occur (see Section 4.93. and 4.15.1).

Since the Full Build Alternative was not identified as the Preferred Alternative, the features from this alternative that would have caused unavoidable impact have been avoided. Where the Full Build (Enhanced) Reduced Build Alternative share common major project features such as the I-405/605 and I-405/SR-22 direct HOV connectors, and the Mainline, the impacts are the same as discussed in the (Enhanced) Reduced Build Alternative section of this chapter (See Section 5.1).

SECTION 6.0
SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

6.0 LOCAL SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

6.1 METHODOLOGY

The relationship between local short-term uses of our environment and the enhancement of its long-term productivity under the proposed alternatives is a required topic of discussion in a Final EIR/EIS under both CEQA and NEPA.

> *During the life of the SR-22/West Orange County Connection, there would be benefits and gains, as well as costs and impacts. This section presents an evaluation of the short-term use of the environment in relation to adverse effects on the maintenance or enhancement of long-term productivity.*

The Caltrans *Environmental Handbook – Volume I* (1995)[1] requires a summary of any tradeoffs caused by the proposed project that would lead to short-term (economic) gains at the expense of long-term (natural) productivity. During its life, a project should provide benefits. At the same time there will usually be costs, side effects and loss of natural resources that have long-term productive value. For this discussion, short-term and long-term relates to the time frame for environmentally significant consequences of the proposed action. Throughout the rest of this document, Caltrans will be referred to as the "Department."

Short-term uses include such benefits as improved transportation, better safety, lowered energy use, better public services, more efficient economic activities and improved development potential. Short-term uses also include such costs as construction materials consumed, disrupted community or economic activities, and existing homes or businesses removed. Long-term productivity refers to valuable uses for the existing environment (e.g., wetlands, open space, recreation areas, floodplains, wildlife habitat, groundwater recharge, areas that support rare species, or existing urban living and working places) and renewable resources (e.g., agriculture, timber, fisheries, ranching or water supply). Long-term productivity also refers to environmental quality such as low noise levels, clean air, pure water and low levels of other kinds of pollutants.

6.2 ANALYSIS

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The discussion below will focus on the (Enhanced) Reduced Build Alternative and the short-term benefits, short-term costs/impacts and long-term productivity related to this alternative..

1. SHORT-TERM BENEFITS

Short-term benefits that would result from the (Enhanced) Reduced Build Alternative relate generally to improved traffic due to the availability of an alternative mode. There would be a small mode shift from drive-alone to transit (estimated 14 percent increase in transit ridership). The time spent commuting would decrease minimally (less than one percent) and there would be slightly higher speeds on the freeways (3.1 percent higher) compared to the No Build Alternative. Within the corridor (including parallel arterials), there would be slight increases in speeds at some screenlines, most significantly between Harbor Boulevard and Haster Street, where there would be over an eight-kilometer-per-hour (five-mile-per-hour) improvement. There would be a substantial travel time benefit over the No Build Alternative, 1.0 to 2.1 minutes per vehicle for SOVs and 2.8 to 4.9 minutes per vehicle for HOVs during peak periods.

[1] Available at Caltrans, District 12.

Of the 30 freeway segments studied on SR-22, the (Enhanced) Reduced Build Alternative would result in 13 fewer segments operating at LOS F than under the No Build Alternative. Eight fewer intersections would operate at LOS F.

There would be an estimated 19,703 short-term construction jobs associated with the (Enhanced) Reduced Build Alternative. Over the long term, there would be an undetermined increase in jobs due to the larger bus fleet, slightly increased maintenance labor needed for additional travel lanes and slightly increased traffic enforcement needs.

2. SHORT-TERM COSTS/IMPACTS

The cost of constructing the (Enhanced) Reduced Build Alternative is estimated at $511 million, including $468 million for construction and over $42 million for acquisition of additional right-of-way (in Year 2001 dollars).

Short-term impacts associated with the construction of the (Enhanced) Reduced Build Alternative would include (see Section 4.15.1):

- Disturbance of soils (reduced to less than substantial by mitigation)
- Sedimentation in runoff (prevented by mitigation)
- Exposure of construction workers to earthquake-induced risks (reduced to less than substantial by mitigation)
- Indirect impacts on wetlands from runoff or erosion (prevented by mitigation)
- Temporary construction-related impacts to Santiago Creek and Santa Ana River (reduced to less than substantial by mitigation)
- Traffic disruptions (reduced to less than substantial by mitigation)
- Air quality impacts (reduced to less than substantial by mitigation)
- Construction noise (may not be fully mitigated)
- Utility relocations (reduced to less than substantial by mitigation)
- Exposure to hazardous materials/wastes (reduced to less than substantial by mitigation)
- Reduction in visual quality (may not be fully mitigated)
- Energy use (less than substantial)
- Temporary construction easements

3. IMPACTS TO LONG-TERM PRODUCTIVITY

The (Enhanced) Reduced Build Alternative would acquire residences and businesses, as explained below. This alternative would require the acquisition of two residences and ten non-residential units. However, there are ample relocation sites for these displacements in the study area cities.

All elements of this alternative are included in the current (2000) RTP. Therefore, the (Enhanced) Reduced Build Alternative conforms to the existing RTP.

The (Enhanced) Reduced Build Alternative would remove approximately 60 percent of the existing freeway landscaping, with the majority of the landscaping remaining only at interchanges. This loss of the mature urban forest is a substantial impact. However, replacement landscaping would occur where adequate setbacks are available for replanting.

B. OTHER ALTERNATIVES

1. No Build Alternative

a. SHORT-TERM BENEFITS

Because the No Build Alternative would not include any improvements other than those discussed in other environmental documents, there would be no short-term benefits related to this alternative.

b. SHORT-TERM COSTS/IMPACTS

Because the No Build Alternative would not include any construction other than those discussed in other environmental documents, there would not be short-term costs or impacts related to this alternative.

c. IMPACTS TO LONG-TERM PRODUCTIVITY

Because there would be no construction under the No Build Alternative, there would also be no impacts to long-term productivity.

2. TSM/Expanded Bus Service Alternative

a. SHORT-TERM BENEFITS

The TSM/Expanded Bus Service Alternative would improve transportation, especially for transit. The transportation/circulation analysis shows that there would be a small mode shift from drive-alone to transit (estimated 17 percent increase in transit ridership). The time spent commuting would decrease slightly (by 0.5 percent) and there would be slightly higher speeds on the freeways (1.5 percent higher) compared to the No Build Alternative. Within the corridor (including parallel arterials), there would be slight increases in speed at some screenlines. There would be a small travel time benefit over the No Build Alternative, approximately a half-minute during peak periods.

Of the 30 freeway segments studied on SR-22, the TSM/Expanded Bus Service Alternative would result in one less segment operating at LOS F than under the No Build Alternative.

There would be a minimal number of construction jobs associated with the TSM/Expanded Bus Service Alternative. Over the long term, there would be an undetermined increase in jobs due to the larger bus fleet.

b. SHORT-TERM COSTS/IMPACTS

The TSM/Expanded Bus Service Alternative includes only minor construction compared to the two build alternatives. Cost estimates are $68 million (Year 2001 dollars), which includes the costs of additional bus service and advanced technology improvements such as signal synchronization and electronic message signs.

c. IMPACTS TO LONG-TERM PRODUCTIVITY

Because there would be limited construction under the TSM/Expanded Bus Service Alternative, there would also be limited impacts to long-term productivity.

The TSM/Expanded Bus Service Alternative is not consistent with land use policies of local jurisdictions that anticipate improvements to mobility and transportation facilities.

All elements of this alternative are included in the current (2000) RTP. Therefore, the TSM/Expanded Bus Service Alternative conforms to the existing RTP.

All elements of this alternative are also included under the (Enhanced) Reduced Build Alternative.

3. Full Build Alternative

a. SHORT-TERM BENEFITS

Short-term benefits that would result from the Full Build Alternative relate generally to improved traffic due to the availability of an alternative mode. Time spent commuting would decrease by about 4.5 percent, and freeway speeds would increase by about 4.1 percent. Travel time would improve substantially over the No Build Alternative (1.0 to 2.5 minutes per vehicle for SOV and 3.0 to 5.0 for HOV during peak periods).

Of the 30 freeway segments studied on SR-22, the Full Build Alternative would result in 13 less segments operating at LOS F than under the No Build Alternative. Six fewer intersections would operate at LOS F.

b. SHORT-TERM COSTS/IMPACTS

The cost of constructing the Full Build Alternative is estimated at approximately $763 million, including $683 million for construction and over $80 million for acquisition of additional right-of-way (in Year 2001 dollars). Short-term impacts include soil disturbance, sediment runoff, runoff or erosion impacts on wetlands, traffic disruptions, air quality impacts, construction noise, utility relocations, exposure to hazardous waste, loss of visual quality, and energy use. All impacts are either fully or substantially mitigated to less than significance except for construction noise and visual quality loss.

c. IMPACTS TO LONG-TERM PRODUCTIVITY

The Full Build Alternative would acquire residences and businesses, as explained below. This alternative would require the acquisition of 181 residences and 40 non-residential units. However, there are ample relocation sites for these displacements in the study area cities.

6.3 CONCLUSIONS

A. PREFERRED ALTERNATIVE/ (ENHANCED) REDUCED BUILD ALTERNATIVE

Table 6.3-1 demonstrates the benefit/impact comparison of the (Enhanced) Reduced Build Alternative. Note that only the impacts that cannot be mitigated below a substantial level are listed under impacts/costs. The (Enhanced) Reduced Build Alternative has a large number of benefits, only slightly less than the Full Build Alternative, and a much shorter list of impacts.

B. OTHER ALTERNATIVES

1. No Build Alternative

Since there would be no construction under the No Build Alternative, except as addressed in previous environmental documents, there would be no short-term benefits or impacts and no long-term impacts to productivity.

2. TSM/Expanded Bus Service Alternative

Table 6.3-2 demonstrates the benefit/impact comparison of the TSM/Expanded Bus Service Alternative. Note that only the impacts that cannot be mitigated below a substantial level are listed under impacts/costs. Because of the limited amount of construction proposed under the TSM/Expanded Bus Service Alternative, the costs and impacts are low, compared to the other alternatives. However, the benefits are also more limited.

3. Full Build Alternative

Table 6.3-3 demonstrates the benefit/impact comparison of the Full Build Alternative. Note that only the impacts that cannot be mitigated below a substantial level are listed under impacts/costs. The Full Build Alternative has a large number of benefits and also a large number of impacts. Many of these impacts are related to the Pacific Electric Arterial alone.

Table 6.3.1
BENEFIT/IMPACT COMPARISON
(ENHANCED) REDUCED BUILD ALTERNATIVE

Benefits	Impacts/Costs
• 14% increase in transit ridership • Minimal decrease in time spent commuting • 3.1% higher speeds on freeways • Slightly higher speeds at some screenlines • 1.0- to 2.1-minute travel time benefit for SOVs during peak periods • 2.8- to 4.9-minute travel time benefit for HOVs during peak periods • 13 fewer freeway segments at LOS F • 8 fewer intersections at LOS F • 13,548 short-term construction jobs • Undetermined additional long-term jobs related to larger bus fleet and increased maintenance and traffic enforcement needs	• $510 million cost to construct • Construction noise • Reduction in visual quality during construction • Exceeds pollutant burden thresholds for nitrogen oxides • Removal of 60% of the existing freeway landscaping • Reduction in visual quality to views of and from the freeway

Table 6.3-2
BENEFIT/IMPACT COMPARISON
TSM/EXPANDED BUS SERVICE ALTERNATIVE

Benefits	Impacts/Costs
• 17% increase in transit ridership • 5% decrease in time spent commuting • 1.5% higher speeds on freeways • Slightly higher speeds at some screenlines • ½-minute travel time benefit during peak periods • 1 fewer freeway segment at LOS F • Undetermined number of construction jobs • Undetermined additional long-term jobs related to larger bus fleet	• $68 million cost to construct • Exceeds pollutant burden threshold for nitrogen oxides

Table 6.3-3
BENEFIT/IMPACT COMPARISON
FULL BUILD ALTERNATIVE

Benefits	Impacts/Costs
• 14% increase in transit ridership • 4.5% decrease in time spent commuting • 4.1% higher speeds on freeways • Slightly higher speeds at all screenlines (esp. between Harbor Blvd. and Haster St.) • 1.0- to 2.5-minute travel time benefit for SOVs during peak periods • 3.0- to 5.0-minute travel time benefit for HOVs during peak periods • 13 fewer freeway segments at LOS F • 6 fewer intersections at LOS F • Direct connection to downtown Santa Ana could stimulate economic development, with fiscal and employment benefits • 21,528 short-term construction jobs • Undetermined additional long-term jobs related to larger bus fleet and increased maintenance and traffic enforcement needs	• $763 million cost to construct • Construction noise • Reduction in visual quality during construction • Permanent loss of open space (former Pacific Electric right-of-way) • Preclusion of planned Pacific Electric class I bicycle trail • Removal of Pacific Electric Santa Ana River Bridge (eligible for NRHP) • Exceeds pollutant burden thresholds for nitrogen oxides • Preclude use of the former Pacific Electric right-of-way as designated by Garden Grove and Santa Ana • Community cohesion impacts to several communities • Removal of 66% of the existing freeway landscaping • Reduction in visual quality to views of and from the freeway • New light sources in previously dark area • Obstruction of freeway-oriented signage

SECTION 7.0
IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

7.1 METHODOLOGY

The discussion of irreversible and irretrievable commitments of resources that would be used by the project alternatives is a required topic in a Final EIS/EIR under both NEPA and CEQA. This section covers what important resources would be used or removed by the project. These could include:

- The materials, labor and energy needed to build the project
- Materials, labor and energy consumed in maintenance and operation of the project
- Land, and present uses of that land, directly taken to make way for the project (e.g., agricultural land, housing, wildlife habitat)
- Environmental conditions degraded or destroyed by the project (e.g., polluted waters, reduced wildlife populations, noisier communities)
- Properties indirectly used by the project (e.g., fill disposal sites, borrow sites, sediment basins)
- Public service capacities used up by the project (e.g., available water supply, storm sewer capacity or police patrol time committed)

In addition, this section discusses significant cumulative resource use due to other projects that are interrelated to the one being proposed (e.g., induced growth, new mining, new recreation uses). If building the project would prevent any planned or expected uses of land, property or resources, that must also be described.

In the following sections, short-term, construction-related impacts are not discussed because these impacts are not irreversible or irretrievable commitments of resources.

7.2 ANALYSIS

1. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

a. RESOURCES USED DURING CONSTRUCTION

The estimated construction cost for the (Enhanced) Reduced Build Alternative would be $511 million. An estimated 19,703 short-term construction jobs would be required for this alternative. Construction energy used under the (Enhanced) Reduced Build Alternative would be approximately 8,768 billion BTUs or about 1,511,756 barrels of crude oil. See C, LAND AND LAND USES TAKEN, below, for a discussion of right-of-way acquisitions.

b. RESOURCES USED FOR MAINTENANCE/OPERATION

An undetermined amount of additional labor and materials would be required to maintain the additional lanes and widened interchanges that are included in the (Enhanced) Reduced Build Alternative. This alternative includes the same additional buses (approximately 50) proposed under the TSM/Expanded Bus Service Alternative, and additional labor to operate, maintain and manage these buses would be required. (See also F, PUBLIC SERVICE CAPACITIES AFFECTED, below.) The additional energy consumption during operation would be approximately 25,500 billion BTUs or about 915 million liters (4.40 million barrels) of oil annually.

c. LAND AND LAND USES TAKEN

Additional right-of-way would be required for the improvements proposed under the (Enhanced) Reduced Build Alternative. A total of two residential and ten non-residential units would be displaced for the project. Although relocation of the residents and businesses affected would be possible within the local area, the conversion of this land from residential and commercial land uses would be an irreversible commitment.

Parking Impact. Implementation of the (Enhanced) Reduced Build Alternative would result in the loss of 472 on-site parking spaces at four locations in Orange. Carl Karcher Enterprises, Amerisource-Bergen, and One City Plaza would have a loss of parking due to the (Enhanced) Reduced Build Alternative, resulting in a significant impact. The removal of parking at The Block would not result in a significant impact because the quantity of residual parking exceeds the quantity required to meet code. Furthermore, One City Plaza and The Block currently share parking. When examined together, the combined parking at these locations would exceed the approximate number of combined parking to meet code. Therefore, the (Enhanced) Reduced Build Alternative would not have a substantial adverse impact on parking at One City Plaza and The Block.

d. ENVIRONMENTAL CONDITIONS DEGRADED OR DESTROYED

The (Enhanced) Reduced Build Alternative has a number of impacts that represent a degradation or destruction of existing environmental conditions, thereby resulting in an irretrievable loss of resources. The visual environment would be substantially affected by the removal of approximately 60 percent of the freeway landscaping, affecting views both of the freeways and from them.

e. OFF-SITE PROPERTIES INDIRECTLY USED

The (Enhanced) Reduced Build Alternative would not require substantial amounts of fill or result in large amounts of excess material. There would be demolition resulting from the acquisition of two residential units and ten business units, which would require disposal. In addition, several freeway structures would be replaced. Much of this material would be recycled, but large quantities would require disposal. These construction activities would result in use of landfill space as well as borrow sites, sediment basins and stockpile areas. Although adequate storage areas may be available within the work site, additional space may be needed for these activities as well as for staging construction equipment. (See F, PUBLIC SERVICE CAPACITIES AFFECTED, below).

f. PUBLIC SERVICE CAPACITIES AFFECTED

The (Enhanced) Reduced Build Alternative would require disposal of materials associated with demolition that cannot be recycled. In some cases, this may include hazardous materials, including asbestos, lead-based paint, contaminated soil and hazardous materials storage tanks, pipes, etc. Adequate capacity exists in the local area for such disposal.

The HOV lanes that would be added to SR-22 would require additional CHP manpower to patrol.

B. OTHER ALTERNATIVES

1. No Build Alternative

Since the No Build Alternative would not include additional construction, except that analyzed in other environmental documents, no additional or incremental increase in irreversible or irretrievable commitment of resources would be required.

2 TSM/Expanded Bus Service Alternative

The TSM/Expanded Bus Service Alternative was not identified as the Preferred Alternative, but its elements are included in the (Enhanced) Reduced Build Alternative discussed above.

a. RESOURCES USED DURING CONSTRUCTION

The TSM/Expanded Bus Service Alternative would include a limited amount of construction. The estimated construction cost for the TSM/Expanded Bus Service Alternative would be $68 million.

b. RESOURCES USED FOR MAINTENANCE/OPERATION

A minimal amount of additional labor and materials would be required to maintain the improvements associated with TSM/Expanded Bus Service Alternative. This alternative includes additional buses (approximately 50), which would require additional labor to operate, maintain, and manage.

c. PUBLIC SERVICE CAPACITIES AFFECTED

Because of the limited amount of construction associated with the TSM/Expanded Bus Service Alternative, public service capacities would not be substantially affected. The exception would be the additional labor hours required for security and law enforcement for the additional buses. For the most part, however, this service is provided by the transit operators, so public services would be largely unaffected.

3. Full Build Alternative

The Full Build Alternative discussions on irreversible and irretrievable resources will be summarized here.

a. LAND AND LAND USES TAKEN

Additional right-of-way would be required for the improvements proposed under the Full Build Alternative. A total of 181 residential units and 40 non-residential units were proposed for displacements under this alternative in the DEIR/EIS; however in response to comments and refined surveys, 144 residential and 39 nonresidential units are proposed in this FEIS/R. However, where this Full Build Alternative and the (Enhanced) Reduced Build Alternative share common project features, the impacts are the same as the (Enhanced) Reduced Build Alternative. For instance, if a right-of-way impact was avoided in the Mainline portion of the project, it would generally apply to the Full Build Alternative.

The Full Build Alternative, specifically the Pacific Electric Arterial, would convert land currently used as open space and agriculture to a transportation use. This open space in Santa Ana has been designated as a future Class I bicycle trail.

At the City Gardens Apartment complex in Santa Ana, the Full Build would remove existing parking and some residential units. The site is a legal non-conforming use because it does not have sufficient parking and because it is zoned for agriculture, not multi-family residential.

Parking Impact. Implementation of the Full Build Alternative would result in the loss of 571 on-site parking spaces at six locations in Garden Grove, Santa Ana and Orange. Two business locations, Carl Karcher Enterprises and Amerisource-Bergen, and both residential locations at the City Gardens Apartments and the El Prado Drive would experience a substantial parking impact. Additionally, Theo Lacy jail facility, east of the City Drive, would experience a potential impact to the planned parking for the expanded facility, resulting in the removal of an estimated 50 proposed parking spaces. The City of Orange stated appropriate parking variances would be granted to lessen the impacts of the project.

b. ENVIRONMENTAL CONDITIONS DEGRADED OR DESTROYED

The Full Build Alternative has a number of impacts that represent a degradation or destruction of existing environmental conditions, thereby resulting in an irretrievable loss of resources. The Pacific Electric Santa Ana River Bridge, which is eligible for the National Register of Historic Places, would be taken by the project. This bridge is the last remnant of the Pacific Electric Railroad in the area. There are potentially difficult relocation issues with a number of properties that would be taken by the Full Build Alternative, resulting in impacts to community cohesion, creation of non-conforming uses and problems with relocating high-visibility service stations. There would be traffic impacts related to limited HOV capacity on the connecting SR-55 that cannot be mitigated. The pollution burden for nitrogen oxides would exceed the SCAQMD thresholds. The visual environment would be substantially affected.

c. OFF-SITE PROPERTIES INDIRECTLY USED

The Full Build Alternative would not require substantial amounts of fill or result in large amounts of excess material. There would be demolition resulting from the acquisition of 181 residential units and 40 business units, which would require disposal. In addition, several freeway structures would be replaced. Much of this material would be recycled, but large quantities would require disposal.

d. PUBLIC SERVICE CAPACITIES AFFECTED

The Full Build Alternative would require disposal of materials associated with demolition that cannot be recycled. In some cases, hazardous materials are included in these materials, including asbestos, lead-based paint, contaminated soil, and hazardous materials storage tanks, pipes, etc. Adequate capacity exists in the local area for such disposal.

The HOV lanes that would be added to SR-22 would require additional CHP manpower to patrol.

e. CUMULATIVE IMPACTS DUE TO RELATED PROJECTS/GROWTH INDUCEMENT

Because the Full Build Alternative is located in an area that is nearly built out, and since the project includes only one new interchange, this alternative would not be substantially growth inducing. There are no other related projects. Thus, it would not result in cumulative impacts to resources.

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SECTION 8.0
GROWTH INDUCEMENT AND CUMULATIVE IMPACTS

8.0 GROWTH INDUCEMENT AND CUMULATIVE IMPACTS

8.1 METHODOLOGY – Growth Inducement

This section assesses the potential growth-inducing impacts of the proposed SR-22/West Orange County Connection (SR-22/WOCC) project, based upon a comparison of the TSM/Expanded Bus Service, Full Build and (Enhanced) Reduced Build Alternatives to the No Build Alternative base condition.

Under both NEPA and CEQA, environmental documents must discuss the ways in which the proposed alternatives could foster economic or population growth, either directly (direct growth inducement) or indirectly (indirect growth inducement), in the area immediately adjacent to the project (local growth inducement) and in a larger area (regional growth inducement). FHWA and the California Department of Transportation (the Department) define growth inducement as the relationship between the proposed transportation project and growth within the project area.

Growth inducement can take several forms. A project can remove barriers or constraints or provide new or improved access, encouraging growth in the area that has been already planned or approved through the general planning process. This planned growth is reflected in land use plans, approved with the underlying assumption that adequate transportation facilities would be constructed. This type of growth inducement is referred to as accommodating or facilitating growth. In addition, a project can remove barriers, provide new access or otherwise encourage growth that is NOT assumed as planned growth in the general plans or growth projections. This could include areas that are currently designated for open space, agricultural uses or other similar non-urban land uses, which, because of the improved access provided by the project, would experience pressure to develop into urban uses or to develop at a higher level of intensity than originally anticipated.

The role of transportation systems in fostering and affecting land use structure has been the subject of much study, especially recently with the increased interest in “smart growth” and “sustainable development.”

8.1.1 ANALYSIS – Growth Inducement

In the short term, construction would require an approximate maximum of 13,548 employees for the (Enhanced) Reduced Build Alternative, based on the methodology outlined in FHWA’s *Summary: Economic Impacts of Federal-Aid Highway Investment* (FHWA, 2000).[1] Not all of these employees would be working at the same time. The very large labor force available in the area would easily provide for this relatively small number of employees; therefore, minimal in-migration would occur and minimal short-term direct growth would be induced.

Following construction, the increase in lanes under the (Enhanced) Reduced Build Alternatives would require a very small incremental increase in labor to maintain the facility and for law enforcement. This small increase in labor would not lead to substantial increases in the necessary labor force. Additional labor would be required for a number of the TSM measures that are part of the (Enhanced) Reduced Build Alternative, but it is likely that the existing area labor force would be sufficient for these needs and in-migration would not occur.

8.1.2 ANALYSIS – Indirect Growth Inducement

A. REGIONAL GROWTH EFFECTS

Orange County has been one of the fastest-growing areas in the state over the past 40 years.

[1] Available at the California Department of Transportation, District 12.

However, projected growth rates are expected to gradually slow from 1990 to 2020. The cities in the study area are largely built out, and most additional population and employment growth is expected to take place through redevelopment. Current projections indicate that population in the cities that make up the SR-22/WOCC study area will increase by approximately 32.7 percent between 1990 and 2020, or an average of approximately one percent per year (U.S. Department of Commerce Census 1980, 1990; Orange County, 1996). However, California State Census 2000 indicates an increase in population of 18.1% for Orange County (California Department of Finance, Demographic Research Unit, Census 2000).

Since the Full Build Alternative would provide regional connectivity of the HOV system in Orange County (and to adjacent counties), this alternative would make commuting through and into the project area more convenient. This improvement could make undeveloped areas within the outskirts of the county more attractive to development. For areas where the local general plans anticipate such growth, the Full Build Alternative could slightly hasten or at least facilitate such growth. There could also be a minor increase in pressure to develop areas that are not currently planned for development. Land use decisions rest with the local jurisdictions, however, and it is unlikely that improvements as proposed under the Full Build Alternative alone would result in enough political pressure to alter existing land use plans. In concert with other transportation system improvements, however, as well as other growth-inducing factors, the Full Build Alternative could contribute to increased pressure to revise land use plans to include more development.

The (Enhanced) Reduced Build Alternative would not be likely to substantially increase development pressures on outlying areas in Orange County, since there would be no direct HOV connectors proposed in the eastern portion of the project (at I-5 and SR-55). Thus, connection to the eastern and southern portions of the county, where the majority of undeveloped land still exists, would not be significantly improved. The minor pressure to grow at a faster pace or in areas not currently planned for development would be less under the (Enhanced) Reduced Build Alternative than under the Full Build. The elements of the TSM/Expanded Bus Service Alternative are included in the (Enhanced) Reduced Build Alternative.

B. LOCAL GROWTH EFFECTS

The SR-22/WOCC (Enhanced) Reduced Build and Full Build Alternatives are consistent with planning documents throughout the region and study area cities.

Local jurisdictions (cities and counties) have sole jurisdiction over land use and zoning. They support regional transportation plans through local implementation programs. SCAG is responsible for assisting local governments to coordinate efforts to ensure that the region's transportation projects, programs and plans conform to the Air Quality Management Plan (AQMP). Local jurisdictions provide fair-share reduction of vehicle pollution through adoption of a series of optimal Transportation Control Measures (TCMs). TCMs include such capital-based actions as HOV lanes, transit improvements and traffic flow improvements.

Local transportation-related planning decisions as well as improvements outlined in the general plan circulation elements of local cities typically recognize the related transportation needs and planning activities of the surrounding county, region and state, and provide support to these plans through implementation of transportation improvement-based goals and policies.
With projected population and employment growth trends indicating increased transportation volumes, LOS is expected to worsen. The proposed SR-22/WOCC improvements are anticipated to provide a higher level of operation for existing and projected traffic volumes, which is consistent with local and regional planning documents.

Although the improvement of transportation within the SR-22/WOCC corridor would be consistent with the growth plans of the various cities within the corridor, none of the plans require that the

elements of the proposed alternatives be completed in order to implement the plans. Therefore, the project would not be integral to this growth and would not facilitate planned growth.

The (Enhanced) Reduced Build Alternative does not propose any new interchanges, only improvements to existing ones. Thus, this alternative would not provide new access to previously inaccessible areas. Improvements to existing interchanges, especially when combined with on-going or planned improvements to the connecting surface streets, may make these areas more attractive and may increase the pressure to develop or redevelop these areas faster and/or at greater density. Areas where improved interchanges related to the (Enhanced) Reduced Build Alternative would coincide with ongoing or planned surface street improvements include:

- Seal Beach Boulevard
- Harbor Boulevard Smart Street

The Full Build Alternative would have similar growth-inducing impacts at improved interchanges as listed above for the (Enhanced) Reduced Build. In addition, the provision of an arterial directly connecting SR-22 with downtown Santa Ana, as proposed under the Full Build Alternative, would make this downtown area more attractive as a destination, especially for office and commercial uses. This increased access could encourage businesses and employers to locate in this area. This could lead to increased redevelopment pressures or pressure to increase density beyond what is currently planned. Such an impact would be growth-inducing. This arterial is not proposed under the (Enhanced) Reduced Build Alternative.

8.2 METHODOLOGY – Cumulative Impacts

The Council on Environmental Quality's (CEQ's) regulations (40 CFR 1500 – 1508) implementing NEPA defines cumulative effects as follows (CEQ, 1997):

> *The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.*

As stated in Section 15355 of the CEQA Guidelines (OPR, June 1986):

> *"Cumulative impacts" refers 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 reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

Assessment of Cumulative impacts takes into account the residual impacts of the proposed SR-22 West Orange County project, combined with the other projects in Table 8.2-1, Projects Included in Cumulative Analysis, along the entire proposed project site. Analysis of cumulative impacts starts by defining the geographic or temporal boundaries. These boundaries vary depending on the issue being analyzed. For instance, the project's contribution to a cumulative impact to an endangered species must consider the habitat or range of that species, which may be small or large. Noise impacts, however, are only cumulative as they affect individual receivers. Thus, for each of the topics below, the boundaries for analysis of cumulative impacts are separately defined. If the project alternatives would have negligible impacts or none at all, and thus would not contribute to cumulative impacts, it is so stated.

Projects that are speculative in nature were not considered in this cumulative analysis. The scope of such projects may change during the planning phase; consequently, their environmental impacts may be altered.

Cumulative impact discussions on projects in Table 8.2-1 (Projects Included in Cumulative Analysis) are based on their environmental documents, if such documents are available. The Table presents a list of projects included in the analysis below. Refer to Section 2.4 for descriptions of the projects. Not every project is included in each analysis, as discussed below.

ANALYSIS – Cumulative Impacts

8.2.1 Issues With No Contribution to Cumulative Impacts

There are several areas which would not be subject to cumulative impacts, regardless of the alternative selected for the SR-22/WOCC. This is because either they would not result in impacts or the impacts that would occur can be fully mitigated or prevented through mitigation. These areas, which are not further discussed in this section, are as follows:

- Topography (no impacts under any alternative)
- Liquefaction (impacts prevented by mitigation)
- Expansive soils (impacts prevented by mitigation)
- Erosion (impacts prevented by mitigation)
- Loss of habitat (no impacts under any alternative)
- Species of concern (no impacts under any alternative)
- Wetlands (impacts prevented by mitigation)
- Transportation/circulation (positive impacts and impacts prevented by mitigation)
- Utilities (impacts prevented by mitigation)
- Hazardous materials/wastes (impacts prevented by mitigation)
- Seismicity (impacts prevented by use of latest technology)
- Energy (no impacts under any alternatives
- Biology (minor impacts prevented by mitigation)

Table 8.2-1
PROJECTS INCLUDED IN CUMULATIVE ANALYSIS

Lead Agency	(Project)	Project Location and Description
Los Alamitos	No developments approved in the vicinity of the proposed project	No projects
Orange County (Rossmoor)	Rossmoor Pump Station and Basin Modification	**Location**: Northwest of the I-405 and I-605 interchange **Description**: Construction of a pump station and reconfiguration of the existing basins. The proposed improvements intend to provide 100-year protection along the channel segments.
Seal Beach	Old Bixby Ranch Golf Course	**Location**: Old Ranch Towne Center-adjacent and immediately east of Seal Beach Blvd., between Saint Cloud Dr. and Rossmoor Center Way. Old Ranch Business Hotel/Restaurants/Senior Care Facilities-south of Lampson Ave. and east of Seal Beach Blvd. **Description**: Old Ranch Towne Center-a 10 hectare (25-acre) commercial center including retail, parking, community police center, service station/mini-mart and restaurants. Old Ranch Business Hotel /Restaurants/Senior Care Facilities-a 5.5 hectare (13.57-acre) area designated for a hotel, parking, senior care facilities and restaurants.
	Seal Beach Boulevard Overcrossing Widening	**Location**: Seal Beach Blvd. at the I-405 Interchange **Description**: Add a median, sidewalks, bike lanes and one lane in each direction, to the existing overcrossing and roadway approaches from Beverly Manor at the I-405 southbound ramps to Old Ranch Parkway at the I-405 northbound ramps.
Westminster	No developments approved in the vicinity of the proposed project	No projects
Garden Grove	County Wide Automotive Dealership	**Location**: Southeast corner of Trask Ave. and Taft St. **Description**: Construction and operation of an automobile sales, repair and service facility on an approximately 1.3 hectare (3.2 acre) site.
Stanton	No developments approved in the vicinity of the proposed project	No projects
Santa Ana	Main Street Concourse	**Location**: Northeast corner of Main St. and Owens Dr. **Description**: Proposal to develop 18.9 acres of vacant land into residential and commercial (office, retail, restaurants, theater, hotel) land uses. The development would be constructed in two phases.
	Bristol Street Corridor Redevelopment Project	**Location**: Bristol St. from Memory Lane to Elm Street and Third Street to Pine Street. **Description**: Widen and reconstruct a 6.2-kilometer (3.9-mile) segment of Bristol St. from an undivided, four-lane arterial to a divided, six-lane major arterial.
Orange	Main Street/La Veta Avenue/Chapman Avenue	**Location**: Bound by SR-57 to the west, Orangewood Ave. to the north, Cambridge St. on the east and SR-22 to the south. **Description**: Main St.-ultimate right-of-way will range from 30 to 41 meters (100 to 135 feet). La Veta Ave.-ultimate right-of-way 24 meters (80 feet), includes widening of Glassell St. from Culver Ave. to La Veta Ave. Chapman Ave.-ultimate right-of-way ranges between 33 to34 meters (110 to 112 feet).

Table 8.2-1
PROJECTS INCLUDED IN CUMULATIVE ANALYSIS (continued)

Lead Agency	(Project)	Project Location and Description
Tustin	No developments approved in the vicinity of the proposed project	No projects
Regional Agencies	CenterLine	**Location**: The CenterLine is an 18.2 Km (11.4 miles), 16-station light rail system serving Orange County's central business area between the cities of Santa Ana, Costa Mesa, and Irvine. **Description**: The project is expected to utilize modern electric light rail technology and is estimated to be 78 percent elevated and 22 percent at street level. Alternatives for connections include the John Wayne Airport, Irvine Business Complex, the Santa Ana Civic Center, South Coast Metro retail area, and major employment and cultural centers in the City of Costa Mesa. The CenterLine will also provide critical connections with the Santa Ana Regional Transportation Center, which is a major intermodal connection with Amtrak, and a 435-mile, five county regional commuter rail system known as Metrolink. The system would have approximately 18 light-rail cars operating at peak hour frequency of one train every ten minutes. Parking facilities would be strategically located with enough spaces to meet projected demand.
	Katella Avenue Super Street	**Location**: Katella Ave. from the San Gabriel Freeway (I-605) to 300 feet east of Tustin Ave. near State Route 55. **Description**: This 20-kilometer (14.3-mile) segment super street concept applies measures such as traffic signal coordination, roadway widening, intersection improvements, on-street parking modifications, restriping and bus turnouts to add capacity, improve traffic flow and safety along the roadway.
	Santa Ana River Mainstem Project	**Location**: Santa Ana River and Santiago Creek in the counties of Orange, Riverside, and San Bernardino **Description**: This project will provide various levels of flood protection ranging from 100-year to 190-year in areas most susceptible to damages from floods. Planned improvements will also increase recreational opportunities and enhance wetlands habitat.
	Santa Ana Freeway (I-5) widening (completed)	**Location:** I-5 between SR-22 and SR-91. **Description**: Widen 13 kilometers (8.1 miles) of I-5 and reconstruct interchanges to increase capacity and reduce congestion and operational problems. This project has been completed.
	Harbor Boulevard Smart Street Feasibility Study	**Location:** Harbor Boulevard from Orangewood Avenue to Gisler Avenue. **Description:** This project will include intersection widening, mid-block widening, lane restriping, addition of travel lanes, raised medians and/or median closures, on-street parking restrictions, and bus turnouts for 7.8 miles of urban arterial highway. This project is not one of the four Smart Street facilities in Orange County planned to undergo intensive improvements.
	SR-22 West Orange County Connection Project	**Location**: The proposed SR-22/WOCC project would involve the construction of improvements in the SR-22 study area, which includes connecting freeways and arterials (13 miles), extending from I-605 to SR-55. **Description**: The State Route 22 (SR-22)/WOCC project involves transportation improvements to the SR-22 transportation corridor, as well as portions of I-405 and I-605, in Orange County.

8.2.2 Hydrology, Floodplain, and Water Quality

Approximately one-third of the SR-22 project is located above the Forebay groundwater recharge area of the Orange County groundwater basin. Although most groundwater recharge for the basin occurs as a result of water management in the Santa Ana River channel, mostly upstream from the project, some recharge occurs through rainwater and irrigation water percolating from upland areas into the underlying groundwater.

Individually, the (Enhanced) Reduced Build Alternative would have minimal impacts on surface water quality, quantity or beneficial uses, and little impact on groundwater quality, quantity or beneficial uses. The SR-22 may have a slight contribution to the on-going trends of increased surface water runoff due to more paved surfaces. Surface water quality is affected by increased development above the groundwater basin; this in turn leads to decreased groundwater recharge due to more impermeable surfaces, and the entire cycle produces a decrease in groundwater quality.

The mitigation included for both the the (Enhanced) Reduced Build and Full Build Alternative restricts impacts to floodplain elevation to below the criterion of 0.3 meter (one foot). The United States Army Corps of Engineers' Santa Ana River Mainstem Project will provide various levels of flood protection ranging from 100-year to 190-year in areas most susceptible to damages from floodflows. The potential floodplain impacts of this project were considered in the floodplain analysis because it will be an "existing" condition, scheduled for construction before the SR-22/WOCC project. Therefore, the SR-22/WOCC project and the Santa Ana River Mainstem Project would not contribute to cumulative impacts to floodplain. There are no other projects in the vicinity that would affect floodplain.

8.2.3 Waters of the United States

Both the (Enhanced) Reduced Build Alternatives and the Full Build would require improvements to structures in waters of the United States. Most of these waters are concrete-lined and do not contain sensitive biological resources. At the Santa Ana River crossings, there are potential, minor impacts from pier modifications. These impacts, however, would not affect habitats and are within the thresholds for nationwide permits. Thus, the SR-22/WOCC project and the projects listed in Table 8.2-1 would not contribute to a cumulative impact on waters of the United States

With the exception of the Santa Ana River Mainstem Project discussed above, the projects listed in Table 8.2-1 Projects Included in Cumulative Analysis (including SR-22/WOCC) would not affect waters of the United States. See discussion above in Section 8.2.2. Section 4.4 of this document discusses impacts to waterways in the project area.

8.2.4 Cultural Resources

Only the Full Build Alternative for the SR-22/WOCC project would affect a cultural resource, the Pacific Electric Santa Ana River Bridge. This historic resource is located within the former right-of-way for the Pacific Electric Railroad, which operated in this corridor from 1904 to 1950. Thus, the removal of the bridge and the use of the vacant right-of-way for the Pacific Electric Arterial under the Full Build Alternative represent a substantial contribution to an historic cumulative impact. Since the only possible mitigation would be to eliminate this right-of-way from the project plans, the (Enhanced) Reduced Build Alternative was adopted to address mobility and safety needs while avoiding impacts to a historic resource. A full discussion of cumulative impacts caused by the Full Build Alternative can be found in the DEIS/EIR of August, 2001.

8.2.5 Communities

The identified Preferred Alternative, the (Enhanced) Reduced Build Alternative, would not disturb Community Cohesion. The (Enhanced) Reduced Build Alternative would displace residences; however, substantial impacts to community cohesion are not expected for the following reasons: The number of displaced dwellings comprises a relatively small proportion of the residences in the affected neighborhoods and the displaced properties are at the periphery or at isolated locations of the neighborhood.

Implementation of the (Enhanced) Reduced Build Alternative would result in the loss of 472 on-site parking spaces at four locations. These impacts would occur in the City of Orange. Substantial parking impacts are anticipated at two of the subject properties.

There would be some benefits derived from the SR-22 WOCC project and the projects listed in Table 8.2-1 (Projects Included in Cumulative Analysis), including greater accessibility and safety. Improving mobility along the SR-22 corridor would improve accessibility for the businesses in the areas that are currently experiencing high traffic volumes, such as the office and retail developments along The City Drive. Other projects listed in Table 8.2-1 could also help improve mobility such as the Seal Beach Boulevard Overcrossing Widening, Bristol Street Corridor Redevelopment Project, Harbor Boulevard Smart Street Improvements and the Katella Avenue Super Street. These projects consist of signalization and intersection and capacity improvements that would ease the traffic volume in the SR-22/WOCC project study area.

The CenterLine Project, another regional scale improvement proposal, would be 18.2 Km (11.4 miles), 16 station (with one possibly extension station) light rail system serving Orange County's central business area between the cities of Santa Ana, Costa Mesa, and Irvine. The project is expected to use modern electric light rail technology and is estimated to be 78 percent elevated and 22 percent at street level. Connections include the John Wayne Airport, Irvine Business Complex, the Santa Ana Civic Center, South Coast Metro retail area, and major employment and cultural centers in the City of Costa Mesa. The CenterLine will also provide critical connections with the Santa Ana Regional Transportation Center, which is a major intermodal connection with Amtrak, and a 435-mile, five county, regional commuter rail system known as Metrolink. The system would have approximately 18 light rail cars operating at peak-hour frequency of one train every ten minutes. Hours of operation and fares would be similar to those for OCTA buses.

Approximately 340,000 jobs and 415,000 residents are located within two miles of the CenterLine alignment. With population densities as high as 12,400 persons per square mile, an amount exceeded only by San Francisco in the western United States, the CenterLine is projected to carry 21,800 riders on opening day, and 31,600 daily riders in 2025. It is anticipated that the Centerline will result in 8,000 daily auto trips removed countywide and 14,000 fewer cars on the road every day, translating into 253,000 fewer daily vehicle miles traveled. Such reductions will provide benefits for both riders and auto users alike with approximately 13.4 million hours of travel time savings on an annual basis including 7.3 million hours for new transit riders. In addition to increasing people movement, reduced emissions, the CenterLine provides opportunities for transit-oriented development, increased transit accessibility and improved access to minority businesses within the corridor while providing for the effective use of limited rights-of-way.

The scope has been modified where the CenterLine project limits are no longer near the project limits of the SR-22/WOCC. Due to the distance between these two projects, SR-22/WOCC would not have cumulative effects to the same resources as the CenterLine project on a local level. If the CenterLine project is built, it could have a beneficial impact on traffic and circulation in the Central Orange County region. The CenterLine project could potentially improve air quality on a regional scale. The Federal Transit Administration and the Orange County Transportation Authority (OCTA) are the lead agencies

and will prepare environmental documentation in accordance with NEPA and CEQA. The CenterLine project is not expected to be built until at least 2010.

Several of the projects in Table 8.2-1 cause residential and business displacements, including the Bristol Street Corridor Redevelopment Project, the Main Street/La Veta Avenue/Chapman Avenue project, and the Harbor Boulevard Smart Street Improvements. Some of these displacements have already occurred and the rest will occur before the displacements of the SR-22/WOCC project. Adequate relocation supplies exist within the corridor cities for the combined relocations of these previous projects and the SR-22/WOCC. Therefore, displacements would result in minimal cumulative impacts. Although the SR-22/WOCC proposed project includes residential and business displacements, community cohesion would not be diminished. These displacements would not substantially affect minority block groups in the study area. See Section 4.6 for discussions of Community Impacts and Environmental Justice.

The Full Build Alternative for the SR-22/WOCC project would remove a small amount of farmland to construct the Pacific Electric Arterial. This farmland is an isolated parcel within an urban area, which is zoned for residential land uses, and is not classified as prime farmland. Although not individually a substantial impact, this incremental loss of farmland would contribute to an historic and ongoing loss of farmland within the county.

8.2.6 Air Quality

The (Enhanced) Reduced Build Alternative for the SR-22/WOCC project conforms with the 2000 Regional Transportation Plan (June, 2001), and would not exceed the pollution thresholds for contaminants. The project is also included in the current Regional Transportation Implementation Program (RTIP). In the current "Final 2002 RTIP (FY 2002/2003-2007/2008)," the mainline elements of the SR-22/WOCC project are included for FY 2003-2008 as Project # ORA000195, on SR-22 (I-405 to SR-55) add 2 HOV lanes/ 1 each direction; and 2 auxiliary lanes/1 each direction (from 0-2) (I-5 to Beach) and operating improvements, as well as ramp improvements on SR-22 in the vicinity of City Drive (Projects #ORA55282 and #ORA990443). Note, SCAG loosely defined the project limits of the mainline from I-405 to SR-55; however, the (Enhanced) Reduced Build Alternative mainline project limits are from Valley View to approximately SR-55. SCAG had analyzed the extension of the (Enhanced) Reduced Build Alternative's eastern terminus as part of the SR-22/55 direct HOV connector feature of the Full Build Alternative, as presented in the August 2001 DEIR/EIS. The slight extension (from Glassell Street to approx SR-55) of the SR-22/WOCC (Enhanced) Reduced Build Alternative's HOV mainline at the eastern terminus has been analyzed as part of the SR-22/55 direct HOV connector component of the Full Build Alternative.

The design of the project has been adopted in the 2002 Regional Transportation Improvement Program (RTIP) and the construction of the project is included with a start date of 2003 and a completion date of 2006 (with the design-build concept implemented). Therefore, the SR-22/WOCC Project is in conformity with the SIP and is consistent with the requirements of the Transportation Conformity Rule.
All intersections studied for microscale impacts are within the applicable state and federal thresholds for carbon monoxide impacts. For the project to contribute to a cumulative impact at the microscale level, the same location (often called a "hot spot") would have to be affected by more than one project. A review of projects listed in Table 8.2-1 did not identify any such locations. Therefore, none of the project alternatives would contribute to a cumulative microscale air quality impact.

8.2.7 Noise

Cumulative impacts to sensitive noise receptor sites relate only to multiple impacts to a single noise-sensitive receptor. Therefore, the boundaries for analysis of noise impacts are limited to the area immediately adjacent to sensitive sites and include other projects that may affect the same resource.

A total of 89 noise-sensitive receivers were analyzed for the SR-22/WOCC. Since traffic noise analyses utilize representative sites and do not analyze every site that would be affected by a given project, there is the possibility that two projects could contribute to a cumulative noise impact at the same location. This would tend to occur where two projects intersect, such as a street widening project and a freeway-

improvement project. Potential for cumulative noise impacts exists at the Seal Beach Overcrossing and the Harbor Boulevard Smart Street Improvements. Mitigation is planned for SR-22 at Harbor Boulevard.

8.2.8 Parks and Recreation

Loss of parkland and recreational resources may be of two types: Direct impact on the resource (actual removal of acreage) and indirect impact (loss of the resource's full usefulness due to noise, visual, air quality or similar impacts). There are no direct impacts on any park in the (Enhanced) Reduced Build Alternative. However, there would be visual impacts to one park, the Pacific Electric Commemorative Area. See Section 4.13 regarding this impact, and Section 9.0 for a full discussion of Section 4(f) of the Transportation Act, which regulates use of parkland for transportation projects.

Cumulative impacts to parks relate primarily to multiple impacts to a single park or recreation resource. In other words, if more than one project would result in noise, visual, air quality or similar impacts to the same park, these combined impacts would be cumulative on that resource. Cumulative impacts may also relate to impacts to a type of park or resource that is unique and serves a more limited public. A single impact to this type of resource could limit its availability to populations beyond the immediate vicinity of the resource. Therefore, the boundaries for analysis of cumulative impacts to parks and recreational facilities include not only the area immediately adjacent to such facilities, but also the larger community served by them.

The Full Build Alternative would preclude a new Class I bicycle trail in the former Pacific Electric right-of-way, as proposed by the City of Santa Ana. This alternative and its impact on the potential Bikeway is fully discussed in the DEIR/EIS of August, 2001.

The other projects listed in Table 8.2-1 would not have an impact on parks and recreation. Therefore, the SR-22/WOCC alternatives and these projects would not result in a cumulative impact.

8.2.9 Visual Quality

The (Enhanced) Reduced Build Alternative would have substantial impacts to the visual environment. The most wide-ranging effect would be the removal of the majority of the landscaping along SR-22. Over the past decades, freeway-widening projects have resulted in the elimination of most or all of the landscaping along most freeways in Orange County until only a few areas have sufficient room for landscaping. However, landscaping and context-sensitive design would be incorporated to mitigate for these impacts where possible. The loss of this linear urban forest would not only be a substantial individual visual impact but would also contribute to a historic trend of eliminating trees on both highways and surface streets.

The Old Bixby Ranch Golf Course project includes development that would remove – and already has removed – a substantial number of large eucalyptus trees. The Katella Avenue Super Street project would also remove (and not replace) trees. In this western portion of the SR-22/WOCC study area, these projects and the SR-22/WOCC would each contribute to a cumulative impact to visual quality.

SECTION 9.0
SECTION 4(f) EVALUATION

9.0 FINAL SECTION 4(f) EVALUATION

9.1 INTRODUCTION

9.1.1 OVERVIEW OF THE SECTION 4(f) PROCESS

Section 4(f) of the Department of Transportation Act of 1966 prohibits the Secretary of Transportation from approving any program or project that:

> *... requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance as determined by federal, state, or local officials having jurisdiction thereof, or any land from an historic site of national, state, or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use...*
>
> (Department of Transportation Act of 1983, 49 USC Section 21).

A use of a Section 4(f) resource occurs when (1) land from Section 4(f) site is acquired for a transportation project; (2) there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) the proximity impacts of the transportation project on the Section 4(f) site, without acquisition of land, are so great that the purposes for which the Section 4(f) site exists are substantially impaired. The latter type of use is also known as a "constructive" use.

Section 4(f) also applies to historic properties and archaeological resources only when the resource is included on, or eligible for, the National Register of Historic Places (NRHP). The criteria for eligibility for the NRHP are as follows:

> *... the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and*
>
> *A. that are associated with events that have made a significant contribution to the broad patterns of our history; or*
> *B. that are associated with the lives of persons significant in our past; or*
> *C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
> *D. that have yielded, or may be likely to yield, information important in prehistory or history. ...*
> (36 CFR 60.4)

The selection process for projects with Section 4(f) concerns involves a series of tests. The first test determines which alternatives are considered feasible and prudent. An alternative may be rejected as not being feasible and prudent for various reasons, such as whether the alternative meets the purpose and need, has excessive cost of construction, has severe operational/safety issues, has unacceptable adverse social, economic and/or environmental impacts, or causes serious community disruption. When sufficient analysis has been completed and demonstrates that an alternative is not feasible and prudent, no additional analysis of that alternative is required.

Once the alternatives that are not feasible and prudent have been eliminated, a determination must be made on whether one or more of the remaining alternatives avoids the use of land with Section 4(f) resources. If alternatives that avoid Section 4(f) resources exist, one of them must be selected. However, if all of the remaining feasible and prudent alternatives use Section 4(f) resources, then an analysis must be conducted to determine the alternative that is the least damaging to Section 4(f) resources. The feasible and prudent alternative that is the least damaging to Section 4(f) resources must be selected.

9.1.2 PROPOSED ACTION

State Route 22 is a six-lane freeway originally built in the 1960s. Peak-hour operating conditions are currently at LOS F (very high congestion levels, very low mobility) in each direction of travel throughout most of the study area. Traffic forecasts indicate that traffic volumes are expected to increase along most segments, which could intensify the existing congestion problem.

The study area has insufficient capacity to accommodate travel demand within as well as to and from the study area. Additionally, the study area suffers from a lack of continuous parallel arterial roadways, insufficient arterial/intersection capacity, an absence of HOV lanes for carpools and express transit services, and a lack of TSM strategies.

To address these problems, OCTA initiated the SR-22/West Orange County Connection (SR-22/WOCC) project in 1997. The SR-22/WOCC project was proposed to help improve mobility, maximize cost-effectiveness of improvements, minimize adverse and maximize beneficial environmental impacts, minimize negative and maximize positive economic impacts, and improve operations (including safety) of the study area transportation system. The study area traverses the jurisdictions of Seal Beach, Rossmoor (unincorporated Orange County), Westminster, Garden Grove, Santa Ana, Orange and Tustin.

The purpose of and need for the project are discussed in Section 1.0 of the Final EIR/EIS, while detailed descriptions of the project alternatives are provided in Section 2.0. In addition, this Section 4(f) evaluation includes a discussion of alternatives developed to avoid uses of the Section 4(f) properties along the alignment of the build alternatives, called "Avoidance Alternatives."

9.2 4(f) RESOURCES

As stated in Section 9.1, a 4(f) resource is defined as any publicly owned land (e.g. public park, recreation area, or wildlife and waterfowl refuge) of national, state or local significance or any land from an historic site of national, state, or local significance. This section outlines the 4(f) resources in the project vicinity. However, the proposed Pacific Electric Right-of-Way Trail and the Pacific Electric Santa Ana River Bridge are the only identified 4(f) resources in the SR-22/West Orange County Connection project area, which would be directly used. Only the Full Build Alternative, which has not been identified as the Preferred Alternative, would use the bridge and the proposed trail. ***The (Enhanced) Reduced Build Alternative would not affect any 4(f) resources.***

9.2.1 Recreation Areas

PACIFIC ELECTRIC RIGHT-OF-WAY TRAIL (PROPOSED)

The Pacific Electric Right-of-Way Trail is a proposed Class I trail along the former Pacific Electric right-of-way (refer to Figure 3.10-2). The City of Santa Ana *General Plan* designates the entire Pacific Electric right-of-way as open space and contains a specific plan for development of a Class I trail along the existing right-of-way (Santa Ana, 1998).

The former Pacific Electric right-of-way was investigated in the course of cultural resources fieldwork. All tracks and associated rail features, such as switches, signals, poles and overheads, were removed following abandonment of the line in 1950. Much of the alignment has been graded and, in several locations, sections of the right-of-way have been leased for commercial or industrial use. Development along the right-of-way, with the exception of the Pacific Electric Santa Ana River Bridge and some buildings near the east end of the project limits, dates from the period following abandonment of the line. The historic character of the rail corridor is no longer expressed. Because of its loss of integrity, the former Pacific Electric right-of-way itself is not considered a historical resource and is not eligible for the National Register.

Although the City of Santa Ana proposes the trail, OCTA owns the former Pacific Electric right-of-way. Most of the former railroad right-of-way is vacant, and signs posted adjacent to the right-of-way prohibit access. As of July 2000, no schedule for developing the trail or financing it had been established.

SANTA ANA RIVER TRAIL

The Santa Ana River Trail, owned and maintained by the County of Orange Public Facilities and Resources Department (OCPF&RD), is an existing Class I trail along the Santa Ana River. The trail is fully grade-separated from cross traffic for its entire length in Orange County. This includes an existing grade separation at SR-22, where the trail "dips" down into the Santa Ana River floodway to cross under the SR-22 Santa Ana River bridge. In many locations, the bicycle uses and pedestrian/equestrian uses are separated, such as where the trail crosses the former Pacific Electric right-of-way. At this location, the bike trail is on the east side of the river, while the pedestrian/equestrian trail is on the west.

SANTIAGO CREEK TRAIL

This unpaved hiking trail, also owned by OCPF&RD, crosses beneath SR-22 near Glassell Avenue in the City of Orange.

There are no other hiking/biking trails in the project area.

9.2.2 Parks and Schools

BLUE BELL PARK
This small, neighborhood park is located in Seal Beach along the north side of SR-22. Its area is 0.53 hectare, and it has picnic tables and a basketball court.

ALMOND PARK
This small, neighborhood park is also located in Seal Beach beside SR-22. It is 0.73 hectare in area, with play equipment, open space and tennis and basketball courts. Both Almond and Blue Bell Parks are the property of the City of Seal Beach.

GARDEN GROVE PARK
This large park (14.6 hectares, or 36 acres) is located beside and just south of the existing SR-22, west of Bolsa Grande High School. It contains a playground as well as a swimming pool, baseball fields and soccer fields. The City of Garden Grove owns and maintains the park.

RIVER VIEW PARK
River View Park is a public golf course with a clubhouse and maintenance facilities, much of which is situated in the riverbed of the Santa Ana River. The City of Santa Ana owns the River View Park.

ELDRIDGE PARK
This city-owned park in Santa Ana, less than one-half hectare in size, consists only of open space with no playground amenities.

HART PARK
This large park, owned and maintained by the City of Orange, borders historic Old Towne. It contains baseball fields and tennis courts, a swimming pool and picnic tables. The park is adjacent to the Santiago Creek Trail.

PACIFIC ELECTRIC COMMEMORATIVE AREA
This small landscaped area is located in the right-of-way of the old rail line beside SR-22 at Newhope Avenue. It contains no play equipment or open space, providing only a sidewalk with

minor landscaping and a stone bench. It measures about 15 meters in length, and is about 6 meters wide. It is maintained by the City of Garden Grove.

Spurgeon Intermediate School Field
The playground adjoining Spurgeon Intermediate School of Santa Ana is open to the public, although the schoolground is a closed campus. It has soccer fields and baseball diamonds. Its west edge abuts the Santa Ana River, just south of the Pacific Electric right-of-way.

As indicated in Section 3.10 of the Final Environmental Impact Statement / Report (FEIS/EIR), all of the schools within the project study area are closed campuses, accessible to the general public only by permission of school authorities. They are therefore not considered to be 4(f) resources and are not included in this analysis.

9.2.3 Historic Resources

PACIFIC ELECTRIC SANTA ANA RIVER BRIDGE

An Historic Property Survey Report (HPSR) (Appendix B in Volume IV of this FEIS/EIR) has been prepared pursuant to Section 106 of the National Historic Preservation Act of 1966 (NHPA). Those properties within the Area of Potential Effect (APE) examined or determined as eligible for listing on the NRHP were documented in the HPSR and are addressed in this Section 4(f) evaluation. The HPSR, summarized in Section 3.5, concluded that only one property in the project area was determined to be eligible for the NRHP, the former Pacific Electric Railway Bridge over the Santa Ana River in Santa Ana (see Figure 9.2-1). No prehistoric or historic archaeological resources were identified within the project area.

Figure 9.2-1
Pacific Electric Santa Ana River Bridge

Only the Full Build Alternative would directly affect the Pacific Electric Bridge. This structure is a two-span iron through-truss bridge, constructed in 1905. As the only Santa Ana River crossing for the Pacific Electric Railway, the bridge, is an integral part of the transportation history of Orange County. The bridge was determined eligible for the NRHP in 1988 under Criterion A for its association with events that have made a significant contribution to the broad patterns of history, and under Criterion C, as embodying the distinctive characteristics of a type, period and method of construction.

The structure is an example of the “Pegram Truss” type of bridge, which was used throughout the nation from the late 1880s to the early 20th century. (George H. Pegram originally filed for a patent for this truss in 1883, with the patent rights granted in 1885.) In the Pegram Truss design, the upper chords of the truss are all of equal length. Examples of this type of bridge construction are extremely rare in California. This structure is the only known existing use of the Pegram truss in Southern California.

After the Pacific Electric railway went out of business, the bridge was temporarily used as a bicycle path, but the entrances to the bridge are now barricaded with iron bars and barbed wire. Despite alterations throughout the years, the structure retains a high degree of architectural, historical and engineering integrity. In addition, the unique design of the Pegram Truss and the visual impact of the abandoned roadbed impart a strong overall sense of time and place to this structure.

9.2.4 Wildlife Refuges

There are no federal, state or locally designated wildlife refuges located in the vicinity of any SR-22/WOCC alternative.

9.3 USES OF SECTION 4(F) PROPERTIES

The potential uses of these 4(f) properties by the SR-22/WOCC alternatives are discussed in the following sections. The proposed Pacific Electric Right-of-Way Trail and the Pacific Electric Santa Ana River Bridge would be the only identified 4(f) resources in the SR-22/WOCC project area, which would be directly used. Only the Full Build Alternative, which has not been identified as the Preferred Alternative, would use the bridge and the proposed trail. ***The (Enhanced) Reduced Build Alternative will not affect any 4(f) resources.***

9.3.1 Pacific Electric Right-of-Way Trail (Proposed)

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The Pacific Electric Arterial proposed feature in the Full Build Alternative is not part of the (Enhanced) Reduced Build Alternative. Thus, the (Enhanced) Reduced Build Alternative would not result in any use of the proposed Pacific Electric Right-of-Way Trail. As noted, the three major elements not included in the (Enhanced) Reduced Build Alternative are the new arterial in the former Pacific Electric right-of-way, the HOV connectors between SR-22 and I-5, and the HOV connectors between SR-22 and SR-55. These elements were eliminated in order to reduce environmental impacts related primarily to right-of-way acquisition and historic property.

B. NO BUILD ALTERNATIVE

Because there would be no construction associated with the No Build Alternative, other than that addressed in other environmental documents, this alternative would not result in a use of the proposed Pacific Electric Right-of-Way Trail.

C. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Because there would be no construction within the former Pacific Electric right-of-way associated with the TSM/Expanded Bus Service Alternative, this alternative would not result in a use of the proposed Pacific Electric Right-of-Way Trail.

D. FULL BUILD ALTERNATIVE

The proposed Pacific Electric Right-of-Way Trail is within the Pacific Electric right-of-way segment of the Full Build Alternative. As part of this alternative, a new arterial would be placed in the former Pacific Electric right-of-way from SR-22 to Santa Ana Boulevard and/or Civic Center Drive. The roadway would be a limited access, four-lane divided arterial with a transit reserve within the median. Access/egress would only be provided at SR-22, Santa Ana Boulevard and Civic Center Drive. Along some areas, the arterial would be above grade on retained fill material or elevated on structures at street crossings. Only a small portion of the facility is proposed to be at or below grade. The arterial would be depressed where it crosses Harbor Boulevard and Westminster Avenue. There would be no provision for any class of trail, primarily due to the limited access to cross streets. The width of the arterial is proposed to be approximately 30.4 meters (99.74 feet), which for the most part is the width of the current right-of-way. An arterial in the proposed location of the Pacific Electric Right-of-Way Trail would be a direct use as defined by the Department of Transportation Act of 1983, 49 USC Section 21.

9.3.2 Santa Ana River Trail

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

As part of the (Enhanced) Reduced Build Alternative, two new crossings of the Santa Ana River Trail would be constructed and the existing SR-22 crossing would be widened slightly. The widened SR-22 crossing and the new northbound I-5/southbound SR-57 to westbound SR-22 connector crossing would be elevated and would not require the use of the trail or interfere with its use. The new crossing for the southbound SR-57 off-ramp to Metropolitan Drive/The City Drive would be nearly at grade with the existing Santa Ana River Trail, severing the existing bike trail. Mitigation is proposed in Section 4.10 to vertically re-align the trail at this location to provide a grade separation and allow continued and full use of the Santa Ana River Trail, once construction is completed. Therefore, there would be no direct use of the Santa Ana River Trail since it would continue the current use of this facility. There would be temporary easements required for construction that would necessitate detours for the trail. Coordination with the OCPF&RD and with bicycle advocacy groups will be undertaken as part of the Traffic Management Plan to create detours (see Section 4.15).

B. NO BUILD ALTERNATIVE

Because there would be no construction associated with the No Build Alternative, other than that addressed in other environmental documents, this alternative would not result in a use of the Santa Ana River Trail.

C. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Because there would be no construction within or adjacent to the Santa Ana River Trail right-of-way associated with the TSM/Expanded Bus Service Alternative, this alternative would not result in a use of the Santa Ana River Trail.

D. FULL BUILD ALTERNATIVE

As part of the Full Build Alternative, three new crossings of the Santa Ana River Trail would be constructed and the existing SR-22 crossing would be widened slightly. The widened SR-22 crossing, the new northbound I-5/southbound SR-57 to westbound SR-22 connector crossing, and the east end of the new Pacific Electric Arterial Bridge would be elevated and would not require use of the trail or interfere with its use. The new crossing for the southbound SR-57 off-ramp to Metropolitan Drive/The City Drive would be nearly at grade with the existing Santa Ana River Trail, severing the existing bike trail. In addition, the west end of the Pacific Electric Arterial Bridge would be nearly at grade with the pedestrian/equestrian portion of the Santa Ana River Trail, precluding that use on the west side of the river. Mitigation is proposed in Section 4.10 to vertically re-align the trail at both of these locations to provide grade separations and allow continued and full use of the Santa Ana River Trail once construction is completed.

The realignment of the trail would be temporary and minor in the scope of work. Temporary easements for construction would necessitate detours for the trail. Coordination with the OCPF&RD and with bicycle advocacy groups will be undertaken as part of the Traffic Management Plan (see Section 4.15). Furthermore, there is no anticipated permanent use or interference with the activities or purposes of the trail. Its current use would continue after construction.

9.3.3 Santiago Creek Trail

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

There would be no direct use of this trail. A small amount of vegetation would be removed, but this physical change would not constitute a constructive use as the trail would continue to function as a hiking trail.

B. NO BUILD

There would be no direct or constructive use of this trail as the No Build Alternative would not involve construction other than for projects already planned.

C. TSM/EXPANDED BUS SERVICE ALTERNATIVE

There would be no use of this trail arising from the TSM/Expanded Bus Service Alternative, as no construction would take place at or near the Santiago Creek Trail.

D. FULL BUILD ALTERNATIVE

See description under 9.3.3 A above, for the (Enhanced) Reduced Build Alternative.

9.3.4 Pacific Electric Santa Ana River Bridge

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

The Pacific Electric Arterial proposed in the Full Build Alternative would not be part of the (Enhanced) Reduced Build Alternative. Thus, the (Enhanced) Reduced Build Alternative would not result in any uses of the Pacific Electric Santa Ana River Bridge.

B. NO BUILD ALTERNATIVE

Because there would be no construction associated with the No Build Alternative, other than that addressed in other environmental documents, this alternative would not result in a use of the Pacific Electric Santa Ana River Bridge.

C. TSM/EXPANDED BUS SERVICE ALTERNATIVE

Because there would be no construction within the former Pacific Electric right-of-way associated with the TSM/Expanded Bus Service Alternative, this alternative would not result in a use of the Pacific Electric Santa Ana River Bridge.

D. FULL BUILD ALTERNATIVE

The Pacific Electric Santa Ana River Bridge is within the Pacific Electric right-of-way segment of the Full Build Alternative. As discussed above for the proposed Pacific Electric Right-of-Way Trail, a new arterial would be placed in the former Pacific Electric right-of-way, and a new bridge would be built across the Santa Ana River. This construction would require the removal of the Pacific Electric Santa Ana River Bridge, which has been determined to be eligible for the National Register of Historic Places. This would be a direct use as defined by the Department of Transportation Act of 1983, 49 USC Section 21 and an adverse effect under Section 106 of the NHPA.

9.3.5 Parks and Schools

A. (ENHANCED) REDUCED BUILD ALTERNATIVE

There would be no direct use of any of the parks listed in Section 9.2.1. Possible constructive use of parks is discussed in the following sections. All schools in the project study area are not considered 4(f) resources (see Sections 3.10.3, and 9.2.2, above).

9.3.5.1 Parks

Noise levels are expected to worsen slightly at Almond Park and Blue Bell Park in the City of Seal Beach (see Table 4.9-5). Existing soundwalls will remain in place; at 4.9 to 5.5 meters, these are the highest walls available and replacement is not feasible. Noise level changes at Almond Park (68 to 70 dBA) and at Blue Bell Park (67 to 69 dBA) are unlikely to affect the use of the park (children's play equipment and tennis and basketball courts), as these activities do not require low noise levels. No vegetation would be removed and there would be no reduction in access to the parks; therefore, there would be no constructive use of either park.
Noise levels at Garden Grove Park (same location as Bolsa Grande High School athletic area) would drop with mitigation proposed (from 69 to 64 dBA). Some landscaping would be removed near the freeway right-of-way; however, substantial foliage would remain in this large park. Accessibility to the park would not be impeded. Therefore, no constructive use would occur.

At the Pacific Electric Commemorative Area, traffic noise levels are predicted to lessen (from 70 to 62 dBA) with proposed mitigation. There would be no loss of vegetation or accessibility, so there would be no constructive use of the Pacific Electric Commemorative Area.

There would be no constructive use of Eldridge Park as no landscaping would be removed and (with proposed sound walls) there would be no increase in traffic noise. Access would remain uninterrupted, both during and after construction.

Neither Riverview Municipal Golf Course nor Hart Park in Orange would lose any vegetation, and no increase in traffic noise is predicted (see Section 4.9). Accessibility would not be affected. Both of these resources are about 0.75 km from the project perimeter. No constructive use would occur at either park.

Accessibility would not be affected at the athletic fields adjoining Spurgeon Intermediate School. However, traffic noise would increase by 9 dBA, even with proposed mitigation. This would constitute a constructive use of this resource.

B. NO BUILD ALTERNATIVE

There would be no direct or constructive use of any parks as there would be no construction (other than what has already been programmed in other documents).

C. TSM/EXPANDED BUS SERVICE ALTERNATIVE

There would be no direct or constructive use of any parks as there would be no construction at or near the parks and schools listed in 9.2.1.

D. FULL BUILD ALTERNATIVE

See discussion above under the (Enhanced) Reduced Build Alternative. Construction of the Pacific Electric Arterial would directly use both the Pacific Electric Right-of-Way Trail (proposed) and the Pacific Electric Santa Ana River Bridge, as described in Section 9.3, above.

9.4 AVOIDANCE ALTERNATIVES

Alternatives that would avoid use of the Pacific Electric Right-of-Way Trail and Pacific Electric Santa Ana River Bridge were either identified from previous alternatives that were withdrawn from consideration or developed as part of the Section 4(f) analysis. The identified Preferred Alternative, the (Enhanced) Reduced Build, does not use any Section 4(f) resource directly, and therefore, does not appear to be a constructive use. A summary of the alternatives is provided at the end of this section in Tables 9.4-1 and 9.4-2. The discussions of Alternatives Withdrawn from Consideration and the Avoidance Alternatives for the Pacific Electric Right-of-Way Trail and the Pacific Electric Santa Ana River Bridge pertain ONLY to the Full Build Alternative, as this is the only alternative which would use these two resources.

A. ALTERNATIVES WITHDRAWN FROM CONSIDERATION

Section 2.3 of the FEIS/EIR discusses reasons why each of the alternatives listed in this section was not included for further consideration.

Alternative 3: Fixed Guideway. The Fixed Guideway would link two existing systems extending from the Santa Ana Transportation Center/Metrolink station on the east to the Los Angeles County Metropolitan Transportation Authority (MTA) Blue Line on the west. The Fixed Guideway alignment running between the Los Angeles County/Orange County line in Seal Beach and the Santa Ana Transportation Center would follow along SR-22, the Pacific Electric Right-of-Way, Santa Ana Boulevard, and Fourth Street through central Santa Ana. This alternative would directly use the Pacific Electric right-of-way and the Pacific Electric Santa Ana River Bridge.

Alternative 4A: General- Purpose Lanes. This alternative would include the addition of a general-purpose lane on SR-22 in each direction from I-405 to SR-55. The Pacific Electric arterial would not be part of this alternative. Thus, Alternative 4A would not result in any uses of the proposed Pacific Electric Right-of-Way Trail.

Alternative 5: HOV Lanes on SR-22. The HOV Lane on SR-22 alternative would add an HOV lane to SR-22 between Valley View Street and SR-55, as incorporated in the SCAG 1998 *Regional Transportation Plan*[2]. The HOV lane in each direction would end at the terminal freeway-to-freeway interchanges. The Pacific Electric arterial would not be part of this alternative. Thus, this alternative would not result in any uses of the proposed Pacific Electric Right-of-Way Trail.

Alternative 6B: HOV Lanes Full System Alternative. This alternative would include the addition of one HOV lane on SR-22 in each direction from I-605 to SR-55 (an additional HOV lane in each direction would be added to the segment of I-405 between I-605 and SR-22). This sub-alternative would also include HOV direct connector ramps at the I-605/I-405 interchange, I-405/SR-22 interchange, I-5/SR-22 interchange, and the SR-22/SR-55 interchange. The Pacific Electric arterial would not be part of this alternative. Thus, this alternative would not result in any uses of the proposed Pacific Electric Right-of-Way Trail.

B. SECTION 4(f) AVOIDANCE ALTERNATIVES

Arterial to the North. Realigning the arterial to the north and immediately adjacent to the former Pacific Electric right-of-way would avoid use of the proposed Pacific Electric Right-of-Way Trail, but could result in increased noise levels and visual impacts to future trail users. While avoiding any direct use of the proposed trail, this avoidance alternative would result in substantial right-of-way impacts. This alternative would require the additional acquisition of at least 25 businesses and 50 residences and result in substantial new noise and visual impacts to surrounding properties.

In addition, the realignment would result in direct impacts to the Pacific Electric Santa Ana River Bridge. The elevated noise, change in the visual and aesthetic qualities of the bridge due to the

[2] Available at OCTA.

change in the setting, and vibration impacts may result in degrading the qualities that make this Section 4(f) property eligible for the NRHP. This alternative would not avoid use of all Section 4(f) properties, due to the proximity impacts of the proposed adjacent arterial and its potential constructive use of the Pacific Electric Santa Ana River Bridge.

Arterial to the South. Realigning the arterial to the south and immediately adjacent to the former Pacific Electric right-of-way would not result in a use of the proposed Pacific Electric Right-of-Way Trail, but could result in increased noise levels and visual impacts to future trail users. This avoidance alternative would also result in substantial right-of-way impacts, requiring additional acquisition of at least 20 businesses and 30 residences. It would result in substantial new noise and visual impacts to surrounding properties, and would also result in partial acquisition of the Willowick Golf Course and recreational fields at Spurgeon Intermediate School, both Section 4(f) resources.

Like the Arterial to the North Alternative, realignment to the south may still result in substantial direct impacts on the Pacific Electric Santa Ana River Bridge. The elevated noise, change in the visual and aesthetic qualities of the bridge due to the change in the setting, and vibration impacts may result in degrading the qualities that make this Section 4(f) property eligible for the NRHP. This alternative would not avoid use of all Section 4(f) properties, due to the proximity impacts of the proposed adjacent arterial and its potential use of the Willowick Golf Course, Spurgeon Park, and the Pacific Electric Santa Ana River Bridge, as well as the additional displacement impacts.

Contra-Flow Arterial within Existing Right-of-Way. This alternative would provide two contra-flow arterial lanes and the transit reserve within the existing Pacific Electric right-of-way in addition to providing space for the proposed Pacific Electric Right-of-Way Trail. A contra-flow facility would operate as a one-way facility during peak traffic hours in the direction of the peak demand (probably south in the morning and north in the evening peak hours). This alternative, while not precluding the trail, could result in substantial noise and visual impacts on future trail users. This alternative would not require additional acquisition of properties, but would still require removal of the Pacific Electric Santa Ana River Bridge. This alternative would therefore not avoid use of all Section 4(f) properties.

Contra-Flow Arterial within Existing Right-of-Way terminating at Harbor Boulevard. In this alternative, the contra-flow facility would terminate southeast at Harbor Boulevard, thereby avoiding use of the Pacific Electric Santa Ana River Bridge. While feasible, this alternative would not be prudent because the purpose of providing an arterial in this location (either bi-directional or contra-flow) would be to give traffic a more direct route between SR-22 and downtown Santa Ana. Terminating at Harbor Boulevard does not provide direct access to downtown Santa Ana and would only add to increasing congestion on this roadway.

Roadway within Santa Ana River Terminating at First Street. This avoidance alternative would include constructing a limited-access facility within the Santa Ana River between SR-22 and First Street in Santa Ana. The facility would be constructed on a structure the entire length of the river. This alternative would avoid any use of the proposed Pacific Electric Right-of-Way Trail and also the Pacific Electric Santa Ana River Bridge. It would, however, require the removal of the River View Golf Course and potentially result in a constructive use of the Santa Ana River Trail due to noise and visual impacts. Both the golf course and trail are Section 4(f) properties located within and along the Santa Ana River. It is also likely that other substantial environmental impacts on surrounding properties would occur such as increased noise levels and visual impacts of an elevated structure. Providing an elevated arterial within the river would be feasible. This alternative, however, would not avoid all Section 4(f) resources due to the use of River View Golf Course and potential constructive use of the Santa Ana River Trail.

Harbor Blvd.

Westminster Ave.

Santa Ana River

Fairview St.

Willowick Golf Course

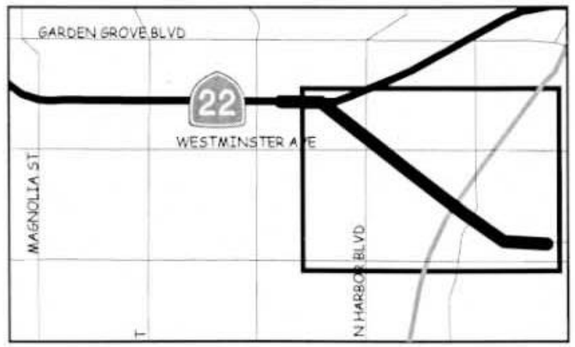
Civic Center Dr.

Santa Ana Blvd.

Pacific Electric
Santa Ana River Bridge

Spurgeon Intermediate School

Source: ESRI 1998; Orthographic Photgraphy: Landata Airborne Systems, Inc. January, 1997.



0.1 0 0.1 0.2 Miles

0.1 0 0.1 0.2 0.3 Kilometers

SR-22 / West Orange County Connection Project

Full Build Alternative - Pacific Electric Arterial

Figure 9.3-1

Santa Ana River

Santa Ana River Trail

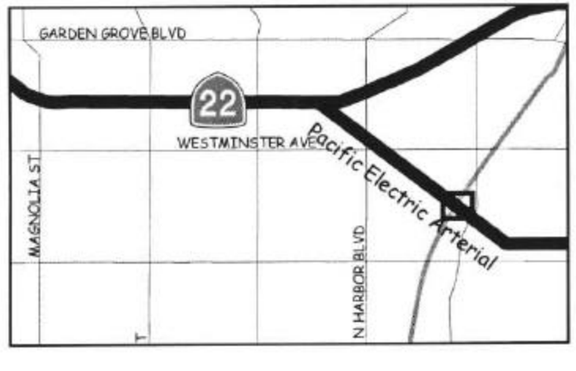
Willowick Golf Course

Pacific Electric Santa Ana River Bridge

Spurgeon Intermediate School

Pacific Electric Arterial

Source: ESRI 1998; Orthographic Photgraphy: Landata Airborne Systems, Inc. January, 1997.



100 0 100 200 300 Feet

30 0 30 60 Meters

SR-22 / West Orange County Connection Project

Full Build Alternative Impacts on
Pacific Electric Santa Ana River Bridge

Figure 9.3-2

Harbor Blvd.

Westminster Ave.

Santa Ana River

Fairview St.

Willowick Golf Course

Civic Center Dr.

Santa Ana Blvd.

Pacific Electric
Santa Ana River Bridge

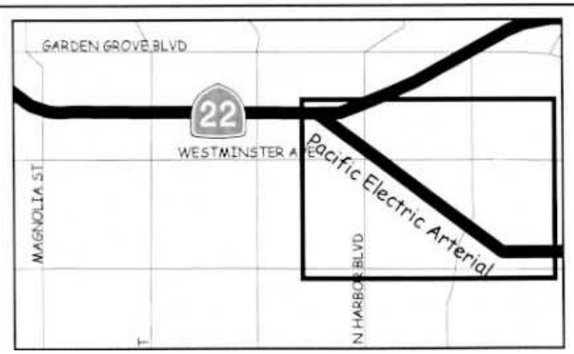
Spurgeon Intermediate School

Source: ESRI 1998; Orthographic Photgraphy: Landata Airborne Systems, Inc. January, 1997.

LEGEND

North Avoidance Alternative

South Avoidance Alternative



0.5 0 0.5 1 1.5 2 Miles

0.2 0 0.2 0.4 Kilometers

SR-22 / West Orange County Connection Project

Arterial to the North and South - Avoidance Alternative

Figure 9.4-1

9.4.2 Pacific Electric Santa Ana River Bridge

A. ALTERNATIVES WITHDRAWN FROM CONSIDERATION

Refer to Section 9.4.1 for a description of the following alternatives. Section 2.3 of the FEIS/EIR includes a discussion as to why each of the alternatives was not included for further consideration.

Alternative 3: Fixed Guideway. As discussed above, this alternative may avoid use of the proposed Pacific Electric Right-of-Way Trail, but would still require the removal of the Pacific Electric Santa Ana River Bridge and would therefore not avoid use of all Section 4(f) properties.

Alternative 4A: General-Purpose Lanes. The Pacific Electric Arterial would not be part of this alternative and would therefore not result in any uses of the Pacific Electric Santa Ana River Bridge.

Alternative 5: HOV Lanes on SR-22. The Pacific Electric Arterial would not be part of this alternative and would therefore not result in any uses of the Pacific Electric Santa Ana River Bridge.

Alternative 6B: HOV Lanes Full System Alternative. The Pacific Electric Arterial would not be part of this alternative and would therefore not result in any uses of the Pacific Electric Santa Ana River Bridge.

B. AVOIDANCE ALTERNATIVES

Arterial to the North. Realigning the arterial to the north and immediately adjacent to the former Pacific Electric right-of-way may still result in substantial indirect uses of the Pacific Electric Santa Ana River Bridge. The indirect uses of the bridge could result in degrading the qualities that make this Section 4(f) property eligible for the NRHP. This alternative would not avoid use of all Section 4(f) properties, due to its potential use of the Pacific Electric Santa Ana River Bridge as well as the additional displacement impacts that would occur.

Arterial to the South. Realigning the arterial to the south and immediately adjacent to the former Pacific Electric right-of-way would result in partial acquisition of the Willowick Golf Course and recreational fields at Spurgeon Intermediate School, both Section 4(f) properties. This alternative may still result in substantial indirect uses of the Pacific Electric Santa Ana River Bridge and may result in degrading the qualities that make this Section 4(f) property eligible for the NRHP. This alternative would not avoid use of all Section 4(f) properties due to its potential use of the Willowick Golf Course, Spurgeon Intermediate School, and the Pacific Electric Santa Ana River Bridge, as well as the additional displacement impacts that would occur.

Contra-Flow Arterial within Existing Right-of-Way. As discussed above, although this alternative avoids the use of the Pacific Electric Right-of-Way Trail, the alternative and would still require removal of the Pacific Electric Santa Ana River Bridge. This alternative would therefore not avoid use of all Section 4(f) properties

Contra-Flow Arterial within Existing Right-of-Way Terminating at Harbor Boulevard. This alternative avoids any use of the Pacific Electric Santa Ana River Bridge, but would not be prudent because the purpose of providing an arterial in this location would not be met as discussed in Section 9.4.1.

Roadway within Santa Ana River Terminating at First Street. This avoidance alternative would avoid any use of the Pacific Electric Santa Ana River Bridge and the proposed Pacific Electric Right-of-Way Trail. This alternative, however, would use the River View Golf Course and potentially result in constructive use of the Santa Ana River Trail, located within and along the Santa Ana River. Furthermore, this alternative would not be prudent due to the high cost associated with constructing an arterial roadway on a structure from SR-22 to First Street.

9.5 MEASURES TO MINIMIZE HARM

9.5.1 Measures to Minimize Harm at the Proposed Pacific Electric Right-of-Way Trail

The identified Preferred Alternative avoids use of the Pacific Electric Right-of-Way Trail.

Since the Full Build Alternative was not identified as the Preferred Alternative, use of the proposed Pacific Electric Right-of-Way Trail would not be considered for full discussion in this Final 4(f) Evaluation. Should the Full Build Alternative be identified as the Preferred Alternative at a later time, a Section 4(f) evaluation would then be undertaken.

9.5.2 Measures to Minimize Harm at the Pacific Electric Santa Ana River Bridge

The identified Preferred Alternative avoids any use of the Pacific Electric Santa Ana River Bridge.

Since the Full Build Alternative was not identified as the Preferred Alternative as part of this proposed project, use of the Bridge by this alternative would not be considered for full discussion in this Final 4(f) Evaluation.

9.5.3 Temporary Easement during Construction

Temporary construction easements would be required at the Santa Ana River Trail/Bikeway for either build alternative. Based upon stipulations included in the FHWA 4(f) Policy Paper (September 24, 1987, Revised June 7, 1989), this would not constitute a use of this resource under Section 4(f) because:

- Occupancy and use of the Trail/Bikeway will be of short duration and less than the time needed for construction of the project;
- Ownership of the resource will not change;
- There will be no temporary or permanent adverse change to the activities, features or attributes of the trail; and
- A minor amount of the trail will be occupied during construction of the project. The trail is approximately 35 kilometers (21.5 miles) long; about 1 km of this length would be occupied for construction easement. The Traffic Management Plan (TMP) will address establishment of safe alternate routes for cyclists and pedestrians during construction on adjacent surface streets. Most of the trail will remain accessible to the public during construction as well. Once construction is complete, the trail will re-open along its original route, with no reduction in landscaping or accessibility.

The County of Orange Public Facilities and Resources Department indicated on June 27, 2002, that for the above-listed reasons, temporary occupancy of the bicycle trail is not a use under 23 CFR 771.135 (p)(7)(v). (See Appendix H).

9.6 COORDINATION WITH PUBLIC AGENCIES AND PROPERTY OWNERS REGARDING SECTION 4(f) PROPERTIES

Institutions and agencies consulted between April 1998 and July 1999 during the course of cultural resources and other Section 4(f) property investigations included the following:

- State Historic Preservation Office (SHPO)
- Orange County Historical Commission
- Orange County Historical Society
- Santa Ana Historical Preservation Society
- University of California, Los Angeles, South Central Coastal Information Center
- California Department of Transportation, District 12, Environmental Planning Branch
- Native American Heritage Commission, Sacred Lands File
- Gabrieleno/Tongva Tribal Council
- Juaneno Band of Mission Indians

- Gabrieleno Tribe
- City of Orange Planning Department
- City of Garden Grove Planning Department
- City of Westminster Planning Department
- City of Santa Ana Planning Department
- City of Seal Beach Planning Department
- Santa Ana Public Library
- Orange County Public Facilities Department (See Appendix H)

Public input during the investigation process for cultural resources was solicited using letters of request, telephone contact and personal interviews conducted during the physical survey. Contacts included the Native American Heritage Commission, historical societies for each municipality, cultural resource division of local planning departments, and oral histories taken from property owners. In addition, the SHPO was contacted for documentation of the Pacific Electric Santa Ana River Bridge. The SHPO provided a copy of the State (Historical) Resource Inventory form on file for the bridge structure.

Other coordination efforts included the following:

- Publication of the Notice of Intent in the *Federal Register* on June 3, 1998;
- Distribution of the Notice of Preparation of a Draft EIR/EIS to all the local city councils, the State Native American Heritage Commission, the State Department of Parks and Recreation, and other interested agencies and members of the public;
- Three public information meetings held in December of 1997; and
- A Public Scoping meeting held on June 23, 1998.

Ongoing coordination with the SHPO includes their review of the HPSR and related materials. The SHPO concurred on February 9, 2001 that the Full Build Alternative would have adverse effects on the Pacific Electric/Santa Ana Bridge. It also concurred that the Reduced Build Alternative, if selected as the Preferred Alternative, will have no effect on historic properties. This letter is available in Appendix E in Volume II of the August 2001 DEIR/EIS.

The SHPO also concurred in June 2002 that no properties within the APE are eligible for the NRHP other than the Pacific Electric Santa Ana River Bridge (previously determined eligible).

CONCLUSION

The (Enhanced) Reduced Build has been identified as the Preferred Alternative for the SR-22/West Orange County Connector. Based upon the foregoing discussions, no direct or constructive use of any 4(f) resource has been identified for this alternative.

Table 9.4-1
COMPARISON OF ALTERNATIVES AT THE PACIFIC ELECTRIC RIGHT-OF-WAY TRAIL

	Uses of other Section 4(f) Resources	Other Right-of-Way Needed	Additional Property Acquisitions	Engineering Considerations	Benefits
(Enhanced) Reduced Build No Build	None None	None None	None None	None None	• Avoids proposed Trail & Santa Ana River Bridge • Minimizes environmental impacts • Avoids proposed Trail and Santa Ana River Bridge
TSM/Expanded Bus Service	None	None	None	None	• Minimizes environmental impacts • Avoids proposed Trail and Santa Ana River Bridge
Full Build	• Use of the Pacific Electric Right-of-Way Trail and Pacific Electric Santa Ana River Bridge • Removal of Pacific Electric Santa Ana River Bridge	None	None		• None
Fixed Guideway	• Increased noise levels on Trail • Visual impacts on Trail • Use of Santa Ana River Bridge	None	None	None	• Avoids proposed Trail
General-Purpose Lanes	None	None	None	None	• Avoids proposed Trail & Santa Ana River Bridge
HOV Lanes on SR-22	None	None	None	None	• Avoids proposed Trail & Santa Ana River Bridge
HOV Lanes Full System Alternative	None	None	None	None	• Avoids proposed Trail &Santa Ana River Bridge
Arterial to the North	• Increased noise levels on Trail • Visual impacts on Trail • Indirect impacts on Santa Ana River Bridge	6.68 hectares (16.5 acres)	• 25 Businesses • 50 Residences	None	• Avoids proposed Trail & Santa Ana River Bridge
Arterial to the South	• Increased noise levels on Trail • Visual impacts on Trail • Indirect uses of Santa Ana River Bridge • Use of Willowick Golf Course & Spurgeon Intermediate School	6.68 hectares (16.5 acres)	• 20 Businesses • 30 Residences	None	• Avoids proposed Trail & Santa Ana River Bridge
Contra-Flow Arterial within Existing Right-of-Way	• Increased noise levels on Trail • Visual impacts on Trail • Use of Santa Ana River Bridge	None	None	None	• Avoids proposed Trail
Contra-Flow Arterial within Existing Right-of-Way Terminating at Harbor Boulevard	• Increased noise levels on Trail. • Visual impacts on Trail.	None	None	None	• Avoids proposed Trail & Santa Ana River Bridge
Roadway within Santa Ana River Terminating at First Street	• Use of River View Golf Course • Potential constructive use of Santa Ana River Trail	Easement within Santa Ana River	None	Major issues with building in the river	• Avoids proposed Trail &Santa Ana River Bridge

Table 9.4-2
COMPARISON OF ALTERNATIVES AT THE PACIFIC ELECTRIC SANTA ANA RIVER BRIDGE

Avoidance Alternative	Uses of Other Section 4(f) Resources	Other Right-of-Way Needed	Additional Property Acquisitions	Engineering Considerations	Benefits
(Enhanced) Reduced Build No Build	None None	None None	None None	None None	• Avoids Santa Ana River Bridge and proposed Trail • Minimizes environmental impacts • Avoids Santa Ana River Bridge and proposed Trail
TSM/Expanded Bus Service	None	None	None	None	• Minimizes environmental impacts • Avoids Santa Ana River Bridge and proposed Trail
Full Build	• Use of the Pacific Electric Right-of-Way Trail and Pacific Electric Santa Ana River Bridge Removal of Pacific Electric Santa Ana River Bridge	None	None		• None
Fixed Guideway	• Increased noise levels on Trail • Visual impacts on Trail	None	None	None	• Avoids proposed Trail
General-Purpose Lanes	None	None	None	None	• Avoids Santa Ana River Bridge and proposed Trail
HOV Lanes on SR-22	None	None	None	None	• Avoids Santa Ana River Bridge and proposed Trail
HOV Lanes Full System Alternative	None	None	None	None	• Avoids Santa Ana River Bridge and proposed Trail
Arterial to the North	• Increased noise levels on Trail • Visual impacts on Trail • Indirect uses of Santa Ana River Bridge	6.68 hectares (16.5 acres)	• 25 Businesses • 50 Residences	None	• Avoids Santa Ana River Bridge and proposed Trail
Arterial to the South	• Increased noise levels on Trail • Visual impacts on Trail • Indirect uses of Santa Ana River Bridge • Use of Willowick Golf Course & Spurgeon Intermediate School	6.68 hectares (16.5 acres)	• 20 Businesses • 30 Residences	None	• Avoids Santa Ana River Bridge and proposed Trail
Contra-Flow Arterial within Existing Right-of-Way	• Increased noise on Trail • Visual impacts on Trail	None	None	None	• Avoids proposed Trail
Contra-Flow Arterial within Existing Right-of-Way Terminating at Harbor Boulevard	• Increased noise levels on Trail • Visual impacts on Trail	None	None	None	• Avoids Santa Ana River Bridge and proposed Trail
Roadway within Santa Ana River Terminating at First Street	• Use of River View Golf Course • Potential constructive use of Santa Ana River Trail	Easement within Santa Ana River	None	Major issues with building in the river	• Avoids Santa Ana River Bridge and proposed Trail

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SECTION 10.0
COMMENTS AND COORDINATION

10.0 COMMENTS, COORDINATION, AND SUMMARY OF PUBLIC INVOLVEMENT PROCESS

10.1 OVERVIEW

Early coordination with the general public and appropriate public agencies is encouraged in the environmental review process in order to determine the scope of the environmental document, the level of analysis and related environmental requirements. Agency consultation and public participation for the SR-22/ West Orange County Connection (SR-22/WOCC) have been accomplished through a variety of formal and informal methods. These include project development team meetings, Steering Committee meetings, Elected Officials briefings, interagency coordination, public outreach program including print media and newsletters, open houses, and planned public hearings following the circulation of this document.

In fall 1997, the Orange County Transportation Authority (OCTA) launched a two-year Major Investment Study and Environmental Impact Report/Environmental Impact Statement to determine the most feasible method to improve travel along SR-22 between SR-55 and the I-405 and I-605 interchange. The purpose of the Major Investment Study (MIS) was to evaluate alternatives for their ability to solve the transportation problems of the study area. In July 1997 the MIS for the project was initiated and a Steering Committee was formed to guide the development of the MIS. The MIS followed a three-part process prescribed by federal requirements. This process also included development of study goals, establishment of project alternatives to meet those goals and creation of evaluation criteria to allow comparison of the proposed alternatives.

The MIS process for this study area consisted of defining the transportation need, identifying a range of reasonable and feasible alternatives to meet that need, and conducting a screening-level alternatives evaluation to determine the alternatives to be studied further in the project development and environmental documentation phases. Impacts of these alternatives were further evaluated in the Draft Environmental Impact Report and Statement (DEIR/EIS), and public and agency comments and responses to the DEIR/EIS have been documented in this Final Environmental document (FEIS/EIR). These project study goals were adopted by the Steering Committee on November 17, 1997 and by the OCTA Board on January 26, 1998.

The MIS process was initiated through development of several pieces of baseline information, which were then presented to the public through community workshops. Public input was gathered on the problems in the study area and public perception was assessed on the need for improvements. The next stage in the development of the MIS was the screening of alternatives against the evaluation criteria. The results of the analyses were included in the Final MIS Evaluation Report, which was submitted to OCTA and presented to the Peer Review Group, Steering Committee and the public.

This MIS Evaluation Report did not recommend alternatives for further engineering and environmental compliance, but rather presented the evaluation process and technical analysis results to the public and the SR-22/West Orange County Connection Steering Committee. It was also intended to facilitate informed input to the OCTA Board, who ultimately adopted alternatives for further engineering and environmental assessment, including the No Build Alternative, the TSM/Expanded Bus Service Alternative and the Full and Reduced Build alternatives.

With the completion of the MIS Evaluation Report, the study process began with implementation of the Project Study Report and the DEIR/EIS. After the DEIR/EIS was publicly circulated and two Public Hearings were held, the FEIS/EIR was prepared. To comply with NEPA, the FEIS/EIR has a 30-day public review/comments period. Following the public review/comment period for the FEIS/EIR, the Department, in conjunction with FHWA, will file a Notice of Determination (NOD), and FHWA will file a Record of Decision (ROD).

10.2 CONSULTATION AND COORDINATION WITH PUBLIC AGENCIES

The SR-22/WOCC is subject to both NEPA and CEQA. The FHWA is the lead agency for the NEPA document (EIS) and the California Department of Transportation (Department) is the lead agency for the CEQA document (EIR). OCTA is a responsible agency under CEQA.

10.2.1 Agencies Contacted

More than 215 federal, state, and local agencies and officials were informed of the study initiation and to solicit comments. Agencies directly involved in the study include the following:

- Federal Highway Administration (FHWA)
- U.S. Department of Transportation (USDOT) FTA/FHWA – Metro-LA
- California Air Resources Board (CARB)
- California Department of Transportation District 12, Irvine
- California Highway Patrol (CHP), Westminster
- Orange County Transportation Authority (OCTA)
- Southern California Association of Governments (SCAG)
- South Coast Air Quality Management District (SCAQMD)
- County of Orange
- City of Cypress
- City of Garden Grove
- City of Los Alamitos
- Rossmoor Community Services District
- City of Orange
- City of Santa Ana
- City of Seal Beach
- City of Stanton
- City of Westminster
- Garden Grove Unified School District
- Leisure World (City of Seal Beach)

10.2.2 Project Development Team

Project Development Team (PDT) meetings, consisting of California Department of Transportation District 12, OCTA and FHWA, were conducted periodically throughout the MIS/EIR/EIS process. In addition to these PDT meetings, OCTA has held regular Project Management Team (PMT) meetings to discuss project development issues, beginning in 1997 until January 2001, when the Department assumed the lead agency role. The PDT meetings continued from that date to the present. Individual team members also coordinated numerous special-purpose meetings to discuss specific issues.

10.2.3 Steering Committee

In July 1997, OCTA formed a Steering Committee consisting of agency representatives from affected local, state and federal agencies to help guide development of the study process. Steering Committee meetings were conducted on October 1, 1997; November 19, 1997; January 15, 1998; May 28, 1998; and July 14, 1998. See Appendix A in Volume II of the DEIR/EIS for the meeting agendas. Table 10.2-1 lists the members of the Steering Committee.

10.2.4 Elected Officials Coordination

As part of the Public Involvement Program two Elected Officials Breakfasts were conducted. The first breakfast meeting was held in December 1997 and the second in June 1998 at the Garden Grove Community Center. OCTA and Department staff met with city officials from the six impacted cities within the study area: Los Alamitos, Seal Beach, Westminster, Garden Grove, Santa Ana and Orange. At the first meeting,

OCTA and Department staff presented the proposed alternatives, provided an outline of the study process, and gathered initial input on specific city issues and concerns. At the second meeting, the draft evaluation report and technical analysis of proposed alternatives were presented and city comments were solicited.

10.2.5 Consultation with Resource Agencies

A. U.S. FISH AND WILDLIFE SERVICE (USFWS)

As part of the coordination and consultation efforts, in June 2000 the Department contacted USFWS requesting information on sensitive/listed species that might occur within the limits of the SR-22/WOCC study area. The March 16, 2001 response letter from USFWS is provided in Appendix I (Volume IV) of the FEIS/EIR.

B. CALIFORNIA DEPARTMENT OF FISH AND GAME (CDFG)

As part of the coordination and consultation efforts, the Department contacted CDFG in June 2000, requesting information on sensitive/listed species that potentially occur within the SR-22/WOCC study area. The CDFG sensitive/listed species is in Appendix I (Volume IV) of the FEIS/EIR.

C. U.S. ARMY CORPS OF ENGINEERS (Corps)

The Department, OCTA, and the SR-22/WOCC consultants have informally consulted with the Corps regarding permitting for the various project elements. Specifically, a draft NEPA/Section 404 Permit Process Determination Preliminary Information Package was prepared. The Department used this and supplemental information in discussions with the Corps and received a preliminary determination that the project would be consistent with existing nationwide Section 404 permits (Vega, 1999). The Section 404 Memorandum of Understanding (MOU) process was not applied because of the anticipated applicability of a nationwide 404 permit. The July 26, 2000 Corps determination letter is provided in Appendix I (Volume IV) of the FEIS/EIR.

D. CALIFORNIA AIR RESOURCES BOARD

During the public review period of the DEIR/EIS, the California Air Resources Board was solicited for comments on the environmental document. Although not required by California Environmental Quality Act (CEQA), a letter was sent to CARB in accordance with Chapter 3, section 21104 (b) of the CEQA Statute: “the state lead agency shall consult with, and obtain comments from, the State Air Resources Board in preparing an environmental impact report on a highway or freeway project, as to the air pollution impact of the potential vehicular use of the highway or freeway.” However, no comments were received from CARB on the SR-22/WOCC proposed project’s DEIR/EIS.

E. STATE HISTORIC PRESERVATION OFFICE

The Department has provided the Historic Property Survey Report, Historic Architectural Survey Report and the Negative Archaeological Survey Report to FHWA for transmittal to the State Historic Preservation Office (SHPO). The Negative Archaeological Survey Report and the Historic Architectural Survey Report are provided in Appendix A and Appendix B of the Historic Property Survey Report, respectively. SHPO’s conclusion on the HPSR and Determination of Effect Finding of Adverse Effect (DOE/FOE) documentation are as follows:

- SHPO concurs with FHWA’s determination that the Full Build Alternative, with its proposed Pacific Electrical Arterial component, will have an adverse effect on the Pacific Electric/Santa Ana Bridge if selected as the preferred alternative;

- SHPO concurs that the Reduced Build Alternative, if selected as the preferred alternative, will have no effect on historic properties.

In the event that the Full Build Alternative had been identified as the preferred alternative, FHWA would have developed a draft Memorandum of Agreement (MOA) for review by SHPO in order to address the proposed project's effects on historic properties.

The SHPO letter to FHWA regarding their finding is attached as Appendix E in Volume II of the August 2001 DEIR/EIS.

As part of the (Enhanced) Reduced Build Alternative, a Supplemental Historic Property Survey Report (HPSR) was conducted to ensure all of the properties identified in the FEIS/EIR are not eligible for listing on the National Register of Historic Places. The potential displacement of properties (residential and non-residential) will not be finalized until the approval of final design. The properties identified in the FEIS/EIR are preliminary and are subject to change. SHPO concurs that the (Enhanced) Reduced Build Alternative properties are not eligible for listing on the National Register of Historic Places. See Appendix B (Volume IV) of the FEIS/EIR to review the SHPO concurrence letter. As discussed in Section 4.5, please note the properties at 12371 Pearce Street, 12346 Flagstone Place, and 12342 Flagstone Place listed in the Supplemental HASR are no longer considered as potential displacees. Pages 10-18 and 10-19 of this section will discuss in further detail the Pearce Street pedestrian overcrossing and the concerns that were raised by the potential displacees.

Table 10.2-1
STEERING COMMITTEE MEMBERS

Member	Agency	Member	Agency
Jeremy Farfan	Assembly District 71 Representative	Larry L. Rhinehart	Director of Intergovernmental Affairs
Ken Maddox	Assemblyman 68th District	Bob Cady	FHWA
Don Gilchrist	Senatorial Representative	Dick Stillwell	Long Beach Transit
Loretta Donovan	Senatorial Representative	Roy Choi	Long Beach Transit
Chris Leo	State Assembly Representative	Eck Chaiboonma	MTA
Michele Morrisey	State Assembly Representative	Maureen Micheline	MTA
Adnan Maiah	California DOT, District 12	Cptn. Tom McCarthy	OCTA
Barbara Gossett/ Chris Flynn	California DOT, District 12	Jim Harmon	OCTA
Dale Ratzlaff	California DOT, District 12	Lt. Jay Leflore	OCTA
Gale Farber	California DOT, District 12	Randy Vannoy	OCTA
Javier Galindo	California DOT, District 12	Dana Wiemiller	OCTA
Jim Beil	California DOT, District 12	Dave Elbaum	OCTA
Judith Heyer	California DOT, District 12	Ellen Burton	OCTA
Ken Nelson	California DOT, District 12	Jose Solorio	OCTA
Leslie Manderscheid	California DOT, District 12	Kia Mortazavi	OCTA
Hamid Toossi	California DOT District 7	Paul Lanning	OCTA

Note**:** Composition of the Steering Committee has changed as the project has evolved. Not all names listed served on the Committee simultaneously.

Table 10.2-1 (continued)
STEERING COMMITTEE MEMBERS

Lt. Les Davis	CHP, Westminster	Ron Taira	OCTA
Sgt. Sherrell Sutherland	CHP, Westminster	Don Capelle	Parsons Brinckerhoff
Keith Carter	City of Cypress	Donna McCormick	Parsons Brinckerhoff
George Allen	City of Garden Grove	Steven Yoshizumi	Parsons Brinckerhoff
Jim Smith	City of Garden Grove	Amir Ilkhanipour	Public Facilities and Resources Department, County of Orange
Ed Shikada	City of Long Beach	Kenny Dang	Public Facilities and Resources Department, County of Orange
Mike Kim	City of Los Alamitos	Lance Natsuhara	Public Facilities and Resources Department, County of Orange
Hamid Bahadori	City of Orange	Russ Lightcap	Rossmoor Community Services
George Alvarez	City of Santa Ana	Evonne Sells	SCAQMD
Joyce Amerson	City of Santa Ana	Lupe Valdez	SCAQMD
Steve Badum	City of Seal Beach	Von Loveland	SCAQMD
Mike Kim	City of Stanton	Debra Redman	SCAQMD
Marwan Youssef	City of Westminster	Sandra Balmir	FTA/FHWA Metro-LA
Peter Mackprang	City of Westminster	Sgt. Jay Gentile	CHP, Santa Ana
Ken Smith	County of Orange	Rick Grebner	OCTA

10.3 PUBLIC INVOLVEMENT PROGRAM

The Public Involvement Program (PIP) was designed to assess public opinion and solicit input in two phases, the Brainstorming and the Scoping. The Brainstorming Phase was implemented to preview issues and define alternatives for study and evaluation. The Scoping Phase focused on improvement alternatives and the effects and results of each alternative.

10.3.1 Notification List

OCTA implemented an aggressive notification process to inform the potentially impacted communities of Los Alamitos, Seal Beach, Westminster, Garden Grove, Santa Ana, Orange, and unincorporated areas of Orange County along the SR-22 about the project study. A list of individuals and organizations presumed to have a significant interest in the study was assembled to serve as the basic mailing list for the initial public workshops conducted in December 1997. This list was created in cooperation with each of the cities located contiguous to the project site. Staff representing each city were contacted by OCTA and asked to submit lists of key community groups, civic organizations, elected and appointed officials, churches, neighborhood associations, social service groups, businesses and employers, public hearing notice or city council agenda recipients, and any other interested parties. These lists were supplemented by several thousand names drawn from the existing OCTA database, including chambers of commerce; individuals who have attended OCTA-sponsored public meetings; ethnic and minority organizations; social service and paratransit providers; local, state, and federal officials and resource agencies; recipients of the OCTA agendas, newsletters and other publications; schools and educators; major employers; media outlets; etc. This entire OCTA database was analyzed and all addresses located within the zip codes contiguous to the project area were sorted out to create an interested parties universe.

10.3.2 Public Workshops

The Brainstorming Phase of the PIP involved three Public Workshops held in December 1997 at the following locations and times:

- Garden Grove Community Center on Tuesday, December 9, 1997
- OCTA office in Orange on Wednesday, December 10, 1997
- Los Alamitos Community Center on Thursday, December 11, 1997

The workshops were held to gain initial input regarding the proposed alternatives, to preview the issues, and to define the public concern regarding noise due to lack of noise barriers in key areas. They included a brief presentation and a facilitated discussion of the transportation alternatives considered for the study. Participants were asked to complete a survey at the conclusion of the workshop and to include any additional comments. The three Public Workshops yielded a preliminary set of alternatives.

To publicize the study and workshops and to permit people to provide input through the mail, fax or internet, project materials were distributed to 20,000 households within the project area, notices were sent to public agencies and local governments, multilingual newspaper ads were placed, surveys reaching 160,000 readers were printed, press releases were sent and public service announcements made, and project information and surveys were placed on the OCTA website, as well as articles in OCTA monthly newsletters.

<u>Survey and Discussion Results of 1997 Public Workshops</u>

Of the more than 125 people who attended the workshops, 100 completed surveys. Participants also submitted numerous explanatory comments to the open-ended questions and 11 people returned the newspaper survey.

Survey results from the three workshops showed that residents preferred the addition of general-purpose lanes and supported implementation of HOV connectors in conjunction with HOV lanes. The least preferred alternative was the No Build option. Participants were also asked to select the most important evaluation

criteria. Participants in Garden Grove and Los Alamitos listed right-of-way acquisition most frequently, followed by air quality and noise. Participants in Orange felt that safety was the top evaluation criterion, followed by air quality and cost-effectiveness. Preferred communication methods varied between the workshops. The most popular method was direct mail and surveys, followed by public workshops.

During the discussion period, workshop participants expressed similar concerns and suggested other alternatives as a solution. These alternatives included:

- Signal synchronization on parallel arterial streets
- Installing electric signage on SR-22 to monitor traffic conditions
- Building soundwalls
- Implementing the Smart Street program
- Building a fixed guideway transit line along the former Pacific Electric right-of-way
- Making the former Pacific Electric right-of-way an arterial for HOVs only

Public Opinion Polls

Independent of the SR-22/West Orange County Connection MIS, three professionally conducted quantitative public opinions polls were taken to evaluate the different alternatives:

- Vision 2020 in July 1996
- Rail Study poll in May 1997
- SR-91 HOT Lanes poll in May 1997

These polls were administered to 600 high-propensity registered voters throughout Orange County. In each poll respondents were read a question and then asked to indicate how they felt about the statement. Response choices were: strongly approve, somewhat approve, somewhat disapprove, strongly disapprove, or no opinion.

Poll results showed general support for HOV lanes and environmental policies. The polls indicated that Orange County voters placed a high priority on improving existing roads as opposed to building new roads and that improvements to the SR-22 were important. There was also support for preserving the former Pacific Electric right-of-way for future transportation uses, but should not be included in this study.

<u>Results of 1998 Open House/Public Scoping Meeting</u>

The public viewed the study as separate sub-projects with varying levels of importance. The mainline SR-22 was the top priority for improvements with minimal support for any type of improvement along the former Pacific Electric right-of-way. Alternative 4, General-Purpose Lanes, was the first choice among improvement alternatives, followed by HOV alternatives. If HOV lanes were constructed on the mainline, the public strongly supported HOV connectors at major interchanges within the project area. Noise, safety and right-of-way concerns were also brought up during the meeting.
Top priorities included:

- Reducing congestion during peak commute hours
- Minimizing air quality impacts
- Safety
- Moving people efficiently

Much like the three December 1997 community workshops, survey results indicated minimal support for Alternative 1 (No Build), Alternative 2 (TSM), and Alternative 3 (Fixed Guideway).

10.3.3 NEPA/CEQA Notifications

A. NOTIFICATION OF INITIATION OF STUDIES

The Notification of Initiation of Studies (NOIS) is a letter required by the Department that is prepared to inform other agencies that the Department and, in this case, OCTA, were formally initiating stud-

ies related to a highway project. It briefly described the proposed project and outlined the documents to be prepared.
The NOIS for the SR-22/WOCC was sent on May 1, 1998, to City Councils, Boards of Supervisors and affected state, federal, regional and municipal agencies and other interested parties (Appendix A, Volume II). It superseded a previous NOIS sent in the fall of 1997 to clarify the alternatives being considered based on the December 1997 workshops. It also announced a Scoping Meeting for the project.

B. NOTICE OF PREPARATION

The Notice of Preparation (NOP) is a CEQA-required document that is drafted if the lead agency determines that an EIR is required. The NOP and environmental significance checklist are mailed to federal and trustee agencies responsible for approval, funding and natural resources affected by the project. The NOP must include:

- A description of the project
- Location of the project on an attached map or by street address in an urbanized area
- Possible environmental effects of the project
- Specific reference to and solicitation of agencies' views on potential impacts to historical properties.

The NOP and the checklist must be sent together by certified mail or any other method that provides a record that the notice was received. Within 30 days of receiving the NOP, responsible agencies shall provide comments on the scope and content of the document, including possible alternatives and mitigation measures. If, after 30 days, a responsible agency does not respond with comments or a request for additional time, it is concluded that they have no comments (Section 15082, CEQA Handbook, 1994). A copy of the NOP was also sent to the State Clearinghouse in the Office of Planning and Research.

An NOP for the SR-22/WOCC was sent on May 29, 1998 to more than 215 federal, state and local agencies and officials to inform them of study initiation and to solicit comments (Appendix A, Volumes II and III).

C. NOTICE OF INTENT

NEPA requires that if a project includes federal involvement, the EPA must publish the Notice of Intent (NOI) in the *Federal Register*. This letter solicits federal agencies' comments and suggestions for the required EIS.

The NOI for SR-22/WOCC was published on Wednesday, June 3, 1998 in the *Federal Register*, Volume 63, Number 106, pages 30284 and 30285 (Appendix A, Volume II).

D. NOTICE OF AVAILABILITY

Since this project document is a joint NEPA/CEQA document, the EPA must publish the Notice of Availability (NOA) in the *Federal Register*. This Notice solicits federal agencies' comments and suggestions for the required EIS.

The NOA for the SR-22/WOCC project was published on September 7, 2001 in the *Federal Register*, Volume 66, Number 174, page 46792 (Appendix E).

An overview of the comments received can be found in Section 10.5.4 of this chapter.

10.3.4 Scoping Meetings

In the spring of 1998, the Scoping Phase was launched to evaluate the six proposed alternatives and to address noise barrier issues. As part of this phase, one Public Scoping Meeting was held on June 23, 1998 at the Garden Grove Community Center. A separate meeting was also held at the same time and location to address noise barrier issues. To advertise the Scoping Meeting and gain additional input, two direct mail surveys were sent to residents and businesses in the area and a survey requesting input was listed on OCTA's website. Full-page ads were printed in the *Community Close-Up* (a local newspaper in central Orange County) and *Excelsior* (a Spanish-language newspaper) on June 18 and 19, 1998. The Scoping Meeting was also announced in the NOIS and NOI.

The format of the Scoping Meeting consisted of a self-paced exhibit with technical staff available to answer questions. A comprehensive survey was distributed at the meetings, requesting participants to comment on suggested freeway improvements, alternative proposals, and issues that should be addressed in evaluating the proposed alternatives. Respondents could add any comments they had regarding improvements to the mobility of SR-22.

10.3.5 Direct Mail Campaign

In December 1997, upon completion of the mailing list, a direct mail notice went to 10,000 residents within the study area in order to publicize the study and permit people to provide input. In June 1998, a project newsletter was distributed to 18,500 residents and businesses within one-eighth mile of the study area and 5,000 absentee property owners within one-quarter mile of the study area to advertise the Public Scoping Meetings and allow for public input (Appendix A, Volume II). In addition, project newsletters were distributed to more than 400 residents and officials on the mailing database in June 1999 and February 2000.

10.3.6 Print Media Campaign

On November 28, and 29, 1997, half page ads were printed in the local newspapers, the *Los Alamitos Enterprise,* the *Community Close-Up,* and the *Orange County News,* informing residents and business owners of workshops locations (Appendix A, Volume II of DEIR/EIS). A total of 159,044 readers were reached via newspaper ads. A front-page story was also printed in the *Orange County Register,* the *Los Angeles Times,* and the *Los Alamitos Enterprise*. In order to reach multi-cultural populations in the affected area, a Spanish language ad was printed in the *Excelsior* newspaper and Vietnamese Public Service Announcements were aired on Little Saigon Radio. In June 1998, information regarding the Public Scoping Meetings was delivered through full-page ads in local and Spanish language newspapers, as well as public service announcements on Vietnamese radio.

10.3.7 OCTA Board Meetings

On September 8, 1997, the OCTA Board voted to expand the scope of the SR-22 project to include: I-405 between SR-22 and I-605; I-605 between I-405 and Katella Avenue; and the former Pacific Electric right-of-way between SR-22 and Bristol Street. The name of the project was subsequently changed to SR-22/West Orange County Connection.

On January 26, 1998, OCTA held a Board meeting at the County of Orange Planning Commission Hearing Room, Hall of Administration, 10 Civic Center Plaza. OCTA presented a summary of the public input from the community workshops on the project, including study goals, transportation alternatives and potential evaluation criteria. The Board concurred with the development of the study up to that date and approved further evaluation of improvements for the study area.

On August 10, 1998, OCTA held a Board meeting at the County of Orange Planning Commission Hearing Room. OCTA staff requested that the Board authorize them to proceed with the environmental compliance process and the preliminary engineering of a build alternative. The Board unanimously agreed to proceed with the preparation of the draft environmental document and begin preliminary engineering of two alterna-

tives (Alternative 4B, General-Purpose Lanes, and Alternative 6C, HOV Lanes Full System) from the State Route 22/West County Connection Major Investment Study.

On November 2, 1998, OCTA staff presented a proposal to the OCTA Board's Executive Committee to add a general-purpose lane alternative as part of the environmental review and preliminary engineering for the State Route 22/West Orange County Connection project. In addition, staff presented a proposal from SCAG to conduct a two-phase regional HOV system performance study. The Executive Committee recommended against these proposals based on concerns regarding the overall costs, timing and other factors associated with the proposed studies. On November 9, 1998, the OCTA Board confirmed the Executive Committee's recommendation and voted not to pursue a general-purpose lane alternative in the environmental document and preliminary engineering for the project. The Board also voted to defer Phase I of SCAG's HOV system performance study until Orange County's HOV system is completed, yet decided to support Phase II of SCAG's regional study as part of their Overall Work Program.

On April 26, 1999, the OCTA Board expanded the project scope of work to include improvements at The City Drive and SR-22. The OCTA Board again took action on January 24, 2000, when a Reduced Build Alternative was added to the environmental document and preliminary engineering due to higher than anticipated environmental impacts associated with the Full Build Alternative.

10.4 ISSUES IDENTIFIED

The PIP provided residents, business owners and city officials with the opportunity to voice concerns and identify issues regarding development of the study. Survey results from the three public workshops and the open house/public scoping meeting showed that residents were most concerned with right-of-way acquisitions and noise impacts. This was followed by safety, air quality and cost issues. The *SR-22/West Orange County Connection Major Investment Study Public Workshop Report* (March 1998) (Appendix A, Volume II of DEIR/EIS) outlines the results and issues identified during the public involvement program.

Responses to the NOIS, NOP and NOI, and comments received in public meetings are summarized below.

10.4.1 Responses to NOIS, NOP and NOI

<u>Southern California Gas Company:</u>

- Requested that "signed" final plans and subsequent revisions be sent to them as soon as possible. A minimum of 12 weeks is required to analyze the plans and design alterations due to conflicting facilities. Upon request, at least two days prior to the start of construction, the Gas Company will mark underground facilities at no cost. No special permits are needed other than what the cities require.

<u>City of Seal Beach:</u>

- The study indicates that impacts to prime farmlands are expected to be less than significant. According to Appendix G of the California Environmental Quality Act (CEQA) Handbook, a project will have a significant impact if it would convert "prime" agricultural lands to non-agricultural use, or impair the agricultural productivity of "prime" agricultural land.
- The City asks that the air quality analysis include a study of carbon monoxide "hotspots" at adjacent freeway on/off ramp locations. They also request that mitigation measures be developed to reduce the impacts to an insignificant level.
- Recreation - page 28 section XV. This section should reflect that the existing Towne Center (adjacent to I-405) is undergoing the application process to dedicate the Bixby Old Ranch Tennis Club to the City as a public recreation center.
- There is improvement project for the bridge widening at Seal Beach Boulevard. Some alternatives may affect this portion of the project area. Brown also commented on the effects of the right-of-way acquisition to the College Park East neighborhood, located north of I-405 between Seal Beach

Boulevard and Valley View Street. He feels that any further encroachment into this residential area would be detrimental to the neighborhood and to the City of Seal Beach.

California Department of Transportation (District 12):

- Recommended that the OCTA Board carry forward the concept of Alternative 6C as an alternative to be evaluated in the environmental process.

County of Orange:

- The unincorporated residential neighborhood of Rossmoor will be significantly impacted.
- The Koll Company, the developer of the Bolsa Chica area, is required as a mitigation element to widen the Bolsa Chica Street (Valley View Street) bridge at I-405 and SR-22. They are also required to widen the arterial highways and improve intersections in the area.
- The Draft EIR/EIS should address the trails and bikeways. Any detours should be coordinated with the County and local jurisdictions.
- The Orange County Flood Control District (OCFCD) facilities are incapable of handling the 100-year discharge at the freeway crossings.
- Permits from the County's Public Facilities and Resources Department are required for any work within the OCFCD right-of-way.
- The project will need to address the reconstruction of the debris walls, etc., upstream of the Santa Ana River and Santiago Creek, as well as any reconstruction of channel slopes.
- The Army Corps of Engineers must approve improvements impacting the Santa Ana River. This is separate from the Corps' 404 permit. The County Property Permit Section of the Public Facilities and Resources Department will submit the plans to the Corps for approval on behalf of OCTA, FHWA and the Department.
- Required grading for the improvements would impact two closed landfills: La Veta located near the corner of La Veta Avenue and Tustin Street, and Yorba located near the corner of Chapman Avenue and Yorba Street. The DEIR/EIS should address how disturbances to these landfills will be consulted with the appropriate agencies.

City of Santa Ana:

Requested that noise measurements be taken at sensitive receptor sites for each alternative. Mitigation measures should also be added to reduce the noise impacts to acceptable day-time and night-time levels. There is also the potential for archeological sites in the area.

City of Long Beach:

Regarding Alternative 3, Fixed Guideway, unavoidable impacts would occur to:

- Aesthetics
- Public service
- Cultural resources
- Noise
- Land use incompatibility
- Transportation
- Environmental justice

City of Garden Grove:

Supported HOV lanes, but strongly opposed direct, high-speed, flyover connectors to an arterial on the former Pacific Electric right-of-way. The city was concerned with the following areas of impact:

- Potential economic loss
- Visual impacts
- Potential problems with traffic circulation

  The taking of properties near Trask Avenue, resulting result in a loss of sales and property tax revenue. The benefits to the City of Garden Grove would not outweigh these economic losses.

- There are three projects currently under consideration within the project study area. The first is the Garden Grove Auto Center Expansion, currently located on the south side of Trask Avenue, east of Brookhurst Street. The 3.2-acre expansion, currently in the planning stage, is located south of Trask Avenue, between Brookhurst Street and Taft Street. The second project is the addition of Garden Grove freeway signs at the Mobile Home Park (70 feet high), in the OCTA right-of-way (130 feet high) and at the Auto Center (70 feet high). The third project is a 3,737 square foot proposed car wash building in the OCTA right-of-way between Harbor Boulevard and Westminster Avenue. Historic structures include a Eucalyptus Vat on Trask Avenue at Taft Street, and the Robinson House at 10342 Central Avenue.

California Department of Fish and Game:

Suggested that the following information be included in the environmental documents:

- A complete assessment of the flora and fauna within the project study area, emphasizing endangered, threatened, and locally unique species and sensitive habitats.
- Discuss direct, indirect, and cumulative impacts expected to adversely affect biological resources with measures to offset impacts.
- Analyze alternatives that avoid or minimize impacts to sensitive biological resources. Specific alternative locations should be analyzed in areas with lower resource sensitivity.
- A CESA permit is required when there is the potential that a project will take an endangered species or plant. Early consultation is requested because modification to the project and mitigation measures may be required in order to obtain a CESA permit.
- All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks. These setbacks must preserve the riparian and aquatic values and maintain their value to the on-site and off-site wildlife populations.

U.S. Department of Fish and Wildlife:

Requests that the following information be analyzed in the environmental documents:

- A complete description of the project and practical alternatives that reduce impacts to the sensitive habitats and endangered, threatened or sensitive species.
- Qualitative and quantitative assessments of the biological resources and habitat types that will be impacted by the project.
- Assessment of direct, indirect, and cumulative effects of all steps of the project (construction, implementation, operation, and maintenance) to fish and wildlife. Growth inducing effects of the project should also be discussed.
- The DEIR/EIS should discuss the measures to avoid, minimize, and mitigate impacts to jurisdictional waters and wetlands. Wetlands should be delineated using the methodology set forth in the Corps' *Wetlands Delineation Manual* (Environmental Laboratory, 1987).[1]

City of Long Beach:

Commented that there were no major impacts to his jurisdiction at the time.

City of Orange:

Commented on two properties undergoing redevelopment and two historic properties. The first property undergoing construction is the Town and Country Shopping Center located on the south side of the freeway, east of Main Street. It will be rebuilt as a retail center with approximately the same square footage as the current use. The second is The City Shopping Center located on the north side of the freeway between the City Drive and Lewis Street. It has been demolished and rebuilt as an entertainment/shopping center. The first historic property in the area is Old Town Orange. It was recently added to the Federal Register and therefore has been the subject of improvement proposals. The second historic property is Hart Park, located on the east side of Glassell Street and north of the freeway. Hart Park is the oldest of the city's neighborhood parks. The portion adjacent to the freeway was developed

[1] Available at the Department of Transportation, District 12.

and added to the park in the mid-1970s. Part of the park at the corner of Glassell Street and SR-22 was developed into an orange grove as a perpetual exhibit of the city's agricultural history.

10.4.2 Public Workshops

A. PUBLIC COMMENT QUALITATIVE RESULTS

The following characterizes inputs received from all sources.

- There was a general consensus that there is a current congestion problem along the SR-22 that should be addressed.
- The vast majority of participants believed additional transportation improvements were necessary. This was supported by the fact that the "no build" alternative had little to no support.
- The most frequently voiced concern related to the lack of existing noise barriers and the manner in which they would be provided in the future.
- There were concerns about whether property would be taken if SR-22 was expanded and the impacts of any expansion to those living adjacent to the SR-22.
- Other concerns were expressed about the impacts to nearby intersections, public safety and health.
- There was broad consensus that several of the current access ramps to the SR-22 are dangerous and cause congestion. Most people believed that all the ramps needed to be included in the study.
- There was a broad consensus that if a rail system was built it must be supported by a feeder system.
- Some people recommended improved public notification for future meetings.

At the meetings, most people were satisfied with the range of the alternatives proposed for the study. Several people commented that the "No Build" alternative was not an option considering the growth in Orange County and some individuals opposed the HOV option. Many encouraged OCTA to initially look at studying the addition of two or more lanes in each direction on the SR-22 regardless of the right-of-way concerns. The general consensus was to initially look at all factors and to "think big." Several people felt the need to transition to and from HOV lanes in order to access exits causes dangerous conditions and accidents. A few individuals argued HOV lanes were not efficient and should not be considered.

People had mixed opinions about the potential use of the former Pacific Electric right-of-way. Some suggested converting the former Pacific Electric right-of-way to an HOV-only use. A few people favored the idea of an elevated rail system along the former Pacific Electric right-of-way with open space underneath. When the issue of rail was discussed, most people agreed that residents in Orange County need an alternative to their cars, but cautioned that rail would be ineffective if supporting bus feeder systems were not in place.

There were few comments regarding the TSM/Expanded Bus Service Alternative. One person commented that "these types of improvements don't cost anything so why aren't they already being implemented?"

There was some reference to the Century Freeway project at each of the meetings. The general consensus was OCTA should not "make this another Century Freeway project."

At each meeting there was minimal interest in SCAG's role in the regional transportation planning process. Members of Drivers For Highway Safety, a freeway advocacy group, requested that OCTA clarify whether SCAG would require HOV lanes on SR-22 and encouraged OCTA to involve a SCAG representative in the process.

B. GARDEN GROVE/LOS ALAMITOS MEETINGS, DECEMBER 9 AND 11, 1997

Residents and the public who attended the Los Alamitos and Garden Grove public workshops had the following comments and concerns.

- Concerns regarding the specific impacts to their properties, immediate area, and right-of-way issues.
- OCTA needs a more thorough notification process. A suggestion was made to use the city water bills.
- Concerns regarding the long-term failure of the Department to provide noise barriers to shield the residential area near Anthony Avenue. The noise barrier issue should be resolved and existing noise mitigated before any new improvements are implemented. Erecting noise barriers would help improve safety and public health in their neighborhoods. Noise barriers would help eliminate drive-by shootings in the area.
- Concerns regarding homeless people entering private property.
- Concerns regarding rats and trash on their properties.
- Concerns regarding property takes, adequate compensation for the current market value of their homes, and the property valuation and compensation process.

C. OCTA, ORANGE MEETING, DECEMBER 10, 1997

Residents and the public who attended the Orange Public Workshop had the following comments and concerns.

- Concerns about congestion and moving traffic throughout the entire project area.
- Comments regarding the need for all ramps and transitions to be evaluated for safety. Ramp safety should be a goal of the study.
- Issues of funding, funding sources, priorities, and how OCTA was communicating its priorities to state and federal officials.

D. SURVEY RESULTS

Workshop attendees and newspaper survey respondents were asked during the scoping meetings in 1998 (see above) to list the biggest traffic problems throughout the study area on their surveys. The problem areas varied based on the respondents' neighborhood and commute patterns. The participants' comments and survey results are listed below:

- Existing southbound SR-57 to the westbound SR-22 connector: A Bottleneck exists because the lanes merge into one lane at Bristol Street and Memory Lane. This causes a backup to Haster Street in Garden Grove.
- The westbound SR-22 on-ramp at Haster Street is very dangerous (more dangerous than it has been in 12 years).
- The City Drive exit is unsafe. The exit needs to be moved west of the current location or a bridge needs to be built over it because it is too tight of a connection. There is a business with 800 employees located at this exit and they cannot get off the SR-22 to get to work. "To help these employees, send a newsletter to the businesses and their employees regarding the status and safety issue at the City Drive ramp."
- SR-55 and Bristol Street ramp is unsafe. All the ramps along the SR-22 are unsafe. The surface streets are all congested due to the unsafe ramp problems.
- There is a 180-degree turn at the Orange Crush and the SR-57 transition, which is dangerous. The bridge is too small and dangerous – this entire area is a hazard. It needs a direct connector.
- The noise barriers were erected in the wrong areas according to residents in the Los Alamitos area. Noise barriers were erected at Beach Boulevard and Magnolia Avenue and Knott Street and Valley View Street, but not where they are needed.
- If this project goes through there will be no room for the expansion and reconfiguration of the ramps that would be necessary to handle the expansion of the bridge and access to the local

roadways and freeways. There are two other proposed developments in the area that would generate additional traffic, thus impacting that ramp area.

- All connectors to and from the freeways at either end of the SR-22 are currently causing great congestion problems.

Specific problem areas listed by workshop survey respondents included:

Los Alamitos.

- Interchange between Los Alamitos Boulevard and Valley View Street
- Orange Crush at The City Drive
- I-405/SR-22 northbound transition
- SR-22/I-405 interchange (several people listed this)
- Freeway-to-freeway interchanges at the SR-22 and the I-405, I-605, and I-710 (outside study area)
- Bridge widening at Seal Beach Boulevard and the SR-22/I-405 (several similar comments)
- I-405/ I-605 transition
- Seal Beach Boulevard and Lampson Avenue
- Ramp at Seal Beach Boulevard and I-405
- SR-22 eastbound approaching the Orange Crush
- SR-22 westbound approaching the I-405
- SR-22 at Beach Boulevard
- SR-22 and SR-55 interchange (several similar comments)
- Springdale Street overpass
- SR-22 between the SR-55 and Harbor Boulevard
- Brookhurst Avenue
- SR-22/SR-57 interchange
- SR-22 between Beach Boulevard and Harbor Boulevard
- SR-22 between Magnolia Avenue and I-5

Garden Grove.

- Orange Crush (a few people listed this)
- SR-22 throughout all of Garden Grove
- SR-22 between Seal Beach Blvd. and SR-55
- SR22/SR-57 interchange
- Magnolia westbound
- Congestion on all ramps
- SR-22 east between Brookhurst and SR-55 (several similar comments)
- SR-22 west to I-405
- SR-22 westbound slowing at Harbor Boulevard

Orange.

- Freeway to freeway interchanges at I-405/I-605, SR-22/I-405, and SR-22/I-5/SR-57 (several similar comments)
- Orange Crush
- All on- and off-ramps use old technology, which causes slowing
- SR-22 at the Orange Crush
- Southbound SR-57 to SR-22 connector
- Lack of signal synchronization

Problem areas listed by newspaper survey respondents.

- Vehicle stoppages on SR-22 at the I-405, I-605, and I-710
- List speed limits in the lanes so that speeds are maintained; ensure that the left lane is used for passing only

- Ban buses, trucks, and government vehicles (except police)
- Improved on- and off-ramps along the entire SR-22
- Eliminate meters at the on-ramps along the entire SR-22
- Eastbound SR-22 at I-405 from Seal Beach Boulevard; backs up two to three lights during peak hours
- Repair the crack on the SR-22 near Neptune Court, west of Newhope Street
- Orange Crush congestion at peak hours; construction will make this problem worse
- SR-22 interchange at the SR-57 and I-5
- Off-ramp at The City Drive
- Interchanges at SR-22 eastbound and I-5 southbound
- Bristol Street exit ramp causes back ups on the entire SR-22
- SR-57 southbound to SR-22 westbound
- Interchange at SR-22 and I-405 between Valley View Street and I-405 at I-605
- Need noise barriers on the north side of the SR-22 between Knott Street and Valley View Street

10.4.3 Scoping Meetings, 1998:

The following issues were raised by members of the public at the Scoping Meetings in 1998:

- Soundwalls do not extend far enough. Will current noise studies be transferred into the new SR-22 project?

- An industrial area in Garden Grove has a soundwall, although some homes do not. Noise readings need to be taken during the noisiest time of day. Trucks downshifting pose a problem, especially at night. Could the “No build” alternative be the preferred one?

- Residents on Anthony Street had been promised a soundwall, but none had been built yet. The notification process needs to be improved; many residents of that street had not received notice of the meetings.

- Residents questioned why a soundwall in an industrial area (Knott Avenue and Springdale Street) had a higher priority for construction than residential uses. Why can’t the Department use existing sound studies? Freeway noise near the car dealerships is worse since landscaping was removed. Did the dealerships pay the Department to remove it to improve their visibility? Is removal of the car dealerships an alternative?

10.4.4 Elected Officials Meetings

Meetings were held in December 1997 and June 1998. The elected officials had concerns regarding:

- Right-of-way takes in their cities
- Funding for the project, specifically the use of Measure M
- Sound walls and noise mitigation
- Other possible alternatives

10.5 NEPA/CEQA SUMMARY OF PUBLIC INVOLVEMENT PROCESS

10.5.1 INTRODUCTION

The California Department of Transportation (the Department), in cooperation with the Federal Highway Administration (FHWA), and the Orange County Transportation Authority (OCTA), has coordinated its planning efforts with the appropriate Federal, State, and local agencies and interested citizens and concerned organizations. The Department assumed the lead role from OCTA for the environmental documentation in January 2001. The Draft Environmental Impact Report/Statement (DEIR/EIS) was released for public review/comments in August 2001.

10.5.2 PROJECT DEVELOPMENT TEAM MEMBERS

The Project Development Team (PDT) functions as a formal interdisciplinary team steering the course of studies. The PDT directs and participates in the planning, development and evaluation of alternatives, and participates in major meetings, public hearings and other community interaction processes. The PDT for the State Route-22 (SR-22) is made up of the following agencies/individuals:

For the Department of Transportation:
Adnan Maiah, Project Management
Tam Nguyen, Design
Leslie Manderscheid, Environmental Planning
Kathy Anderson, Right-of-Way
Dan Phu, Environmental Planning
Isaac Alonso Rice, Design
Loanna Huyhn, Design
Camilo Rocha, Design
Reza Aurasteh, Environmental Engineering
Ken Bui, Construction
Wayne Chiou, Environmental Engineering
Jeff Ayer, Structures
Saied Hashemi, Traffic Operations (north)
Carol Roland, HQs
Gamini Weeratunga, Traffic Operation (north)
Susanne Glasgow, HQs
Sandy Ankhasirisan, Landscape Architect
For the Federal Highway Administration:
Robert Cady, Transportation Engineer
Mary Ann Rondinella, Environmental Planning
Stephanie Stoermer, Environmental Planning
Katie Ann Wong-Murillo, Western Resources Center
For the Orange County Transportation Authority:
Ellen Burton, Project Management
John Garcia, Project Management
Richard Teano, Advance Transportation Planning

10.5.3 Agencies/Public Involvement Process

On August 29, 2001, public entities and governmental agencies were notified of the release of the Draft Environmental Impact Report/Statement (DEIR/EIS). The Cities of Cypress, Garden Grove, Orange, Santa Ana, Seal Beach, Tustin, Westminster, as well as the County of Orange and the Rossmoor Community Services District, each received two copies of the DEIR/EIS. One copy was for the City or governmental entity's governing body and the other was reserved for its constituents to solicit comments/feedbacks on the proposed SR-22/WOCC proposed project. The release of the DEIR/EIS for public review/comment period was between August 31, 2001 and October 30, 2001. A joint DEIR/EIS is typically required to have a public review period of at least 45 days. However, the Department and its partnering agency, the OCTA, recognized widespread public interests in the project and extended the public review period to 65 days (See Appendix E in Volume IV of this FEIS/EIR for copies of the letters to the previously referenced governmental entities).

A Notice of Availability (NOA) was issued to notify the public that the DEIR/EIS was available for review/comment. The NOA for the DEIR/EIS was placed in four newspapers. These included advertisements in multiple languages in an attempt to reach the broadest groups of concerned citizens/stakeholders. The NOA notification was placed in the August 29th, September 20th, and September 24th sections of the following newspapers: the *Excelsior* (Spanish), *Nguoi Viet* (Vietnamese), *the Orange County Register*, and the

Los Angles Times (Orange County Edition). The Department and OCTA posted the NOA and the public hearings on their websites. The Department's website also provided information including the DEIR/EIS in an Adobe Acrobat Reader (pdf) format and the public comments form (See Appendix D in Volume IV of this FEIS/EIR for copies of the notices).

In accordance with the National Environmental Policy Act (NEPA), the Notice of Availability (NOA) for the DEIR/EIS was published on September 7, 2001 in the *Federal Register*, Volume 66, Number 174, page 46792 (Appendix E).

In accordance with the California Environmental Quality Act (CEQA), the DEIR/EIS was submitted through the State Clearinghouse, Governor's Office of Planning and Research. The State Clearinghouse received fifteen copies of the DEIR/EIS as well as the NOA and notice of public hearings for distribution to State agencies. They included the following State agencies: the Department of Fish and Game, Office of Historic Preservation, the Department of Parks and Recreation, the California Highway Patrol, the Department of Transportation District 7, the Department of Transportation (headquarters), Housing and Community Development, the Air Resources Board, SWQCB: Water Quality, Regional WQCB # 9 (Santa Ana), Native American Heritage Commission, the Public Utilities Commission, and the South Coast Air Quality Management District. In addition to the State Clearinghouse's distribution list, the Department also sent copies of the DEIR/EIS to the United States Department of the Navy, the United States Environmental Protection Agency (EPA), the Federal Transit Administration (FTA), and the FHWA.

The DEIR/EIS was also available at the following libraries: Santa Ana, Garden Grove, Rossmoor/Seal Beach, Mary Wilson Library (Seal Beach), the Orange City Library; and the Department's District 12 and Orange County Transportation Authority (OCTA) offices. FHWA placed the notice of availability of the DEIR/EIS in the Federal Register on September 10, 2001.

Two public hearings were held to allow the public to review and learn more about the proposed project. These hearings were placed in the previously mentioned newspaper advertisements as well as the Department and OCTA websites. A September 26, 2001 public hearing was held at the Garden Grove Community Center, followed by an October 3, 2001 public hearing at the OCTA's meeting room. Enlarged plans, technical reports, and an informational package along with the comments form were made available at the public hearings.

In addition to the notifications of the DEIR/EIS in the newspapers and the Department and OCTA websites, a mailer was sent to potentially affected residents and commercial properties along the SR-22 project limits. On approximately October 19, 2001, a "Reminder Notice" was sent to all of the potentially affected residential and commercial properties listed in the DEIR/EIS, concerned citizens/stakeholders requesting information on the project, and numerous residents in the unincorporated community of Rossmoor. There were numerous residents in Rossmoor (County of Orange unincorporated) with concerns regarding the proposed project element on the western terminus. These included many residents who reside along Martha Ann Drive and Yellowtail.

On November 6, 2001, approximately one week after the close of the public comment/review period for the SR-22/WOCC proposed project, a postcard was sent to all of the concerned citizen/stakeholders and agencies who commented on the DEIR/EIS during the public review/comment period (August 31st – October 30th). The Department received approximately 1,100 total comments (~550 non-duplicative comments). Comments were received from residents from the Rossmoor/Los Alamitos communities and the Cities of Seal Beach and Garden Grove primarily, as well as from Long Beach, Anaheim, Santa Ana and the City of Orange.

Pearce Street Pedestrian Overcrossing

As discussed in Section 2 of this FEIS/EIR, refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Pedestrian overcrossing is in need of replacement since

it would conflict with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately seven feet wide. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. In order to determine the usage of the Pearce Street, surveys were sent to residents within a half-mile radius of the pedestrian overcrossing.

During the administrative review phase of the FEIS/EIR, the proposed ADA compliant pedestrian overcrossing identified three residential displacements that were not previously identified during the DEIR/EIS phase. As part of the environmental documentation process, the Department's right-of-way staff contacted these three potential displacees. This led to concerns raised by the displacees, and the Department elected to survey the usage of the pedestrian overcrossing and hold a public meeting. A Public Meeting was held on December 17, 2002 to present to the community the different plans to replace the existing Pearce Street pedestrian overcrossing. The purpose of the Public Meeting was to supplement the survey by sharing information with the community and to solicit their input on the replacement of the pedestrian overcrossing. Approximately 50 residents in the community attended the meeting. Comment Forms were available at the meeting and 42 of them were received. The summary of the Pearce Street pedestrian overcrossing survey results, as well as the Public Meeting, and the Comment Form are discussed in Section 2.2 (A).

Summary of Pearce Street Pedestrian Survey

On December 4, 2002, 2389 surveys were sent to residents within a half-mile radius of the Pearce Street pedestrian overcrossing. The survey was available in English and Spanish, and was sent out by a mailing services company. Upon discovering that the mailing services company inadvertently omitted the Bahia Village Mobilehome Park (less than ¼ mile away from pedestrian overcrossing), 177 additional surveys were hand-carried to this mobilehome park.

The questions in the survey solicited information such as whether the respondent uses the pedestrian overcrossing, their purpose for using it, their age, their destination, and if they would have other means of transportation if the pedestrian overcrossing were removed. A total of 263 (11.01%) surveys were returned with responses, forty-seven respondents (17.87%) indicated that they use the pedestrian overcrossing, while 218 respondents (82.13%) indicated that they do not use the pedestrian overcrossing. Forty-six surveys were returned by the Postmaster as undeliverable due to vacant or unoccupied properties.

Of the 47 (17.87%) surveys that indicated they use the pedestrian overcrossing, eight of them were returned in Spanish, while 24 of the 218 returned the survey in Spanish indicating that they do not use the pedestrian overcrossing. Of the 47 respondents who indicated that they use the pedestrian overcrossing, 25 started their trips at Pearce Street, 15 started their trips at Flagstone Place, while 7 did not specify. The users of the pedestrian overcrossing indicated that their trips occur between the hours of 6 to 10 am in the morning, and 2 to 6 pm in the evenings. Fifteen of the 42 respondents indicated their destinations were to the surrounding schools, 12 indicated their destinations were to shopping, while 16 indicated "other". When asked if they had other forms of transportation to their destination, 28 indicated "yes", while 14 indicated "no". When asked if the pedestrian overcrossing was removed, how would they get to their destination in the mornings and evenings, the respondents indicated that they would walk, drive, in both mornings and evenings. When asked if they would eliminate their trip(s) if the overcrossing was removed, 16 of the 47 indicated "yes", 24 indicated "no", while 7 did not respond. Please see Figure 2.2-2a for a summary map of the Pearce Street pedestrian overcrossing survey results.

Summary of December 17, 2002 Pearce Street Public Meeting

On December 17, 2002, approximately 50 interested parties attended the Public Meeting. The materials at the Public Meeting included visual representations of preliminary proposals for replacement of the Pearce Street pedestrian overcrossing. There were eight proposals, including a "no build" option that would eliminate the Pearce Street pedestrian overcrossing. The seven "build" options included variations of where the new pedestrian was proposed. A Comment Form was available at the Public Meeting to solicit input from the attendees. The feedback provided by the attendees for the Public Meeting consisted of a variety of comments. The consideration for elimination of the Pearce Street pedestrian overcrossing to saving a resident's home who was potentially affected by the initiate set of proposals.

Based on input from various stakeholders, the Department elected to proceed with the build option labeled Alternative 5B (as presented in the Public Meeting), which utilizes a sliver of the existing maintenance road alongside Wintersburg Channel. The Wintersburg Channel is under the jurisdiction of the Orange County Flood Control District (OCFCD). Alternative 5B utilizes the existing entrance/exit point at Flagstone Place (northside) and it proposes a new entrance/exit point at Pearce Street (southside), where the new entrance/exit point is parallel to Wintersburg Channel. Please see Figure 2.2-2b for the plan of the Pearce Street pedestrian overcrossing (Alternative 5B).

TRASK AVENUE/SORRELL DRIVE PUBLIC MEETING SYNOPSIS

Background

The structures design team, when reviewing the SR-22 Project plans, identified several locations where there could be potential conflicts with the location of proposed bridge columns and existing traffic conditions, primarily in left-turn lanes. As most of the potential conflicts involved City of Garden Grove local streets, the traffic team met with the City to discuss these issues.

It was noted that the widening of the existing SR-22 overcrossing of Trask Avenue, west of Harbor Boulevard, would require additional bridge columns in the median of Trask Avenue. These additional columns in the median supporting the westerly bridge widening will extend through the intersection of Sorrell Drive. Sorrell Drive, a north-south residential street, one block long, presently forms a "T-intersection" with Trask Avenue, an east-west arterial. Extension of the existing median on Trask Avenue westerly through the intersection to protect the new columns will result in limiting access at Sorrell Drive. Access would be limited to westbound right turns from Trask to Sorrell, and southbound right turns from Sorrell to Trask. Since widening of the overcrossing would potentially require acquisition of the residential property on the northeast corner of Trask/Sorrell, one option to limited access of right turns in and out only between Trask and Sorrell would be to cul-de-sac Sorrell Drive at Trask Avenue. Both the limited access and the cul-de-sac options would eliminate traffic that is now using this segment of Sorrell Drive between Trask Avenue and Banner Drive as an alternate from the busy intersection of Harbor Boulevard/Trask Avenue to the east.

A public meeting was held at the City of Garden Grove City Hall with the City Traffic Engineer and one of his assistants.

Public Meeting

The Public Meeting was held by the City of Garden Grove on Tuesday, October 15, 2002, 6:30 PM, in the Garden Grove Community Meeting Center, Constitution Room, 11300 Stanford Avenue, Garden Grove. As only one person was in attendance initially, the start time was delayed until about 6:45 PM to determine if others would attend; one additional person arrived. There are a couple of ways to eliminate these left turns, and that was the purpose of this meeting.

During this public meeting, the City staff noted that the process required for altering access involved three basic steps. The first step is to hold a public meeting with local residents to present the issue, present the options and obtain their concerns and input. The second step is to take the issue to the City Traffic Commission, along with the input from the initial public meeting. The Traffic Commission will make a recommendation and forward it to the City Council for final action. The City staff indicated they would conduct the traffic counts in the area and arrange for the public meeting.

In addition to the two attendees, the City Traffic Engineer and one of his assistants, one member from the City fire department, one OCTA member, and two other staff members from the Advance Planning Study were present. The Advance Planning Study members were formulated at the conclusion of the DEIR/EIS phase. Since this project is proposed to be a design-build project, this team will manage the design-build contractor. The Project Management Contract team consists of the Advance Planning Study members.

Provisions of the HOV lane and auxiliary lane in each direction require the widening of almost every bridge along SR-22, including Harbor Blvd. Where SR-22 crosses Trask Avenue near Sorrell Drive, the structure is also carrying the westbound (WB) onramp. Widening of the existing over crossing in the vicinity of the northeast (NE) corner of Trask/Sorrell varies between about 40 and 45 feet. Additional bridge columns will be needed in the median area of Trask Avenue, extending to the west of Sorrell. This leads to right-of-way acquisition of the property on the northeast (NE) corner.

The City conducted recent counts on Sorrell Drive and determined the use to be approximately 1,850 vehicles per day. This is about 10 times the volume of a local residential street. Most of this traffic is due to motorists using Sorrell Drive as an alternative route to Harbor Boulevard. Between 150-200 vehicles travel on Sorrell Drive in both the AM and PM peak hours. Examining the turning volumes, it appears the diversion between SB to WB, and EB to NB, are about even in the AM, but in the PM the primary diversion is SB to WB.

The existing median on Trask Avenue will need to be extended to the west approximately 75-100 feet which will eliminate the WB to NB left turn lanes, in turn, eliminating some of the diversion. Based on the counts, this would reduce the volumes by about 100 vehicles in the AM and 50-60 in the PM.

While a “right-turn-only” sign for SB Sorrell might be the only additional traffic control needed, a more positive traffic control measure would be to implement channelization that enforces the right-turn-out only movement. A triangular island would allow only right turns in and out Trask Avenue, with a cut-through for pedestrians.

The PTE opened the meeting for discussion and input on the issue. There were minimal comments from the two residents in attendance. One lived near the corner of Banner and mentioned it was often difficult to back out of her driveway. Both expressed support of the cul-de-sac concept. The Department and OCTA will continue coordination with the City of Garden Grove and the affected residents on the Sorrel Drive modification proposals.

10.5.4 General Overview of Comments Received for DEIR/EIS

Comments were received from various governmental agencies such as the United States Environmental Protection Agency (USEPA); County of Orange; Cities of Garden Grove, Orange, Seal Beach and Tustin; school districts; and concerned citizens from the cities along the SR-22 corridor. The comments consisted of a range of concerns for environmental impacts resulting from the project. These included air quality, noise, potential depreciation of property values, right-of-way, traffic and visual impacts. Many residents were concerned with air quality and noise impacts to sensitive receptors such as schools, while others were concerned with the loss of property value due in part to the freeway being closer to their community, the potential partial acquisitions of the six residential properties at Martha Ann Drive in Rossmoor, and visual impacts resulting from the I-405/I-605 HOV connector (flyover). Other comments received from residents in the Los

Alamitos/Community of Rossmoor included exploring the option to shift the I-405/I-605 HOV connector to west of the I-605 near the Los Alamitos Channel and the San Gabriel River.

The majority of the comments were drawn from the western portions of the project limits such as the Los Alamitos/Community of Rossmoor and the City of Seal Beach. The primary concerns of citizens in the Los Alamitos/Rossmoor area were the proposed I-405/I-605 direct HOV connector and the environmental impacts associated with it. To address these and other concerns, multiple sections of the EIR/EIS were reanalyzed to investigate ways to minimize harm. The air quality, Historic Property Survey Report/Historic Architectural Survey Report (HPSR/HASR), noise, relocation impacts, traffic and visual impact sections were reanalyzed to avoid and minimize environmental impacts to the surrounding communities along the SR-22 corridor.

The City of Seal Beach's residents were primarily concerned with the proposed displacements of six residential properties along Almond Avenue. Many had requested shifting the centerline to south of I-405 towards the United States Naval Weapons Station, leased to a private entity for use as farmlands. As of September 17, 2001, the United States Department of the Navy ceased all public access, including farming activities. This farmland was designated as prime farmland. Due to the overwhelming number of comments pertaining to the shifting of the centerline towards the United States Naval Weapons Station, the Department solicited comments from the Department of the Navy requesting permission to use this option to avoid impacts to the City of Seal Beach. Other comments also received from residents in the City of Seal Beach included exploring the option to shift the I-405/I-605 HOV connector to west of the I-605 Los Alamitos Channel and the San Gabriel River. The City of Seal Beach also sent comments regarding the SR-22/WOCC proposed project. The City hired a consultant firm to review the DEIR/EIS and it resulted in approximately 180 pages of comments.

The residents from the City of Garden Grove were primarily concerned with SR-22 freeway noise and its impacts to schoolchildren. Approximately 188 petitions were received regarding the area near Euclid Street and the need for noise barriers to reduce the noise levels at nearby elementary schools.

The comments received during the public comments period along with their responses are included in Appendix A (Volumes II and III) of this Final Environmental Impact Statement/Report (FEIS/EIR). The comments received after October 30, 2001 are included in Volume IV of this FEIS/EIR. The comments are broken down into four major categories: 1. September 26, 2001 Public Hearing Comments; 2. October 3, 2001 Public Hearing Comments; 3. Comments via Email; and 4. Comments via Mail. Within each category, where applicable, the comments are subcategorized into Federal, State, Local Agencies, Associations and Private Entities, Citizens, and Form Letters. The "Federal" subfolder consists of comments received from federal agencies; there were no comments received from State agencies. However, comments were received from multiple local agencies such as the County of Orange, various cities along the SR-22 corridor, and school districts. The "Association and Private Entities" consisted of homeowner's associations and utility companies. The "Citizens" category is further subdivided into geographic areas and "Other Cities." The comments in each subcategory of the "Citizens" folder are organized by the surname, followed by the first initial, and then the date of the comment or the date it was received. If a comment was received from a governmental agency, then it is organized by the name of the city, followed by the date of receipt. A table of contents including a more detailed layout of the comments and the Responses to Comments key are attached to Appendix A. The Response to Comments key precedes the comments submitted section. An index follows the comments; it categorizes all of the responses in a subject area for ease of locating a particular issues (e.g. air quality impacts).

10.5.5 General Overview of Coordination during the DEIR/EIS

During the public review/comment period of the DEIR/EIS, the Department informally met with the Community of Rossmoor Homeowner Association (RHA) and various officials from the Cities along the corridor. Environmental Staff from the Department also sent numerous SR-22/WOCC project informational packages

to concern citizens from the cities of Seal Beach, Garden Grove, Community of Rossmoor, and representatives.

SECTION 11.0
PERSONS AND ORGANIZATIONS CONTACTE

11.0 CONTACTS

The following is a list of people who contacted the Department during the FEIS/EIR process (between August 31, 2001 – October 30, 2001). For the list of people contacted during the preparation of the DEIR/EIS process, please refer to the August 2001 DEIR/EIS.

Aimerson, Joyce. Community Development, City of Santa Ana. Contacted the Department's Environmental Planning Branch to inquire on the status of potential right-of-way impacts to the Santa Ana Main Place Mall. September 12, 2001.

Allen, Byron. Interested Party. Contacted the Department's Environmental Planning Branch to request the email address for submitting comments. October 30, 2001.

Alley, Donna. Interested Party (Property Owner). Contacted the Department's Public Information Office via email to request project information. October 11, 2001.

Arisa, Julia. Interested Party (Property Owner). Contacted the Department's Environmental Planning Branch to inquire on the potential impacts to her property. September 13, 2001.

Austin, Jeff. The California Air Resources Board (CARB). The Department's Environmental Planning Branch contacted him to solicit comments from CARB on the DEIR/EIS. October 22, 2001.

Banley, Chuck. Tait and Associates. Contacted the Department's Environmental Planning Branch to inquire whether his client's property is impacted by the proposed project. October 17, 2001.

Bennett, Janet. Interested Party (Resident, City of Garden Grove). Contacted the Department's Environmental Planning Branch to inquire about soundwalls along Magnolia and Euclid. October 16, 2001.

Busch, Laurie. Manager, Bahia Villa Mobilehome Park, City of Garden Grove. Contacted by the Department to provide Pearce Street Pedestiran Oversrossing Usage Survey to Bahia Village Mobilehome Park residents. December 19, 2002.

Clayton, Nick. Interested Party (Property Owner). Contacted the Department's Environmental Planning Branch to inquire on potential right-of-way impacts to his properties. October 9, 2001.

Doucette, Robert. Interested Party (Resident, City of Garden Grove). Contacted the Department's Design Branch to inquire on potential impacts to his property. October 25, 2001.

Foley, Patricia. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request information on the proposed project. October 4, 2001.

Frost, Michelle. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to voice her concerns about the proposed project. October 26, 2001.

Garland, Shirley. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to voice her concerns about the proposed project. October 12, 2001.

Gibson, Barbara. Interested Party (Property Owner). Contacted the Department's Public Information Office via email to inquire whether the soundwall near her property would be removed. October 3, 2001,

Gong-Guy, Ellen. Interested Party. Contacted the Department's Environmental Planning Branch to confirm receipt of her email comments. October 30, 2001.

Halbert, Pat. Interested Party (Resident, City of Seal Beach). Contacted the Department's Environmental Planning Branch to request information regarding potential impacts to the College Park East community. October 4, 2001.

Hargrave, Steve. Interested Party. Contacted the Department's Environmental Planning Branch to inquire on a possible extension of the public review/comment period of the DEIR/EIS. October 30, 2001.

Harrison, Don. Interested Party (Resident, City of Santa Ana). Contacted the Department's Environmental Planning Branch to request information on the proposed project. October 3, 2001.

Hogen, Mike. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request project information. October 25, 2001.

James, Becky. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to voice her concerns about the proposed project. October 29, 2001.

Kessler, Bernard. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to ask where to send his comments. October 16, 2001.

Keys, Douglas. City of Orange. Contacted the Department's Environmental Planning Branch to request the Traffic Circulation Impact Report. October 23, 2001.

Klunk, Richard. Interested Party (Resident, City of Orange). Contacted the Department's Environmental Planning Branch to request project information. October 17, 2001.

Kreska, Lois. Interested Party (Property Owner). Contacted the Department's Public Information Office via email to request project information. October 3, 2001.

LaRose, Kathy. School Superintendent. Contacted the Department's Environmental Planning Branch to request the project plans and the Draft Project Report. October 15, 2001.

Larsen, Douglas. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request project information. October 23, 2001.

Lorenz, Wendy. Interested Party (Property Owner). Contacted the Department's Public Information Office via email to inquire on potential right-of-way impacts to her property. October 5, 2001.

Mahr, Martin. Interested Party (Resident, City of Seal Beach). Contacted the Department's Environmental Planning Branch to inquire on the location of the project plans. September 18, 2001.

Marshall, Chris. Interested Party. Contacted the Department's Environmental Planning Branch to voice his concerns regarding the proposed project. October 22, 2001.

McCally, Christina. Channel 3 News Anchorwoman. Contacted the Department's Public Information Office regarding the status of the SR-22 WOCC proposed project. September 10, 2001.

McCann, Sue. City of Garden Grove Unified School District Superintendent. Contacted by the Department regarding the Pearce Street Pedestrian Overcrossing. November 2002.

McDonald, Jennifer. Associate Planner (Environmental Coordinator), City of Orange. Contacted the Department's Environmental Planning Branch to inquire on the purpose of the second copy of the DEIR/EIS. September 17, 2001.

McLaughlin, Collette. Planner, Santa Ana Unified School District. Contacted the Department's Environmental Planning Branch to request project information on the proposed project. October 9, 2001.

Munson, Kenneth. Rossmoor Homeowners Association. Contacted the Department's Environmental Planning Branch to request project information and to ask for an additional public hearing for the Rossmoor Community. October 22, 2001.

Nelson, Carl. Orange County Water District. Contacted the Department's Environmental Planning Branch to request project information. October 25, 2001.

Nguyen, Linda. Interested Party (Resident, City of Garden Grove). Contacted the Department's Right-of-Way Office to inquire on the potential right-of-way impacts to her property. October 12, 2001.

Nikisch, Judy. Interested Party (Property Owner). Contacted the Department's Environmental Planning Branch to inquire on potential right-of-way impacts to her properties. October 24, 2001.

Nuutinen, Arto. Alvarado, Smith & Sanchez. Contacted the Department's Environmental Planning Branch to request information on behalf of its client, the Santa Ana Unified School District. October 19, 2001.

O'Bryan, Lynnette. Interested Party (Resident, Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request project information. September 14, 2001.

Occhionero, Phylis. Interested Party (Resident, City of Seal Beach). Contacted the Department's Environmental Planning Branch to inquire on the date of the public hearings and the availability of the DEIR/EIS. September 10, 2001

Parent, Kate. Interested Party (Resident, Garden Grove). Contacted the Department's Environmental Planning Branch to inquire on the potential right-of-way impacts to her property. October 12, 2001.

Parsons, Carolyn. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request project information. September 13, 2001.

Powers, John. Transportation Planner, County of Orange. Contacted the Department's Environmental Planning Branch to request copies of the Air Quality Impact Report and the Traffic Impact Report. September 12, 2001.

Pugh, Jim. Interested Party. Contacted the Department's Environmental Planning Branch to request project information. October 24, 2001,

Quilan, Fiona. Interested Party (Resident, City of Seal Beach). Contacted the Department's Public Information Office to inquire on potential impacts to her property. October 23, 2001.

Scott, Kathy. Interested Party. Contacted the Department's Environmental Planning Branch to confirm receipt of her email comments. October 30, 2001.

Shep, Michael. Project Manager, Dell Canning. Contacted the Department's Project Manager to inquire on the proposed project and an opportunity to bid on the proposed project. October 4, 2001.

Smith, Greg. Public Affairs Officer, the Department of the Navy. Based on requests received during the public hearings from the City of Seal Beach residents, the Department's Environmental Planning Branch contacted the Navy to inquire on the possibility of acquiring right-of-way from the United States Naval Weapons Station. October 4, 2001.

Spears, David. Parsons Transportation. Contacted the Department's Environmental Planning Branch to request a copy of the DEIR/EIS, the Draft Project Report, Preliminary Costs Estimates, and project plans. September 14, 2001.

Sun, Robert. Transportation Planner (consultant), City of Tustin. Contacted the Department's Environmental Planning Branch to ask where to send his comments. October 17, 2001.

Suniga, Yvette. Interested Party (Resident, Rossmoor/Los Alamitos). Contacted the Department's Environmental Planning Branch to request information on the proposed project. October 3, 2001.

Tomsovic, David. United States Environmental Protection Agency (EPA). Contacted the Department's Environmental Planning Branch to submit the EPA's comments via email. October 23, 2001.

Uehli, Vicki. Community Development. City of Santa Ana. Contacted the Department's Environmental Planning Branch to inquire on the public hearings. October 3, 2001.

Washington, Christy. Interested Party. Contacted the Department's Environmental Planning Branch to request the email address for submitting comments. October 30, 2001.

Ziegler, John. Senior Transportation Engineer, Automobile Club. Contacted the Department's Environmental Planning Branch to request a DEIR/EIS and the Major Investment Study. September 12, 2001.

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LIST OF PREPARERS

12.0 LIST OF PREPARERS

Robert Cady Federal Highway Administration (FHWA) California Division Senior Transportation Engineer	• Engineering, design, and traffic analysis
Stephanie Stoermer Federal Highway Administration (FHWA) California Division Environmental Specialist	• NEPA compliance, cultural resources, 4(f) evaluations, noise, visual impacts
Mary Ann Rondinella Federal Highway Administration (FHWA) California Division Environmental Specialist	• NEPA compliance, biological resources, hazardous waste
Leslie A. Manderscheid California Department of Transportation Caltrans District 12 Senior Environmental Planner	M.C.R.P, City & Regional Planning, California State University Fresno. B. S. in Business Administration, University of Redlands, Redlands CA. 13 years of experience in transit and environmental planning. • CEQA/NEPA compliance • Transit/Transportation planning
Dan Phu California Department of Transportation Caltrans District 12 Associate Environmental Planner	M.S., Environmental Studies, California State University, Fullerton. B.A., Environmental Analysis and Design, University of California, Irvine. Three years of experience in the area of water quality, transit planning, and environmental planning. • CEQA/NEPA compliance • Transit/Transportation planning
Barbara Gossett California Department of Transportation Caltrans District 12 Associate Environmental Planner	B.A., Sociology, University of Oklahoma, Norman, OK. Three years experience in the area of environmental planning. Graduate work in Public Administration. • CEQA/NEPA compliance • Transportation Planning • Total Quality Management facilitation • Training manager
Alison Good California Department of Transportation Caltrans District 12 Environmental Planner	B.S, Environmental Sciences, University of California, Riverside. One year of experience in environmental compliance. • Biology, and CEQA/NEPA compliance
Shay Lynn Harrison California Department of Transportation Caltrans District 12 Environmental Planner	B.S, Environmental Sciences, University of California, Riverside. Two years of experience in the area of environmental planning. • CEQA/NEPA compliance • Environmental Justice

Tommy Hsu California Department of Transportation Caltrans District 12 Environmental Planner	M.S. Ecology and Environmental Science, University of Maine. • Two years of experience in water quality.
Ryan Hansen California Department of Transportation Caltrans District 12 Environmental Planner	B.S. Natural Management, Cal Poly, San Luis Obispo. • Two years of experience in water quality.
Ketak Soneji California Department of Transportation Caltrans District 12 Environmental Planner	B.S. Environmental Engineering, Cal Poly, San Luis Obispo. • Three years experience in hazardous waste management and environmental planning.
Mary Nguyen California Department of Transportation Caltrans District 12 Associate Environmental Planner	M.S. Environmental Management, Yale University B.A. Environmental Science, University of California, Berkeley. • Four years experience in environmental planning and natural resources management.
Chris Flynn California Department of Transportation Caltrans District 12 Associate Environmental Planner	M.S. Environmental Science, San Jose State University. B.A. Liberal Studies/History, Cal State University, Long Beach. • Eight years project management and five years of environmental planning experience.
Reza Aurasteh California Department of Transportation Caltrans District 12 Senior Environmental Engineer	Ph.D., Engineering, Utah State University. 26 years of experience in consulting engineering (water resources), academic, transportation engineering, and environmental engineering.
Wayne Chiou California Department of Transportation Caltrans District 12 Environmental Engineer	M.S., Environmental Engineering, Utah State University. 12 years of experience in engineering and regulatory compliance in the areas of water quality, hazardous waste management, air quality, modeling, noise impact, and soil/groundwater remediation.
Arman Behtash California Department of Transportation Caltrans District 12 Environmental Engineer	B.S. Civil and Environmental Engineering, University of Wisconsin, Madison. 12 years of experience in subsurface investigation and remediation.
Gamini Weeratunga California Department of Transportation Caltrans District 12 Transportation Engineer	M.S. Civil Engineering, University of Kentucky. Registered Civil and Geotechnical Engineer. 15 years experience in the civil engineering/public works projects, including five years in transportation projects.

Julie Rush Parsons Brinckerhoff Quade & Douglas, Inc. Project Manager	B.A., Mathematical Economics, Pomona College, Claremont. 10 years experience in transportation planning and project management. • Quality Control • Draft Environmental Impact Report/ Environmental Impact Statement (DEIR/EIS)
Alice Lovegrove Parsons Brinckerhoff Quade & Douglas, Inc. Senior Environmental Engineer Air Quality Analyst	B.E., Engineering Science, State University of New York at Stony Brook; M.S., Environmental and Waste Management, State University of New York at Stony Brook; 13 years of experience in environmental analysis Air Quality Report
Steven Yoshizumi, P.E. Parsons Brinckerhoff Quade & Douglas, Inc. Supervising Civil Engineer Engineering Manager	B.S.C.E., Civil Engineering, University of California, Los Angeles. 10 years of experience in transportation and civil engineering project development and project management • Traffic/Circulation Impact Report Draft Environmental Impact Report/ Environmental Impact Statement (DEIR/EIS)
Steven Wolf Parsons Brinckerhoff Quade & Douglas, Inc. Air Quality Task Leader	B.S., Mathematics, Long Island University. Graduate Work in Applied Mechanics, Polytechnic Institute of Brooklyn. 15 years of experience in air quality analysis of transportation. • Traffic Noise Impact Report • Air Quality Report Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS)
Lisa Santiago Parsons Brinckerhoff Quade & Douglas, Inc. Environmental Scientist	B.S., Mathematics, State College of New York, Old Westbury. Seven years of experience in environmental analysis • Air Quality Report
Eddie Tadross Parsons Brinckerhoff Quade & Douglas, Inc. Noise Specialist	B.A., Environmental Studies, Tulane University. Two years experience in preparing environmental documents and noise reports. • Traffic Noise Impact Report

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SECTION 13.0
BIBLIOGRAPHY

13.0 BIBLIOGRAPHY

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Bass, R.E. et al. The NEPA (National Environmental Policy Act) Book, 2001 (2nd Edition). Solano Press Books. 2001

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SECTION 14.0
DISTRIBUTION LIST

14.0 DISTRIBUTION LIST

The following mailing list consists of the names of

- individuals and/or organizations which submitted comments on the draft environmental document, as well as
- names shown on the title for property to be acquired in the draft OR the final environmental document.

* Note: an asterisk has been placed next to those names who have commented on the Draft Environmental Impact Report/Statement (DEIR/EIS). However, those individuals who did not provide a return address with their comments are not included in this distribution list. This distribution list is used for the public outreach efforts.

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G. Otterbach *
2612 Salmon Dr.
Los Alamitos, CA 90720

The Dearribas *
3251 Hill Rose Dr.
Los Alamitos, CA 90720

Robert Rainey *
11461 Martha Ann Dr.
Los Alamitos, CA 90720

The Rouses *
11702 Silver Fox Rd.
Los Alamitos, CA 90720

The Gunnins *
11171 Donnis Rd.
Los Alamitos, CA 90720

Debbie Hale *
12131 Silver Fox Rd.
Los Alamitos, CA 90720

Rose Marie Macht *
3211 Hill Rose Dr.
Los Alamitos, CA 90720

James Spaltro *
2952 Walker Lee Dr.
Los Alamitos, CA 90720

The Spillers *
12541 Christy Ln.
Los Alamitos, CA 90720

Resident (Name Illegible) *
3201 Woodstock Rd.
Los Alamitos, CA 90720

Walter & Diann Zenda *
12551 Silver Fox Rd.
Los Alamitos, CA 90720

Gentry Elston *
12121 Martha Ann Dr.
Los Alamitos, CA 90720

The Taghdiris *
2722 Tucker Ln
Los Alamitos, CA 90720

Peter Price *
2971 Salmon Dr.
Los Alamitos, CA 90720

Gina Barrios *
3242 Kempton Dr.
Los Alamitos, CA 90720

The Sparkmans *
3182 Ruth Elaine
Los Alamitos, CA 90720

The Barnes *
11151 Loch Lommond Rd.
Los Alamitos, CA 90720

Kerry Dalton *
3181 Ruth Elaine Dr.
Los Alamitos, CA 90720

Raymond Carley *
3242 Brimhall Dr.
Los Alamitos, CA 90720

The Cunninghams *
3232 Woodstock Rd.
Los Alamitos, CA 90720

Theresa Henkhaus *
11162 Martha Ann Dr.
Los Alamitos, CA 90720

Sylvia Mouradian *
3362 Rossmoor Way
Los Alamitos, CA 90720

Gary McGee *
3072 Silverwood Dr.
Los Alamitos, CA 90720

Hagop Iknadosian *
12052 Silver Fox Rd.
Los Alamitos, CA 90720

The Founts *
11642 Kensington Rd.
Los Alamitos, CA 90720

Evans *
11631 Martha Ann Dr.
Los Alamitos, CA 90720

The Burtsells *
3311 Cortese Dr.
Los Alamitos, CA 90720

The Stuarts *
2901 St. Albans
Los Alamitos, CA 90720

The Scotts *
3272 Wendy Way
Los Alamitos, CA 90720

John Manny *
11392 Kensington Rd.
Los Alamitos, CA 90720

Robert Muella *
11372 Kensington Rd.
Los Alamitos, CA 90720

Eileen Rjepnick *
11412 Kensington Rd.
Los Alamitos, CA 90720

Eliot *
11442 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11462 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11472 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11361 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11492 Kensington Rd.
Los Alamitos, CA 90720

Dana Hayer *
11512 Kensington Rd.
Los Alamitos, CA 90720

The Kovachs *
11522 Kensington Rd.
Los Alamitos, CA 90720

C. Widasech *
11441 Wembley Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11432 Wembley Rd.
Los Alamitos, CA 90720

Ann Pray *
11451 Wembley Rd.
Los Alamitos, CA 90720

The Treadways *
2802 Blume Dr.
Los Alamitos, CA 90720

John and Carol Holmquist *
2842 Walker Lee Dr.
Los Alamitos, CA 90720

Frances Selznick *
11252 Davenport Rd.
Los Alamitos, CA 90720

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2952 Walker Lee Dr.
Los Alamitos, CA 90720

Natalie Kalish *
2811 Main Way Dr.
Los Alamitos, CA 90720

Beryl Henry *
11346 Drysdale Lane
Los Alamitos, CA 90720

Rebecca Mills *
11591 Martha Ann Dr.
Los Alamitos, CA 90720

Timothy Kennedy *
12152 Christy Ln
Los Alamitos, CA 90720

John & Vickie Dynice *
12322 Martha Ann Dr.
Los Alamitos, CA 90720

Clark *
11357 Drysdale Lane
Los Alamitos, CA 90720

Greg Craine *
11791 Wembley Rd
Los Alamitos, CA 90720

Jeanne Beesley *
11302 Martha Ann Dr.
Los Alamitos, CA 90720

Michele & Stanley Webosy *
3331 St. Albans Dr.
Los Alamitos, CA 90720

Merle Shope *
12681 Silver Fox Rd.
Los Alamitos, CA 90720

Michiko Terao *
12352 Martha Ann Dr.
Los Alamitos, CA 90720

Gil & Pura Chico *
12331 Martha Ann Dr.
Los Alamitos, CA 90720

John Schinnerer *
3252 Yellowtail Dr.
Los Alamitos, CA 90720

Lawrence & Judith Brugger *
3131 Donnie Ann Rd.
Los Alamitos, CA 90720

Jimmie Coon *
3021 Coleridge Dr.
Los Alamitos, CA 90720

William McConnell *
11591 Martha Ann Dr.
Los Alamitos, CA 90720

Hilma Jocobsen *
2712 St. Albans Dr.
Los Alamitos, CA 90720

Bill Woyshner *
11571 Baskerville Rd.
Los Alamitos, CA 90720

John & Nancy Bigley *
3072 Aceca Dr.
Los Alamitos, CA 90720

John & Alice Heuer *
2922 Druid Ln.
Los Alamitos, CA 90720

Judie Cochran *
2762 Oak Knoll Dr.
Los Alamitos, CA 90720

Charles McLuen *
2781 Engel Dr.
Los Alamitos, CA 90720

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11862 Kensington Rd.
Los Alamitos, CA 90720

Karen Coon *
3021 Coleridge Dr.
Los Alamitos, CA 90720

Kathryn & Geoffry Dolan *
3111 Salmon Dr.
Los Alamitos, CA 90720

Vera Hudson *
12201 Martha Ann Dr.
Los Alamitos, CA 90720

Carol Hipsher *
3061 Coleridge
Los Alamitos, CA 90720

Lucille Johnson *
2881 Coleride Dr.
Los Alamitos, CA 90720

Amy Jeanne Martin *
3122 Quail Run Rd.
Los Alamitos, CA 90720

Melinda & Tom Yatsui *
11262 Kensington Rd.
Los Alamitos, CA 90720

David Wertz *
3231 Copa de Oro Dr.
Los Alamitos, CA 90720

Thomas Purcell *
2741 Coleridge Dr.
Los Alamitos, CA 90720

Bill Stout *
2632 Coleridge Dr.
Los Alamitos, CA 90720

The Muchos
2891 St. Albans Dr.
Los Alamitos, CA 90720

The Bickerstaffs *
3052 Burney Place
Los Alamitos, CA 90720

Denis Gregory *
11422 Martha Ann Dr.
Los Alamitos, CA 90720

Cantrell *
11272 Martha Ann Dr.
Los Alamitos, CA 90720

Lori Roberts *
11308 Martha Ann Dr.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11381 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11341 Kensington Rd.
Los Alamitos, CA 90720

Staucer *
11261 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11401 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11331 Kensington Rd.
Los Alamitos, CA 90720

Craig L. Wolfram *
11511 Kensington Rd.
Los Alamitos, CA 90720

Peters *
11471 Kensington Rd.
Los Alamitos, CA 90720

Resident (Name Illegible) *
11491 Kensington Rd.
Los Alamitos, CA 90720

P. Ross *
11321 Kensington Rd.
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2732 Silverwood
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2812 Silverwood
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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Los Alamitos, CA 90720

Resident (Name Illegible) *
2922 Silverwood Dr.
Los Alamitos, CA 90720

Resident (Name Illegible)
2732 Silverwood
Los Alamitos, CA 90720

Brickman *
3031 Silverwood
Los Alamitos, CA 90720

Resident (Name Illegible) *
2632 Silverwood Dr.
Los Alamitos, CA 90720

The Cleelands *
2652 Silverwood
Los Alamitos, CA 90720

Resident (Name Illegible) *
11342 Wallingsford Rd.
Los Alamitos, CA 90720

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11352 Martha Ann Dr.
Los Alamitos, CA 90720

The Trujillos *
3141 Ruth Elaine Dr.
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3252 Rowena Dr.
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Los Alamitos, CA 90720

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12141 Martha Ann Dr.
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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2662 Walker Lee
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3191 Ruth Elaine Dr.
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2712 Blume Dr.
Los Alamitos, CA 90720

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3102 Quail Run Rd.
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3121 Ruth Elaine Dr.
Los Alamitos, CA 90720

Susan P. Haggard *
3122 Yellowtail Dr.
Los Alamitos, CA 90720

Robert and Eileen Neprud *
2721 Tucker Lane
Los Alamitos, CA 90720

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11581 Montecito Rd.
Los Alamitos, CA 90720

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11375 Baskerville Rd.
Los Alamitos, CA 90720

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11372 Martha Ann Dr.
Los Alamitos, CA 90720

Wibur M. Thompson *
11372 Martha Ann Dr.
Los Alamitos, CA 90720

John and Mary Hess *
11381 Martha Ann Dr.
Los Alamitos, CA 90720

Claudia Feaster *
3351 Cortese Dr.
Los Alamitos, CA 90720

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11491 Martha Ann Dr.
Los Alamitos, CA 90720

Sylvia and Jack Rogers *
3102 Mainway Dr.
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Los Alamitos, CA 90720

Tom and Rosemary Ryan *
11682 Harrisburg Rd.
Los Alamitos, CA 90720

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3152 Inverness Dr.
Los Alamitos, CA 90720

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John and Gloria Martin *
2691 Gertrude Dr.
Los Alamitos, CA 90720

Candice R. Stacy *
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Los Alamitos, CA 90720

Holly Franke *
3301 Wimbleton Dr.
Los Alamitos, CA 90720

Jerry and Gloria Turner *
3051 Walker Lee Dr.
Los Alamitos, CA 90720

Friedrichs *
2912 Walker Lee Dr.
Los Alamitos, CA 90720

Margaret Williams Elston *
12121 Martha Ann Dr.
Los Alamitos, CA 90720

Gordon Andersen *
3192 Rowena Dr.
Los Alamitos, CA 90720

Eli and Belva Vukovich *
3181 Bradbury Rd.
Los Alamitos, CA 90720

Richard J. Wianecki *
2801 Walker Lee Dr.
Los Alamitos, CA 90720

Sharon Greenthal *
11222 Kensington Rd.
Los Alamitos, CA 90720

Frank Pooler *
2801 Engel Dr.
Los Alamitos, CA 90720

Nancy Jensen *
3301 Huntley Dr.
Los Alamitos, CA 90720

Tom and Laurelee Barnes *
3176 Oak Knoll Dr.
Los Alamitos, CA 90720

Arlene Lockyer *
3082 Yellowtail Dr.
Los Alamitos, CA 90720

Jean Dunahoo *
12471 Montecito Rd.
Los Alamitos, CA 90720

Harry M. Robbart *
12631 Martha Ann Dr.
Los Alamitos, CA 90720

James and Annette Gregson *
2721 Copa de Oro Dr.
Los Alamitos, CA 90720

Bettie Roubanis *
11901 Wembley Rd.
Los Alamitos, CA 90720

Marian Baily *
2712 Oak Knoll Dr.
Los Alamitos, CA 90720

Eleanor Sullivan *
11376 Baskerville Rd
Los Alamitos, CA 90720

Dorothy Truex *
3321 Quail Run Rd.
Los Alamitos, CA 90720

Andrew Pekary *
3291 Rossmor Way
Los Alamitos, CA 90720

Marlene Bush *
11521 Martha Ann Dr.
Los Alamitos, CA 90720

Sandra Cowan *
3231 Ruth Elaine Dr.
Los Alamitos, CA 90720

A. Thomas *
3102 Ruth Elaine Dr.
Los Alamitos, CA 90720

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Herb Halling *
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Los Alamitos, CA 90720

M. M. Obradovitch *
3031 Yellowtail Drive
Rossmoor, CA 90720

The Wheelers *
2641 Copa de Oro Drive
Rossmoor, CA 90720

Betty Kizziar *
11832 Martha Ann Drive
Rossmoor, CA 90720

Charles D. Magie *
12591 Martha Ann Drive
Los Alamitos, CA 90720

Mr. Norman Wendell *
11772 Martha Ann Drive
Los Alamitos, CA 90720

Shirley D. Garland *
11511 Martha Ann Drive
Los Alamitos, CA 90720

Norman Novack *
2732 Copa de Oro Drive
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Mr. And Mrs. Bernard Kessler *
11891 Martha Ann Drive
Los Alamitos, CA 90720

Marjorie Bartow *
12082 Argyle Drive
Los Alamitos, CA 90720

John R. Ullerich *
11232 Pemberton Road
Los Alamitos, CA 90720

Leslie Jackson *
11491 Wembley Road
Los Alamitos, CA 90720

Debbie Laurence *
3152 Walker Lee Dr.
Los Alamitos, CA 90720

Irvan and Elizabeth Miller *
12152 Martha Ann Dr.
Los Alamitos, CA 90720

John S. Torii *
11347 Wembley road
Rossmoor, CA 90720

William Stacey *
3112 Rowena
Los Alamitos, CA 90720

The Whites *
12622 Martha Ann Dr.
Los Alamitos, CA 90720

Joan Griffiths *
3302 Donnie Ann Rd.
Los Alamitos, CA 90720

Thomas Gibbons *
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11702 Wembley Rd.
Los Alamitos, CA 90720

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11702 Wembley Rd.
Los Alamitos, CA 90720

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12522 Christy Lane
Los Alamitos, CA 90720

Bob and Karen Satmary *
2802 Copa de Oro Dr.
Los Alamitos, CA 90720

Scott & Denise Miller *
11282 Loch Lomond Rd.
Los Alamitos, CA 90720

David Woyshner *
11353 Wembley Rd.
Los Alamitos, CA 90720

Judith Furnari *
11358 Wembley Rd
Los Alamitos, CA 90720

Thomas & Dorothy Fitzgerald *
3121 St. Albans Dr.
Los Alamitos, CA 90720

Del Clark *
3351 Yellowtail Dr.
Los Alamitos, CA 90720

Dean & Carol Biri *
11651 Martha Ann Dr.
Los Alamitos, CA 90720

Beatrice and Edwin Greer *
11771 Martha Ann Dr.
Los Alamitos, CA 90720

Gregory and Linda Booth *
12112 Oak Leaf Dr.
Los Alamitos, CA 90720

Frank and Caryn Brodzinski *
12621 Kensington
Los Alamitos, CA 90720

Greg and Kris Smith *
12181 Chrisy Lane
Los Alamitos, CA 90720

Glenn Ducat *
12461 Christy Lane
Los Alamitos, CA 90720

Robert Gray *
11521 Martha Ann Dr.
Los Alamitos, CA 90720

Gene Wicklander *
3221 Brimhall Dr.
Los Alamitos, CA 90720

Robert & Melissa Calicchia *
11971 Martha Ann Dr.
Los Alamitos, CA 90720

The Nuirys *
2681 Copa de Oro Dr.
Los Alamitos, CA 90720

The Zasadnys *
11411 Martha Ann Dr.
Los Alamitos, CA 90720

Darlene Munoz *
2762 Coleridge Dr.
Los Alamitos, CA 90720

Monique Denais *
12791 Martha Ann Dr.
Los Alamitos, CA 90720

Guy and Susan Castro *
2711 Engel Dr.
Los Alamitos, CA 90720

Christopher J. & Rose H. Bauss *
2862 Silverwood Dr.
Los Alamitos, CA 90720

Barbara & Edmond Jonckheere *
2872 Tucker Ln.
Los Alamitos, CA 90720

Debra Neipris *
3151 Blume Dr.
Los Alamitos, CA 90720

Nancy Flagg *
3282 Donnie Ann
Los Alamitos, CA 90720

William Carkagis *
3031 Brimhall Dr.
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Mary Sell *
2902 Walker Lee Dr.
Los Alamitos, CA 90720

Niemeyer *
3181 Shakespear Dr.
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12121 Silver Fox Rd.
Los Alamitos, CA 90720

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2891 Copa de Oro Dr.
Los Alamitos, CA 90720

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12201 Oak Leaf Dr.
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11371 Wallingsford Rd.
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3142 Walker Lee Dr.
Los Alamitos, CA 90720

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11346 Baskerville Rd.
Los Alamitos, CA 90720

Eugene Amici *
3111 Yellowtail Dr.
Los Alamitos, CA 90720

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12091 Christy Ln.
Los Alamitos, CA 90720

Roger Waterman *
3151 Oak Knoll Dr.
Los Alamitos, CA 90720

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11752 Silver Fox Rd.
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2732 Bostonian Dr.
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Jack Klenov *
2931 Walker Lee Dr.
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Tracy & John Lazar *
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Gilbert & P. Kay Bazan *
3181 Tigertail Dr.
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Eickhoff *
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Hilmar Franz *
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11335 Wembley Rd.
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11301 Loch Lomond Rd.
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The Whites *
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Garden Grove, CA 92643

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Susan Fode *
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Los Alamitos, CA 90720

Susan & Paul Opperman *
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Los Alamitos, CA 90720

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3372 Huntley Dr.
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2902 Siverwood Dr.
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11941 Cherry St.
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The Gordons *
3022 Yellowtail Dr.
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The Gernaeys *
12302 Martha Ann Dr.
Los Alamitos, CA 90720

The Pintos *
3001 Rowena Dr.
Los Alamitos, CA 90720

The Loys *
2681 Coleridge Dr.
Los Alamitos, CA 90720

Douglas Roberts *
3051 Bostonian Dr.
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The Colettas *
12041 Old Mill Rd.
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11762 Wembley Road
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11571 Davenport Rd.
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2901 Inverness Dr.
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11641 Wallingsford Rd.
Los Alamitos, CA 90720

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2951 Invernesws Dr.
Los Alamitos, CA 90720

The Garrets *
11412 Davenport Rd.
Los Alamitos, CA 90720

The Herrons *
2842 Coleridge Dr.
Los Alamitos, CA 90720

Woodhouse *
2742 Woodstock Rd.
Los Alamitos, CA 90720

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2951 Bostonian Dr.
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11552 Donovan Rd.
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The Costers *
3102 Siverwood Dr.
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3332 Cortese Dr.
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The Yesenoskys *
11301 Martha Ann Dr.
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Chenoweth *
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The Wisells *
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3042 Yellowtail Dr.
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The Leonardos *
11331 Foster Rd.
Los Alamitos, CA 90720

The Cadys *
12031 Montecito Rd.
Los Alamitos, CA 90720

Geer *
11272 Kensington Rd.
Los Alamitos, CA 90720

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12271 Martha Ann Dr.
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3372 St. Albans Dr.
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Los Alamitos, CA 90720

The Petersons *
12141 Foster Rd.
Los Alamitos, CA 90720

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11161 Wembley Rd.
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Los Alamitos, CA 90720

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11345 Wembley Rd.
Los Alamitos, CA 90720

The Woods *
12172 Christy Ln.
Los Alamitos, CA 90720

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11781 Davenport Rd.
Los Alamitos, CA 90720

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11681 Newbury Rd.
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2921 Bostonian Dr.
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11811 Silver Fox Rd.
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11182 Martha Ann Dr.
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3051 Bostonian Dr.
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Trombatore *
2822 Copa de Oro Dr.
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The Amberry *
12181 Christy Lane
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2672 Silverwood Dr.
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11832 Kensington Rd.
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2992 Silverwood Dr.
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Collins *
3242 Mainway Dr.
Los Alamitos, CA 90720

The Hamiltons *
3032 Aceca Dr.
Los Alamitos, CA 90720

James & Judy Shiba *
3031 Tigertail Dr.
Los Alamitos, CA 90720

The Stroms *
11712 Reagan St.
Los Alamitos, CA 90720

Hutter *
3291 Kenilworth Dr.
Los Alamitos, CA 90720

The Lintons *
3002 Aceca Dr.
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The Rosenbergens *
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The O'Briens *
12172 Chianti Dr.
Los Alamitos, CA 90720

Wilson
11382 Drysdale Ln
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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2611 Main Way Dr.
Los Alamitos, CA 90720

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12101 Martha Ann Dr.
Los Alamitos, CA 90720

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11382 Donovan Rd.
Los Alamitos, CA 90720

C. Leonardo *
11331 Foster Rd.
Los Alamitos, CA 90720

The Grimaldis *
11962 Martha Ann Dr.
Los Alamitos, CA 90720

Gregory Cleveland *
11446 Harrisburg Rd.
Los Alamitos, CA 90720

Gene Lind *
3231 Bradbury Rd.
Los Alamitos, CA 90720

Ryan Blossey *
3115 Bostonian Dr.
Los Alamitos, CA 90720

The Wilkinsons *
3151 Brimhall Dr.
Los Alamitos, CA 90720

Jack Bobinette *
2772 Brimhall Dr.
Los Alamitos, CA 90720

Gary Putteet *
11446 Harrisburg Rd.
Los Alamitos, CA 90720

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12781 Martha Ann Dr.
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Gayle Posner *
3281 Wendy Wy.
Los Alamitos, CA 90720

The Baldwins *
2921 Glenroy Pl.
Los Alamitos, CA 90720

Arthur Litman *
2951 St. Albans Dr.
Los Alamitos, CA 90720

William Dumbauld *
3091 Salmon Dr.
Los Alamitos, CA 90720

The Zerbels *
3252 Tucker Ln.
Los Alamitos, CA 90720

The Woods *
3117 Salmon Dr.
Los Alamitos, CA 90720

The Hills *
11471 Harrisburg Rd.
Los Alamitos, CA 90720

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3151 Copa de Oro Dr.
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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11881 Kensington Rd.
Los Alamitos, CA 90720

William Cole *
2692 Salmon Dr.
Los Alamitos, CA 90720

Webster & Florence Jones *
3031 Bostonian Dr.
Los Alamitos, CA 90720

Zelda Gillespie *
2722 Copa de Oro Dr.
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The Picarellos *
11631 Kensington Rd.
Los Alamitos, CA 90720

The Sturms *
3272 Orangewood Dr.
Los Alamitos, CA 90720

Marion & Elizabeth Davis *
12182 Ballatine Dr.
Los Alamitos, CA 90720

The Vivantis *
33111 Quail Run Road
Los Alamitos, CA 90720

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12141 Martha Ann Dr.
Los Alamitos, CA 90720

The Malones *
2661 Woodstock Rd.
Los Alamitos, CA 90720

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D. Lee
3482 Yellowtail Dr.
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2972 Copa de Oro
Los Alamitos, CA 90720

Karen Frankenberg
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3321 Druid Ln.
Los Alamitos, CA 90720

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4209 Banyan Ave.
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4809 Elder Ave.
Seal Beach, CA 90740

Shaw
18631 Applewood Cir.
Huntington Beach, CA 92646

Cynthia Hopkins
3581 Primrose Cir.
Seal Beach, CA 90740

Janet Carfi
2671 Walker Lee Dr.
Los Alamitos, CA 90720

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3212 Rowena Dr.
Los Alamitos, CA 90720

Tyler
3540 Heather Circle
Seal Beach, CA 90740

Glasser
200 College Park Dr.
Seal Beach, CA 90740

Tamrin Golden *
12200 Montecito Rd
Seal Beach, CA 90740

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12400 Montecito Rd.
Seal Beach, CA 90740

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11662 Wembley Rd.
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Anaheim, Ca 92804

Peter Ross *
11321 Kensington Rd.
Los Alamitos, CA 90720

Peter Poyar
11771 Harrisburg Rd.
Los Alamitos, CA 90720

Celik
10475 Del Norte Way
Los Alamitos, CA 90720

Laos
3282 Cortese Dr.
Los Alamitos, CA 90720

Moskovitz
12202 Foster Rd.
Los Alamitos, CA 90720

Riphagen
3211 Woodstock Rd.
Los Alamitos, CA 90720

Resident (Name Illegible)
3091 St. Albans
Los Alamitos, CA 90720

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12161 Martha Ann Dr.
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Molstad
2911 Inverness Dr.
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Cheryl Ferramola *
11632 Wembley Rd.
Los Alamitos, CA 90720

Poyan
12161 Chiati Dr.
Los Alamitos, CA 90720

The Marriots
118911 Kensington Dr.
Los Alamitos, CA 90720

The Gays
*
11452 Martha Ann Dr.
Los Alamitos, CA 90720

Thomas Choi
11376 Loch Lomond
Los Alamitos, CA 90720

Karen Cant *
2621 Oak Knoll Dr.
Los Alamitos, CA 90720

Sam & Christeena Lee
7083 Cerritos Ave.
Stanton CA 90680

Karen Feick
3951 Howard Ave.
Los Alamitos, CA 90720

Booth/Ross
11301 Kensington Rd.
Los Alamitos, CA 90720

Jeffrey Rockenhacher
10951 Cherry St.
Los Alamitos, CA 90720

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11441 Kensington Rd.
Los Alamitos, CA 90720

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12062 Reagan St.
Los Alamitos, CA 90720

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11382 Drysdale Ln
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11412 Martha Ann Dr.
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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Los Alamitos, CA 90720

Kathy Berger
11302 Loch Lomond
Los Alamitos, CA 90720

Joanne Stolls
3121 Yellowtail Dr.
Los Alamitos, CA 90720

Barbara Constible
2661 Tucker Ln.
Los Alamitos, CA 90720

Van Leeuwen
12591 Kensington Rd.
Los Alamitos, CA 90720

Romyn
11231 Wembley Rd.
Los Alamitos, CA 90720

Chavez
11355 Loch Lomond
Los Alamitos, CA 90720

Brandenberger
12171 Chaucer Rd.
Los Alamitos, CA 90720

Molstad
2911 Inverness Dr.
Los Alamitos, CA 90720

Chandler
11861 Wembley Rd.
Los Alamitos, CA 90720

Hedges
2851 Bostonian Dr.
Los Alamitos, CA 90720

Schaack
12371 Foster Rd.
Los Alamitos, CA 90720

Gaines
3162 Copa de Oro
Los Alamitos, CA 90720

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12291 Martha Ann Dr.
Los Alamitos, CA 90720

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11322 Loch Lomond Rd.
Los Alamitos, CA 90720

Meyer
3211 Orangewood
Los Alamitos, CA 90720

Mondonido
11571 Baskerville Rd.
Los Alamitos, CA 90720

O'Reilly
3032 Burney Pl.
Los Alamitos, CA 90720

Hyatt
3272 Bradbury Rd.
Los Alamitos, CA 90720

Jill and Jennifer Sawaya
12591 Kensington Rd.
Los Alamitos, CA 90720

Alvarado
11382 Kensington Rd,
Los Alamitos, CA 90720

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12451 Martha Ann Dr.
Los Alamitos, CA 90720

Andrew Tao
11302 Martha Ann Dr.
Los Alamitos, CA 90720

Raymond Sisemore
12582 Argyle Dr.
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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11376 Loch Lomond
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

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Los Alamitos, CA 90720

Rolf Borchgrevink
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Los Alamitos, CA 90720

Geer
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Los Alamitos, CA 90720

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2721 Coleridge Dr.
Los Alamitos, CA 90720

Kenneth Kring
3071 Silverwood Dr.
Los Alamitos, CA 90720

Sehremelis
3121 Main Way
Los Alamitos, CA 90720

Eugene Boyle
Michele Callian-Boyle
3231 Kempton Dr.
Los Alamitos, CA 90720

Cortez
3282 Rowena Dr.
Los Alamitos, CA 90720

Jackie Espinoza
3071 Coleridge Dr.
Los Alamitos, CA 90720

Pamela Weaver
3272 Shakespeare Dr.
Los Alamitos, CA 90720

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Los Alamitos, CA 90720

Donna Robinson
11941 Weatherby Rd.
Los Alamitos, CA 90720

Smith
11721 Argyle Dr.
Los Alamitos, CA 90720

Watts
12001 Old Mill Rd
Los Alamitos, CA 90720

Colacion
11671 Norgrove Ln
Los Alamitos, CA 90720`

Weldon
11801 Norgrove Ln.
Los Alamitos, CA 90720

Magie
11301 Reagan St.
Los Alamitos, CA 90720

DeNette Bakker
11712 Pine St.
Los Alamitos, CA 90720

Hernadi
2722 Engle Dr.
Los Alamitos, CA 90720

Andrea Villa
3172 St. Albans Dr.
Los Alamitos, CA 90720

Lisa Colburn
11802 Davenport Rd.
Los Alamitos, CA 90720

Lisa Pillivant
12112 Paseo Bonita
Los Alamitos, CA 90720

MacCready
3342 Bradbury Rd. #9
Los Alamitos, CA 90720

Reynolds
10336 Greta Ave.
Buena Park CA 90620

Geer
11512 Donovan Rd.
Los Alamitos, CA 90720

Randolph
3332 Huntley Dr.
Los Alamitos, CA 90720

Eckert
11951 Cherry Ave.
Los Alamitos, CA 90720

Anthony Munoz
2762 Coleridge Dr.
Los Alamitos, CA 90720

Mark and Rene Celestin
11911 Martha Ann Dr.
Los Alamitos, CA 90720

Roy Roudine
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Los Alamitos, CA 90720

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12351 Kensington Rd.
Los Alamitos, CA 90720

Mick Constible
2661 Tucker Ln.
Los Alamitos, CA 90720

Kevin and Lisa Laphen
2942 Angler Ln.
Los Alamitos, CA 90720

H.L. Thompson
11451 Kensington Rd
Los Alamitos, CA 90720

Kenneth and Nannette Nakada
3231 Tucker Ln.
Los Alamitos, CA 90720

Betty Ann Emmons
3001 Tigertail Dr.
Los Alamitos, CA 90720

R.J. Jones
2772 Salmon Dr.
Los Alamitos, CA 90720

Shirley Bailey
11731 Wembley Rd.
Los Alamitos, CA 90720

The Ryans
2762 Bostonian Dr.
Los Alamitos, CA 90720

N. Dave Stefanides
11601 Montecito Rd.
Los Alamitos, CA 90720

The Lilley Family
3232 Copa de Oro Dr.
Los Alamitos, CA 90720

Tom and Georgia Reasbeck
2622 Salmon Dr.
Los Alamitos, CA 90720

Steven Ochoa
5332 Christal Ave.
Los Alamitos, CA 90720

The Reids
3241 Oak Grove Rd.
Los Alamitos, CA 90720

David Gay
11452 Martha Ann Dr.
Los Alamitos, CA 90720

Dennis and Helen Norman
12631 Christy Ln.
Los Alamitos, CA 90720

Steve Shultze
3001 Main Way Dr.
Los Alamitos, CA 90720

The Jenkins
11501 Kensington Rd.
Los Alamitos, CA 90720

Current Resident
13411 Blackbird St.

Betty Gerhardt
12631 Kensington Rd.
Los Alamitos, CA 90720

Current Resident
13371 Blackbird St.
Garden Grove, CA 92843

Current Resident
12721 Bolivar Pl.
Garden Grove, CA 92843

Current Resident
13322 Buena Way
Garden Grove, CA 92843

Current Resident
13301 Clinton
Garden Grove, CA 92843

Current Resident
13882 Clinton
Garden Grove, CA 92843

Current Resident
13061 Fairview
Garden Grove, CA 92843

Current Resident
12348 Flagstone Pl.
Garden Grove, CA 92843

Current Resident
12192 Flint Circle
Garden Grove, CA 92843

Current Resident
12531 Gloria
Garden Grove, CA 92843

Current Resident
13811 Gunther
Garden Grove, CA 92843

Current Resident
12541 Gloria
Garden Grove, CA 92843

Current Resident
12342 Marble Place
Garden Grove, CA 92843

Current Resident
13352 Palm
Garden Grove, CA 92843

Current Resident
13131 Palm
Garden Grove, CA 92843

Current Resident
13191 Palm

Current Resident
13381 Partridge St.
Garden Grove, CA 92843

Current Resident
13111 Partridge St.
Garden Grove, CA 92843

Current Resident
3102 No. 38 Partridge St.

Current Resident
12511 Pearce St.
Garden Grove, CA 92843

Current Resident
12102 Pearce St.
Garden Grove, CA 92843

Current Resident
12271 Quartz
Garden Grove, CA 92843

Current Resident
12311 Quartz
Garden Grove, CA 92843

Current Resident
12341 Quartz
Garden Grove, CA 92843

Current Resident
13231 Ranchero Pl.
Garden Grove, CA 92843

Current Resident
12652 Ranchero Pl.
Garden Grove, CA 92843

Current Resident
12405 Ranchero Pl.
Garden Grove, CA 92843

Current Resident
13241 Ranchero pl.
Garden Grove, CA 92843

Current Resident
12552 Ranchero Pl.
Garden Grove, CA 92843

Current Resident
13106 Roberta Pl.
Garden Grove, CA 92843

Current Resident
13331 Roxey
Garden Grove, CA 92843

Current Resident
13261 Stephens Ave.
Garden Grove, CA 92843

Current Resident
12691 Trask Ave.
Garden Grove, CA 92843

Current Resident
12152 Trask Ave.
Garden Grove, CA 92843

Current Resident
12712 Pearce St.
Garden Grove, CA 92843

Current Resident
12921 Abbey

Current Resident
12897 Abbey
Garden Grove, CA 92843

Current Resident
12975 Avalon
Garden Grove, CA 92843

Current Resident
12951 Avalon
Garden Grove, CA 92843

Current Resident
11930 Banner
Garden Grove, CA 92843

Current Resident
11730 Banner
Garden Grove, CA 92843

Current Resident
13361 Blackbird St.
Garden Grove, CA 92843

Current Resident
13342 Blackbird St.
Garden Grove, CA 92843

Current Resident
13422 Buena Way
Garden Grove, CA 92843

Current Resident
13262 Buena Way
Garden Grove, CA 92843

Current Resident
13292 Buena Way
Garden Grove, CA 92843

Current Resident
13882 Clinton
Garden Grove, CA 92843

Current Resident
13291 Clinton
Garden Grove, CA 92843

Current Resident
13772 Clinton
Garden Grove, CA 92843

Current Resident
13271 Clinton
Garden Grove, CA 92843

Current Resident
13332 Clinton
Garden Grove, CA 92843

Current Resident
13131 Cypress
Garden Grove, CA 92843

Current Resident
13281 Cypress
Garden Grove, CA 92843

Current Resident
13062 Cypress
Garden Grove, CA 92843

Current Resident
13062 Cypress
Garden Grove, CA 92843

Current Resident
13091 Cypress
Garden Grove, CA 92843

Current Resident
13341 Cypress
Garden Grove, CA 92843

Current Resident
13282 Dapplegrey Rd.
Garden Grove, CA 92843

Current Resident
13312 Dapplegrey Rd.
Garden Grove, CA 92843

Current Resident
13252 Dapplegrey Rd.
Garden Grove, CA 92843

Current Resident
13162 Dapplegrey Rd.
Garden Grove, CA 92843

Current Resident
12762 Downie
Garden Grove, CA 92843

Current Resident
12802 Downie
Garden Grove, CA 92843

Current Resident
13061 Fairview
Garden Grove, CA 92843

Current Resident
13641 Fairview
Garden Grove, CA 92843

Current Resident
13064 Fairview
Garden Grove, CA 92843

Current Resident
13341 Fairview
Garden Grove, CA 92843

Current Resident
12329 Flagstone
Garden Grove, CA 92843

Current Resident
12112 Flagstone
Garden Grove, CA 92843

Current Resident
12341 Flagstone
Garden Grove, CA 92843

Current Resident
12121 Flagstone
Garden Grove, CA 92843

Current Resident
12345 Flagstone
Garden Grove, CA 92843

Current Resident
12312 Flagstone
Garden Grove, CA 92843

Current Resident
12082 Flagstone
Garden Grove, CA 92843

Current Resident
12201 Flint Circle
Garden Grove, CA 92843

Current Resident
12321 Flint Circle Garden Grove,
CA 92843

Current Resident
12312 Flint Circle
Garden Grove, CA 92843

Current Resident
12301 Flint Place
Garden Grove, CA 92843

Current Resident
13182 Garden Grove Blvd.
Garden Grove, CA 92843

Current Resident
12692 Gloria
Garden Grove, CA 92843

Current Resident
12771 Gloria
Garden Grove, CA 92843

Current Resident
12682 Gloria
Garden Grove, CA 92843

Current Resident
12216 Granite
Garden Grove, CA 92843

Current Resident
12191 Granite
Garden Grove, CA 92843

Current Resident
12192 Granite Circle Garden
Grove, CA 92843

Current Resident
13822 Jackson
Garden Grove, CA 92843

Current Resident
13362 Laurel
Garden Grove, CA 92843

Current Resident
13402 Laurel
Garden Grove, CA 92843

Current Resident
13471 Leda Lane
Garden Grove, CA 92843

Current Resident
13171 Lilly
Garden Grove, CA 92843

Current Resident
13341 Lilly
Garden Grove, CA 92843

Current Resident
13401 Lilly
Garden Grove, CA 92843

Current Resident
13356 Lilly
Garden Grove, CA 92843

Current Resident
13452 Lilly
Garden Grove, CA 92843

Current Resident
13261 Lilly
Garden Grove, CA 92843

Current Resident
13241 Lilly
Garden Grove, CA 92843

Current Resident
13131 Lilly
Garden Grove, CA 92843

Current Resident
13370 Lilly
Garden Grove, CA 92843

Current Resident
12321 Marble
Garden Grove, CA 92843

Current Resident
12216 Marble Circle
Garden Grove, CA 92843

Current Resident
12162 Marble Circle
Garden Grove, CA 92843

Current Resident
12211 Marble
Garden Grove, CA 92843

Current Resident
12346 Marble Pl.
Garden Grove, CA 92843

Current Resident
12341 Marble Pl.
Garden Grove, CA 92843

Current Resident
12322 Marble Pl.
Garden Grove, CA 92843

Current Resident
13172 Palm
Garden Grove, CA 92843

Current Resident
13191 Palm
Garden Grove, CA 92843

Current Resident
13242 Palm
Garden Grove, CA 92843

Current Resident
13102 Partridge
Garden Grove, CA 92843

Current Resident
12462 Pearce St.
Garden Grove, CA 92843

Current Resident
12651 Pearce St.
Garden Grove, CA 92843

Current Resident
12161 Pearce St.
Garden Grove, CA 92843

Current Resident
12161 Pearce St.
Garden Grove, CA 92843

Current Resident
12212 Pearce St.
Garden Grove, CA 92843

Current Resident
12551 Pearce St.
Garden Grove, CA 92843

Current Resident
12801 Pearce St.
Garden Grove, CA 92843

Current Resident
12112 Pearce St.
Garden Grove, CA 92843

Current Resident
12441 Pearce St.
Garden Grove, CA 92843

Current Resident
12472 Pearce St.
Garden Grove, CA 92843

Current Resident
13162 Penny Lane
Garden Grove, CA 92843

Current Resident
13241 Pinto Road
Garden Grove, CA 92843

Current Resident
13261 Pinto Road
Garden Grove, CA 92843

Current Resident
13271 Pinto Road
Garden Grove, CA 92843

Current Resident
12201 Quartz Circle
Garden Grove, CA 92843

Current Resident
12301 Quartz
Garden Grove, CA 92843

Current Resident
12122 Quatro
Garden Grove, CA 92843

Current Resident
13062 Rainbow St.
Garden Grove, CA 92843

Current Resident
13121 Rainbow St.
Garden Grove, CA 92843

Current Resident
12472 Ranchero Way
Garden Grove, CA 92843

Current Resident
12502 Ranchero Way

Current Resident
12452 Ranchero Way

Current Resident
12461 Ranchero Way
Garden Grove, CA 92843

Current Resident
12407 Ranchero Way
Garden Grove, CA 92843

Current Resident
12602 Ranchero Way
Garden Grove, CA 92843

Current Resident
13321 Ranchero Way
Garden Grove, CA 92843

Current Resident
13361 Redbird
Garden Grove, CA 92843

Current Resident
13362 Redbird
Garden Grove, CA 92843

Current Resident
13411 Redbird
Garden Grove, CA 92843

Current Resident
13422 Roberta Circle
Garden Grove, CA 92843

Current Resident
13411 Roberta Circle
Garden Grove, CA 92843

Current Resident
13401 Roberta Circle
Garden Grove, CA 92843

Current Resident
13106 Roberta Pl.
Garden Grove, CA 92843

Current Resident
13532 Robyn Court
Garden Grove, CA 92843

Current Resident
13371 Roxey
Garden Grove, CA 92843

Current Resident
13291 Roxey
Garden Grove, CA 92843

Current Resident
13451 Roxey
Garden Grove, CA 92843

Current Resident
12472 Russell Cr.
Garden Grove, CA 92843

Current Resident
13381 Sorrell
Garden Grove, CA 92843

Current Resident
13291 Stephens
Garden Grove, CA 92843

Current Resident
13301 Stephens
Garden Grove, CA 92843

Current Resident
11681 Stuart
Garden Grove, CA 92843

Current Resident
11572 Stuart
Garden Grove, CA 92843

Current Resident
11841 Stuart
Garden Grove, CA 92843

Current Resident
11521 Stuart
Garden Grove, CA 92843

Current Resident
11612 Stuart
Garden Grove, CA 92843

Current Resident
11702 Stuart
Garden Grove, CA 92843

Current Resident
12152 Trask Ave.
Garden Grove, CA 92843

Current Resident
12321 Trask Ave.
Garden Grove, CA 92843

Current Resident
12222 Trask Ave.
Garden Grove, CA 92843

Current Resident
12291 Trask Ave.
Garden Grove, CA 92843

Current Resident
12152 Trask Ave.
Garden Grove, CA 92843

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Anaheim, CA 92802

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Garden Grove, CA

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Garden Grove, CA 92843

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12371 Pearce St.
Garden Grove, CA

Annette Henderson
12371 Peace St.
Garden Grove, CA

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12692 Gloria St.
Garden Grove, CA 92843

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Anaheim, CA 92806

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Roario Espinosa
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Lucille Winklepleck
12671 Gloria St.

Elizabeth Jones
6961 Via Angelina

Resident (Name Illegible)
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Margaret Beign
12346 Marble Place
Garden Grove, 92843

Norma Cobb
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Garden Grove, CA

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Garden Grove, CA

Virginia Gonzales
11522 West

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Garden Grove, CA 92842

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Santa Ana, CA 92701-6322

Knisley *
6242 Santa Rita Ave.
Garden Grove, CA 92843

Tim Neely *
County of Orange
P.O. Box 4048
Santa Ana, CA 92702

Dawn Coleman-Hyman *
RCSD
3001 Blume Dr.
Rossmoor, CA 90720

The Quang Phung *
13302 Galway Street
Garden Grove, CA 92844

Mary Lou Ortiz
13321 Galway St.
Garden Grove, CA 92844

Kathy & Edward Zaragoza *
13381 Erin Rd.
Garden Grove, CA 92844

William M. Vu *
13322 Galway St.
Garden Grove, CA 92844

Marsha Bolin *
9602 Central Ave.
Garden Grove, CA 92844

Michael Farris *
9782 Orangwood Ave.
Garden Grove, Ca 92843

Current Resident
11801 Martha Ann Dr.,
Los Alamitos, CA 90720

Current Resident
11821 Martha Ann Dr.,
Los Alamitos, CA 90720

Bruce Mayes *
11831 Martha Ann Dr.
Los Alamitos, CA 90720

Martha E. Foley *
11841 Martha Ann Dr.,
Los Alamitos, CA 90720

The Sunigas *
11861 Martha Ann Dr.
Los Alamitos, CA 90720

John Buttler *
11871 Martha Ann Dr.
Los Alamitos, CA 9072

Current Resident
9141 Enloe Way,
Garden Grove, CA 92844

Current Resident
9151 Enloe Way,
Garden Grove, CA 92844

Current Resident
9161 Enloe Way,
Garden Grove, CA 92844

Current Resident
9171 Enloe Way,
Garden Grove, CA 92844

Current Business
3101 Seal Beach Blvd.,
Seal Beach, CA 90740

Current Business
4000 W. Metropolitan Dr.,
Orange, CA 92868

Current Business
3901 W. Metropolitan Drive
Orange, CA 92868

Current Business
1 City Drive W #1010,
Orange, CA 92868

Current Business
601 S. Lewis Street,
Orange, CA 92868

Current Business
13311 Garden Grove Blvd.,
Garden Grove, CA 92840

Current Business
13261 Garden Grove Blvd.,
Garden Grove, CA 92840

Current Business
3020 N. Hesperian St.,
Santa Ana, CA 92706

Current Business
3022 N. Hesperian St.,
Santa Ana, CA 92706

Current Resident
13421 El Prado
Garden Grove, CA 92843

Current Resident
705 Lewis St.,
Orange, CA 92869

Current Resident
334 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
358 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
350 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
372 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
380 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
394 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
404 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
416 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
426 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
438 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
450 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
458 S. Jennifer Ln.,
Orange, CA 92869

Current Resident
2144 Deborah Ln.,
Orange, CA 92869

Current Business
2308 W. Fifth St.,
Santa Ana, CA 92703

Current Business
730 N. Fairview St.,
Santa Ana, CA 92703

Current Business
2800 N. Main
Santa Ana, CA 92703

Terry Humphrey
*
3541 Rose Circle
Seal Beach, CA 90740

Current Resident
3510 Oleander Street
Seal Beach, CA 90740

Current Resident
3521 Pansy Circle
Seal Beach, CA 90740

Drew Thorp *
3520 Pansy Circle
Seal Beach, CA 90740

Kenneth A. Turiace *
3531 Primrose Circle
Seal Beach, CA 90740

Current Resident
3530 Primrose Circle
Seal Beach, CA 90740

Frieda Morgan *
11831 Trask Avenue
Garden Grove, CA

Current Resident
12841 Lewis St.
Garden Grove, CA 92843

Current Resident
12801 Lewis St.
Garden Grove, CA 92843

Current Resident
12771 Lewis St.,
Garden Grove, CA 92843

Current Resident
13401 El Prado Ave.,
Garden Grove, CA 92840

Current Resident
3821 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3825 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3811 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3815 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3803 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3807 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3743 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3747 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3735 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3739 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3725 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3729 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3717 W. Park Balboa Ave.,
Orange

Current Resident
3721 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3707 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3711 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3647 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3701 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3639 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3643 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3629 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3633 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3621 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3625 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3611 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3615 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3603 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3607 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3543 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3547 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3531 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
3533 W. Park Balboa Ave.,
Orange, CA 92868

Current Resident
592 S. Devon Rd.,
Orange, CA 92868

Current Resident
13582 Taft St.,
Garden Grove, CA 92843

Current Resident
11032 Trask Ave.,
Garden Grove, CA 92843

Current Resident
13601 Havenwood Dr.,
Garden Grove, CA 92843

Current Resident
13582 Havenwood Dr.,
Garden Grove, CA 92843

Current Resident
13512 Lanning St.,
Garden Grove, CA 92843

Current Resident
13592 Lanning St.,
Garden Grove, CA 92843

Current Resident
13582 Barnett Way,
Garden Grove, CA 92843

Current Resident
11272 Trask Ave.,
Garden Grove, CA 92843

Current Resident
13521 Lanning St.,
Garden Grove, CA 92843

Current Resident
11262 Trask Ave.,
Garden, CA 92743

Current Resident
11302 Lanning St.,
Garden Grove, CA 92843

Eldon Hemphill *
11282 Trask Ave.
Garden Grove, Ca 92843

Current Resident
13512 Barnett Way,
Garden Grove

Current Resident
13592 Libby Ln.,
Garden Grove, CA 92843

Current Resident
13591 Lanning St.,
Garden Grove, CA 92843

Current Resident
13511 Barnett Way,
Garden Grove, CA 92843

Current Resident
13581 Barnett Way,
Garden Grove, CA 92843

Current Business
802 N. Fairview St.,
Santa Ana, CA 92703

Current Resident
11062 Trask Ave.,
Garden Grove, CA 92843

Current Resident
13581 Libby Ln.,
Garden Grove, CA 92843

Current Resident
11242 Trask Ave.,
Garden Grove , CA 92843

Current Resident
2901 N. Bristol St.,
Santa Ana, CA 92703

Current Resident
1033 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1029 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1025 Sherwood Ln.,
Santa, CA 92706

Current Resident
1019 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1015 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1011 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1005 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1001 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
955 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
949 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
945 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1047 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1043 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
1037 Sherwood Ln.,
Santa Ana, CA 92706

Current Resident
2944 Fernwood Dr.,
Santa Ana, CA 92706

Current Resident
2026 E. Fairway Dr.,
Orange, CA 92866

Current Resident
2024 E. Fairway Dr.,
Orange, CA 92866

Current Resident
2022 E. Fairway Dr.,
Orange, CA 92866

Current Resident
2041 Palmyra Ave.,
Orange, CA 92868

Current Resident
2043 Palmyra Ave.,
Orange, CA 92868

Current Resident
2045 Palmyra Ave.,
Orange, CA 92868

Captain Tom McCarthy
Orange County Sheriff-Coroner Dept
591 The City Drive South
Orange, CA 92868

We The People
595 The City Drive, Ste. 200
Orange, CA 92868

Bonding Services
595 The City Drive, Ste. 201
Orange, CA 92868

United Fathers of America
595 The City Drive, Ste. 202
Orange, CA 92868

County of Orange Animal Shelter
561 The City Drive
Orange, CA 92868

Current Business
591 The City Drive
Orange, CA 92868

Eileen McNamara
595 The City Drive, Ste. 203
Orange, CA 92868

Justice L. Rovin
595 The City Drive, Ste. 204
Orange, CA 92868

Current Business
595 The City Drive Ste. 100
Orange, CA 92868

Voyager Insurance
595 The City Drive, Ste. 206
Orange, CA 92868

Current Business Occupant
595 The City Drive, Ste. 205
Orange, CA 92868

Current Business
2415 W. Fifth St.,
Santa Ana, CA 92703

Current Business
13511 Euclid St.,
Garden Grove, CA 92843

Current Business
10932 Trask Ave.,
Garden Grove , CA 92843

Current Business
11162 Trask Ave.,
Garden Grove, CA 92843

Current Business
11088 Trask Ave. Suite 100,
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 210A
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 206,
Garden Grove , CA 92843

Current Business
11088 Trask Ave. Suite 210B,
Garden Grove, CA 92843

Current Business
11088 Trask Ave. Suite 210C,
Garden Grove, CA 92843

Current Business
1088 Trask Ave. Suite 210D,
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 210E,
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 210F
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 210G,
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 106
Garden Grove, CA 92843

Current Business
11088 Trask Ave., Suite 200,
Garden Grove, CA 92843

Current Bsuiness
11122 Trask Ave.,
Garden Grove, CA 92843

Current Business
2941 N. Bristol St., Suite A,
Santa Ana, CA 92706

Current Business
2941 N. Bristol St., Suite B,
Santa Ana, CA 92706

Current Business
2940 N. Bristol St.
Santa Ana, CA 92706

Current Business
802 N. Fairview St.,
Santa Ana, CA 92703

Current Business
720 N. Fairview St.,
Santa Ana, CA 92703

Current Business
700 S. Tustin St., Suite A
Orange, CA 92705

Current Business
700 S. Tustin St., Suite B
Orange, CA 92705

Current Business
700 S. Tustin St.,Suite E,
Orange, CA 92705

Current Business
700 S. Tustin St., Suite C
Orange, CA 92705

Current Business
700 S. Tustin St., Suite D
Orange, CA 92705

Current Business
11088 Trask Ave.,
Suite 106,
Garden Grove, CA 92843

Current Resident
13312 Dunklee
Garden Grove, CA 92843

Current Resident
13262 Dunklee
Garden Grove, CA 92843

Tim Morley
13222 Dunklee Avenue
Garden Grove, CA

Current Resident
13302 Dunklee
Garden Grove, CA 92843

Current Resident
13306 Dunklee
Garden Grove, CA 92843

Current Resident
13252 Dunklee
Garden Grove, CA 92843

Current Resident
13272 Dunklee
Garden Grove, CA 92843

Current Resident
13292 Dunklee
Garden Grove, CA 92843

Current Resident
13332 Dunklee
Garden Grove, CA 92843

Current Resident
13242 Dunklee
Garden Grove, CA 92843

Current Resident
13322 Dunklee
Garden Grove, CA 92843

Current Resident
13202 Dunklee
Garden Grove, CA 92843

Current Resident
8802 Trask Avenue
Garden Grove, CA 92843

Current Resident
13282 Dunklee
Garden Grove, CA 92843

Current Resident
8692 Gloria Ave.
Garden Grove, CA 92843

Current Resident
13452 Sorrell Drive
Garden Grove, CA 92843

Georgia Freedman-Harvey *
1518 Marine Ave.
Seal Beach, CA 90740

Virginia Manning *
13461 Fairfield Lane 60C
Seal Beach, CA 90740

Lilibeth Torno *
9019 Georgetown Way
Buena Park, CA 90620

Norma Herrera *
13461 Fairfield Lane 60C
Seal Beach, CA 90740

Alana and Ronald Castillo *
3551 Jasmin Circle
Seal Beach, CA 90740

Benjamin Briggs *
12581 Martha Ann Dr.
Los Alamitos, CA 90720

Chris Marshall *
2751 Main Way Dr.
Los Alamitos, CA 90720

Charles Queen *
St. Joseph Health System
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Los Alamitos School District
10293 Bloomfield St.
Los Alamitos, CA 90720

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City of Westminster
8200 Westminster Blvd.
Westminster, CA 92863

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11272 Trask Avenue
Garden Grove, CA 92843

William Doane *
Mayor, City of Seal Beach
211 Eighth Street
Seal Beach, CA 90740

W. Frank, Tait & Associates *
701 North Park Center Dr.
Santa Ana, CA 92705

Shelley Kagan *
605 Island View Dr.
Seal Beach, CA 90740

Shirley Bernsen *
11322 Kensington Rd.
Los Alamitos, CA 90720

James & Patti Blake *
4540 Ironwood Ave.
Seal Beach, CA 90740

Richard Foremski *
6642 Santa Catalina
Garden Grove, CA 92845

Ray and Joy Urata *
3581 Violet Street
Seal Beach, CA 90740

Steven Finnegan *
Automobile Club of Southern CA
P.O. Box 25001
Santa Ana, CA 92799-5001

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City of Seal Beach
211 Eighth Street
Seal Beach, CA 90740

Ms. Janice Klein *
13392 Beach Terrace Dr.
Garden Grove, Ca 92844

Richard H. Lovdahl
4325 Candleberry Avenue
Seal Beach, CA 90740

John H. Unrath *
4649 Dogwood Avenue
Seal Beach, CA 90740

Jim Crowley *
12851 Haster Street, Apt 11B
Garden Grove, CA 92840

Veronica Tavares *
4765 Elder Ave.
Seal Beach, CA 90740

Jimmy & Lisa Hernandez *
3690 Bluebell St.
Seal Beach, CA 90740

Lisa Ota *
3271 Rowena Drive
Los Alamitos, CA 90720

Susan Bell *
3352 Orangewood
Los Alamitos, CA 90720

Arto Nuutinen *
4 Park Plaza Suite 1200
Irvine, CA 92614

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Rossmoor Homeowner Assn.
P.O. Box 5958
Rossmoor, CA 90721

Eric Christensen
Rossmoor Opposed to Connector
Grass Roots Committee
12221 Martha Ann Dr.
Los Alamitos, CA 90720

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5202 Anthony Avenue
Garden Grove, Ca 92845

Lee Whittenberg *
Director of Development Services
211 Eighth Street
Seal Beach, CA 90740

John Bahorski *
City Manager
211 Eighth Street
Seal Beach, CA 90740

Bob Dinsen *
13212 Sandra Place
Garden Grove, CA 92843

Pacific Co. *
Julie Araiza
P.O. Box 10992
Santa Ana, CA 92711

Ann Eid *
12400 Montecito Rd. #214
Seal Beach, CA 90740

Pamela Foremski *
6642 Santa Catalina
Garden Grove, CA 92845

Susan Ariano *
12200 Montecito Rd
Seal Beach, CA 90740

Linda Towne *
113 Yale Lane
Seal Beach, CA 90740

Kathleen A. Ampudia *
4324 Birchwood Ave.
Seal Beach, CA 90740

Deborah Wyche *
4609 Hazlenut Ave.
Seal Beach, CA 90740

Cathie Severin *
3581 Teaberry Circle
Seal Beach, CA 90740

Loreen Otake *
4732 Candleberry Ave.
Seal Beach, CA 90740

Pamela Klistoff *
4608 Birchwood Ave.
Seal Beach, CA 90740

Terri de la Vega *
161 Yale Lane
Seal Beach, CA 90740

Mr. & Mrs. Chris Schutzenberger *
4581 Birchwood Ave.
Seal Beach, CA 90740

Deborah E. Lelchuk *
4232 Candleberry Ave.
Seal Beach, CA 90740-2825

SECTION 15.0
GLOSSARY AND LIST OF ACRONYMS

15.0 GLOSSARY AND LIST OF ACRONYMS

15.1 GLOSSARY

Abatement: mitigation of noise

A horizon: the A horizon is soil zone immediately below surface, from which soluble material and fine-grained particles have been moved downward by water seeping into soil. Varying amounts of organic matter give *A* horizon color ranging from gray to black

Alluvial rock: materials deposited by running water

Alquist-Priolo Earthquake Fault Zoning Act: California law passed in 1972 to prevent construction of building used for human occupancy on surface trees of active faults

Aquifer: water-bearing geologic formation that permits the movement of groundwater

A-weighted sound levels: approximate way humans interpret sound

Baseline: foundation or basis to use for comparison purposes

Bas-relief: sculptural element characterized by varied surface planes

BTU: British Thermal Unit, equal to the amount of heat required to raise one pound of water one degree Fahrenheit at one atmosphere of pressure

Buttressing: an action that provides support or stability to a structure

Cenozoic era: 70 million years ago

Class I bikeway: bicycle path within a separate right-of-way designated for exclusive use by bicycles and pedestrians, with cross traffic by motorists minimized

Class I trail: unpaved trail within a separate right-of-way designated for exclusive use by equestrians and pedestrians, with cross traffic by motorists minimized

Class II trail: trail within a restricted right-of-way designated for semi-exclusive use by bicycles, with traffic by motor vehicles or pedestrians at crossings

Class III trail: trail located within a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists

CNEL: a 24-hour Leq that has been adjusted to add a “penalty” of five dBA for evening noise (between 7 p.m. and 10 p.m.) and ten dBA for nighttime noise (between 10 p.m. and 7 a.m.)

Cofferdam: watertight enclosure from which water is pumped to expose the bottom of a body of water and permit construction

Community cohesion: the degree to which residents have a sense of belonging to their neighborhood, a level of commitment of the residents to the community, or a strong attachment to neighbors, groups and institutions, usually as a result of continued association over time

Contra-flow: movement against general flow

Cretaceous period: 146 to 65 million years ago

Cumulative impacts: (1) as defined by CEQA, two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (2) As defined by NEPA, impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Cut slope: that portion of a slope that remains once soils have been removed

Decibel (dB): a logarithmic scale measurement of noise

De minimis: Latin for "of minimum importance." It refers to something or a difference that is so small that analysis does not consider it as an impact. It is especially applicable to air quality analysis

Densification: the process of making an element more compact by reducing air space

Dewatering: the process of removing water from an area or element

Emergent: arising naturally

Environmental justice: identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies and activities on minority and low-income populations

Erosion: process by which rock and earth are either worn away or transported, usually by water, wind or ice

Fecundity: fruitful in offspring or vegetation

Fill slope: a slope created from imported soils

G force: the force whose magnitude is equal to the gravitational force acting on a body at sea level, expressed as 1.0g

Grade separated: on separate levels

Groundwater: free water occurring in a zone of saturation below the ground surface

Growth inducement: the relationship between the proposed transportation project and growth within the project area

Habitat: an area where plants or animals naturally occur

Headway: the time between buses or other transit vehicles (a 15-minute headway means one bus every 15 minutes)

Herbaceous: having little or no woody tissue and persisting usually for a single growing season

Holocene period: within the last 11,000 years

In lieu: instead of or in place of

Insertion loss: the actual noise level reduction at a specific receiver due to construction of a noise barrier between the noise source (traffic) and the receiver

In-situ: in the natural or original position

Jurassic period: about 200 million years ago, when dinosaurs were reaching their gigantic forms
Landscape unit: an area of distinct, but not necessarily homogenous, visual character

Landslide: movement of slope-forming earth or rock materials downward under the influence of gravity

Leq: a measure of the average noise level during a specified period of time

Leq(h), dBA: equivalent or average noise level for the noisiest hour expressed in A-weighted decibels

Level of Service (LOS): a rating using qualitative measures that characterize operational conditions within a traffic stream and their perception by motorists and passengers

Liquefaction: the transformation of soils from a solid state to a liquid state due to increase water pressures

Logarithmic Scale: a measurement in which the ratio of successive intervals is not equal to 1 (which is typical for linear scales) but is some common factor larger than the previous interval (a typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1000, 10000, etc., this is useful for plotting a graph of values that have a very large range)

Mainline: a principal highway, exclusive of connectors, ramps, etc.

Major Investment Study (MIS): a study to evaluate alternatives for their ability to solve transportation problems within a study area

Measure M: a one-half-cent sales tax approved by the Orange County voters in November 1990 for countywide transportation improvements

Mean high-water mark: line on the shore reached by the plane of the mean (average) high water as observed from the "apparent shoreline" as indicated by physical markings, lines of vegetation, or changes in type of vegetation

Mesoscale: regional, as it applies to air quality analysis

Microscale: local, as it applies to air quality analysis

Midden: refuse accumulation associated with prehistoric people

Monocultures: the cultivation of a single product to the exclusion of other uses of land

Non-water-contact recreation: involves activities where contact with the water is not likely, such as scenic viewing, photography, etc.

Noxious weed: a plant that has been defined as a pest by law or regulation. Both California and the United States government maintain lists of plants that are considered threats to the well being of the state or the country.

NPL/Superfund: federal list of those sites that pose an immediate public health hazard and where an immediate response to the discovery was necessary

Ordinary high-water mark: the line on the shore established by the fluctuation of water and physically indicated on the bank

Poverty Level: an income below $14,630 for a family of three is considered below the poverty line based on U.S. Department of Health and Human Services Federal Poverty Guidelines (2001)

Prime farmland: rural land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses

Richter Scale: a logarithmic scale recording the severity of earthquakes. Because the scale is logarithmic, a 4.2 quake is ten times stronger than a 4.1 quake

Riparian: relating to or living or located on the bank of a natural watercourse, lake, or tidewater

Riprap: a foundation or sustaining wall of stones thrown together without order to strengthen or support an element

Ruderal: a weedy and commonly introduced plant growing where the vegetational cover has been interrupted

Screenline: imaginary line across parallel roadways

Sedimentary rock: rock resulting from the consolidation of sediment

Seiche: the oscillation of sloshing water caused by landslides in a lake, bay or other enclosed body of water as a result of seismic activity

Senate Bill 45: program that consolidated various funding programs into the STIP and created more accountability for programming and delivery of STIP projects to the regions around the state and the various Caltrans' districts

Soil association: a mapping unit used in detailed soil surveys, consisting of two or more distinguishable soils in a given geographic area that are grouped together on the basis of their aerial distribution

South Coast Air Quality Management District: a regional regulatory agency with the primary responsibility for improving air quality in the South Coast Air Basin.

Storm Water Management Plan (SWMP): a document which describes a program to reduce the discharge of pollutants associate with the storm water drainage systems that serve highways and highway-related properties, facilities, and activities.

Strike-slip fault: a fault in which two sections of rock have moved horizontally in opposite directions, parallel to the line of the fracture that divided them. Strike-slip faults are caused by shearing stress.

Subsidence: sinking or lowering of the land surface

Take: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct (as defined in Section 3 of the Endangered Species Act)

Tertiary period: 65 to 1.8 million years ago

Transit-dependent population: the population over the age of 16 (workers) who use public transportation as a means of traveling to and from home to work. The category, "public transportation" includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated, railroad, ferryboat or taxicab.

Transportation demand management: the operation and coordination of various transportation system policies and programs to provide the most efficient and effective use of existing transportation services and facilities

Transportation system management: actions that improve the operation and coordination transportation services and facilities to realize the most efficient use of the existing transportation system

Triassic period: when dinosaurs first evolved about 225 million years ago

Tributary watercourse: a stream feeding a larger stream or a lake

Trinomial: an alphanumeric abbreviation for a previously identified historic or prehistoric resource, such as CA-ORA-1352, representing the state (eg., California or CA-), the county (eg., Orange or -ORA-), and a unique number assigned by the State Historic Preservation Office (such as -1352)

Tsunamis: waves that travel in the open ocean and are caused by an undersea earthquake, landslide or volcanic activity

Uplift: the action of a portion of the earth's surface as it rises above adjacent areas

Viewshed: all areas where physical changes associated with the proposed project can be seen

Visual intactness: visual integrity of the visual environment and its freedom from encroaching elements

Visual unity: visual coherence and compositional harmony of the landscape when considered as a whole

Visual vividness: visual power or memorability of landscape components as they combine in striking and distinctive patterns

Water-contact recreation: includes activities in which contact with the water is likely, such as swimming, water-skiing, or fishing

Weir: a dam in a stream to raise the water level or divert its flow

Wildlife corridor: a large patch of habitat connecting two or more larger areas of habitat, which is essentially free of physical barriers such as fences, walls, and developed areas

15.2 LIST OF ACRONYMS

µgm/m^3	micrograms/cubic meter
2+ HOV	High-occupancy-vehicle lane requiring two or more persons
3+ HOV	High-occupancy-vehicle lane requiring three or more persons
AAQS	Ambient air quality standards
AB	Assembly Bill
ACHP	Advisory Council of Historic Preservation
ACM	Asbestos containing materials
ADA	Americans with Disabilities Act
ADL	Aerially deposited lead
ADT	Average daily trips
AFRC	Armed Forces Reserve Center
AHERA	Asbestos Hazard Emergency Response Act
AM	morning (as in AM peak periods)
APE	Area of Potential Effect
AQMP	Air Quality Management Plan
ASTM	American Society for Testing and Materials
ATS	Advanced Transportation Systems
AWP	Annual Work Plan
B.A.	Bachelor of Arts
B.B.A.	Bachelor of Business Administration
B.E.	Bachelor of Engineering
B.E.D.	Bachelor of Environmental Design
BG	Block group
B.L.A.	Bachelor of Landscape Architecture
BMPs	Best management practices
B.S.	Bachelor of Science
B.S.C.E.	Bachelor of Science in Civil Engineering

BTU	British thermal unit
C	Celsius
CAA	Clean Air Act (federal)
CAAA	Clean Air Act Amendments (federal)
CAL-EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulation
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESA	California Endangered Species Act
CESQA	Conditionally exempt small-quantity generator
CFR	Code of Federal Regulation
cfs	Cubic feet per second
CH_4	Methane
CHP	California Highway Patrol
CMP	Congestion Management Program
cms	Cubic meters per second
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon monoxide
Corps	United States Army Corps of Engineers
CT	Census tracts
CTC	California Transportation Commission

CTFP	Combined Transportation Funding Program
dB	decibel
dBA	A-weighted decibel
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
ESA	Environmental site assessment
FAE	Finding of Adverse Effect
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FFTP	*FastForward* Long-Range Transportation Plan
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	Geographic information systems
GPS	Global positioning system
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HC	Hydrocarbons
HOV	High-occupancy vehicle
HPSR	Historic Property Survey Report
HT	Heavy trucks
I-5	Interstate 5
I-405	Interstate 405
I-605	Interstate 605
IC	Interchange
ICU	Interchange capacity utilization
ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991

ITS	Intelligent transportation system
kg	kilogram
km/h	kilometers per hour
LBP	Lead-based paint
LDV	Light-duty vehicles
Leq	Equivalent sound level
Leq(h)	One-hour equivalent sound level
LOS	Level of service
LPS	Locally preferred strategy
LQG	Large-quantity generator
LRP	Long-range plan
LUST	Leaking underground storage tank
M.A.	Master of Arts
MBTA	Migratory Bird Treaty Act
mg	milligram
mg/m^3	milligrams/cubic meters
MIS	Major Investment Study
mm	millimeter
MOA	Memorandum of agreement
MOE	Measure of effectiveness
MOU	Memorandum of understanding
MPAH	*Master Plan of Arterial Highways*
mph	Miles per hour
MPO	Metropolitan planning organization
MT	Medium trucks
MTA	Metropolitan Transportation Authority
M.U.P.	Master of Urban Planning
NAAQS	National Ambient Air Quality Standards

NAC	Noise Abatement Criteria
NASR	Negative Archaeological Survey Report
NEPA	National Environmental Policy Act
NES	Natural Environment Study
NESHAP	National Emission Standard for Hazardous Air Pollutants
NHPA	National Historic Preservation Act of 1966
NO	Nitric oxide
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NOIS	Notification of Initiation of Studies
NOP	Notice of Preparation
NO_X	Oxides of nitrogen
NPL	National Priority List
NRHP	National Register of Historic Places
NVALP	National Voluntary Laboratory Accreditation Program
O_3	Ozone
OCFCD	Orange County Flood Control District
OCP-96	Orange County Projections 1996
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
OCTAM 2.8	Orange County Transportation Analysis Model, version 2.8
OCWD	Orange County Water District
O-D	Origin-destination pair
OSHA	Occupational Safety and Health Administration
Pb	Lead
PDT	Project Development Team
PFRD	Public Facilities and Resources Department (Orange County)
Ph.D.	Doctor of Philosophy

PIP	Public Involvement Program
PLM	Polarized Light Microscopy
PM	Afternoon or evening (as in PM peak periods)
PM	Particulate matter
$PM_{2.5}$	Particulate matter smaller than or equal to 2.5 microns
PM_{10}	Particulate matter smaller than or equal to ten microns
PMT	Project Management Team
ppm	Parts per million
PS&E	Plans, Specifications, and Estimates
RBC	Reinforced box culvert
RCRA (Large)	Resource Conservation Recovery Act large-quantity generator
RCRA (Small)	Resource Conservation Recovery Act small-quantity generator
RCRA (TRANS)	Resource Conservation Recovery Act Transporter
ROC	Reactive organic compounds
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARA	Superfund Authorization Re-amendment Act
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCG	Southern California Gas Company
SCH No.	State Clearinghouse Number
SCL	State CERCLA or Superfund
SHPO	State Office of Historic Preservation
SIP	State Implementation Plan
SO_2	Sulfur dioxide

SO_3	Sulfur trioxide
SOUND32	Noise modeling program
SOV	Single-occupancy vehicle
SO_X	Sulfur oxides
SPL	State Priority List
SQG	Small-quantity generator
SR-22	State Route 22
SR-55	State Route 55
SR-57	State Route 57
SR-73	State Route 73
SR-91	State Route 91
SR-133	State Route 133
STIP	State Transportation Improvement Program
SWLF	Solid waste landfill
SWPPP	Storm Water Pollution Prevention Plan
TCM	Transportation control measure
TCRP	Transportation Congestion Relief Plan (AB 2928)
TDM	Transportation demand management
TDS	Total dissolved solids
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TMP	Traffic Management Plan
TRAN	Transporter
TRIS	Toxic Chemical Release Inventory System
TSM	Transportation system management
USACOE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
U.S.C.	United States Code

USFWS	United States Fish and Wildlife Service
UST	Underground storage tank
VAE	Visual area estimation
V/C	Volume to capacity
VHT	Vehicle hours traveled
VKT	Vehicle kilometers traveled
VMT	Vehicle miles traveled
vphpl	Vehicles per hour per lane

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SECTION 16.0
TITLE VI POLICY STATEMENT

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

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July 26, 2000

TITLE VI
POLICY STATEMENT

The California State Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, sex and national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

Jeff Morales

JEFF MORALES
Director

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