INTERSTATE 405 AT CRENSHAW BOULEVARD / 182ND STREET INTERCHANGE IMPROVEMENT PROJECT

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7-LA-405 [PM 14.4/15.6]
EA 07-29360 / E-FIS 0713000238)

DRAFT INITIAL STUDY / ENVIRONMENTAL ASSESSMENT [IS/EA]

Prepared by the California Department of Transportation

JUNE 2015

This environmental review, consultation, and any other action required with applicable Federal Laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

Caltrans

THIS PAGE INTENTIONALLY LEFT BLANK

Cover: Iowa Courthouse Building; Torrance, California. See Cultural Resources Section 2.1.7 for more details

07-LA-405-PM 14.4/15.6
EA 29360
E-FIS 0713000238

Interstate 405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project
From Western Avenue to just north of Crenshaw Boulevard
In the City of Torrance, Los Angeles County
Post Mile 14.4 to 15.6

INITIAL STUDY / ENVIRONMENTAL ASSESSMENT

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

The State of California
Department of Transportation
Lead Agency

City of Torrance
Cooperating Agency

California Transportation Commission (CTC)
Responsible Agency

June 17, 2015
Date of Approval

Ron Kosinski
Deputy District Director
Division of Environmental Planning
California Department of Transportation
District 7 – Los Angeles

For additional information concerning this environmental document, contact:

Eduardo Aguilar, Senior Environmental Planner
Caltrans District 7
100 South Main Street, MS-16A
Los Angeles, California 90012
eduardo_aguilar@dot.ca.gov

Anthony R. Baquiran, Associate Environmental Planner
Caltrans District 7
100 South Main Street, MS-16A
Los Angeles, California 90012
anthony_baquiran@dot.ca.gov

THIS PAGE INTENTIONALLY LEFT BLANK

SUMMARY

The project as proposed and presented in this Initial Study/Environmental Assessment (IS/EA) is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

Following receipt of public comments on this Draft IS/EA and circulation of the Final IS/EA, Caltrans will be required to take actions regarding the environmental document. Caltrans will determine whether to certify the IS by issuing a Negative Declaration (ND) or Mitigated Negative Declaration (MND) under CEQA, and certify the EA with a Finding of No Significant Impact (FONSI) under NEPA.

Proposed Project. The California Department of Transportation (Caltrans), in coordination with the City of Torrance, proposes to improve the operational conditions of the Interstate 405 (I-405) freeway mainline, and its on-and-off ramps at Crenshaw Boulevard and 182nd Street in the City of Torrance, in Los Angeles County, from post mile 14.4 to 15.6. Existing roadway deficiencies have led to a continued deterioration of AM and PM peak period operational conditions that are creating queuing issues on the freeway mainline and also at on-and-off-ramps and intersections immediate to the interchange. These deficiencies are compounded by persistent conflicts in turning movements at the ramps and resulting blocking issues.

Purpose and Need. The general purpose of the proposed project is to increase the capacity of the interchange and provide for new turning movements to enhance accessibility and safety, improve traffic flow and operational conditions, and alleviate congestion. The need for the proposed project stems from deteriorating operational conditions at the Interstate 405 (I-405) at Crenshaw Boulevard/182nd Street on-and-off-ramps, a forecasted increase in traffic volumes, increasing delays during AM and PM peak travel periods, and higher-than-state-average accident rates at some intersections interfacing with the interchange.

Proposed Action and Alternatives Under Consideration. In general, the proposed project would consist of increasing capacity and storage at the I-405 at Crenshaw Boulevard/182nd Street interchange by adding an additional lane to the existing on-and-off-ramps and constructing a new, two-lane on-ramp to southbound I-405 from Crenshaw Boulevard. Capacity and storage will also be increased on the arterial streets through geometrical improvements at intersections immediate to the interchange, widening of Crenshaw Boulevard south of the interchange to accommodate a new, exclusive right-turn lane onto the proposed new southbound I-405 on-ramp, and widening of westbound 182nd Street between the northbound I-405 on-and-off-ramps and Crenshaw Boulevard. The following design alternatives have been developed by a multi-disciplinary team to achieve the project purpose and need, while avoiding or minimizing environmental impacts.

> **Alternative 1** includes all the aforementioned improvements, but increases capacity and storage on the I-405 mainline by adding an auxiliary lane on both the northbound and southbound freeway mainline between the Western Avenue and Crenshaw Boulevard/182nd Street Interchanges. This alternative also includes the widening of the Van Ness Avenue undercrossing bridge to accommodate the widening associated with the additional auxiliary lanes.
>
> **Alternative 2** includes the generalized improvements as previously described, but does not include the addition of auxiliary lanes on the I-405 mainline to increase capacity and storage. It does however; propose the addition of a deceleration on northbound I-405 from the Van Ness Avenue undercrossing bridge to the Crenshaw Boulevard/182nd Street off-ramp. The widening of the Van Ness Avenue undercrossing bridge is not needed with this build alternative.

Alternative 3 is similar to Alternative 2 in that it includes the generalized improvements as previously stated and proposes the addition of a deceleration on northbound I-405 from the Van Ness Avenue undercrossing bridge to the Crenshaw Boulevard/182nd Street off-ramp, but it also proposes an additional deceleration lane on southbound I-405 from the Van Ness Avenue undercrossing bridge to the Western Avenue/190th Street off-ramp. The deceleration lanes with this build alternative are proposed in place of the auxiliary lanes as proposed in Alternative 1, and no widening of the Van Ness Avenue undercrossing bridge is required.

Alternative 4, or the "No-Build Alternative" proposes to maintain the existing conditions of the interchange without any improvements. Existing issues regarding Level of Service (LOS) on the freeway mainline, on-and-off-ramps, and intersections immediate to the interchange would continue to deteriorate to unacceptable levels.

Summary of Potential Project Impacts

ENVIRONMENTAL RESOURCE	BUILD ALTERNATIVE 1	BUILD ALTERNATIVE 2	BUILD ALTERNATIVE 3	ALTERNATIVE 4 (NO-BUILD)
HUMAN ENVIRONMENT				
Land Use	While full and partial acquisition of properties adjacent to the interchange are necessary, these actions would not cause any changes in land use, zoning, or activities, and no meaningful alteration to existing land use patterns in the project study area.			If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no alteration of existing lands; therefore, it would present no potential impacts on land usage.
Growth	The proposed project does not pose any adverse effects or changes in accessibility in the project study area, and while capacity increasing by design, it does not pose any potential for incursion into surrounding neighborhoods or undeveloped lands, or a geographic location that is conducive to influencing growth, whether resulting from physical constraints, planning and zoning factors, or local political considerations.			If the proposed project were not built, there would be no alterations to the existing interchange facilities and the existing operational environment would continue to deteriorate, which then, may have the potential to be a hindrance to growth in the project study area.
Community Character and Cohesion	The intent of the proposed build alternatives is to enhance traffic operations in the areas surrounding the I-405 at Crenshaw Boulevard/182nd Street interchange, and none of the proposed project components would require incursion into surrounding neighborhoods, change existing community relationships, nor interfere with operation of existing public facilities.			If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, and without the enhancements, there is the potential that traffic operations and circulation could worsen and present an adverse effect on community character and cohesion.
Environmental Justice	The proposed project will not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 regarding environmental justice.			If the proposed project were not built, there would be no potential for disproportionately high and adverse effects on any minority or low-income populations requiring protection under Executive Order 12898 regarding environmental justice.
Utilities, Community Facilities, and Emergency Services	Implementation of such would support the improvement of emergency and general access, thereby serving and allowing improved access to public facilities in the vicinity of the proposed project site. The proposed project would pose no potential for adverse effects to parks or recreation facilities, and would not interfere with the long-term operations of any public or private utilities.			If the proposed project were not built, there would be no alterations to the existing interchange facilities and no changes to the physical environment. Therefore, there would be no potential impacts on utilities and emergency/community services.
Traffic and Transportation / Pedestrian and Bicycle Facilities	In general, implementation of the proposed project is projected to make a marked improvement to operational conditions on the freeway mainline, on-and-off-ramps, and intersection immediate to the interchange in the proposed opening year (2020) and the horizon year (2040).			If the proposed project were not built, there would be no alterations to the existing interchange facilities and no changes to the existing operational environment, and LOS conditions on the freeway mainline, on-and-off ramps, and intersections immediate to the interchange would continue to deteriorate as projected/forecasted in the preceding tables that summarize the modeling and traffic data analyses performed for the proposed project.

Summary of Potential Project Impacts (Continued)

ENVIRONMENTAL RESOURCE	BUILD ALTERNATIVE 1 BUILD ALTERNATIVE 2 BUILD ALTERNATIVE 3	ALTERNATIVE 4 (NO-BUILD)
HUMAN ENVIRONMENT (Continued)		
Visual / Aesthetics	In general, there are no notable viewsheds within the project study area that contain any distinct physical terrain features or points of interest, and there are no new structures proposed, such as soundwalls, that would alter or change existing visual resources; therefore it is anticipated that the average response by all viewer groups would be low.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to existing visual resources, and would not require any measures to minimize any effects; therefore, it would present no potential impacts to existing visual resources.
Cultural Resources	No significant historical resources are present within the Area of Potential Effects (APE) that are eligible for listing in the National Register or California Register, and no known archaeological resources are present that will be affected by the proposed undertaking as ground disturbance will be limited to areas within existing Caltrans right-of-way.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and no impacts on cultural resources.
PHYSICAL ENVIRONMENT		
Hydrology and Floodplain	The proposed project is located outside of the base floodplain and would not be subject to flooding during proposed project operations. Furthermore, the proposed project would not result in an increase in the base floodplain elevation nor encroach upon a floodplain area.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils or increase in impervious areas; therefore, it would present no potential impacts in terms of hydrology and floodplain encroachment.
Water Quality and Storm Water Runoff	It is anticipated that the proposed project operations would slightly increase runoff volume, but it is not anticipated to affect downstream flow, discharge to lined channels, potential sediment loading, or cause other hydraulic changes to the storm drain system affecting downstream channel stability as a result of increases in Disturbed Soil Areas (DSAs) and Net Additional Impervious Areas (AIA).	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils or increase in impervious areas; therefore, it would present no potential impacts in terms of water quality or storm water runoff.
Geology / Soils / Seismic / Topography	The addition of auxiliary lanes on the I-405 mainline, would warrant the subsequent widening of the Van Ness Avenue Bridge and undercrossing, and would require the further development of new structural elements and foundation work. Standard, open-ended steel pipe piles or matching of the existing foundation pipe (CIDH pile) represent a feasible alternatives to support the proposed bridge widening, but further subsurface investigation and analyses are required to further evaluate and confirm the suitability of pile foundation recommendations. In general, the proposed project is not expected to pose any adverse impacts to any natural or unique geologic landmarks or landforms. Furthermore, there are no existing geologic conditions that would pose significant limitations on development so long as they are addressed through common design and engineering processes and practices.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils; therefore, it would present no potential impacts on geologic resources.
Hazardous Waste / Materials	Soil excavation and earth-moving activities associated with all build alternatives of the proposed project could expose workers to contaminants associated with existing thermoplastic traffic striping/pavement markings, aerially deposited lead, and treated wood waste. Structural demolition work associated with Alternative 1 at the Van Ness Avenue undercrossing bridge further has the potential to expose workers to contaminants associated with asbestos containing materials. Because Phase I Environmental Site Assessment Reports identified potentially contaminated sites or properties, further investigation and evaluation is required to more adequately determine contamination, and the risks associated with remediation. A Phase II environmental site investigation is recommended for partial acquisition and construction on the Coffee Bean and Tea Leaf parcel (APN No. 4091-026-009) and the George P. Johnson parcel (APN No. 4090-021-037), to include sampling of soils to evaluate any residual concentration of pesticides due to former agricultural uses; aerially deposited lead (ADL); and asbestos containing materials (ACM). Additionally, sampling of groundwater is recommended to evaluate whether residual total petroleum hydrocarbons (TPH) or fuel-related constituents are present, given the proximity of former underground storage tanks (USTs) and dispensers to these parcels.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and

Summary of Potential Project Impacts (Continued)

ENVIRONMENTAL RESOURCE	BUILD ALTERNATIVE 1 BUILD ALTERNATIVE 2 BUILD ALTERNATIVE 3	ALTERNATIVE 4 (NO-BUILD)
PHYSICAL ENVIRONMENT (Continued)		
Hazardous Waste / Materials (continued)	A Phase II Environmental Site Investigation is also recommended for the former Mobil Service Station parcels (APN No. 4095-020-023 and 4095-020-024) to further determine if any residue of contaminants (both soil and groundwater) are present and within adjacent Caltrans right-of-way, even in lieu of the LARWQCB's Low Threat Closure Policy (LTCP) site closure status designation.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and
Air Quality	The proposed project would not increase the percentage of vehicles operating in cold start mode, in which an increase by as little as 2 percent is considered potentially significant. Total peak hour volumes for opening year (2020) and horizon year (2040) remain mostly unchanged when compared across "build" and No-Build" alternatives—increases in excess of 5 percent would be considered potentially significant. Lastly, the proposed project is not anticipated to worsen traffic flow or operations, rather it is anticipated that it would improve traffic conditions and reduce congestion within the project study area. The Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG) concurred that the proposed project would not be a POAQC and would not cause, contribute to, or increase the severity of, or exceedence of the NAAQS for $PM_{2.5}$ or PM_{10}. A request for an amendment has been submitted to SCAG to include the proposed project in the regional emissions analysis for the next conforming RTP. When the proposed project is successfully amended into the conforming RTP, the project will be considered to have satisfied regional conformity requirements.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, and therefore no improvements to traffic conditions or reductions in congestion within the project study area, which all have an effect on local and regional air quality and existing conditions.
Noise and Vibration	The proposed project operations, with the inclusion of soundwalls as proposed with each build alternative as avoidance/minimization measures would provide a reduction in noise at sensitive receptors in the vicinity, and therefore would not contribute to any significant increases in the existing noise environment.	If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing noise environment, and requiring no minimization of noise effects; therefore, it would present no potential impacts to the existing noise environment.
BIOLOGICAL ENVIRONMENT		
Natural Communities	The proposed project is not expected to pose any adverse effects on any natural or biological communities of concern, or impose any effects on wildlife corridors and/or habitat fragmentation that would lessen its biological value as the Biological Study Area (BSA) exists within a highly developed and disturbed urban setting.	The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on natural communities.
Wetlands and Other Waters	There is no presence of waters of the U.S. in the immediate project study area. Any effects on local hydrology beyond the immediate project study area were considered and evaluated, and it has been determined that the proposed project is not expected to result in any adverse effect to drainages or waters of the U.S.	The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on drainages or waters of the U.S.
Plant Species	While some clearing and grubbing of existing ornamental vegetation may occur during construction, the proposed project is not anticipated to have an adverse effect on any sensitive plant species.	The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on sensitive plant species.
Animal Species	While the general habitat for the state-listed Hoary bat (*Lasiurus cinereus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) are present within the larger Torrance Quadrangle, and the general habitat for the federally-listed Coastal California gnatcatcher (*Polioptila californica californica*) is present within the larger Torrance Project Area, no habitat were observed within the immediate project study area, therefore, the proposed project is not expected to have an adverse effect on these species and/or their habitat.	The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on sensitive animal species.
Threatened and Endangered Species	The presence of five known listed plant species and fourteen known listed wildlife species have been observed within the larger Torrance Project Quadrangle, but neither the species nor their associated habitat were observed within the immediate project study area, therefore no adverse effects to threatened or endangered species are anticipated as a result of the proposed project.	The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on threatened or endangered species.
Invasive Species	It is possible that construction activities could cause the disturbance and spread of the identified invasive species in adjacent areas. These species, however, are not part of the California Noxious Weed List.	The No Build Alternative would cause no changes or disturbance to the existing environment, and therefore, the spread of invasive species would not be intensified through construction activities.

TABLE OF CONTENTS

CHAPTER 1 | PROPOSED PROJECT 9

1.1 INTRODUCTION **1**

1.2 PURPOSE AND NEED **3**

1.3 PROJECT DESCRIPTION **7**

1.4 PERMITS AND APPROVALS NEEDED **15**

CHAPTER 2 | AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES 17

2.1 HUMAN ENVIRONMENT **20**

2.1.1 LAND USE 20

2.1.2 GROWTH 27

2.1.3 COMMUNITY IMPACTS 29

2.1.4 UTILITIES / EMERGENCY SERVICES 34

2.1.5 TRAFFIC AND TRANSPORTATION / PEDESTRIAN AND BICYCLE FACILITIES 37

2.1.6 VISUAL / AESTHETICS 49

2.1.7 CULTURAL RESOURCES 55

2.2 PHYSICAL ENVIRONMENT **61**

2.2.1 HYDROLOGY AND FLOODPLAIN 61

2.2.2 WATER QUALITY AND STORM WATER RUNOFF 62

2.2.3 GEOLOGY / SOILS / SEISMIC / TOPOGRAPHY 69

2.2.4 HAZARDOUS WASTE / MATERIALS 72

2.2.5 AIR QUALITY 78

2.2.6 NOISE 95

2.3 BIOLOGICAL ENVIRONMENT **109**

2.3.1 NATURAL COMMUNITIES 109

2.3.2 WETLANDS AND OTHER WATERS 110

2.3.3 PLANT SPECIES 112

2.3.4 ANIMAL SPECIES 114

2.3.5 THREATENED AND ENDANGERED SPECIES 118

2.3.6 INVASIVE SPECIES 119

2.4 CUMULATIVE IMPACTS **120**

2.5 CLIMATE CHANGE **125**

CHAPTER 3 | COMMENTS AND COORDINATION 137

CHAPTER 4 | LIST OF PREPARERS 141

CHAPTER 5 | DISTRIBUTION LIST 145

APPENDIX A | CEQA ENVIRONMENTAL CHECKLIST 151

APPENDIX B | RESOURCES RELATIVE TO THE REQUIREMENTS OF SECTION 4(F) 159

APPENDIX C | TITLE VI POLICY STATEMENT 163

APPENDIX D | DRAFT ENVIRONMENTAL COMMITMENTS RECORD 169

LIST OF TABLES

Table 1.2-a AM/PM Peak Level of Service/Density – Northbound/Southbound Off-ramps to 182nd Street/Crenshaw Boulevard.. 3
Table 1.2-b Current and Forecasted Annual Average Daily Traffic (AADT) and Peak Hour Volume (PHV) 4
Table 1.2-c AM/PM Peak Level of Service/Delay – Intersections Immediate to Interchange 4
Table 1.2-d Accident Rates at the I-405 at Crenshaw Boulevard/182nd Street Interchange 5
Table 1.3-a Common and Unique Features of Build Alternatives 14
Table 2.1.1-a Development Trends in Project Vicinity 22
Table 2.1.2-a SCAG Proposed 2012-2035 Growth Forecast for the City of Torrance 28
Table 2.1.3-a Proposed Acquisitions Resulting from the Proposed Build Alternatives 32
Table 2.1.3-b Race, Ethnicity, and Poverty Status within the Project Study Area and Regional/County Comparison 33
Table 2.1.5-a Current and Forecasted Annual Average Daily Traffic (AADT) and Peak Hour Volume (PHV) 38
Table 2.1.5-b Level of Service (LOS) Criteria for Freeway Mainline Segments 39
Table 2.1.5-c Level of Service (LOS) Criteria for Diverge Areas (Ramps) 39
Table 2.1.5-d AM/PM Peak Travel Period LOS summary for I-405 at Crenshaw Boulevard/182nd Street Off-Ramps 40
Table 2.1.5-e Level of Service Criteria for Signalized Intersections 40
Table 2.1.5-f AM/PM Peak Travel Period LOS Summary at Study Intersections in the Project Study Area 41
Table 2.1.5-g TASAS Accident Rates in the Project Study Area 41
Table 2.1.5-h Proposed Opening Year (2020) Forecasted LOS During AM/PM Peak Period by Alternative 44
Table 2.1.5-i Horizon Year (2040) Forecasted LOS During AM/PM Peak Period by Alternative 44
Table 2.1.5-j AM/PM Peak Period Level of Service – Northbound/Southbound Off-ramps – All Build Alternatives 45
Table 2.1.5-k AM/PM Peak Period Level of Service (LOS) at Intersections Immediate to Interchange 46
Table 2.2.2-a Project Disturbed Soil Area (DSA) and Net Additional Impervious Area 67
Table 2.2.2-b Proposed BMPs/Biofiltration Swales/Strips 68
Table 2.2.3-a Approximate Maximum Excavation for Retaining Wall and Soundwall Structures 71
Table 2.2.3-b Potential for Geologic Hazards 71
Table 2.2.4-a General Hazardous Waste/Materials of Concern in the Project Study Area 74
Table 2.2.4-b Potential Occurrence of Contamination in Parcels Associated with the Proposed Project 75
Table 2.2.4-c Potential Remediation of Contamination in Parcels Associated with the Proposed Project 78
Table 2.2.5-a Criteria Pollutants – Federal (NAAQS) and State (CAAQS) Attainment Status in the South Coast Air Basin (SCAB) . 81
Table 2.2.5-b Applicable State Implementation Plans (SIPs) in the South Coast Air Basin (SCAB) 81
Table 2.2.5-c Federal and State Ambient Air Quality Standards and Health Effect Summary for All Criteria Pollutants 83
Table 2.2.5-d Changes in MSAT Emissions along the I-405 Mainline in Grams/Day 89
Table 2.2.6-a Activity Categories and Noise Abatement Criteria (NAC) 95
Table 2.2.6-b Noise Receptors and Study Locations 97
Table 2.2.6-c Alternative 1 | Potential Effects of Noise Requiring Consideration of Abatement 100
Table 2.2.6-d Alternative 2 | Potential Effects of Noise Requiring Consideration of Abatement 101
Table 2.2.6-e Alternative 3 | Potential Effects of Noise Requiring Consideration of Abatement 101
Table 2.2.6-f Summary of Abatement Feasibility/Reasonability 105
Table 2.2.6-g Baseline versus Build Noise Level (CEQA) 107
Table 2.3.2-a USFWS NWI Wetland Types beyond the Immediate Project Study Area 111
Table 2.3.3-a CNPS Listed Plant Species and Presence within the Project Study Area 113
Table 2.3.4-a State and Federally Listed Sensitive Animal Species and Habitat of Concern in the Project Study Area 115
Table 2.4-a Development Projects of Concern in the Project Study Area 121
Table 2.4-b Caltrans Projects of Concern in the Vicinity of the Proposed Project 122
Table 2.5-a Greenhouse Gas (GHG) Emissions in Tons/Day 130
Table 2.5-b Summary of Changes in GHG Emissions in Tons/Day 130
Table 2.5-c Climate Change/CO_2 Reduction Strategies 132

LIST OF FIGURES

Figure 1.1-a Proposed Project Location and Vicinity 2
Figure 1.3-a Alternative 1 | Proposed Improvements with New Mainline Auxiliary Lanes 8
Figure 1.3-b Alternative 2 | Proposed Improvements with New Northbound Deceleration Lanes 10
Figure 1.3-c Alternative 3 | Proposed Improvements with New Northbound and Southbound Deceleration Lanes 12
Figure 2.1.1-a Land Use and Zoning in the Project Study Area 21
Figure 2.1.1-b La Carretera Park and Proposed Soundwall Reconstruction (Alternative 1) 26
Figure 2.1.3-a Parcels Potentially Affected by the Proposed Project Alternatives 31
Figure 2.1.4-a Community Facilities within the Immediate Vicinity of the Proposed Project Site 36
Figure 2.1.5-a Bus/Public Transit Facilities within the Vicinity of the Proposed Project Site 42
Figure 2.1.5-b Analyzed I-405 Freeway Mainline and Ramp Influence Area Segments 43
Figure 2.1.5-b Selected Intersections of Study Immediate to the I-405 at Crenshaw Boulevard/182nd Street Interchange 46
Figure 2.1.6-a Reconstruction/Extension of Existing Soundwall and Visual Change, Northbound I-405, Northeast Quadrant 50
Figure 2.1.6-b Reconstruction/Extension of Existing Soundwall – I-405 Northbound Off-Ramp to 182nd Street/Crenshaw Boulevard, Northeast Quadrant 50
Figure 2.1.6-c Reconstruction/Extension of Existing Soundwall – 185th Street and Purche Avenue, Northeast Quadrant 51
Figure 2.1.6-d Reconstruction/Extension of Existing Soundwall – Northern Side of Van Ness Avenue Undercrossing, Northeast Quadrant 51
Figure 2.1.6-e Reconstruction/Extension of Existing Soundwall, Alternatives 1/3 Only – Southbound I-405 at Van Ness Avenue, Southeast Quadrant 52
Figure 2.1.6-f Reconstruction/Extension of Existing Soundwall– Southern Side of Van Ness Avenue Undercrossing, Southeast Quadrant 52
Figure 2.1.6-g Reconstruction/Extension of Existing Soundwall – I-405 Southbound Off-Ramp to Crenshaw Boulevard, Southwest Quadrant 53
Figure 2.1.6-h Reconstruction/Extension of Existing Soundwall – 183rd Street and Elgar Avenue, Southwest Quadrant 53
Figure 2.1.7-a Pottawattamie County Courthouse (Council Bluffs, IA)/Iowa Courthouse Building (Torrance, CA) 57
Figure 2.1.7-b Area of Potential Effects (APE) 58
Figure 2.2.6-a Noise Levels of Common Activities 96
Figure 2.2.6-b Noise Site Study Locations 98
Figure 2.2.6-c Alternative 1 | Recommended Soundwalls 102
Figure 2.2.6-d Alternative 2 | Recommended Soundwalls 103
Figure 2.2.6-e Alternative 3 | Recommended Soundwalls 104
Figure 2.5-a California Greenhouse Gas Forecast 128
Figure 2.5-b Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions 129

LIST OF TECHNICAL STUDIES

Air Quality Analysis | Caltrans Division of Environmental Planning and Design (January 2015)
Community Impact Analysis | Caltrans Division of Environmental Planning and Design (February 2015)
District Preliminary Geotechnical Report | Caltrans Division of Design, Office of Engineering Services (November 2014)
Historic Property Survey Report | Caltrans Division of Environmental Planning and Design (February 2015)
Historic Resources Evaluation Report | Caltrans Division of Environmental Planning and Design (February 2015)
Natural Environment Study | Caltrans Division of Environmental Planning and Design (August 2014)
Preliminary Foundation Report | Caltrans Division of Design, Office of Engineering Services (November 2014)
Preliminary Hazardous Waste Assessment | Caltrans Division of Environmental Planning and Design (October 2014)
Storm Water Data Report | Caltrans Division of Design (February 2015)
Traffic Noise Study Report | Caltrans Division of Environmental Planning and Design (May 2015)
Traffic Study Report | Caltrans Division of Environmental Planning and Design (May 2015)
Visual Impact Assessment (VIA) | Caltrans Division of Design, Office of Engineering Services (December 2014)

CHAPTER 1 | PROPOSED PROJECT

THIS PAGE INTENTIONALLY LEFT BLANK

1.1 INTRODUCTION

The California Department of Transportation (Caltrans), in coordination with the City of Torrance, proposes to improve the operational conditions of the Interstate 405 (I-405) freeway mainline, and its on-and-off ramps at Crenshaw Boulevard and 182nd Street in the City of Torrance, Los Angeles County, from post mile 14.4 to 15.6. Caltrans is the lead agency under the National Environmental Policy Act (NEPA), and also the lead agency under the California Environmental Quality Act (CEQA). The proposed project is currently listed in the Federal Transportation Improvement Program (FTIP ID: LA0G874), and is in process for inclusion on the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) [RTP ID: REG0703].

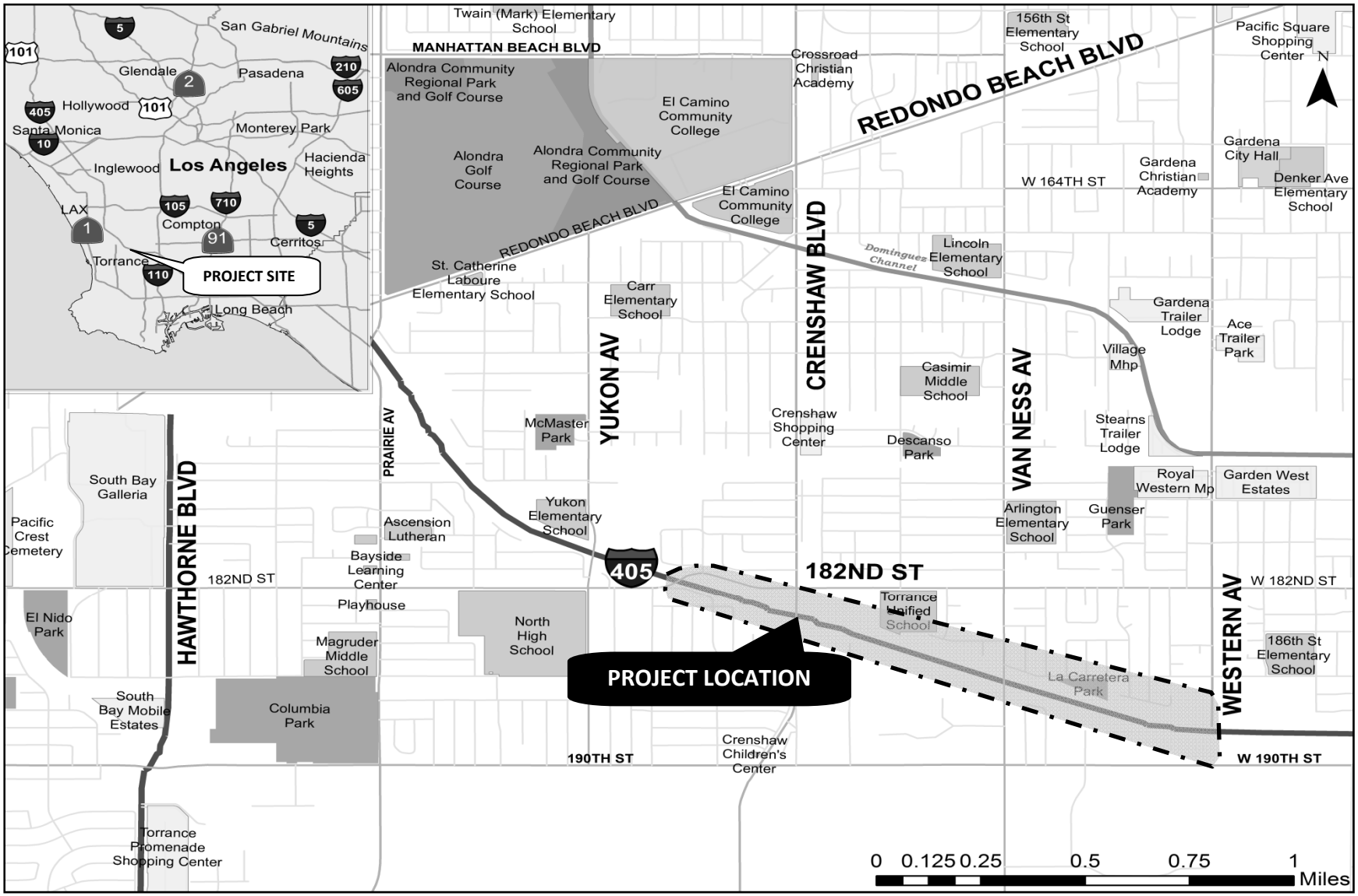
Interstate 405 (I-405) is part of the National Highway System, and an essential link in the Metropolitan Los Angeles multi-modal transportation network. It is an Interstate-Interregional Freeway that originates at Interstate 5 (I-5) in the City of Irvine in Orange County, with the most northerly 48.5 miles located within District 7/Los Angeles County terminating at I-5 near Mission Hills in the City of Los Angeles. I-405 serves several major coastal cities in the Los Angeles Basin and is a heavily used commuter and freight route that is considered to be one of the busiest and most congested freeways in the United States. The facilities are used for international, interstate, interregional and intraregional travel and shipping through a highly urbanized corridor that also serves the four major import-export terminals of Los Angeles International Airport, Long Beach Municipal Airport, and the Ports of Los Angeles and Long Beach.

The proposed project exists within a portion of I-405 that is referred to as the northern segment of the San Diego Freeway, and while principally a north-south thoroughfare, the mainline traverses east-to-west in the immediate area of the proposed project, through what is considered the South Bay region of Metropolitan Los Angeles. Within project limits, the freeway mainline consists of a total of ten lanes, of which two are dedicated to High Occupancy Vehicle (HOV) facilities.

Crenshaw Boulevard is a major north-south thoroughfare in Los Angeles that runs from Wilshire Boulevard in Hancock Park in the north, intersects I-405 in the City of Torrance, and terminates at its most southerly point at Park Place in the City of Rolling Hills. Within the project limits, Crenshaw Boulevard consists of a total of seven lanes with a posted speed limit of 40 miles per hour. Currently, through lanes have a width of 11-12 feet, with right and left turn lanes at a width of 12-13 feet and 10 feet, respectively. Crenshaw Boulevard is designated as a truck route through the City of Torrance, and is also served by the Torrance Transit Line 10 bus that operates between Interstate 105 (I-105) to the north, and Pacific Coast Highway to the south.

182nd Street is a local east-west arterial street in Torrance that is roughly 8.9 miles long that runs from Inglewood Avenue in Redondo Beach on the west, intersects I-405 and Crenshaw Boulevard in Torrance, and terminates at Interstate 110 in Gardena at its most easterly point. Within the project limits, the facility consists of a total of five lanes with a posted speed limit of 35 miles per hour. Through lanes have a width of 11 feet, and the right and left turn lanes have a width of 12 and 10 feet, respectively. 182nd Street is not designated as a truck route through the City of Torrance, and the arterial is not served by public transit. The following Figure 1-1.a shows the proposed project location and vicinity.

Figure 1.1-a Proposed Project Location and Vicinity



1.2 PURPOSE AND NEED

The purpose of the proposed project is to achieve the following objectives:

- Alleviate congestion, and improve traffic flow and operational conditions on the Interstate 405 (I-405) mainline at the Crenshaw Boulevard/182nd Street Interchange, its on-and-off-ramps, and interfacing local arterials in the City of Torrance
- Improve safety, and minimize queuing and blocking through the enhancement of confluence areas and vehicular storage on the I-405 mainline, and through the introduction of new, protected turn movements at on-and-off-ramps and interfacing local arterials
- Rebalance regional traffic circulation through an improvement in Level of Service (LOS) on the I-405 mainline, on-and-off-ramps, and at local roadway intersections, and complementary reductions in delay, out-of-direction travel, and Vehicle Miles Traveled (VMT)

The need for the proposed project is derived from data that shows declining operational conditions, accessibility limitations that create inefficient circulation patterns, accident rates that are higher than the state average, and the opportunity to enhance safety conditions.

- Operational conditions on both the northbound (NB) I-405 off-ramp to 182nd Street and the southbound (SB) I-405 off-ramp to Crenshaw Boulevard have deteriorated to levels that are creating significant queuing on the freeway mainline. The queuing is particularly heavy during AM and PM peak travel times, and is a direct result of excessive delays at the NB off-ramp to 182nd Street and the SB off-ramp to Crenshaw Boulevard, and insufficient vehicular storage at the approaches. These operational conditions at the I-405 off-ramps are expressed in Level of Service (Table 1.2-a), or LOS, which in this context, is a graded measurement of traffic density, or passenger cars/per mile/per lane (pc/mi/ln).

Table 1.2-a AM/PM Peak Level of Service/Density – Northbound/Southbound Off-ramps to 182nd Street/Crenshaw Boulevard

Off-Ramp	Existing (2014)		2020 No Build		2020 With Project		2040 No Build		2040 With Project	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
AM Peak										
Northbound Interstate 405 Off-Ramp @ 182nd St.	D	33.5	E	35.9	B	10.4	E	38.5	B	12.2
Southbound Interstate 405 Off-Ramp @ Crenshaw	E	36.7	E	39.7	A	9.5	E	42.2	B	11.3
PM Peak										
Northbound Interstate 405 Off-Ramp @ 182nd St.	E	37.1	E	38.8	B	12.2	E	39.4	B	14.1
Southbound Interstate 405 Off-Ramp @ Crenshaw	E	36.2	E	38.2	A	7.7	E	40.2	A	9.6

- Forecasted increases in traffic volumes on the northbound and southbound I-405 mainlines, off-ramps and on-ramps necessitate improvements to the interchange and interfacing arterials and intersections to increase capacity, improve traffic flow and enhance safety. The table below summarizes the current and forecasted annual average daily traffic (AADT) and peak hour volume (PHV) data.

Table 1.2-b Current and Forecasted Annual Average Daily Traffic (AADT) and Peak Hour Volume (PHV)

NORTHBOUND I-405	2014 AADT	2040 AADT	2014 AM PHV	2040 AM PHV	2014 PM PHV	2040 PM PHV
Mainline	114950	134491	7400	8658	7710	9021
Off-ramp	14004	16384	853	998	1065	1246
On-ramp	8734	10219	635	743	851	996
SOUTHBOUND I-405						
Mainline	112967	132171	7415	10150	7067	9674
Off-ramp	8514	9961	907	1242	970	1328
On-ramp	10634	12441	997	571	703	345

- Increased traffic volumes, conflicts in turning movements, and insufficient vehicular storage have created blocking issues, congestion and deteriorating operational conditions at intersections immediate to the interchange, and subsequently on downstream intersections, particularly during AM and PM peak periods. Traffic analyses as presented in the following Table 1.2-c show a continued deterioration of operational conditions at these intersections—expressed in Level of Service, or LOS—which in this context, is a graded measurement of average control delay.

Table 1.2-c AM/PM Peak Level of Service/Delay – Intersections Immediate to Interchange

Intersection	Existing (2014)		2020 No Build		2020 With Project		2040 No Build		2040 With Project	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
AM Peak										
I-405 Northbound On/Off Ramps at 182nd Street	B	19.0	C	20.7	B	18.1	C	22.6	B	19.5
Crenshaw Boulevard and 182nd Street	D	39.0	D	48.1	C	22.3	E	78.4	C	28.1
I-405 Southbound On/Off Ramps at Crenshaw Boulevard	D	52.9	F	85.3	C	25.1	F	129.3	C	25.1
PM Peak										
I-405 Northbound On/Off Ramps at 182nd Street	D	53.2	F	81.3	C	21.4	F	97.3	C	30.7
Crenshaw Boulevard and 182nd Street	E	63.4	F	80.4	C	31.5	F	114.4	D	45.9
I-405 Southbound On/Off Ramps at Crenshaw Boulevard	D	39.7	D	43.7	C	21.8	E	63.6	C	28.1

- Accident rate data derived from TASAS (Traffic Accident Surveillance and Analysis System) present opportunities to enhance safety at the interchange, particularly at the northbound I-405 off-ramp to 182nd Street and the southbound I-405 on-ramp from Crenshaw Boulevard where accident rates are higher than the state average. TASAS data also shows a higher-than-state-average accident rate on southbound Crenshaw Boulevard at the I-405 undercrossing. The following table presents the TASAS data for the I-405 at Crenshaw Boulevard/182nd Street Interchange.

Table 1.2-d Accident Rates at the I-405 at Crenshaw Boulevard/182nd Street Interchange

Location	Actual per MVM			Statewide Average per MVM		
	Fatality	Fatality & Injury	Total	Fatality	Fatality & Injury	Total
Northbound I-405 Off-Ramp to 182nd Street	0	**0.25**	0.64	0.003	0.24	0.84
Northbound I-405 On-Ramp from 182nd Street	0	0.1	0.1	0.001	0.13	0.46
Northbound Crenshaw Boulevard at I-405 Undercrossing	0	0.12	0.12	0.004	0.31	1.02
Southbound I-405 Off-Ramp to Crenshaw Boulevard	0	0.21	0.21	0.003	0.35	1.01
Southbound I-405 On-Ramp from Crenshaw Boulevard	0	**0.33**	**0.33**	0.003	0.24	0.72
Southbound Crenshaw Boulevard at I-405 Undercrossing	0	**0.36**	**0.36**	0.004	0.31	1.02

MVM = Million Vehicle Miles

Physical Design and Roadway Deficiencies. Existing roadway deficiencies also present opportunities for improvement and justification for the proposed project. As previously detailed, AM and PM peak period operational conditions at the I-405 at Crenshaw Boulevard/182nd Street Interchange have deteriorated to levels that are creating queuing issues on the freeway mainline, and also at the on-and-off-ramps and intersections immediate to the interchange, which are compounded by persistent conflicts in turning movements and resulting blocking issues. There are a number of physical design issues that contribute to this:

- There is a lack of direct access to Crenshaw Boulevard from the northbound I-405 off-ramp. Users of this facility must exit onto 182nd Street and are forced to make a left turn, and another immediate left or right turn (approximately 300-400 feet) to access southbound or northbound Crenshaw Boulevard. Currently, this transition to Crenshaw Boulevard is made from only one left turn lane at the terminus of the northbound I-405 off-ramp at 182nd street, and adding an additional left turn lane for this movement would create additional vehicular storage and alleviate the potential for queuing on the off-ramp and freeway mainline.
- During peak periods, operational conditions at the intersection of Crenshaw Boulevard and 182nd Street and at the adjacent intersection of the northbound I-405 off-ramp and 182nd Street have deteriorated to levels that are creating queuing issues not just at these intersections, but also at the approach to the northbound I-405 off-ramp to 182nd Street, and consequently downstream of the off-ramp on the freeway mainline. The queuing issues on the northbound I-405 freeway mainline are compounded by the lack of vehicular storage, which disrupts the flow of traffic. Extending the deceleration lane or adding an auxiliary lane to the existing off-ramp is anticipated to alleviate the potential for queuing on the freeway mainline by providing additional vehicular storage when traffic flow is heaviest during the AM/PM peak periods. The auxiliary lane would further enhance safety by potentially alleviating any weaving issues in the confluence of merging northbound traffic from the Western Avenue on-ramp (south of the interchange) and northbound mainline traffic exiting at the Crenshaw Boulevard/182nd Street off-ramp. Collectively, these improvements would potentially improve the operational conditions of the freeway mainline.
- The northbound I-405 on-ramp shares the same intersection with the northbound I-405 off-ramp on 182nd Street, just 250-300 feet from Crenshaw Boulevard. During peak periods, there is high demand for this on-ramp, particularly from vehicles accessing the facility from northbound Crenshaw Boulevard, where

excessive queuing issues are compounded by a lack of vehicular storage. Widening the existing northbound I-405 on-ramp to a uniform two-lane facility from the entrance to the meter head, and adding an exclusive right turn lane on both 182nd Street and Crenshaw Boulevard would increase storage space and improve the flow of traffic.

- There is a high volume of vehicles exiting southbound I-405 requiring a right turn to southbound Crenshaw Boulevard. During peak periods, the demand for this right turn movement at the terminus of the southbound off-ramp to Crenshaw Boulevard is even higher, and is creating queuing issues not just at the off-ramp, but also on the freeway mainline as well, which continues to disrupt the flow of traffic. Currently, the facility consists of two lanes, with one lane dedicated to left and right turns. Adding an additional lane to this off-ramp, with an additional lane dedicated to a right-turn movement to southbound Crenshaw Boulevard would increase storage capacity, and improve traffic flow on the off-ramp and freeway mainline.
- The southbound I-405 on-ramp from Crenshaw Boulevard is a hook-shaped facility that originates on the southbound side of the thoroughfare. During peak periods, operational conditions at this intersection have degraded to a level that creates excessive queuing on the southbound side of the Crenshaw Boulevard, disrupting the flow of traffic through the intersection and undercrossing. Adding an exclusive right turn lane on southbound Crenshaw Boulevard, and widening the existing on-ramp to a uniform two-lane facility from the entrance to the meter head would increase storage space and improve operational conditions at this intersection.
- Deteriorating operational conditions and the resulting excessive queuing on southbound Crenshaw Boulevard to the southbound I-405 on-ramp have also created excessive delays and a conflict in movement for traffic attempting to access the same facility on a left turn from the opposing northbound flow of traffic. Constructing a new and additional southbound I-405 on-ramp from the northbound Crenshaw Boulevard side of the thoroughfare with an exclusive right turn lane would eliminate the left turn phase and conflict in movement, and enhance traffic flow throughout the interchange and downstream intersections. Constructing an auxiliary lane on the southbound I-405 mainline from interchange facility would enhance safety and further improve the flow of traffic entering the freeway mainline, while reducing queuing and delays throughout the interchange.

Independent Utility and Logical Termini. Federal Highway Administration (FHWA) regulations (23 Code of Federal Regulations [CFR 771.111 (f)] require that this evaluation of the proposed undertaking connects logical termini, and be of sufficient length to address environmental matters on a broad scope. Further, it stipulates that the proposed project have independent utility or independent significance, in that it be usable and require a reasonable expenditure even if no additional transportation improvements in the area are made. Lastly, it stipulates that the proposed project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The proposed project is a stand-alone project intended to improve the safety, operation, capacity, and flow of traffic through the Interstate 405 (I-405) at Crenshaw Boulevard/182nd Street interchange. The proposed project is independent of other Caltrans project on I-405, and its purpose and need cannot be fulfilled by any other Caltrans project. Furthermore, the proposed project is in no way dependent on the implementation of other Caltrans projects on I-405, prior or subsequent to this proposed undertaking. This environmental document studies the entire project area, and is in no way dependent on the environmental document or mitigation proposals of any other project. Lastly, the proposed project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. Based on the aforementioned, and pursuant to 23 CFR 771.11(f), this project has independent utility and logical termini.

1.3 PROJECT DESCRIPTION

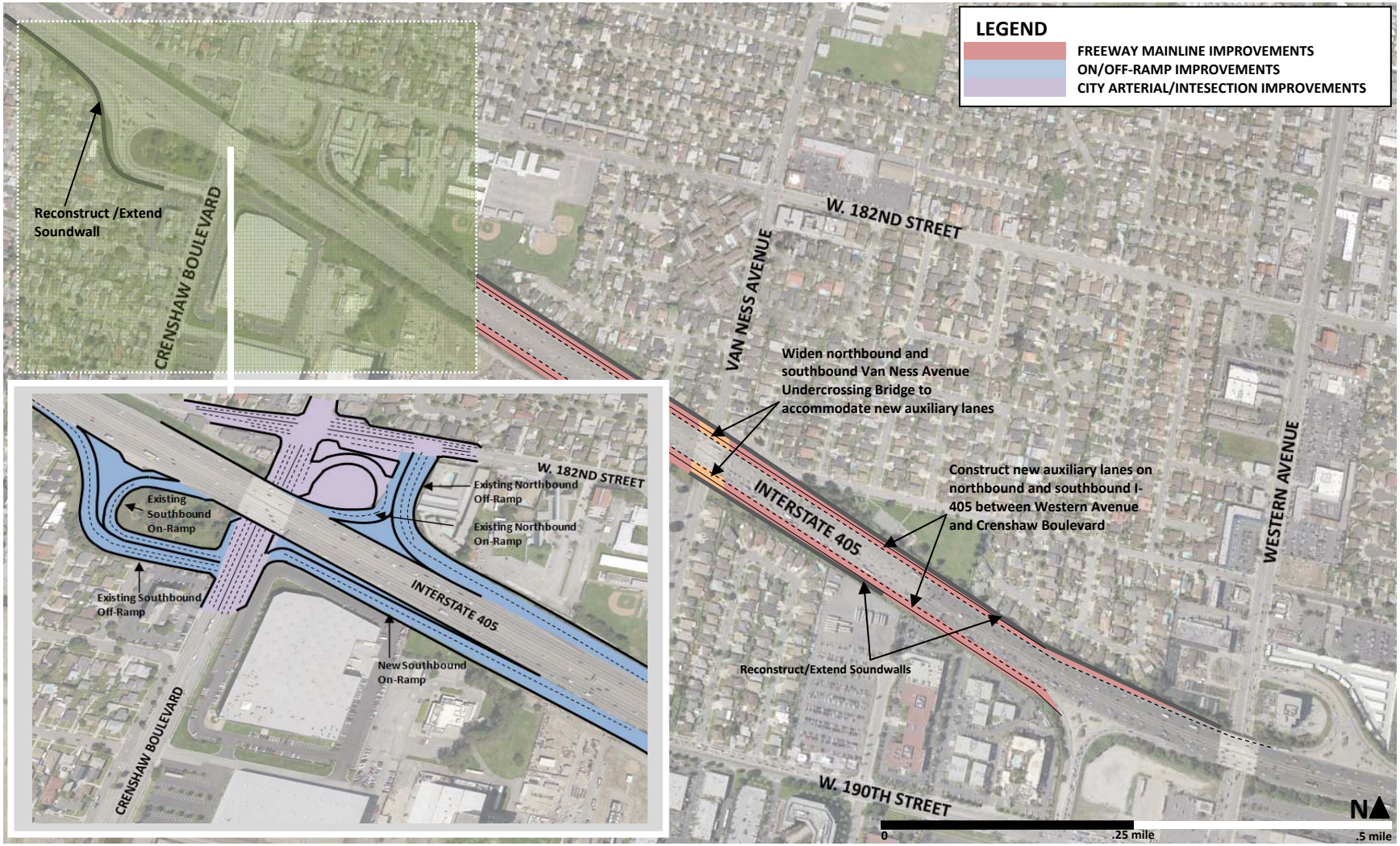
This section describes the proposed action and the project alternatives that were developed to achieve the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The alternatives are Alternative 1 (Interchange Improvements with Mainline Auxiliary Lanes), Alternative 2 (Interchange Improvements with Northbound Deceleration Lane), Alternative 3 (Interchange Improvements with Northbound and Southbound Deceleration Lanes), and Alternative 4 (No Build).

Alternative 1 | Proposed Improvements with New Mainline Auxiliary Lanes

Alternative 1 proposes to improve the Crenshaw Boulevard Interchange and construct/add a single auxiliary lane in both directions of Interstate 405 between Crenshaw Boulevard and Western Avenue. The auxiliary lanes would not function as mainline travel lanes, but as lanes for vehicles to enter and exit the freeway mainline with fluidity. The addition of auxiliary lanes on the north and southbound I-405 mainline would prompt the widening of the Van Ness Avenue undercrossing bridge. Interchange improvements include the following:

- Add auxiliary lane (approximately 4,550 feet) on northbound I-405 from the Western Avenue on-ramp to the Crenshaw Boulevard/182nd Street off-ramp
- Add auxiliary lane (approximately 4,550 feet) on southbound I-405 from the existing Crenshaw Boulevard on-ramp to the Western Avenue/190th Street off-ramp
- Widen northbound and southbound Van Ness Avenue undercrossing (Bridge No. 53-1174) by 12 feet in each direction to accommodate the addition of auxiliary lanes on the freeway mainline
- Add one lane to the existing northbound I-405 off-ramp exit to 182nd Street
- Reconfigure terminus of northbound I-405 off-ramp to 182nd Street to consist of two dedicated left-turn lanes and one dedicated right turn lane
- Add one lane to northbound I-405 on-ramp from 182nd Street to meter head
- Relocate meter head northerly approximately 80 feet on northbound I-405 on-ramp from 182nd Street
- Widen southbound Crenshaw Boulevard upstream of the Crenshaw Boulevard/Southbound I-405 on-ramp intersection to accommodate an exclusive right-turn lane onto the existing southbound I-405 on-ramp
- Add one lane to southbound I-405 on-ramp from Crenshaw Boulevard to meter head
- Add one lane to existing southbound I-405 off-ramp to Crenshaw Boulevard
- Reconfigure terminus of southbound I-405 off-ramp to Crenshaw Boulevard to consist of two dedicated right-turn lanes and one dedicated left turn lane
- Construct new two-lane, metered on-ramp from northbound Crenshaw Boulevard to southbound I-405 (approximately 1,200 feet)
- Widen northbound Crenshaw Boulevard south of the interchange to accommodate an exclusive right-turn lane onto the proposed new southbound I-405 on-ramp
- Reconfigure traffic signals at the intersections of Crenshaw Boulevard/182nd Street, Crenshaw Boulevard/Southbound I-405 ramps, and 182nd Street/northbound I-405 ramps to accommodate the proposed project improvements
- Reconstruct 4,150 feet of existing soundwall and construct additional 700 feet of new soundwall along northbound I-405 mainline
- Reconstruct 2,450 feet of existing soundwall and construct additional 30 feet of new soundwall along southbound I-405 mainline
- Construct 2,740 feet of retaining wall along northbound I-405 mainline
- Construct 2,980 feet of retaining wall along southbound I-405 mainline
- Widen westbound 182nd Street from 3 to 5 lanes between Crenshaw Boulevard and the northbound I-405 ramps

Figure 1.3-a Alternative 1 | Proposed Improvements with New Mainline Auxiliary Lanes

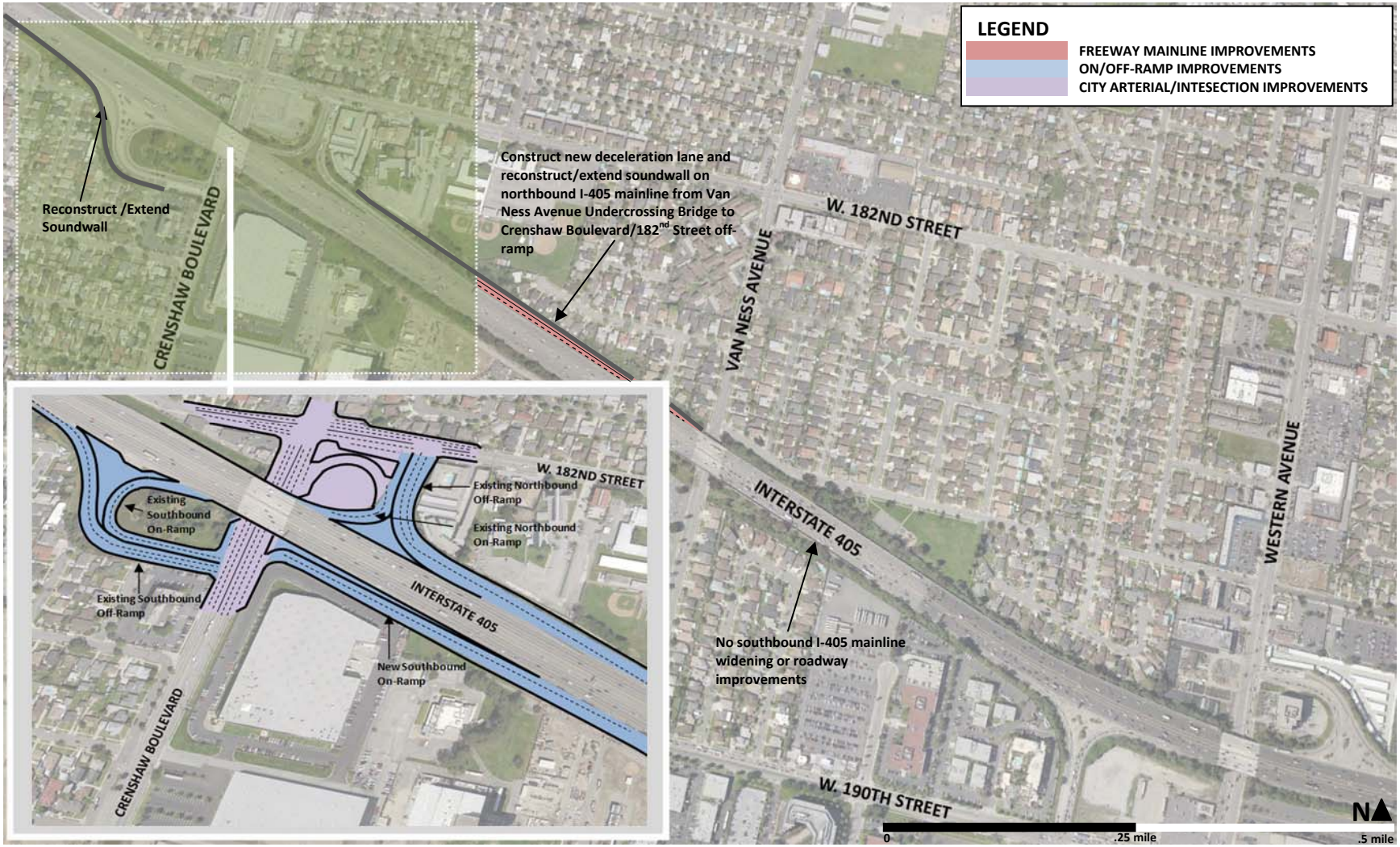


Alternative 2 | Proposed Improvements with New Northbound Deceleration Lane

Alternative 2 includes all of the same proposed improvements associated with Alternative 1, with the exception of constructing/adding auxiliary lanes on the north-and-southbound I-405 mainline. The construction of a new northbound I-405 deceleration lane to the Crenshaw Boulevard/182nd Street off-ramp is proposed instead, which would provide some of the benefits of an auxiliary lane in terms of improving the flow of traffic exiting the freeway mainline, but without the associated cost of widening the Van Ness Avenue undercrossing as included in Alternative 1. While this build alternative also includes the construction of new soundwalls and retaining walls, the specifications differ from Alternative 1 to accommodate differences in design. The scope of work for Alternative 2 is as follows:

- Add a deceleration lane (approximately 1,300 feet) on northbound I-405 from the Van Ness Avenue undercrossing to the Crenshaw Boulevard/182nd Street off-ramp
- Add one lane to the existing northbound I-405 off-ramp exit to 182nd Street
- Reconfigure terminus of northbound I-405 off-ramp to 182nd Street to consist of two dedicated left-turn lanes and one dedicated right turn lane
- Add one lane to northbound I-405 on-ramp from 182nd Street to meter head
- Relocate meter head northerly approximately 80 feet on northbound I-405 on-ramp from 182nd Street
- Widen southbound Crenshaw Boulevard upstream of the Crenshaw Boulevard/Southbound I-405 on-ramp intersection to accommodate an exclusive right-turn lane onto the existing southbound I-405 on-ramp
- Add one lane to southbound I-405 on-ramp from Crenshaw Boulevard to meter head
- Add one lane to existing southbound I-405 off-ramp to Crenshaw Boulevard
- Reconfigure terminus of southbound I-405 off-ramp to Crenshaw Boulevard to consist of two dedicated right-turn lanes and one dedicated left turn lane
- Construct new two-lane, metered on-ramp from northbound Crenshaw Boulevard to southbound I-405 (approximately 1,200 feet)
- Widen northbound Crenshaw Boulevard south of the interchange to accommodate an exclusive right-turn lane onto the proposed new southbound I-405 on-ramp
- Reconfigure traffic signals at the intersections of Crenshaw Boulevard/182nd Street, Crenshaw Boulevard/Southbound I-405 ramps, and 182nd Street/northbound I-405 ramps to accommodate the proposed project improvements
- Reconstruct 1450 feet of existing soundwall and construct 685 feet of new soundwall along the I-405 northbound off-ramp to 182nd Street
- Reconstruct 1400 feet of existing soundwall and construct 30 feet of new soundwall along the southbound I-405 off-ramp to Crenshaw Boulevard
- Construct 600 feet of retaining wall along northbound I-405 mainline
- Construct 2580 feet of retaining wall along southbound I-405 mainline
- Widen westbound 182nd Street from 3 to 5 lanes between Crenshaw Boulevard and the northbound I-405 ramps

Figure 1.3-b Alternative 2 | Proposed Improvements with New Northbound Deceleration Lanes

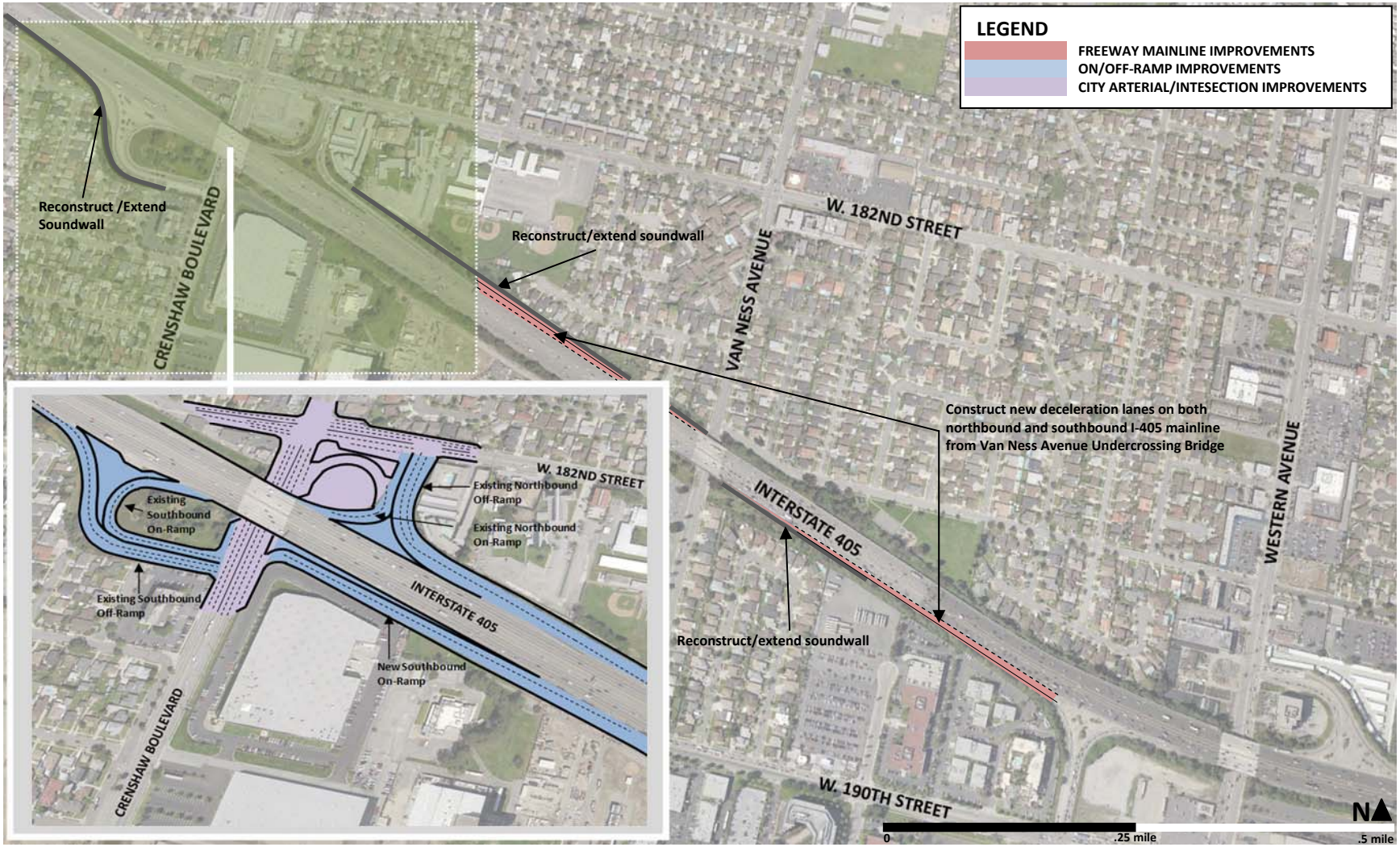


Alternative 3 | Proposed Improvements with New Northbound and Southbound Deceleration Lanes

Alternative 3 includes all of the same proposed improvements associated with Alternative 2—including the construction of a new northbound I-405 deceleration lanes to the Crenshaw Boulevard/182nd Street off-ramp—but also proposes the construction of a new deceleration lane on southbound I-405 to the Crenshaw Boulevard off-ramp. Widening of the Van Ness Avenue undercrossing in not required, and while this build alternative also includes the construction of new soundwalls and retaining walls, the specifications differ from Alternatives 1 and 2 to accommodate differences in design. The proposed improvements for Alternative 3 are as follows:

- Add a deceleration lane (approximately 1,300 feet) on northbound I-405 from the Van Ness Avenue undercrossing to the Crenshaw Boulevard/182nd Street off-ramp
- Add a deceleration lane (approximately 1,200 feet) on southbound I-405 from the Van Ness Avenue undercrossing to the Western Avenue/190th Street off-ramp
- Add one lane to the existing northbound I-405 off-ramp exit to 182nd Street
- Reconfigure terminus of northbound I-405 off-ramp to 182nd Street to consist of two dedicated left-turn lanes and one dedicated right turn lane
- Add one lane to northbound I-405 on-ramp from 182nd Street to meter head
- Relocate meter head northerly approximately 80 feet on northbound I-405 on-ramp from 182nd Street
- Widen southbound Crenshaw Boulevard upstream of the Crenshaw Boulevard/Southbound I-405 on-ramp intersection to accommodate an exclusive right-turn lane onto the existing southbound I-405 on-ramp
- Add one lane to southbound I-405 on-ramp from Crenshaw Boulevard to meter head
- Add one lane to existing southbound I-405 off-ramp to Crenshaw Boulevard
- Reconfigure terminus of southbound I-405 off-ramp to Crenshaw Boulevard to consist of two dedicated right-turn lanes and one dedicated left turn lane
- Construct new two-lane, metered on-ramp from northbound Crenshaw Boulevard to southbound I-405 (approximately 1,200 feet)
- Widen northbound Crenshaw Boulevard south of the interchange to accommodate an exclusive right-turn lane onto the proposed new southbound I-405 on-ramp
- Reconfigure traffic signals at the intersections of Crenshaw Boulevard/182nd Street, Crenshaw Boulevard/Southbound I-405 ramps, and 182nd Street/northbound I-405 ramps to accommodate the proposed project improvements
- Reconstruct 1,450 feet of existing soundwall and construct 700 feet of new soundwall along the I-405 northbound off-ramp to 182nd Street
- Reconstruct 2,235 feet of existing soundwall and construct 25 feet of new soundwall along the I-405 southbound mainline
- Construct 950 feet of retaining wall along northbound I-405 mainline
- Construct 2,680 feet of retaining wall along southbound I-405 mainline
- Widen westbound 182nd Street from 3 to 5 lanes between Crenshaw Boulevard and the northbound I-405 ramps

Figure 1.3-c Alternative 3 | Proposed Improvements with New Northbound and Southbound Deceleration Lanes



Alternative 4 | No-Build Alternative

Alternative 4 constitutes the "No-Build Alternative," in which none of the proposed improvements would be constructed and roadway operations would remain unchanged. Increases in traffic volumes would continue to deteriorate service to unacceptable levels at the interchange, the freeway mainline, and intersections in the project study area. Over time, delays would continue to increase causing further congestion issues, excess idling, and increased fuel consumption and greenhouse gas emissions.

Table 1.3-a Common and Unique Features of Build Alternatives

Interchange Improvements	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Add auxiliary lane (approximately 4,550 feet) on northbound I-405 from the Western Avenue on-ramp to the Crenshaw Boulevard/182nd Street off-ramp	X			
Add auxiliary lane (approximately 4,550 feet) on southbound I-405 from the existing Crenshaw Boulevard on-ramp to the Western Avenue/190th Street off-ramp	X			
Widen northbound and southbound Van Ness Avenue undercrossing (Bridge No. 53-1174) by 12 feet in each direction to accommodate the addition of auxiliary lanes on the freeway mainline	X			
Add a deceleration lane (approximately 1,300 feet) on northbound I-405 from the Van Ness Avenue undercrossing to the Crenshaw Boulevard/182nd Street off-ramp		X	X	
Add a deceleration lane (approximately 1,200 feet) on southbound I-405 from the Van Ness Avenue undercrossing to the Western Avenue/190th Street off-ramp			X	
Add one lane to the existing northbound I-405 off-ramp exit to 182nd Street	X	X	X	
Reconfigure terminus of northbound I-405 off-ramp to 182nd Street to consist of two dedicated left-turn lanes and one dedicated right turn lane	X	X	X	
Add one lane to northbound I-405 on-ramp from 182nd Street to meter head	X	X	X	
Relocate meter head northerly approximately 80 feet on northbound I-405 on-ramp from 182nd Street	X	X	X	
Widen southbound Crenshaw Boulevard upstream of the Crenshaw Boulevard/Southbound I-405 on-ramp intersection to accommodate an exclusive right-turn lane onto the existing southbound I-405 on-ramp	X	X	X	
Add one lane to southbound I-405 on-ramp from Crenshaw Boulevard to meter head	X	X	X	
Add one lane to existing southbound I-405 off-ramp to Crenshaw Boulevard	X	X	X	
Reconfigure terminus of southbound I-405 off-ramp to Crenshaw Boulevard to consist of two dedicated right-turn lanes and one dedicated left turn lane	X	X	X	
Construct new two-lane, metered on-ramp from northbound Crenshaw Boulevard to southbound I-405 (approximately 1,200 feet)	X	X	X	
Widen northbound Crenshaw Boulevard south of the interchange to accommodate an exclusive right-turn lane onto the proposed new southbound I-405 on-ramp	X	X	X	
Reconfigure traffic signals at the intersections of Crenshaw Boulevard/182nd Street, Crenshaw Boulevard/Southbound I-405 ramps, and 182nd Street/northbound I-405 ramps to accommodate the proposed project improvements	X	X	X	
Reconstruct 4,150 feet of existing soundwall and construct additional 700 feet of new soundwall along northbound I-405 mainline	X			
Reconstruct 2,450 feet of existing soundwall and construct additional 30 feet of new soundwall along southbound I-405 mainline	X			
Reconstruct 1400 feet of existing soundwall and construct 30 feet of new soundwall along the southbound I-405 off-ramp to Crenshaw Boulevard		X		
Reconstruct 1,450 feet of existing soundwall and construct 700 feet of new soundwall along the I-405 northbound off-ramp to 182nd Street		X	X	
Reconstruct 2,235 feet of existing soundwall and construct 25 feet of new soundwall along the I-405 southbound mainline			X	
Construct 2,740 feet of retaining wall along northbound I-405 mainline	X			
Construct 2,980 feet of retaining wall along southbound I-405 mainline	X			
Construct 600 feet of retaining wall along northbound I-405 mainline		X		
Construct 2580 feet of retaining wall along southbound I-405 mainline		X		
Construct 950 feet of retaining wall along northbound I-405 mainline			X	
Construct 2,680 feet of retaining wall along southbound I-405 mainline			X	
Widen westbound 182nd Street from 3 to 5 lanes between the northbound I-405 on-and-off-ramps and Crenshaw Boulevard	X	X	X	

1.4 PERMITS AND APPROVALS NEEDED

The following permits, reviews and approval would be required prior to construction of the proposed project:

- Approval of the Initial Study/Environmental Assessment (IS/EA)
- Adoption of anticipated Negative Declaration/Finding of No Significant Impact (ND-FONSI)
- Proposed project approval (Project Report)
- Section 402 of the Clean Water Act: Caltrans has already obtained from the Storm Water Resources Control Board (SWRCB) a National Pollutant Discharge Elimination System (NPDES) Construction General Permit No. CAS000003
- City of Torrance Encroachment Permit
- Los Angeles County Department of Public Works Construction Permit
- Other non-discretionary permits required for construction

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 2 | AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

THIS PAGE INTENTIONALLY LEFT BLANK

Environmental Topics Considered but Determined Not to be Relevant

As part of the scoping and environmental analysis conducted for the proposed project, the following environmental resources were considered, but no potential for impacts to these resources were identified and therefore determined not be relevant. Consequently, there is no further discussion regarding these resources in this document.

- **Coastal Zone.** The Coastal Zone Management Act of 1972 (CZMA) is the primary federal law enacted to preserve and protect coastal resources. The CZMA sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine if they are consistent with the state's management plan.

  California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA: they include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

  The proposed project does not lie within a coastal zone, therefore does not have the potential to adversely affect resources protected by the CZMA of 1972.

- **Wild and Scenic Rivers.** Projects affecting Wild and Scenic Rivers are subject to the National Wild and Scenic Rivers Act (16 United States Code ([USC] 1271) and the California Wild and Scenic Rivers Act (CA Public Resources Code [PRC] Section 5093.50 et seq.).

  There are three possible Wild and Scenic Designations:

  1. Wild: undeveloped, with river access by trail only.
  2. Scenic: undeveloped, with occasional river access by road.
  3. Recreational: some development is allowed, with road access.

  No Wild and Scenic Designated rivers exist with the project study area, therefore the proposed project does not have the potential to adversely affect resources protected by the National Wild and Scenic Rivers Act (16 United States Code ([USC] 1271) and the California Wild and Scenic Rivers Act (CA Public Resources Code [PRC] Section 5093.50 et seq.).

- **Farmlands/Timberlands.** The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

  The California Environmental Quality Act (CEQA) requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Impacts to timberlands are analyzed as required by the California Timberland Productivity Act of 1982 (CA Government Code Sections 51100 et seq.), which was enacted to preserve forest resources. Similar to the Williamson Act, this program gives landowners tax incentives to keep their land in timber production. Contracts involving Timber Production Zones (TPZ) are on 10-year cycles. Although state highways are exempt from provisions of the Act, the California Secretary of Resources and the local governing body are notified in writing if new or additional right-of-way from a TPZ will be required for a transportation project.

The proposed project is located in a highly developed, urbanized setting, and consists mostly of improvements to existing roadway facilities. Any components that would not occur within existing infrastructure and right-of-way would occur on lands that are currently adjacent to freeway facilities with no potential for direct or indirect irreversible conversion of protected farmlands or timberlands.

- **Paleontology.** Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. 23 United States Code (USC) 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law. 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law. Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

  A paleontological review and screening was performed that considered the scope and nature of the proposed work, type and extent of excavation, and the geologic setting (e.g. proximity of fossilliferous strata) and it was determined that paleontological resources are not an issue of concern. No paleontological resources have been previously identified within the proposed project site, or in the immediate vicinity. Encounters of significant fossil vertebrate remains are not expected considering the depth of grading and excavation, and the potential to encounter paleontological resources is further reduced considering the previously disturbed nature of soils in the project study area.

2.1 HUMAN ENVIRONMENT

2.1.1 LAND USE

Existing and Future Land Use

The City of Torrance is located in the southwestern portion of Los Angeles County, in a highly urbanized area known as the South Bay region. Incorporated on 1921, the City of Torrance encompasses 21 square miles, with a projected population of 145, 433 (U.S. Census Bureau, 2008-2012 American Community Survey). The current residential land use pattern in Torrance reflects the City's historical vision as an industrial community centered on the Burlington Northern Santa Fe Railroad system, which exists about 1.5 miles south of the proposed project area.

Residential development represents the predominant land use in Torrance, covering 49 percent of the city's land area, followed by industrial uses (22 percent), and public/quasi-public/open space uses (12 percent). The highest densities of residential development exist along the major thoroughfares, in the historic areas, and in apartment or condominium developments around Sepulveda Boulevard, especially between Hawthorne and Crenshaw Boulevards.

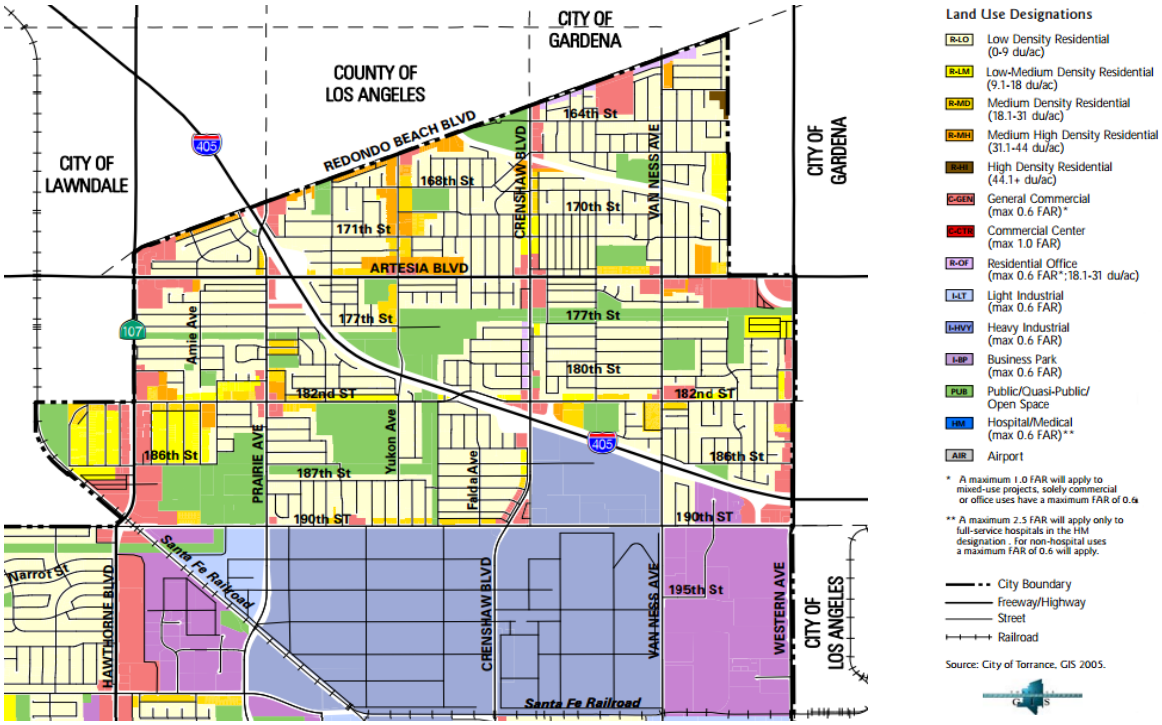
Commercial land uses constitute roughly 12 percent of the city's land area, and development of these land uses are highly influential in shaping the physical and economic environment of the city. Distinctions can be made between commercial uses that serve the local community, and areas that serve a more regional purpose. Typical of urbanized areas of Los Angeles County, local commercial uses exist near residential neighborhoods and typically consist of low-scale, sometimes stand alone commercial businesses and centers. Pacific Coast Highway, Hawthorne Boulevard and Sepulveda Boulevard feature development corridors that are more regional in nature, and feature a higher intensity of commercial development uses.

Industrial and office space land uses remain a strong part of Torrance's identity, constituting roughly 25 percent of the city's land area. The largest of these areas is located on the eastern site of the city between Western Avenue and Hawthorne Boulevard, from the Interstate 405 freeway to Plaza Del Amo. Significant industrial/office space use also occurs in the southern portion of the city, in a district just north of the airport from Skypark Drive to Kashiwa Street.

Public/Quasi-Public/Open Space inventory constitutes roughly 12 percent and includes private and publicly owned lands serving local agencies, such as public schools, parks, government, police and fire stations, libraries and water treatment facilities such as sump areas and stormwater retention basins. Public/Quasi-Public/Open Space in Torrance encompasses roughly 1,258 acres.

Project Study Area. The areas within the immediate vicinity of the proposed project will experience the most effects during construction, but will also likely see the most improvement after completion. This is the basis used for defining a project study area that covers approximately two square miles within zip code 90504, and is roughly bounded by Artesia Boulevard to the north, West 190th Street to the south, Prairie Avenue on the west, and Western Avenue as the eastern boundary. Within the immediate vicinity of the proposed project, the predominant land uses are "General Commercial," "Medium" to "Medium-High Density Residential," and Heavy Industrial particularly on the southeast side of the interchange. The following figure depicts land use and zoning as delineated via the most recently updated City of Torrance General Plan (2009).

Figure 2.1.1-a Land Use and Zoning in the Project Study Area



Source: City of Torrance

Development Trends. The City of Torrance has adopted four redevelopment project areas. The Meadow Park and Skypark Project Areas are roughly 5 miles southwest of the project area on Hawthorne Boulevard (areas north of Pacific Coast Highway). Redevelopment efforts in these areas have been focused on irregularly shaped lots, insufficient infrastructure facilities, alleviation of frequent flooding, and establishment of business districts and mixed-use site plans.

The Industrial Redevelopment Project Area is roughly 2 miles south of the project area along Del Amo Boulevard between Crenshaw Boulevard and Western Avenue, and along Western Boulevard roughly between Del Amo Boulevard and Torrance Boulevard. This area is home to many large corporate headquarters, including American Honda Motor Company.

The Downtown Redevelopment Project Area is located just south of the Industrial Redevelopment Project Area, much of which was once the original commercial core of the city, founded in 1912, and largely designed by the famed Olmstead Brothers. Focusing efforts on the redevelopment of Historic Downtown Torrance has helped spur further retail/residential mixed-use development that is the result of both public and private efforts. Other development trends in the project vicinity and the community at large are summarized in the following table.

Table 2.1.1-a Development Trends in Project Vicinity

Name of Development	Lead Agency/ Jurisdiction	Proposed Use	Current Status	Approximate Distance from Project Area
Harbor-UCLA Medical Center Campus Master Plan	Los Angeles County	Multi-phase development of facilities through the year 2030 which will increase current developed total of 1,050,000 square feet to 1,9000,000 square feet of developed floor area	Environmental studies currently in preparation	8.9 miles
LA BioMed Redevelopment Project	Los Angeles County	Redevelopment of existing LA BioMed campus including the construction of two new buildings with a total floor area of 95,000 square feet and the demolishment of three buildings for a total net increase of 70,700 square feet of floor area.	Environmental studies concluded April 2014	9.2 miles
El Camino Community College Facilities Master Plan	El Camino Community College District	Redevelopment and construction of operations and maintenance facilities to accommodate projected enrollments with a net increase in 34,721 square feet. Addition of 700 parking spaces to existing parking structure	Supplemental environmental studies completed April 2013	1.2 miles
Chandler Ranch/Rolling Hills Country Club Project	City of Rolling Hills Estates	Redevelopment of existing Chandler Ranch facilities and adjacent Rolling Hills Country Club to include a new residential community (113 single family homes, roughly 33 acres of residential lots), reconfiguration/relocation of 18 hole golf course (151.86 acres), a new 61,411 square foot clubhouse complex, and a new internal network of residential streets and associated infrastructure	Addendum to existing environmental studies completed May 2014	10.7 miles
South Bay Metro Green Line Extension Transit Corridor	Los Angeles County	8.7 mile South Bay Metro Green Line Extension Transit Corridor to provide new rail service into the South Bay area, connecting Los Angeles International Airport (LAX) to the City of Torrance.	Environmental studies currently in preparation	2 miles
Rockefeller Group Professional Center Development	City of Torrance	351,200 square feet of medical/office, professional office and light industrial condominium buildings	Construction in progress	4.8 miles
Providence Health System/PMB Daily Breeze Medical Facilities	City of Torrance	Construction of new 7 story hospital tower totaling 389,216 square feet in conjunction with reconfiguration of adjacent properties	Construction in progress	5.1 miles

Consistency with State, Regional, and Local Plans and Programs

Federal Transportation Improvement Program (FTIP) and the 2016 Regional Transportation Plan (RTP). The FTIP is a capital listing of all transportation projects proposed over a six-year period for the Southern California Association of Governments (SCAG) region. The SCAG region encompasses six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 191 cities within. Projects included on the FTIP include highway improvements, transit, rail and bus facilities, high occupancy vehicle lanes, signal synchronization, intersection improvements, freeway ramps, etc. in the SCAG region, and a biennial FTIP update is produced on an even-year cycle. The proposed project is currently listed on the Federal Transportation Improvement Program (FTIP ID: LA0G874), and is in process for inclusion on the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) [RTP ID: REG0703].

The RTP is a long-range transportation plan that is developed and updated by SCAG every four years. The RTP provides a vision for transportation investments throughout the region using growth forecasts and economic trends that project out over a 20-year period to consider the role of all transportation projects within the broader context of economic, environmental, and quality-of-life goals for the future, while identifying regional transportation strategies to address mobility needs.

Los Angeles County General Plan (2014). The Los Angeles County General Plan is the guide for long-term physical development and conservation through a framework of goals, policies, and implementation programs. It also provides the policy framework for how and where the unincorporated areas will grow through the year 2035, establishing the goals, policies, and programs to foster healthy, livable, and sustainable communities. In all, the Los Angeles County General plan guides growth countywide through goals, policies, and programs that discourage sprawling development patterns; protect areas with hazard, environment and resource constraints; encourage infill development in areas near transit, services and existing infrastructure; and make a strong commitment to ensuring sufficient services and infrastructure. It also lays the foundation for future community-based planning initiatives that will identify additional opportunities for accommodating growth, and the development of plans that respond to the unique and diverse character of local communities.

The Los Angeles County General Plan identifies 11 planning areas, with the proposed project site existing in the City of Torrance, which falls within the South Bay Planning Area. The plan has identified issues in this Planning Area, which include increased traffic congestion, limited public transportation options, air quality concerns, and a lack of developable land. Because of its proximity to major transportation hubs—LAX and the ports of Long Beach and Los Angeles—goods movement has become an important part of the Planning Area's economy. However, increases in goods movement have also created planning and environmental challenges. Infrastructure improvements are needed to ensure that freeways and street are adequate to serve increased truck volumes, and the massive increase in cargo volume has created significant air pollution impacts to neighboring communities. Petroleum refining is also a significant source of air pollution in the region.

The proposed project and the associated improvements would assist in improving the operational conditions of the I-405 mainline and the Crenshaw Boulevard/182nd Street Interchange, resulting in a reduction in some of the aforementioned environmental impacts as they relate to the flow of traffic, increased truck and cargo volumes, and the resulting air pollution impacts. The improvements to the interchange would also assist in improving the operational conditions of the Crenshaw Boulevard corridor as a whole, which would assist in addressing targeted opportunities identified in the Los Angeles County General Plan as they relate to Alondra Park. The plan has identified opportunities for pedestrian-scale and mixed use development along the Crenshaw Boulevard corridor, providing improvement and benefit to Alondra Park and the City of Gardena, and particularly to El Camino Community College, as the thoroughfare is an important connector for commuting students, faculty and staff.

Torrance General Plan (2009). The Torrance General Plan is the principal policy document for guiding future development in the City, addressing an approximate 15-20 year time frame. The general plan establishes linkages between land use and transportation, land use and infrastructure, and land uses and economic health, and

provides a foundation for urban development in the city, and what physical and social infrastructure are required to support that development.

The land use element of the Torrance General Plan outlines proposed land use changes in a study area known as Jefferson/Oak, which is located approximately 2.5 miles south of the proposed project site at the southeast corner of Crenshaw Boulevard and Carson Street. It is bounded by Jefferson Street to the south and the Burlington Northern Santa Fe railroad to the east. Historically, the area was developed with business park and heavy industrial uses, but changes in land use are proposed that will promote more intense uses along Crenshaw Boulevard—one of the City's most traveled corridors. The proposed project and improvements would be consistent with these proposed land use changes through an improvement of operational conditions upstream of this area on the Crenshaw Boulevard corridor, and a general improvement in circulation and traffic flow in the local area.

Environmental Consequences

All Build Alternatives. The proposed project is a roadway and interchange improvement project that would enhance traffic operations and circulation in areas surrounding the I-405 at Crenshaw Boulevard/182nd Street interchange and complement planned improvements in the project study area. Any proposed project components that would not occur within existing infrastructure and right-of-way would occur on lands that are currently adjacent to freeway facilities with no significant conversion of land use. The full and partial acquisition of adjacent properties associated with the proposed project would not cause any changes in land use, zoning, or activities, and there would be no meaningful alteration to existing land use patterns in the proposed project area. The proposed project is completely consistent with the Torrance general plan, and is intended to support existing and projected future land use in the proposed project area and vicinity.

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no alteration of existing lands; therefore, it would present no potential impacts on land usage.

Avoidance, Minimization and/or Mitigation Measures

Because none of the proposed build alternatives would require the conversion of any existing land uses or alter any existing land use patterns in the project study area, and because the improvements have not been found to be inconsistent or not complementary to any adopted land use plans, policies, or programs, no avoidance, minimization, and/or mitigation measures are required.

Parks and Recreational Facilities

La Carretera Park is the only publicly owned park within the vicinity of the proposed project, and is located approximately 1 mile east of the I-405 at Crenshaw Boulevard/182nd Street Interchange, but immediately adjacent to the freeway mainline between Van Ness and Western Avenues. The park is approximately 3 acres and its Spanish name appropriately translates to "the highway." The land was sold to the City of Torrance by the State of California when it became excess freeway land in 1966, and since then, it has been developed to include a sheltered picnic area, barbecues, children's play area, softball diamond and basketball court.

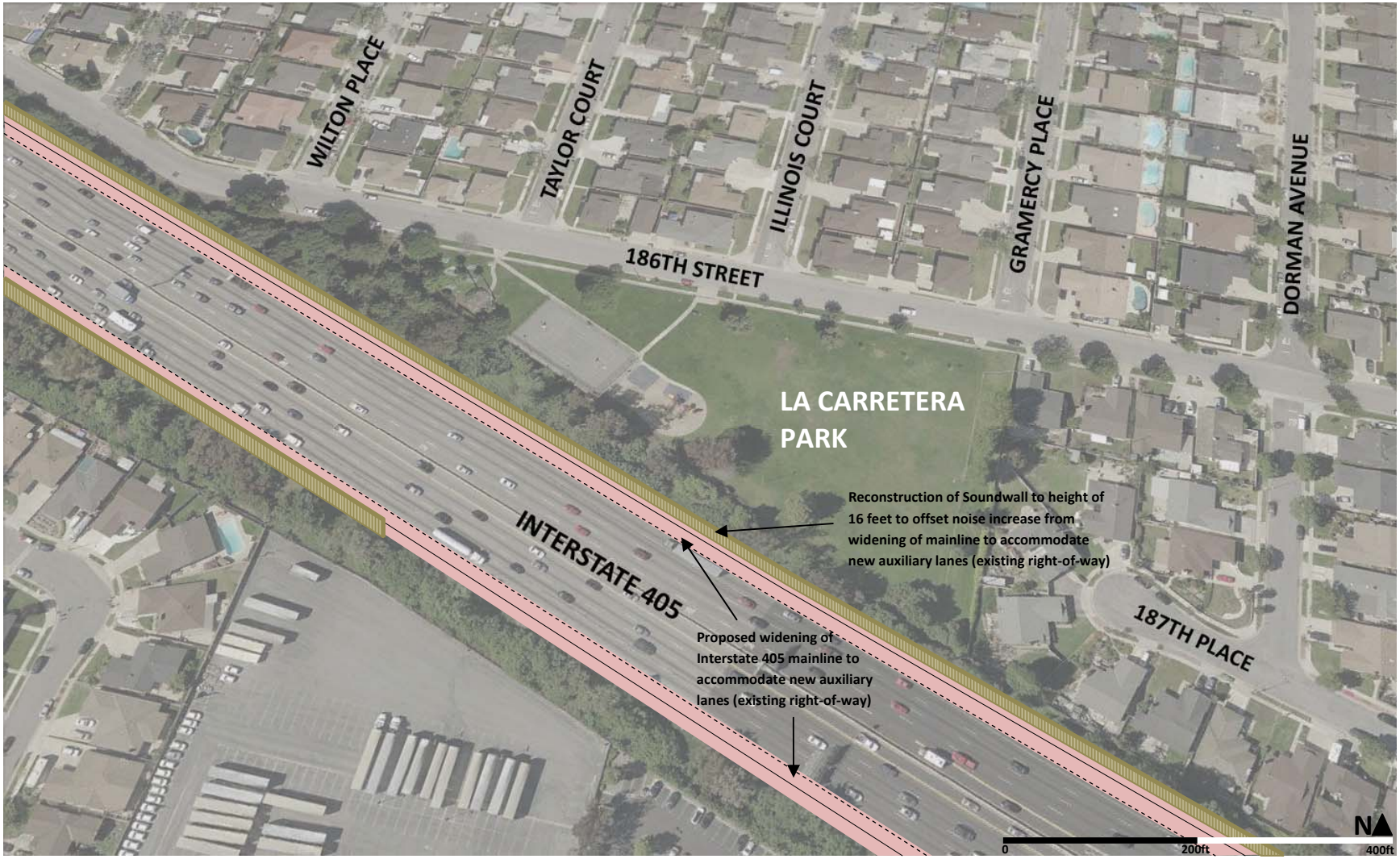
Section 4(f) / Code of Federal Regulations, Title 23, Part 774 (23 CFR 774). Since the mid-1960s, federal transportation policy has reflected an effort to preserve publicly owned public parks and recreation areas, waterfowl and wildlife refuges, and historic sites considered to have national, state, or local significance. The Department of Transportation Act of 1996 included a special provision to carry out this effort, which was 23 CFR 774, or Section 4(f). Section 4(f) stipulated that the Federal Highway Administration (FHWA) and other U.S. Department of Transportation agencies cannot approve the use of land from a significant publicly owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless there is no feasible and prudent alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from use. La Carretera Park qualifies as a public park protected under Section 4(f).

Section 4(f) defines "use" in three ways; permanent incorporation/permanent easement; temporary occupancy; and constructive use. Permanent incorporation involves a right-of-way acquisition of Section 4(f) protected land as part of the transportation project. In other words, the transportation agency or project sponsor directly purchases the property (fee simple acquisition), and the property sustains a permanent impact—essentially, changing the Section 4(f) protected property to a transportation facility. While La Carretera Park is directly adjacent to the I-405 freeway facilities, none of the proposed build alternatives require the acquisition of these Section 4(f) protected public lands or conversion of these lands to transportation facilities. Furthermore, none of the proposed build alternatives would require any temporary activities that would be considered adverse in nature, and no temporary occupancy of the Section 4(f) protected La Carretera Park would be required.

Lastly, a constructive use of Section 4(f) lands occur only in the absence of a permanent incorporation of land or a temporary occupancy of the type that constitutes a Section 4(f) use. Constructive use occurs when the proximity impacts of the proposed project on an adjacent or nearby Section 4(f) protected property are substantially impaired. Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished. In those situations where a potential constructive use can be reduced below a substantial impairment by the inclusion of mitigation measures, there will be no constructive use and Section 4(f) does not apply.

Caltrans considered the proposed project within this context, and identified the potential for the proposed project to impair activities at La Carretera Park via Build Alternative 1, where adding an auxiliary lane on the northbound I-405 would bring traffic noise closer to the Section 4(f) protected park. Noise studies indicate an existing worst-hour noise level of 59.1 decibels at the park, which is typical of an urbanized environment. Build Alternative 1 posed the greatest potential for significant effects as it was predicted to push noise levels up to 67.3 decibels (+8.2 decibel increase), but implementation of recommended noise abatement measures (construction of a new 16 foot soundwall) would offset the noise increase by 5 decibels, bringing projected levels down to 62.3 decibels (+3.2 decibel increase), which is considered to be negligible and insignificant, as it would be barely perceptible to the human ear, and at 62.3 decibels, the noise environmental would be indifferent to that of average street traffic at 25 feet. Implementation of proposed mitigation/noise abatement would reduce any potential for substantial impairment to the Section 4(f) protected La Carretera Park, therefore no constructive use would occur, and Section 4(f) does not apply. For additional information on the evaluation of resources relative to Section 4(f) in the project study area reference Appendix B of this environmental document.

Figure 2.1.1-b La Carretera Park and Proposed Soundwall Reconstruction (Alternative 1)



California Park Preservation Act of 1971. The California Park Preservation Act of 1971 [California Public Resources Code (PRC) Section 5400-5409] prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition, unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land. While Alternative 1 proposes to widen the I-405 mainline adjacent to La Carretera Park, the widening will occur completely within existing Caltrans right-of-way, and no acquisition of park lands are required.

2.1.2 GROWTH

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

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

Affected Environment

According to the Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan (April 2012), the region, including Imperial, Riverside, San Bernardino, Los Angeles, Orange, and Ventura Counties, has been one of the fastest-growing regions in the nation. Between 1950 and 1970 the population in this region doubled in size, growing at a rate of 5 percent per year. Between 1980 and 1990, the region's population grew by more than 25 percent to 14.6 million. Between 1990 and 2000, the region's population grew by nearly 15 percent to 16.5 million.

In general, the slower growth pattern experienced in the last decade is expected to continue into the future. Between 2010 and 2035, the annual population growth rate will be only 0.9 percent, which is lower than the growth rate for the past 20 years. Forecasts for regional population growth show increases expected mainly through natural increase. As the population ages and diversifies in the region, house-holders will follow the same path. The most striking forecasts show the strongest growth in senior households, which are expected to total 70 percent of the projected household growth in the region. The number of householders 65 years or older will reach more than 2 million in the region in 2035 with the addition of one million households in the next 25 years. In the last 20 years, two economic recessions and globalization were the major factors behind slow employment growth in the region, and yet SCAG expects the region to add 2.2 million jobs in 2035, with an annual average growth rate on over 1 percent, and a continued transformation in industrial structure from manufacturing oriented industries to service oriented industries.

Between 2000 and 2012, the total population in the City of Torrance increased by 8,169 to 146,115 in 2012, at a growth rate of 5.9 percent, which was higher than the rate of growth in Los Angeles County (3.8 percent). At the same time, the City saw a 7.8 percent decrease in total jobs (2007-2012), which is likely to change with recent news regarding the relocation of 3000 Toyota Motor Company National Headquarters jobs from Torrance to Plano,

Texas. The manufacturing and construction sectors in particular have taken the biggest hit, with 20 percent and 31.4 percent decreases in jobs respectively (2007-2012). The largest job sector in the City of Torrance by far is Education, with 21.9% of total jobs falling within this category. The following table present SCAG's proposed 2012-2035 growth forecast data regarding population, households and employment for the City of Torrance.

Table 2.1.2-a SCAG Proposed 2012-2035 Growth Forecast for the City of Torrance

Category	2008	2020	2035
Population	145,000	150,800	158,500
Households	55,800	57,800	59,800
Employment	105,800	109,100	113,300

Environmental Consequences

Influence of the Proposed Project on Growth – All Build Alternatives. Caltrans projects are rarely designed to encourage or facilitate growth, rather, most capacity-increasing projects are proposed as a response to traffic congestion that is a result of growth that has already occurred or will soon occur (for more on this topic, reference Section 2.1.5, entitled, "Traffic and Transportation / Pedestrian and Bicycle Facilities"). The intent of the proposed project is to address existing and forecasted operational deficiencies at the interchange, and improve circulation and safety on the mainline, on-and-off-ramps, and intersections immediate to the interchange. The proposed project does not pose any adverse effects or changes in accessibility in the project study area, and while capacity increasing by design, it does not pose any potential for incursion into surrounding neighborhoods or undeveloped lands, or a geographic location that is conducive to influencing growth, whether resulting from physical constraints, planning and zoning factors, or local political considerations. In general, project-related growth is considered to be remote and speculative, as the nature of the proposed project is merely an interchange improvement project, and not a new facility that has the potential to induce any changes in patterns of land use, population density, growth rate, and/or related effects on air, water, and other natural systems.

No Build Alternative. If the proposed project were not built, there would be no alterations to the existing interchange facilities and the existing operational environment would continue to deteriorate, which then, may have the potential to be a hindrance to growth in the project study area.

Avoidance, Minimization and/or Mitigation Measures

The proposed project does not have to potential to encourage or facilitate growth, rather it is proposed as a response to traffic congestion that is a result of growth that has already occurred or will soon occur. Therefore, any potential for project-related growth would be negligible, and no avoidance, minimization, and/or mitigation measures would be required.

2.1.3 COMMUNITY IMPACTS

COMMUNITY CHARACTER AND COHESION

Regulatory Setting

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

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

The proposed project site is located within the neighborhood district known as North Torrance, which is roughly bounded by 190th Street on its southern border, to Redondo Beach Boulevard at the northern city limits, and Hawthorne Boulevard as the western boundary, to Western Avenue on the east. North Torrance is notable for its proximity to the I-405 freeway and the Mobil Oil Refinery, which exists about one mile from the project site at roughly 190th Street and Yukon Avenue.

The project study area for the proposed project covers approximately four square miles within zip code 90504, includes U.S. Census tracts 6501.01, 6501.02 and 6502, and is roughly bounded by Redondo Beach Boulevard on the north, Western Avenue on the east, Del Amo Boulevard and the Santa Fe Railroad on the south, and Hawthorne Boulevard on the west. While the Interstate 405 freeway is principally a north-south route, the mainline traverses east-west through the project study area.

The character of the neighborhood on the northern side of the interchange is predominantly low-density, single-family residential, but some medium-density, multi-family residential development occurs along the major thoroughfares, particularly along the Redondo Beach and Artesia Boulevard corridors, and along Crenshaw Boulevard and Van Ness and Western Avenue Corridors. The most intense commercial activity occurs along Artesia Boulevard, particularly between Van Ness and Western Avenues, with pronounced commercial development and clustering also occurring along the Western Avenue Corridor from Artesia Boulevard to Interstate 405/190th Street. Less intense commercial activity is prevalent in the immediate vicinity of the project study area, particularly at the intersection of Crenshaw Boulevard and 182nd Street, and in other pockets throughout.

Neighborhood character on the southern side of the interchange is much more varied, with areas southeast of the interchange entirely dominated by some of the largest concentrations of industrial uses in Torrance. Honeywell Aerospace, Engine Systems and Avionics is the most prominent industrial complex, surrounded by various industrial offices and complexes, a medium-density business park, and the George P. Johnson regional offices immediately adjacent to the I-405/Crenshaw Boulevard interchange. Areas southwest of the interchange are dominated by low-density, single-family residential development that was built largely in the 1950s on agricultural

lands that once served as strawberry fields. Some general commercial land uses and activities occur along the Crenshaw Boulevard corridor with the most intense clustering at the intersection of 190th Street, and at a medium density commercial/office building immediately adjacent to the I-405 southbound/Crenshaw Boulevard off-ramp.

In general, U.S. Census/American Community Survey data paints a picture of a community with higher than city county average of rental units and vacancy rates. Age distribution is fairly reflective of the city and county as a whole with a median age of roughly 41 years. The Los Angeles metropolitan area is a very diverse region and as a whole, the project study area presents a fairly balanced racial profile that is highly reflective of this. When comparing census tracts within the project study area, further analysis does reveal an overwhelmingly high percentage of individuals of Asian descent—particularly Japanese descent—which is typical considering the history of the people in the region. A more complete breakdown of the racial profile within the project study area can be referenced in Figure 2.1.3-b, in the following subsection entitled, "Environmental Justice."

Environmental Consequences

All Build Alternatives. The intent of the proposed build alternatives is to enhance traffic operations in the areas surrounding the I-405 at Crenshaw Boulevard/182nd Street interchange, and none of the proposed project components would require incursion into surrounding neighborhoods, change existing community relationships, nor interfere with operation of existing public facilities.

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, and without the enhancements, there is the potential that traffic operations and circulation could worsen and present an adverse effect on community character and cohesion.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the proposed project would not result in adverse effects regarding community character and cohesiveness, therefore, no avoidance, minimization, and/or mitigation measures would be required.

RELOCATIONS AND REAL PROPERTY ACQUISITION

Regulatory Setting

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

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 United States Code [USC] 2000d, et seq.). Please see Appendix C for a copy of the Department's Title VI Policy Statement.

Affected Environment

None of the proposed build alternatives require displacement or relocation of any persons or businesses, but the proposed project does have the potential to affect five properties in terms of real property acquisition (partial and full). As previously mentioned, the I-405 mainline traverses east-west through the project study area, and the nature of the potentially affected properties on the northern side of the interchange is predominantly commercial. On the northern side of the interchange, the proposed project has the potential to affect a coffeehouse directly adjacent to the I-405 mainline, and a gasoline station on the northeast corner of Crenshaw Boulevard and 182nd Street. The proposed project also has the potential to affect two parcels directly adjacent to the I-405 mainline on the southeast corner of the same intersection, though they are currently vacant, and were once occupied by gasoline facilities as well. On the southern side of the interchange, the proposed project has the potential to affect one commercial/industrial property directly adjacent to the freeway mainline in the southeast quadrant. The following figure illustrates the locations and general nature of the aforementioned parcels within the project study area.

Figure 2.1.3-a Parcels Potentially Affected by the Proposed Project Alternatives

Environmental Consequences

All Build Alternatives—Acquisitions. As previously mentioned, none of the proposed build alternatives require displacement or relocation of any persons or businesses, but the proposed project does have the potential to affect five properties in terms of real property acquisition (partial and full). Those properties/parcels, their general nature, and the extent of acquisition are detailed in the following table.

Table 2.1.3-a Proposed Acquisitions Resulting from the Proposed Build Alternatives

Assessor's Parcel Number / ID	Property Owner / Address	Existing Land Use	Extent of Acquisition
4090-021-037	George P. Johnson 18500 Crenshaw Boulevard	Commercial / Industrial / Office	**Partial acquisition** – setback required to accommodate new southbound on-ramp to I-405 (all build alternatives)
4091-026-009	Coffee Bean and Tea Leaf 18201 Crenshaw Boulevard	Commercial / Coffeehouse/Restaurant	**Partial acquisition** – setback required to accommodate roadway widening (all build alternatives)
4095-020-023	Exxon Mobile 3040 W. 182nd Street	**Vacant** – previously Commercial / Gas Station	**Full acquisition** – required to accommodate roadway widening (all build alternatives)
4095-020-024	Exxon Mobile 3006 W. 182nd Street	**Vacant** – previously Commercial / Gas Station	**Full acquisition** – required to accommodate roadway widening and revised geometry of I-405 northbound on and off ramps (all build alternatives)
4095-022-013	ARCO / AMPM 18166 Crenshaw Boulevard	Commercial / Gas Station	**Partial acquisition (potential full acquisition)** – setback required to accommodate roadway widening (all build alternatives).

No Build Alternative. There would be no potential to affect any properties or parcels surrounding the interchange in terms of acquisition if the proposed project were not built; therefore, selection of the No Build Alternative would present no potential impacts regarding relocation or real property acquisition.

Avoidance, Minimization, and/or Mitigation Measures

Because none of the proposed build alternative require displacement or relocation of any persons or businesses, no avoidance, minimization, and/or mitigation measures are required, but because the proposed build alternatives would require the partial or full acquisition of the aforementioned properties/parcels in the project study area, project funds shall be adequately budgeted to cover acquisition expenses associated with selection of the Preferred Alternative.

ENVIRONMENTAL JUSTICE

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the

health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2014, this was $27, 430 for a family of four.

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

Affected Environment

To identify and determine any potential effects to minority and/or low-income populations, a project study area was defined, utilizing a roughly 1-mile radius surrounding the proposed project location. If was further defined by delineating boundaries via census tracts drawn by the U.S. Census Bureau and the 2010 American Community Study. For the purposes of the proposed project, census tracts 6501.01, 6501.02 and 6502 were utilized in the following community profile.

The areas within the project study area and immediate vicinity of the proposed project will experience the most effects during construction, but will also likely see the most improvement after completion. The general nature of the project study area is zoned low-to-medium density residential land use, with a small portion classified as industrial land use, particularly in Census Tract 6502. A community profile for the project study area follows, supported by data not just at the census tract level, but also at the Torrance CCD (Census County Division) level, which is a subdivision of Los Angeles County used by the U.S. Census Bureau for the purpose of presenting statistical data that is representative of the City of Torrance as a whole. Tract and CCD data are then compared to Los Angeles County as a whole, for a more regional perspective.

Table 2.1.3-b Race, Ethnicity, and Poverty Status within the Project Study Area and Regional/County Comparison

SUBJECT	Census Tract 6501.01		Census Tract 6501.02		Census Tract 6502		Torrance CCD		Los Angeles County	
RACE										
Non-Hispanic										
White	23.80%	1,376	40.30%	934	36.10%	2,019	40.70%	59,251	27.80%	2,731,605
Black/African-American	1.80%	103	4.90%	113	3.00%	165	3.00%	4,311	8.20%	809,858
American Indian and Alaska Native	0.00%	0	0.30%	7	0.00%	0	0.20%	220	0.20%	17,371
Asian	55.00%	3,179	31.20%	723	28.90%	1,615	34.80%	50,678	13.70%	1,343,920
Native Hawaiian or Pacific Islander	0.00%	0	1.50%	35	0.50%	26	0.20%	269	0.20%	23,520
Some Other Race	0.90%	53	0.00%	0	0.00%	0	0.30%	366	0.30%	24,612
Two or More Races	4.30%	249	5.50%	128	5.20%	292	3.70%	8,645	2.00%	194,292
Hispanic or Latino	14.10%	816	16.20%	375	26.40%	1,474	17.20%	25,037	47.70%	4,694,846
Total Population	(X)	5,776	(X)	2315	(X)	5,591	(X)	145,443	(X)	9,840,024
Total Minority	76.10%	4,400	59.60%	1381	64.00%	3572	59.40%	89,526	72.30%	7,108,419
POVERTY STATUS										
Households Below Poverty Level	2.00%	1,638	1.70%	654	4.50%	1,550	5.50%	38,152	14.20%	2,170,631

Environmental Consequences

All Build Alternatives. The intent of the proposed build alternatives is to enhance traffic operations in the areas surrounding I-405 at the Crenshaw Boulevard/182nd Street interchange, and none of the proposed project components would require incursion into surrounding neighborhoods, change existing community relationships, interfere with operation of existing public facilities, nor require displacement or relocation of any persons or businesses. Furthermore, the proposed project will not cause disproportionately high and adverse effects on any minority or low-income populations per Executive Order 12898 regarding environmental justice.

No Build Alternative. If the proposed project were not built, there would be no potential for disproportionately high and adverse effects on any minority or low-income populations requiring protection under Executive Order 12898 regarding environmental justice.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the proposed project would not result in impacts regarding environmental justice, therefore no avoidance, minimization and/or mitigation measures would be required.

2.1.4 UTILITIES / EMERGENCY SERVICES

Regulatory Setting

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

Affected Environment

Community facilities and services include local public and private utilities, schools, fire stations, police stations, religious institutions, medical institutions, and parks and recreational facilities. The following information regarding community facilities were obtained from Caltrans Right-of-Way Estimates and Data Reports, and general research via the City of Torrance webpage and other online sources.

Public and Private Utilities. Some of the general and major utilities providers in the project study area are Southern California Edison (electric); SoCalGas/Sempra Energy (gas); AT&T, Charter Communications, Time Warner and Verizon (phone and cable); and the California Water Company, Metropolitan Water District of Southern California, and the Torrance Water Company (water). Some of the types of utility facilities in the project study area include: power poles, telephone poles, natural gas pipelines, fuel oil pipelines, water pipelines, sewers, manholes, aerial and underground transmission lines, and fire hydrants. Utilities within and adjacent to the existing ramps are limited to freeway serving facilities such as ramp metering and roadway lighting.

Schools. The City of Torrance is served by the Torrance Unified School District, which consists of 19 elementary schools, 8 middle schools, 4 high schools, one continuation high school, one alternative high school, and two adult school campuses. The city is also served by a number of private schools including 13 elementary schools, 10

middle schools, and 6 high schools. Post-secondary institutions include El Camino College, Homestead Schools, Westwood College, Everest College and ITT Technical Institute.

Eleven schools are located within roughly one mile of the proposed project site, including Arlington Elementary School (Grades K-5), Ascension Lutheran School (K-8), Casimir Middle School (6-8), Edison Elementary (K-5), Evelyn Carr Elementary School (K-5), Lincoln Elementary School (K-5), North High School (9-12), Philip Magruder Middle School (6-8), Playhouse School (PK-1), St. Catherine Laboure Elementary School (K-8), and Yukon Elementary School (K-5). Torrance Adult School is also located within the vicinity, and immediately adjacent to the proposed project site.

Fire Protection Services. The City of Torrance Fire Department provides fire protection services to the eighth largest city in Los Angeles County, serving roughly 150,000 residents through life safety, environmental protection, property conservation, education, hazard reduction and emergency response. The department consists of seven engine companies, two truck companies, five paramedic rescue units, an air & light unit, and one battalion chief all with trained fire fighters. Resources are distributed geographically throughout the city in six fire stations. The nearest response unit to the proposed project site is Fire Station No. 3, located at 3535 W. 182nd Street (approximately one-half mile west). Other response units in the proposed project area are Fire Station No. 1 (Headquarters) at 1701 Crenshaw Boulevard and Fire Station No. 5 at 3940 Del Amo Boulevard, both approximately 2.5 miles from the proposed project site.

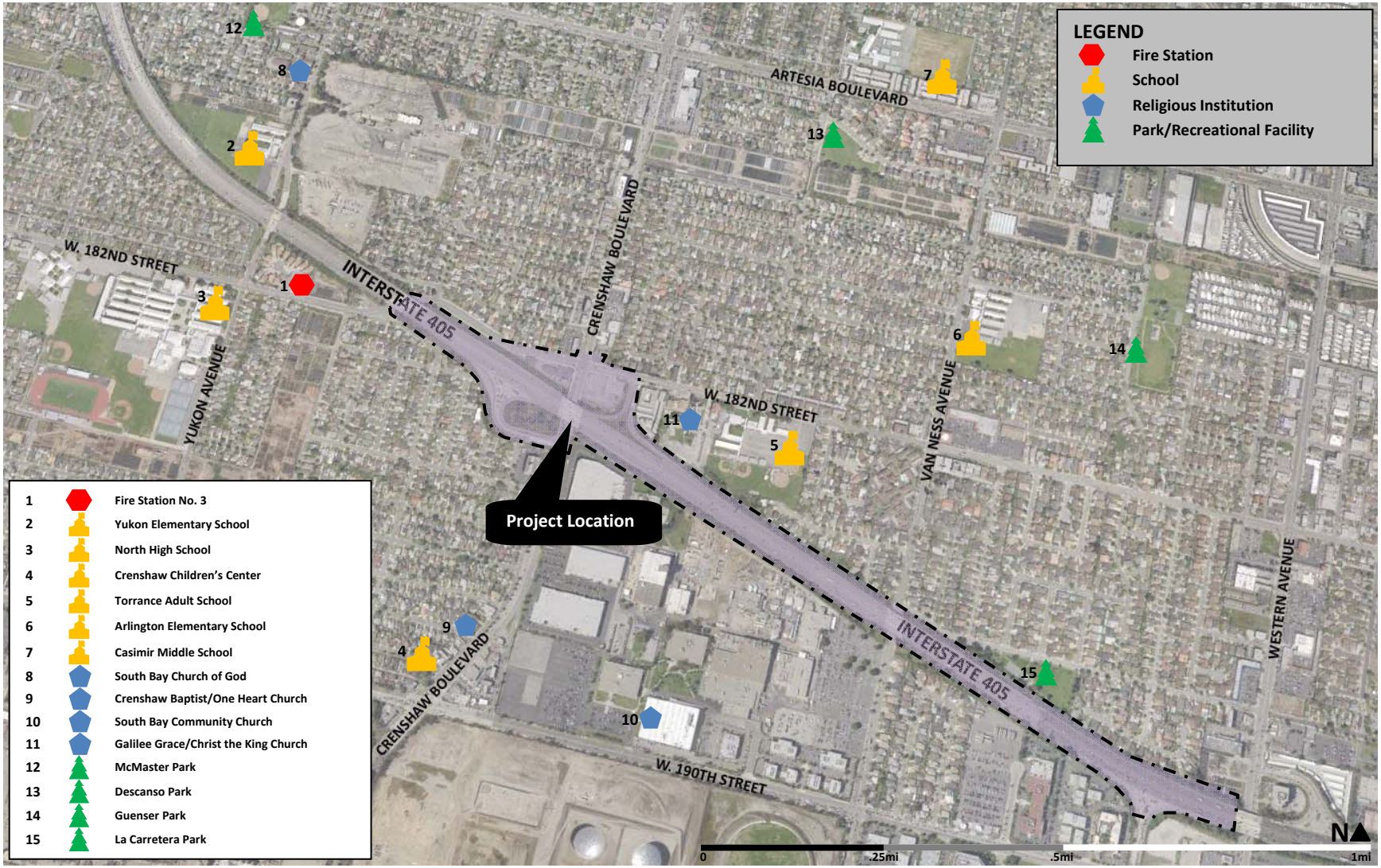
Police Protection Services. The Torrance Police Department at 3300 Civic Center Drive provides the primary means of police protection for the city (including the proposed project site) and currently employs 228 sworn police offices and 100 civilians. These services are supplemented by the Los Angeles County Sheriff (unincorporated areas), particularly the Carson Sheriff Station located at 21356 South Avalon Boulevard, in the nearby City of Carson. State highways within the project study area are patrolled by the California Highway Patrol, particularly Area Office No. 530, located at 19700 Hamilton Avenue.

Religious Institutions. Within one mile of the proposed project site, there are four religious institutions: Crenshaw Baptist Church/One Heart Church located at 18749 Crenshaw Boulevard, Galilee Grace Church/Christ the King Lutheran Church located at 2706 W. 182nd Street, South Bay Church of God located at 17661 Yukon Avenue, and South Bay Community Church located at 2549 W. 190th Street.

Medical Institutions. There are 10 medical institutions that service the proposed project area. Within the City of Torrance there are 3 medical institutions: Los Angeles County Harbor—UCLA Medical Center, Providence – Little Company of Mary Medical Center, and Torrance Memorial Medical Center. North of the proposed project area in the nearby City of Gardena there are 3 medical institutions: South Atlantic Medical Group, South Bay Family Healthcare Center, and Memorial Hospital of Gardena. Other nearby institutions servicing the proposed project area are South Bay Family Healthcare Center in Redondo Beach, Del Amo Insurance Services and the Kaiser Permanente South Bay Medical Center in Harbor City, and Centinela Hospital Medical Center in Inglewood.

Parks and Recreational Facilities. The City of Torrance Community Services Department operates and manages 40 parks and recreation facilities for residents of Torrance and the surrounding South Bay area. There are four parks within a roughly one-mile radius of the proposed project site: Descanso Park (0.8 miles northeast) located at 2500 Descanso Way, Guenser Park (1 mile northeast) located at 17800 Grammercy Place, La Carretera Park (1.4 miles east and adjacent to the I-405 freeway) located at 2040 186th Street, and McMaster Park (1.1 miles northwest) located at 3624 Artesia Boulevard.

Figure 2.1.4-a Community Facilities within the Immediate Vicinity of the Proposed Project Site



Environmental Consequences

All Build Alternatives. The effects of the proposed project on public utilities/services are based on factors such as: noise, air quality, safety, distance, circulation, accessibility, and the disruption during both construction and operation of the proposed project. Potential operational effects on community facilities can occur when the following types of project effects are present: property acquisitions affecting community facilities, restricted access to community facilities and services, or impaired use of the facilities.

The intent of the proposed build alternatives is to enhance traffic operations in the areas surrounding I-405 at the Crenshaw Boulevard/182nd Street interchange, and implementation of such would support the improvement of emergency and general access, thereby serving and allowing improved access to public facilities in the vicinity of the proposed project site. As previously indicated, the proposed project would pose no potential for adverse effects to parks or recreation facilities protected under Section 4(f) / Code of Federal Regulations, Title 23, Part 774 (23 CFR 774). Furthermore, the proposed project would not interfere with the long-term operations of any public or private utilities, as the design of each build alternative would incorporate any needed utility provisions pursuant to Caltrans specifications and guidelines.

Construction-Related Effects. Construction of the proposed projects would likely have short-term effects on accessibility, particularly in the closure of project ramps and construction with the vicinity of the interchange, though these effects would be minimized through a construction staging program and a Traffic Management Plan (TMP). Depending on selection of the preferred alternative, approximate duration of these temporary, construction-related effects would be 500 working days for Alternative 1; 150 working days for Alternative 2; and 300 working days for Alternative 3.

No Build Alternative. If the proposed project were not built, there would be no alterations to the existing interchange facilities and no changes to the physical environment. Therefore, there would be no potential impacts on utilities and emergency/community services.

Avoidance, Minimization, and/or Mitigation Measures

Utility infrastructures that would be affected by proposed project construction would be relocated in such a manner as to minimize any disruption of service those utilities provide, particularly to reduce any effects to a less than significant level. Additionally, a Transportation Management Plan (TMP) would be implemented to provide detailed access and detour strategies that would minimize effects on response times for fire, police, and emergency services. Caltrans and the City of Torrance would maintain contact with the community, and police and fire protection services via a public outreach campaign during the construction phase of the proposed project.

2.1.5 TRAFFIC AND TRANSPORTATION / PEDESTRIAN AND BICYCLE FACILITIES

Regulatory Setting

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

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

The ensuing discussion regarding traffic has been excerpted from the May 2014 Traffic Study Report for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, as prepared by the Caltrans District 7 Office of Traffic Investigations.

Existing Traffic Volumes and Level of Service (LOS) Analyses. Existing traffic volumes and data were used as a baseline for performing traffic analyses necessary for planning and implementation of the proposed project. Forecasted increases in traffic volumes on the northbound and southbound I-405 mainlines, off-ramps and on-ramps necessitate improvements to the interchange and interfacing arterials and intersections to increase capacity, improve traffic flow and enhance safety. The following table presents existing (2014) mainline, off-ramp, and on-ramp volume [expressed in Annual Average Daily Traffic (AADT and Peak Hour Volume (PHV)] and also predicted volumes during AM and PM Peak Hours (or peak travel times) for the year 2040.

Table 2.1.5-a Current and Forecasted Annual Average Daily Traffic (AADT) and Peak Hour Volume (PHV)

NORTHBOUND I-405	2014 AADT	2040 AADT	2014 AM PHV	2040 AM PHV	2014 PM PHV	2040 PM PHV
Mainline	114950	134491	7400	8658	7710	9021
Off-ramp	14004	16384	853	998	1065	1246
On-ramp	8734	10219	635	743	851	996
SOUTHBOUND I-405						
Mainline	112967	132171	7415	10150	7067	9674
Off-ramp	8514	9961	907	1242	970	1328
On-ramp	10634	12441	997	571	703	345

Utilizing this collection of traffic volume data, Level of Service (LOS) analyses were performed at the necessary predetermined freeway mainline segments, ramp and ramp-weaving segments, and at selected study intersections. In particular, volumes were determined for the morning (AM) and evening (PM) peak hours, which represent periods where the greatest number of trips occur. Level of Service (LOS), or quality of service, is computed utilizing methodology outlined in the Highway Capacity Manual (HCM), which is a publication of the Transportation Research Board of the National Academies of Science in the United States. In general, it contains concepts, guidelines, and computational procedures for computing the capacity and quality of service of various highway facilities, and the effects of respective users on the performance of these systems.

Existing Level of Service (LOS) for Interstate 405 Freeway Mainline. For freeway mainline segments and ramps, LOS is measured in terms of density, or passenger cars per mile per lane (pc/mi/ln). The following table shows the LOS definitions for evaluating service on such facilities.

Table 2.1.5-b Level of Service (LOS) Criteria for Freeway Mainline Segments

LOS	Density Range (pc/mi/ln)	Operating Speed	Technical Description
A	0-11	70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability – no delays.
B	>11-18	70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted – no delays.
C	>18-26	67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes – minimal delays.
D	>26-35	62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited – minimal delays.
E	>35-45	53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor – significant delays.
F	>45	<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge – considerable delays.

As previously mentioned, the Interstate 405 mainline traverses east-west through the project study area. A Level of Service (LOS) analysis was performed to assess the quality of service for the mainline freeway segment of Interstate 405 between the Crenshaw Boulevard/182nd Street Interchange and the Western Avenue interchange, roughly one mile east of the proposed project area. During both the AM and PM peak travel periods, the northbound (or westbound through the project study area) mainline currently operates at LOS "D" in the existing condition, but LOS drops to "F" in the approach to the Crenshaw Boulevard/182nd Street Off-ramp.

In the existing condition and through the same segment, the southbound (or eastbound through the project study area) I-405 mainline operates at LOS "E" through the Crenshaw Boulevard/182nd Street Interchange, and deteriorates to LOS "F" as it approaches the Western Avenue interchange. During the PM peak period, the southbound I-405 mainline operates at a LOS "D" throughout the same freeway mainline segment, which is generally considered acceptable within the context of peak travel periods.

Existing Level of Service (LOS) for Interstate 405 at Crenshaw Boulevard/182nd Street Off-Ramps. For freeway on-and-off-ramps, LOS is also measured in terms of density, or passenger cars per mile per lane (pc/mi/ln), with the following defined thresholds.

Table 2.1.5-c Level of Service (LOS) Criteria for Diverge Areas (Ramps)

LOS	Density Range (pc/mi/ln)
A	≤10
B	>10-20
C	>20-28
D	>28-35
E	>35
F	Demand exceeds capacity

Mainline queuing has prompted a closer look at the level of service at off-ramps from the northbound and southbound I-405 mainline. During the AM peak travel period, the traffic study indicates that the northbound I-405 off-ramp to Crenshaw Boulevard/182nd street is currently operating at a LOS "D" in existing condition and LOS plummets to "E" on the opposite, southbound I-405 off-ramp facilities. Together, these existing conditions create

queuing issues on both the northbound and southbound I-405 mainline at times, disrupting the flow of traffic on those heavily traveled facilities. The same mainline queuing issues existing during the PM peak travel period as both northbound and southbound I-405 off-ramps to Crenshaw Boulevard/182nd Street currently operate at LOS "E" in the existing condition. The following table summarizes the data regarding AM and PM peak travel periods and LOS in the existing condition.

Table 2.1.5-d AM/PM Peak Travel Period LOS summary for I-405 at Crenshaw Boulevard/182nd Street Off-Ramps

Off-Ramp	AM Peak Travel Period		PM Peak Travel Period	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Northbound I-405 at Crenshaw Boulevard/182nd Street	D	33.5	E	37.1
Southbound I-405 at Crenshaw Boulevard/182nd Street	E	36.7	E	36.2

Existing Level of Service (LOS) for Critical Signalized Intersections in Project Study Area. Factors that can affect LOS at signalized intersections are generally related to signal coordination, cycle length, protected left-turns (or lack thereof), and timing. Geometrically, issues regarding the number of lanes and exclusive left-and-right-turn lanes can also affect LOS, as well as other conditional factors like the percentage of truck traffic and the number of pedestrians. Where LOS on the freeway mainline and ramps were measured in traffic density (or passenger car per mile per lane), LOS at signalized intersections is measured in average total delay (or seconds delay per vehicle), which is summarized in the following table.

Table 2.1.5-e Level of Service Criteria for Signalized Intersections

Level of Service	Average Total Delay (seconds/vehicle)	Technical Description
A	≤10.0	The LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do no stop at all. Short cycle lengths may tend to contribute to low delay values.
B	>10.00 and ≤20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS "A," causing higher levels of delay.
C	>20.0 and ≤35.0	These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, through many still pass through the intersection without stopping.
D	>35.0 and ≤55.0	At this LOS, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	>55.0 and ≤80.0	These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent.
F	>80.0	This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high volume/capacity rations with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

On the city streets, the intersection of Crenshaw Boulevard and 182nd Street, and users of the Interstate 405 on-and-off ramps are known contributors to circulation issues in the project study area with repercussions at other intersections in the vicinity. The current northbound I-405 on-and-off ramps are currently grouped together just east of the aforementioned intersection on 182nd Street. Southbound I-405 on-and-off-ramps are also grouped together just south of 182nd Street and the I-405 mainline on Crenshaw Boulevard. These three points of interests were selected for analysis in the traffic study and existing delay and LOS for these intersections are summarized in the following table.

Table 2.1.5-f AM/PM Peak Travel Period LOS Summary at Study Intersections in the Project Study Area

Intersection	Peak Hour	Existing Delay (sec/veh)	Existing LOS
Crenshaw Boulevard and 182nd Street	AM	39.0	D
	PM	46.6	E
Northbound Interstate 405 On/Off Ramps at 182nd Street	AM	19.0	B
	PM	53.2	D
Southbound Interstate 405 On/Off Ramps at Crenshaw Boulevard	AM	52.9	D
	PM	39.7	D

Existing Accident Conditions in the Project Study Area. Accident rate data derived from TASAS (Traffic Accident Surveillance and Analysis System) show a higher-than-state average at a number of locations within the project study area, presenting opportunities to enhance safety. The following table summarizes TASAS accident rates (per MVM, or Million Vehicle Miles) at six locations within the project study area. Locations with higher than average accident rates are highlighted in bold.

Table 2.1.5-g TASAS Accident Rates in the Project Study Area

Location	Actual per MVM			Statewide Average per MVM		
	Fatality	Fatality & Injury	Total	Fatality	Fatality & Injury	Total
Northbound I-405 Off-Ramp to 182nd Street	0	**0.25**	0.64	0.003	0.24	0.84
Northbound I-405 On-Ramp from 182nd Street	0	0.1	0.1	0.001	0.13	0.46
Northbound Crenshaw Boulevard at I-405 Undercrossing	0	0.12	0.12	0.004	0.31	1.02
Southbound I-405 Off-Ramp to Crenshaw Boulevard	0	0.21	0.21	0.003	0.35	1.01
Southbound I-405 On-Ramp from Crenshaw Boulevard	0	**0.33**	**0.33**	0.003	0.24	0.72
Southbound Crenshaw Boulevard at I-405 Undercrossing	0	**0.36**	**0.36**	0.004	0.31	1.02

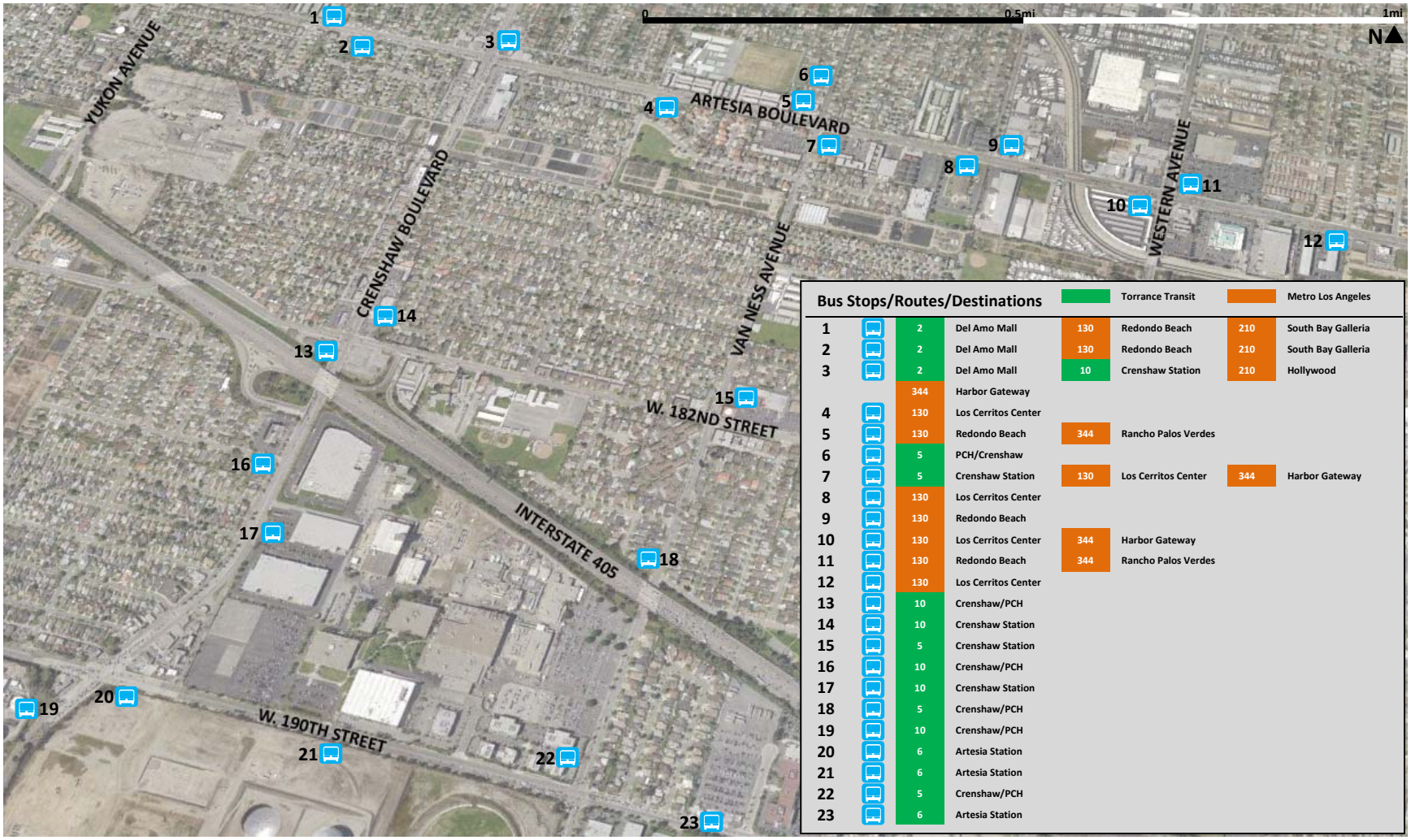
MVM = (Million Vehicle Miles)

Public Transit within the Project Study Area. Locally, the Torrance Transit System provides a general purpose, fixed-route bus system, as well as demand-responsive services for seniors and the disabled. The fixed-route service area includes all of Torrance, with routes going into Los Angeles via Gardena and Hawthorne, one route going into Downtown Long Beach, and another serving the Metro Blue Line station in Compton. Torrance Transit also serves Union Station in Downtown Los Angeles. The project study area is served by Routes 2, 5, 6, and 10, primarily along the east-west corridors of Artesia Boulevard and 190th Street, and along the north-south corridors of Crenshaw Boulevard and Van Ness Avenue.

Currently, Torrance is not served by the regional light-rail system operated by the Los Angeles County Metropolitan Authority (Metro), though environmental studies are in preparation for the extension of the Metro Green Line from its existing terminus at the Redondo Beach Station (off Aviation Boulevard and Rosecrans Avenue), to a proposed new terminus in Torrance at roughly Crenshaw Boulevard and Torrance Avenue (approximately 2 miles from the proposed project site).

Metro does operate several bus lines in the project study area including Lines 130, 210, and 344. Line 130 runs primarily east-west on Artesia Boulevard, providing service between Redondo/Hermosa Beach on the western end, and Cerritos at its eastern terminus. Line 210 runs primarily north-south through the project study area along Crenshaw Boulevard, providing service between Hollywood on the northern end, and Redondo Beach at its southern terminus. Line 344 is a Metro Limited bus service that runs primarily east-west through the project study area along Artesia Boulevard, and provides service between Rancho Palos Verdes to the south and the Harbor Gateway Transit Center to the east at the Interstate 110/State Route 91 Interchange. The following Figure 2.1.5-a shows the location of bus stops (Torrance Transit and Metro) within the vicinity of the proposed project.

Figure 2.1.5-a Bus/Public Transit Facilities within the Vicinity of the Proposed Project Site



Bus Stops/Routes/Destinations								Torrance Transit		Metro Los Angeles
1		2	Del Amo Mall	130	Redondo Beach	210	South Bay Galleria			
2		2	Del Amo Mall	130	Redondo Beach	210	South Bay Galleria			
3		2	Del Amo Mall	10	Crenshaw Station	210	Hollywood			
		344	Harbor Gateway							
4		130	Los Cerritos Center							
5		130	Redondo Beach	344	Rancho Palos Verdes					
6		5	PCH/Crenshaw							
7		5	Crenshaw Station	130	Los Cerritos Center	344	Harbor Gateway			
8		130	Los Cerritos Center							
9		130	Redondo Beach							
10		130	Los Cerritos Center	344	Harbor Gateway					
11		130	Redondo Beach	344	Rancho Palos Verdes					
12		130	Los Cerritos Center							
13		10	Crenshaw/PCH							
14		10	Crenshaw Station							
15		5	Crenshaw Station							
16		10	Crenshaw/PCH							
17		10	Crenshaw Station							
18		5	Crenshaw/PCH							
19		10	Crenshaw/PCH							
20		6	Artesia Station							
21		6	Artesia Station							
22		5	Crenshaw/PCH							
23		6	Artesia Station							

Environmental Consequences

Freeway Mainline and Ramp Influence Areas – All Build Alternatives

Level of Service (LOS) on the freeway mainline is broken into segments for easier interpretation. In these instances, a mainline LOS grade is assigned based on traffic density thresholds (passenger cars/per mile/per lane), and a separate LOS grade is assigned to what are referred to as "ramp influence areas," or areas nearest to mainline off-and-on-ramps where traffic typically slows. The following tables present projected LOS for the freeway mainline and ramp influence areas by build alternative, and what LOS is forecasted for AM and PM peak travel periods during the proposed opening year (2020), and the horizon year (2040). During AM and PM peak travel periods, a LOS of "D" or better is generally considered "acceptable" within the context of peak period traffic volumes.

Figure 2.1.5-b Analyzed I-405 Freeway Mainline and Ramp Influence Area Segments

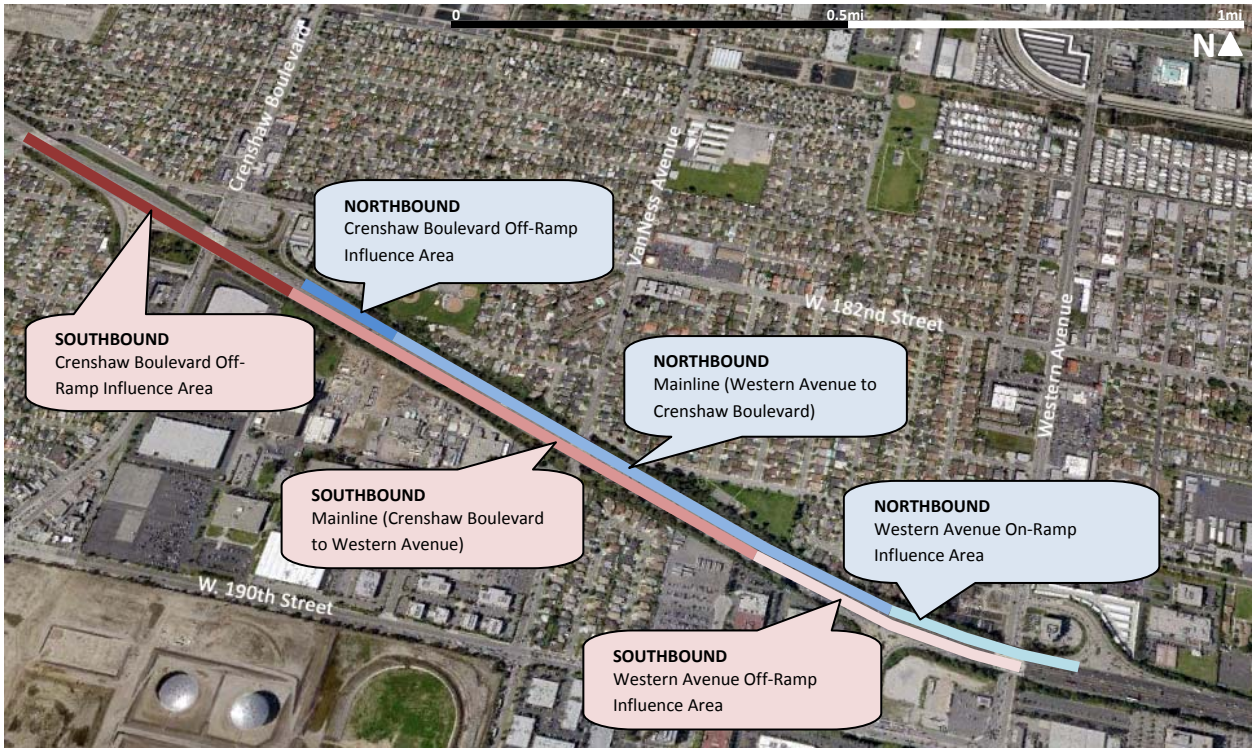


Table 2.1.5-h Proposed Opening Year (2020) Forecasted LOS During AM/PM Peak Period by Alternative

Segment	Peak Hour	Build Alternative 1	Build Alternative 2	Build Alternative 3	Alternative 4 (No-Build)
Northbound					
Western Avenue On-Ramp Influence Area	AM	D or Better	D or Better	D or Better	F
	PM	D or Better	E	D or Better	F
Mainline (Western-Crenshaw)	AM	D or Better	D or Better	D or Better	D or Better
	PM	D or Better	E	E	D or Better
Crenshaw Boulevard Off-Ramp Influence Area	AM	D or Better	D or Better	D or Better	F
	PM	D or Better	D or Better	D or Better	F
Southbound					
Crenshaw Boulevard Off-Ramp/On-Ramp Influence Area	AM	D or Better	F	D or Better	E
	PM	D or Better	D or Better	D or Better	D or Better
Mainline (Crenshaw-Western)	AM	D or Better	E	F	E
	PM	D or Better	D or Better	D or Better	D or Better
Western Avenue Off-Ramp Influence Area	AM	D or Better	F	F	F
	PM	D or Better	D or Better	D or Better	D or Better

Table 2.1.5-i Horizon Year (2040) Forecasted LOS During AM/PM Peak Period by Alternative

Segment	Peak Hour	Build Alternative 1	Build Alternative 2	Build Alternative 3	Alternative 4 (No-Build)
Northbound					
Western Avenue On-Ramp Influence Area	AM	D or Better	D or Better	D or Better	F
	PM	D or Better	E	F	F
Mainline (Western-Crenshaw)	AM	D or Better	D or Better	E	D or Better
	PM	D or Better	F	E	F
Crenshaw Boulevard Off-Ramp Influence Area	AM	D or Better	D or Better	D or Better	E
	PM	D or Better	E	E	E
Southbound					
Crenshaw Boulevard Off-Ramp/On-Ramp Influence Area	AM	D or Better	F	D or Better	E
	PM	D or Better	D or Better	D or Better	D or Better
Mainline (Crenshaw-Western)	AM	D or Better	E	E	F
	PM	D or Better	D or Better	D or Better	E
Western Avenue Off-Ramp Influence Area	AM	D or Better	F	E	E
	PM	D or Better	F	D or Better	E

In both the proposed opening year (2020) and the horizon year (2040), the Build Alternative 1 scenario is projected to make the most improvements to circulation at the I-405 at Crenshaw Boulevard/182nd Street interchange. With this build alternative, the addition of auxiliary lanes on both the north and southbound I-405 mainline creates a smoother transition for users entering and exiting the roadway, while creating additional storage to address queuing issues. Build Alternative 3 is projected to make more improvements to traffic circulation in the project study area than Build Alternative 2, but either would be an improvement over existing Levels of Service (LOS), and project LOS without implementation of the proposed project altogether [Build Alternative 4 (No-Build)].

Crenshaw Boulevard/182nd Street Off-Ramps – All Build Alternatives

Level of Service (LOS) for freeway off-ramp facilities is measured and graded in terms of traffic density (passenger cars/per mile/per lane). A generalized "with project" (all build alternatives) scenario was modeled, and an analysis of operational conditions at both the northbound I-405 off-ramp to 182nd Street and the southbound off-ramp to Crenshaw Boulevard was performed for the AM and PM peak travel periods, and forecasted/projected for the proposed opening year (2020), and the horizon year (2040). The results of this modeling and analyses are summarized in the following table.

Table 2.1.5-j AM/PM Peak Period Level of Service – Northbound/Southbound Off-ramps – All Build Alternatives

Off-Ramp	Peak Hour	2020 With Project (All Build Alternatives)		2020 Without Project (Alternative 4 – No-Build)		2040 With Project (All Build Alternatives)		2040 Without Project (Alternative 4 – No-Build)	
		LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
Northbound I-405 Off-Ramp at 182nd Street	AM	B	10.4	E	35.9	B	12.2	E	38.5
	PM	B	12.2	E	38.8	B	14.1	E	39.4
Southbound I-405 Off-Ramp at Crenshaw Boulevard	AM	A	9.5	E	39.7	B	11.3	E	42.2
	PM	A	7.7	E	38.2	A	9.6	E	40.2

The previous LOS table shows that implementation of the proposed project would be of greater benefit to operational conditions of both the northbound and southbound I-405 off-ramps to 182nd Street/Crenshaw Boulevard. Improved operational conditions at these off-ramps in turn, improves the LOS on the freeway mainline, particularly at the off-ramp influence areas, improving both circulation and safety. Choosing Alternative 4 (No-Build Alternative) would prompt a continued deterioration of operational conditions to LOS "E" in both the proposed opening year (2020) and the horizon year (2040).

Intersections Immediate to the I-405 at Crenshaw Boulevard/182nd Street Interchange – All Build Alternatives

Level of Service (LOS) for intersections immediate to the interchange are measured and graded in terms of average control delay. For the purposes of this traffic study, three intersections were selected for modeling and analyses. Again, a generalized "with project" (all build alternatives) scenario was modeled at three key intersections within the project study area for the AM and PM peak travel periods, and forecasted/projected for the proposed opening year (2020), and the horizon year (2040). The three selected intersections of study are presented in the following figure, and the results of modeling and analyses are summarized in the table below.

Figure 2.1.5-b Selected Intersections of Study Immediate to the I-405 at Crenshaw Boulevard/182nd Street Interchange

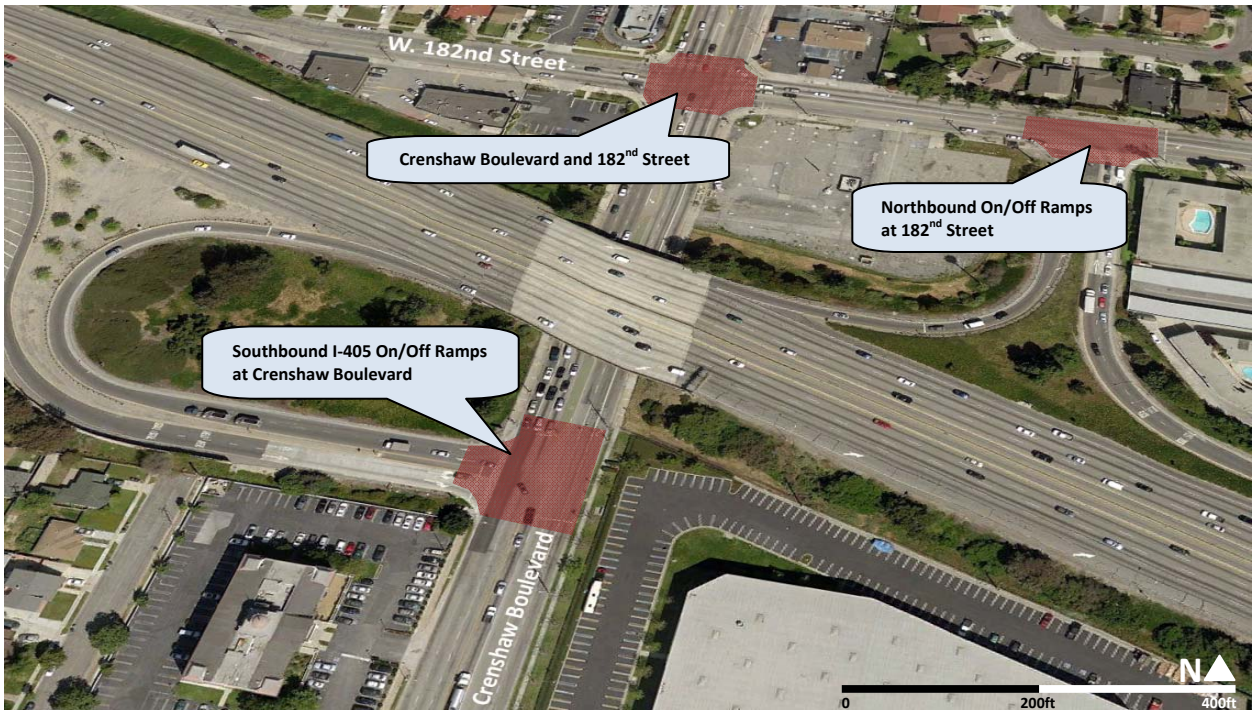


Table 2.1.5-k AM/PM Peak Period Level of Service (LOS) at Intersections Immediate to Interchange

Intersection	Peak Hour	2020 With Project (All Build Alternatives)		2020 Without Project (Alternative 4 – No-Build)		2040 With Project (All Build Alternatives)		2040 Without Project (Alternative 4 – No-Build)	
		LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)	LOS	Delay (seconds)
Crenshaw Boulevard and 182nd Street	AM	C	22.3	D	48.1	C	28.1	E	78.4
	PM	C	31.5	F	80.4	D	45.9	F	114.4
I-405 Northbound On/Off Ramps at 182nd Street	AM	B	18.1	C	20.7	B	19.5	C	22.6
	PM	C	21.4	F	81.3	C	30.7	F	97.3
I-405 Southbound On/Off Ramps at Crenshaw Boulevard	AM	C	25.1	F	85.3	C	25.1	F	129.3
	PM	C	21.8	D	43.7	C	28.1	E	63.6

The previous LOS table shows further demonstrates that implementation of the proposed project will not only improve operational conditions on the freeway mainline and off-ramps, but also improve operational conditions at intersections immediate to the I-405 at Crenshaw Boulevard/182nd Street Interchange. Together, improvements to the mainline, ramps and intersections immediate to the interchange will work to improve circulation and safety

throughout the project study area and the region as a whole. Continued increases in delays and reductions in LOS would occur in the instance Alternative 4 (No-Build Alternative) were chosen.

Public Transit – All Build Alternatives

Only three bus stops are located within the immediate vicinity of the proposed project site – two at the intersection of Crenshaw Boulevard and 182nd Street and one immediately north of the I-405/Van Ness Avenue undercrossing – represented as Bus Stops 13, 14 and 18 in the previous Figure 2.1.5-a. The proposed project does not require the closure or relocation of any of these public transit facilities and does not pose any adverse effects to the local public transit system in the larger project study area. Any effects or conflicts would be temporary in nature, and minimized via proper coordination with Torrance Transit and Metro.

Pedestrian/Bikeway Access – All Build Alternatives

Caltrans has the responsibility to ensure that all projects that receive federal financial assistance from the U.S. Department of Transportation, fully comply with 49 CFR (Code of Federal Regulations), Part 27 entitled, *Nondiscrimination on the Basis of Disability in Programs and Activities Receiving of Benefitting from Federal Financial Assistance*. 49 CFR, Part 27 applies to each recipient of federal assistance from the U.S. Department of Transportation, and to each program or activity that receives benefits from such assistance.

Specifically, Caltrans' role is to ensure that all new and existing altered facilities such as, but not limited to highway rest area facilities, sidewalks, pedestrian cross walks, pedestrian over-passes, under-passes, and ramps shall be made accessible to disabled persons in accordance with federal and state (the state should provide equal or greater accessibility) standards on all federal-aid projects meeting the criteria for ADA compliance. The proposed project is not anticipated to have any adverse effects on existing facilities in terms of ADA compliance, and any design changes that would have the potential to, are subject to review to ensure compliance with all Federal and State standards. There are currently no designated or proposed bike paths or bike lanes within the immediate vicinity of the proposed project, but the Van Ness Avenue corridor, which runs north-south through the project site is designated as a Class III Bike Route – no adverse effects to this facility are anticipated as a result of the proposed project.

Construction Related Effects – All Build Alternatives

The proposed project would be constructed in phases, with project design dictating modifications to the existing interchange facilities/system that will require temporary closure of existing on-and-off-ramps to the public. Detailed construction staging plans will be completed for the proposed project, including detailed analyses regarding the temporary effects of construction on traffic and the planning of phases to minimize any effects accordingly and where possible.

Construction of the proposed improvements will likely require the temporary narrowing of traffic lanes and a loss of shoulder areas for a prolonged period, thereby temporarily reducing the effective capacity of associated freeway segments, on/off-ramps, and intersections immediate to the interchange. This may result in overall traffic delay increases during peak traffic periods, through the effects would be temporary and limited to the duration of construction. Depending on selection of the preferred alternative, approximate duration of these temporary, construction-related effects would be 500 working days for Alternative 1; 150 working days for Alternative 2; and 300 working days for Alternative 3.

Effects on traffic delays are particularly significant at the start of construction, due to spectator slowing and the need for the average driver to adjust to changes in the roadway. However, within one-to-two weeks after the start

of construction, regular commuters tend to become accustomed to driving through the construction zone and the amount of traffic delays caused by construction decreases accordingly.

No Build Alternative

If the proposed project were not built, there would be no alterations to the existing interchange facilities and no changes to the existing operational environment, and LOS conditions on the freeway mainline, on-and-off ramps, and intersections immediate to the interchange would continue to deteriorate as projected/forecasted in the preceding tables that summarize the modeling and traffic data analyses performed for the proposed project.

Avoidance, Minimization, and/or Mitigation Measures

The proposed project involves the reconstruction of the existing I-405 at Crenshaw Boulevard/182nd Street interchange, including modification of existing ramps, and the construction of new roadways. Depending on selection of the preferred alternative, approximate duration of the aforementioned temporary, construction-related effects would be 500 working days for Alternative 1; 150 working days for Alternative 2; and 300 working days for Alternative 3. The following measures shall be implemented to minimize any potential adverse effects on traffic, circulation and safety during the process of design and construction, and after completion of construction:

- **Caltrans Complete Streets Directive DD-64-R2.** A "complete street" is a facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, and motorists appropriate to the function and context of the facility. This directive shall ensure that the proposed project is designed in such a manner that all travelers of all ages and abilities can move safely and efficiently along and across a network of "complete streets."
- **Transportation Management Plan (TMP).** A TMP shall be developed to implement practical measures to minimize any traffic delays that may result from lane restrictions or closures in the work zone. TMP strategies shall be planned and designed to improve mobility, as well as increase safety for the traveling public and highway workers. These strategies include, but are not limited to, dissemination of information to motorists and the greater public, traffic incident management, construction management strategies, traffic demand management, and alternate route planning/detouring.
- **Roadway Closure Planning.** Closure plans shall be developed to minimize traffic disruption during peak periods, and to the extent possible, such closures (when required) shall occur during off-peak and/or overnight periods. Customarily, construction staging plans shall complement closure plans to minimize the need for roadway and/or ramp closures. No full closures of the Interstate 405 mainline shall occur during peak periods whatsoever. In advance of any closure periods, appropriate temporary signage (in accordance with Caltrans and City guidelines) shall be used to alert motorists of the closure and direct them to alternate routes.
- **Temporary Traffic Controls.** Temporary traffic controls, signage, barriers, and flagmen shall be deployed as necessary and appropriately for the efficient movement of traffic (in accordance with standard traffic engineering practices) to facilitate construction of the project improvements while maintaining traffic flows and minimizing disruption.

2.1.6 VISUAL / AESTHETICS

Regulatory Setting

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

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

Affected Environment

A Visual Impact Assessment was prepared (11 December 2014) to assess the proposed project's potential to affect visual resources through activities such as vegetation removal, cutting and filling of slopes and/or structures, and the installation of signage and lighting, amongst other activities. The proposed project is located on Interstate 405 between Western Avenue and Crenshaw Boulevard in what is referred to as Northeast Torrance. The existing landscape is manmade, with sparse ornamental vegetation and the project site is located within a highly-developed urban environment that consists of existing on/off ramps, and/or freeway/ramp edge conditions that are typical of freeway/roadway infrastructure throughout the built urban setting. The proposed project site is not on a designated scenic highway, nor is the highway eligible for designation. None of the components of the proposed project site lie within an area containing unique scenic resources; nor are they located within an existing scenic vista. There are no notable viewsheds within the proposed project study area that contain any distinct physical terrain features or points of interest.

Environmental Consequences

While the Interstate 405 freeway is principally a north-south route, the mainline traverses from east-to-west through the project study area. For the purposes of studying the potential effects of the proposed project, the study area was divided into quadrants, intersected east-west by the I-405 mainline, and north-south by Crenshaw Boulevard.

All Build Alternatives – Northeast Quadrant. In the northeast quadrant of the project study area, widening of the northbound I-405 off-ramps and adjacent roadways would be compatible with the existing visual character of the corridor. It is anticipated that the average response of all viewer groups would be low. All build alternatives proposed the reconstruction and extension of the existing soundwall between Western Avenue and Crenshaw Boulevard to a height of 16 feet. Because it has already been established that there are no notable viewsheds within this quadrant that contain any distinct physical terrain features or points of interest, the reconstruction/extension of this soundwall would be the most significant visual resource change, and it is anticipated that the average response to this change by all viewer groups would be low. The following figures illustrate that potential change.

Figure 2.1.6-a Reconstruction/Extension of Existing Soundwall and Visual Change, Northbound I-405, Northeast Quadrant

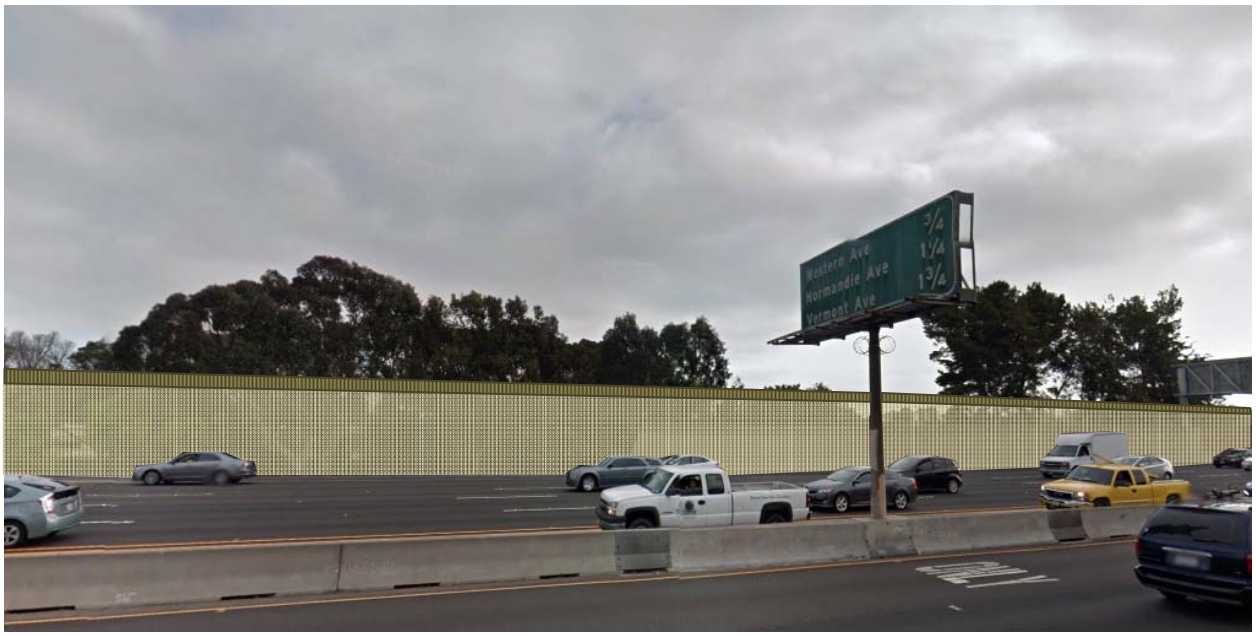


Figure 2.1.6-b Reconstruction/Extension of Existing Soundwall – I-405 Northbound Off-Ramp to 182nd Street/Crenshaw Boulevard, Northeast Quadrant

Figure 2.1.6-c Reconstruction/Extension of Existing Soundwall – 185th Street and Purche Avenue, Northeast Quadrant

Figure 2.1.6-d Reconstruction/Extension of Existing Soundwall – Northern Side of Van Ness Avenue Undercrossing, Northeast Quadrant

All Build Alternatives – Southeast Quadrant. In the southeast quadrant of the project study area, the proposed widening of the roadways interfacing with the interchange would be compatible with the existing visual character of the corridor. It is anticipated that the average response of all viewer groups would be low, even in

consideration of the construction and addition of a new southbound I-405 on-ramp associated with Alternative 1 in this quadrant. Alternatives 1 and 3 also propose a reconstruction and extension of an existing soundwall just east of Van Ness Avenue to a height of 16 feet, and would likely obstruct partial/distant views of Rolling Hills from the I-405 mainline. It is anticipated that the average response to this change by all viewer groups would be low nevertheless, and the following figure illustrates that potential change.

Figure 2.1.6-e Reconstruction/Extension of Existing Soundwall, Alternatives 1/3 Only – Southbound I-405 at Van Ness Avenue, Southeast Quadrant

Figure 2.1.6-f Reconstruction/Extension of Existing Soundwall– Southern Side of Van Ness Avenue Undercrossing, Southeast Quadrant

All Build Alternatives – Southwest Quadrant. In the southwest quadrant of the project study area, the proposed widening of roadways interfacing with the interchange would be compatible with the existing visual character of the corridor, and it is anticipated that the average response of all viewer groups would be low. All build alternatives propose reconstruction of the existing soundwall just west of the I-405 southbound off-ramp to Crenshaw Boulevard to 16 feet in height. Because it has already been established that there are no notable viewsheds within this quadrant that contain any distinct physical terrain features or points of interest, the reconstruction of existing soundwalls to 16 feet would be the most significant visual resource change, and it is anticipated that the average response to this change by all viewer groups would be low. The following figure illustrates that potential change.

Figure 2.1.6-g Reconstruction/Extension of Existing Soundwall – I-405 Southbound Off-Ramp to Crenshaw Boulevard, Southwest Quadrant

Figure 2.1.6-h Reconstruction/Extension of Existing Soundwall – 183rd Street and Elgar Avenue, Southwest Quadrant

All Build Alternatives – Northwest Quadrant. In the northwest quadrant of the project study area, the proposed widening of roadways interfacing with the interchange would be compatible with the existing visual character of the corridor, and it is anticipated that the average response of all viewer groups would be low. There are no notable viewsheds within this quadrant that contain any distinct physical terrain features or points of interest, and there are no new structures proposed, such as soundwalls, that would alter or change existing visual resources, therefore it is anticipated that the average response by all viewer groups would be low.

Temporary Effects – Construction. During construction of the proposed project, aesthetics in the project study area would temporarily have a disturbed appearance, particularly during excavation activities, and would vary depending on varying stages of construction. Notwithstanding, standard Caltrans practices would assure that the new facilities and aesthetics in the project study area would blend with the appearance of the existing and adjacent terrain.

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to existing visual resources, and would not require any measures to minimize any effects; therefore, it would present no potential impacts to existing visual resources.

Avoidance, Minimization, and/or Mitigation Measures

Preservation of Visual Character. Given the urbanized nature of the project study area and the lack of scenic resources, design for the modification of the interchange and facilities shall consider the urban character of the area through aesthetic/architectural treatments for bridge railings, walls, fencing, bents, bent caps, lighting and signage. The most prominent feature of the proposed project that may impact the visual character within the project study area would be the widening of bridge structures and local arterials. Careful consideration shall be given to ensure structures blend into the neighborhood, and adherence to urban design standards by the City of Torrance shall be applied where feasible.

Additionally, the Caltrans Project Development Procedures Manual (PDPM) provides guidelines for addressing the aesthetics of Caltrans projects. Included are the following guidelines that shall be adhered to in the design of the new interchange facilities:

- The general alignment and profile of the highway should fit the character of the area traversed, and follow the existing terrain as closely as possible to minimize unsightly scars caused by excavation and embankment work
- Slopes shall be rounded to blend with the surrounding topography
- Protection of desirable vegetation (e.g. trees, specimen plants, diminishing native species, or historical plantings) is preferred wherever possible. Destruction of desirable vegetation shall be avoided where possible, or minimized
- Project materials shall reflect the character of the area
- Provisions for watering and establishment of replacement planting shall also be considered
- Areas adjacent to all of the project improvements, including areas affected by construction/staging activities shall be re-landscaped to an appearance similar to the existing conditions, and in a manner so as to blend with the appearance of the existing conditions in the Caltrans right-of-way in areas adjacent to the project site

2.1.7 CULTURAL RESOURCES

Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (buildings, structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966 , as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (National Register). Section 106 of the NHPA requires that federal agencies take into account the effects of their undertakings on historic properties and allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP [36 Code of Federal Regulations (CFR) 800]. On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the ACHP, Federal Highway Administration (FHWA), California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The First Amended PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The California Environmental Quality Act (CEQA) is intended to evaluate whether a proposed project may cause an adverse effect on the environment and to reduce or eliminate those impacts through implementation of mitigation. CEQA is codified in the California Public Resources Code (PRC), Sections 21000 *et seq.* Historic properties are considered under CEQA, as well as PRC Section 5024.1, which established the California Register of Historical Resources (California Register). PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed in or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

Affected Environment

General Setting. The City of Torrance covers an area of approximately 20.5 square miles and has an average elevation of 87 feet above mean sea level. Torrance is within the "southwestern block" of the Los Angeles Basin, an area described as consisting of the lowland areas (coastal plain) between the Santa Monica Mountains and the Santa Ana Mountains. The city is located in an ethnographic area associated with the Gabrielino (Tongva) of the Los Angeles, San Gabriel, Rio Hondo, and Santa Ana River drainages. The Gabrielino are known as a society identified by historic ethnographic records and archaeological data identifying Late Prehistoric/Proto-historic occupation of Southern California. The term "Gabrielino" is a reference to the direct association between the Native American population of the San Gabriel Valley and the Mission San Gabriel, which serviced the entire region now known as Los Angeles County and part of Orange County; ranging from the coast to the San Gabriel/San Bernardino Mountains, and from northern Los Angeles County to just north of San Juan Capistrano.

Historically, the City of Torrance is located within the boundaries of the Spanish Period Rancho San Pedro (circa 1784), originally granted to Juan Jose Dominguez by King Carlos III of Spain. Land use in these times was focused on cattle and in 1845, the rancho was used as a base for California Troops during the U.S. – Mexican War. The

Dominguez family maintained the property until 1911, when a portion was sold by descendants of the original owners to Jared Sidney Torrance and Associates. Torrance was founded on May 31, 1911.

Site Specific Studies. Two site specific technical studies were performed for the proposed project: a Historic Property Survey Report (HPSR) and a Historical Resources Evaluation Report (HRER) [Caltrans Division of Environmental Planning, Cultural Resources Branch, February 2015]. The HPSR is a summary document used for consultation and decision-making, and under Section 106, it documents the completion of an identification phase, evaluation of resources regarding eligibility for inclusion in the National and California Registers, and delineation of what is known as the Area of Potential Effects (APE).

In support of the HPSR and the HRER, consultation was performed with parties considered to have expertise in cultural and historic resources in the project study area:

- City of Torrance, Community Development Department
- California Native American Heritage Commission (NAHC)
- Native American Tribes, Groups and Individuals as specified by the NAHC
- Torrance Historical Society and Museum
- Save Historic Old Torrance
- Los Angeles City Historical Society
- Los Angeles Conservancy
- Historical Society of Southern California

Identification of historic properties in the project study area was further supported by a records search of the local California Historical Resources Information System (CHRIS) Information Center, library and Internet-based research, and field surveys. The following lists and databases were consulted in preparing the HPSR and HRER:

- National Register of Historic Places
- California Register of Historical Resources
- California Inventory of Historic Resources
- California Historical Landmarks
- California Points of Historical Interest
- Historic Property Data File, April 2012
- Caltrans Cultural Resources Database (CCRD), December 2014
- California Historic Highway Bridge Inventory, November 2014
- City of Torrance, Historic Sites (2015)

Additionally, the following sources were consulted during the identification process, and used to support the aforementioned documentation:

- *Los Angeles Times* index (October-December, 2014)
- Los Angeles Public Library, California Index and Photograph Collection (January 2015)
- Torrance, City of. Planning and Building Departments (January 2015)
- Torrance, City of. *General Plan 2009* (Adopted April 6, 2010, November 2014-January 2015
- Torrance Public Library, Historical Newspaper Archives (*Torrance Herald, Torrance Herald Press*, January 2015)
- University of Southern California, Digital Archive (January 2015)

The APE for the project was established to ensure identification of significant historical, architectural, and archaeological resources regarding listing or eligibility for inclusion not just in the National Register, but also the California Register, and whether the proposed project would have the potential for direct or indirect effects on any resources of concern. The Direct APE encompasses all horizontal and vertical ground disturbances associated with the proposed project. The Indirect APE includes the Direct APE, and extends to include parcels that directly face the proposed project site where there is the potential for effects from construction or implementation. The

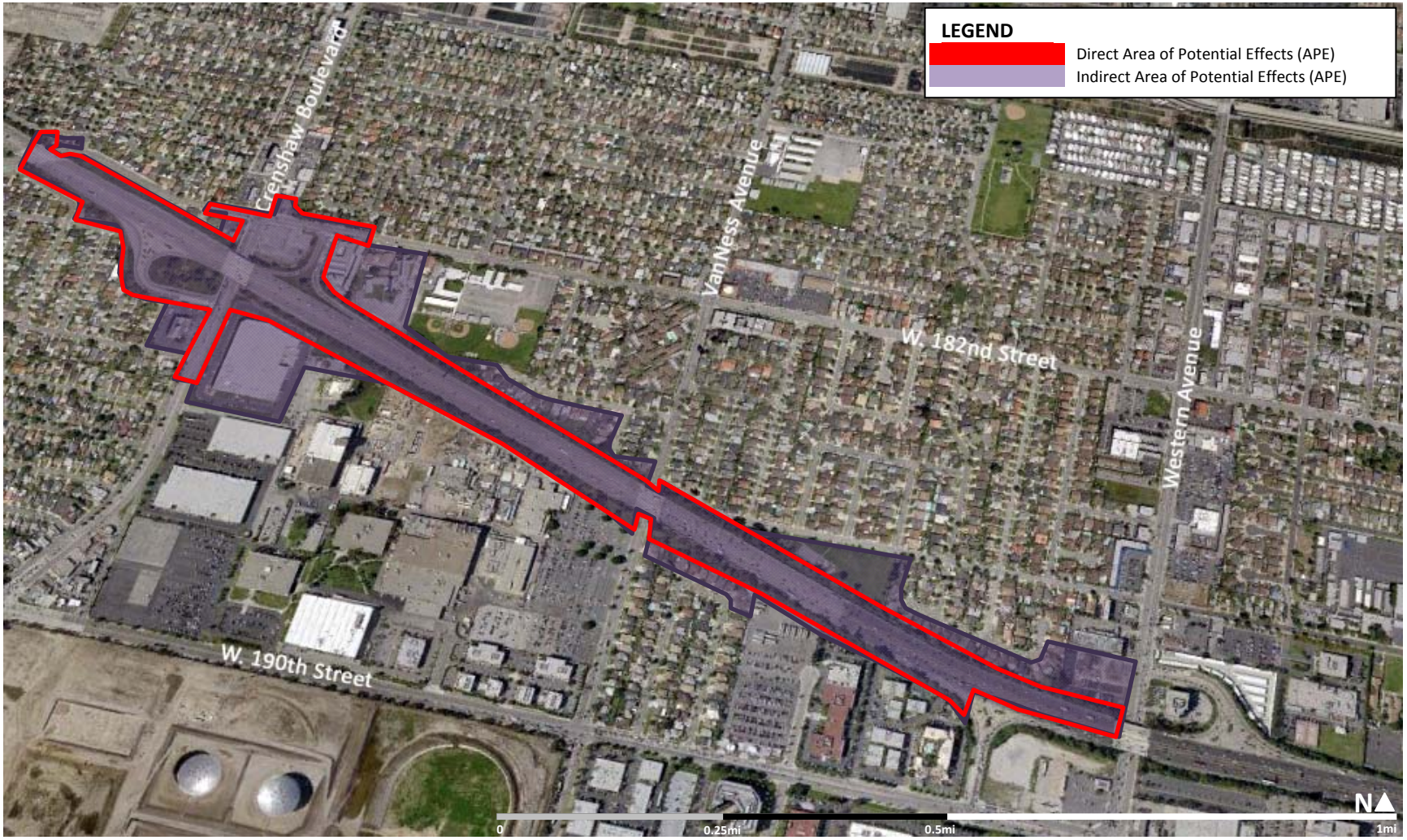
Indirect APE also includes parcels where there is potential for effects regarding the visual/aesthetic character of the properties of concern, and any potential effects regarding noise and/or vibration as a result of construction or implementation of the proposed project. In general, the proposed project is located in a combination industrial, commercial office/retail and suburban residential setting.

Iowa Courthouse Building (environmental document cover subject). In the mid-1970s, Torrance-based lawyer and real estate developer, Dudley Gray came up with a concept that would indulge his boyhood love of historic courthouses. A classified ad appeared in the *Des Moines Register* stating, "I desire to purchase a courthouse suitable for dismantling and reconstruction as a low building in Los Angeles. Please send photos, specifications and information…"

As a result of his search, Gray eventually decided on the Pottawattamie County Courthouse, in Council Bluffs, Iowa. The *Beaux Arts* style building was designed by Edmond J. Eckel, FAIA, with Frederick R. Mann, and completed in 1888. The character-defining tower was removed in 1950, and by the mid-1970s, the regionally significant building was being replaced by a more modern facility. Gray acquired the building for a reported $50,000, but soon found that the large masonry building would not comply with more stringent California building codes, and swapped the relocation project for a limited salvage plan. The "receiver" site for the court house was just south of the I-405 at Crenshaw Boulevard interchange, next to the southbound off-ramp, and by the time the project was completed in 1980, the new owner only had about five percent of the historic building fabric. The building is not eligible for historic listing on the National or California registers, but is easily one of the most distinctive buildings within the project study area, which is why it was selected to be featured on this document cover.

Figure 2.1.7-a Pottawattamie County Courthouse (Council Bluffs, IA)/Iowa Courthouse Building (Torrance, CA)

Figure 2.1.7-b Area of Potential Effects (APE)



Field Study. Once the APE was defined, field surveys were performed to account for all properties of concern using a list of all affected parcels in the project study area. This list helped to determine, in part, which properties would be studied in further detail and which properties would be excluded, requiring no further evaluation. Only four properties in the APE met the 50 year age criterion to warrant intensive evaluation and were not exempt from evaluation under the First Amended Programmatic Agreement.

Study Findings

Historical Resources. Within the APE, four properties were identified that warranted consideration for National and California Register eligibility:

- Property 1 – 2818 West 182nd Street – La Palma Apartments
- Property 2 – 2706 West 182nd Street – Christ the King Lutheran Church
- Property 3 – 2606 West 182nd Street – Hamilton Adult School
- Property 4 – 18715 South Western Avenue – Okada Nursery

Also within the APE, the following four bridges were listed in the Caltrans Historic Bridge Inventory:

- Bridge No. 53-1172 (Western Avenue Undercrossing)
- Bridge No. 53-1174 (Van Ness Avenue Undercrossing)
- Bridge No. 53-1175 (Crenshaw Boulevard Undercrossing)
- Bridge No. 53-1176 (182nd Street Undercrossing)

Each bridge in the Caltrans Historic Bridge Inventory is evaluated for listing eligibility in the National Register, and assigned a category or status designation from 1-5, and while all four of the aforementioned bridges are included in this inventory, each was previously determined not eligible for listing in the National Register.

Of the properties evaluated for historical significance, none had been previously evaluated, and none of these resources was determined eligible for listing in the National or California Registers. None are historical resources for the purposes of CEQA. The resultant determination is that the proposed project will result in a No Historic Properties Affected finding as outlined in the First Amended PA. On March 19, 2015, the California SHPO concurred with these determinations.

Archaeological Resources. A CHRIS records search at the South Central Coastal Information Center (SCCIC, at California State University, Fullerton); a review of the CCRD, Caltrans files, archaeological literature, and historic maps; a search of the Sacred Lands File; consultation with Native Americans; and an archaeological field reconnaissance were conducted. No archaeological resources were identified and the potential to encounter buried archaeological deposits is low. Therefore, a determination was made that no known archaeological resources will be affected by the proposed project and no further archaeological study is required.

Environmental Consequences

All Build Alternatives. As indicated in the HPSR and the HRER, no historic properties or historical resources are present within the APE, and no known archaeological resources are present that are expected to be affected by the proposed undertaking. As previously noted, the California SHPO with Caltrans' determination of No Historic Properties Affected as outlined in the First Amended Programmtic Agreement. Additionally, because there are no historic properties, no use under Section 4(f) is expected to occur.

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, therefore no impacts on cultural resources would be expected.

Avoidance, Minimization, and/or Mitigation Measures

It is Caltrans' policy to avoid cultural resources whenever possible. If unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the project changes to include areas not previously surveyed.

While no significant cultural resources were identified within the APE, and the occurrence of such is not expected considering the scope of work for the proposed project, there exists a possibility of scenarios where unanticipated cultural resources may be encountered. When and where this occurs, the following regulatory procedures are applicable:

- **Unexpected Discovery of Cultural Materials.** If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that all earth moving activity within and around the immediate area shall be halted until a qualified Caltrans archaeologist under the direction of the District Heritage Resource Coordinator can assess the nature and significance of the find. Work can only resume in the area of the find after approval to proceed is given by the Caltrans archaeologist or District Heritage Resource Coordinator (HRC). Work may continue in other areas of the project limits away from the discovery.
- **Unexpected Discovery of Human Remains.** If human remains are discovered, State Health and Safety Code Section 7050.5 requires that no further excavation or disturbance occur in the immediate vicinity of the remains and that the County Coroner be contacted immediately. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) within 24 hours of the discovery who will then designate and notify the Most Likely Descendent (MLD). Prior to this time, the person who discovered the remains will have contacted the District 7, HRC or District Native American Coordinator (DNAC), and work will be conducted with the MLD on the respectful treatment and disposition of the remains discovered during any of its activities. Further provisions of PRC 5097.98 are to be followed below as applicable:

    - Caltrans shall cease work in the vicinity of the human remains.
    - The lead person on the project (for instance, field director, resident engineer, maintenance supervisor, or permit engineer) ensures that the HRC or DNAC is immediately contacted.
    - The lead person, HRC, or DNAC telephones the County Coroner and the NAHC. Although the Coroner has the ultimate responsibility to contact the NAHC, Caltrans calls the NAHC at this time to provide information on the discovery, and to assure the NAHC that appropriate action is being taken. The Coroner may or may not inspect the remains. If the Coroner inspects the remains and determines that the remains are not Native American and/or determines they are a result of wrongful death, the Coroner may take possession of the remains for further inquiry, release them to next of kin, or order the body to be reinterred. After the above action has been taken, work may resume on the excavation project.
    - If the Coroner determines that the remains are Native American, the Coroner notifies the NAHC of the findings. The NAHC immediately notifies the MLD.
    - The MLD inspects the remains and makes a recommendation to the lead person on the treatment of remains and associated grave goods.
    - The lead person ensures that the recommendations are followed. After the appropriate actions are taken, the excavation work may resume.

2.2 PHYSICAL ENVIRONMENT

2.2.1 HYDROLOGY AND FLOODPLAIN

Regulatory Setting

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

To comply, the following must be analyzed:

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

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

Affected Environment

Designated Flood Zones. Torrance, like most of Southern California, is subject to unpredictable seasonal rainfall. Most years, winter rains are scant; however, every few years the region is subjected to periods of intense and sustain precipitation that results in flooding. Floods are natural and recurring events that become hazardous when humans encroach onto floodplains, modifying the landscape, increasing the amount of impervious surfaces, and building structures in areas meant to convey excess water during floods.

Special Flood Hazard Areas (SFHAs) are areas designated by the Federal Emergency Management Agency (FEMA) as zones where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. SFHAs are defined as the area that will be inundated by the flood event having a 1-percent change of being equaled or exceeded in any given year. The 1-percent annual change flood is also referred to as the base flood or 100-year flood. The SFHA includes designated Zones A, AO, AH A1-30, AE, A99, AR/A1-30, AR/AE, AE/AO, AR/AH, AR/A, VO, V1-30, VE, and V. Only a few, small, isolated areas within the city have been mapped as SFHAs, and these result primarily from ponding of water in shallow depressions or sumps, and not from channel flooding. Several of the SFHAs occupy low points that were once natural closed depressions in the El Segundo Sand Hills.

The Flood Insurance Rate Map (FIRM) is the official map of a community on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the community. In referencing the FIRM for Los Angeles County, California and Incorporated Areas, Panel 1930F (Map No. 06037C1930F), the proposed project site is located within area designated as Zone X, which is not a designated SFHA. Flood insurance is not necessary within Zone X areas as they are considered areas of minimal flood hazard and above the 500-year flood level.

Environmental Consequences

All Build Alternatives. As previously discussed, the proposed project is located outside of the base floodplain and would not be subject to flooding during proposed project operations. It is anticipated that the modification of the I-405 at Crenshaw Boulevard/182nd Street interchange would result in a negligible increase in runoff volume, but it is not anticipated to affect downstream flow, discharge to lined channels, potential sediment loading, or cause other hydraulic changes to the storm drain system affecting downstream channel stability as a result of increases in Disturbed Soil Areas (DSAs) and Net Additional Impervious Areas (AIA). Furthermore, the proposed project would not result in an increase in the base floodplain elevation nor encroach upon a floodplain area.

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils or increase in impervious areas; therefore, it would present no potential impacts in terms of hydrology and floodplain encroachment.

Avoidance, Minimization and/or Mitigation Measures

The proposed project improvements are not anticipated to cause any hydraulic changes to the storm drain system that would affect downstream channel stability, and therefore would not result in an increase in the base floodplain elevation nor encroach upon a floodplain area that would require any avoidance, minimization and/or mitigation measures. Other avoidance measures that would minimize any potential impact of the proposed project's drainage characteristics are addressed in the following subsection entitled, "Water Quality and Storm Water Runoff."

2.2.2 WATER QUALITY AND STORM WATER RUNOFF

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4). Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department's MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012 and became effective on July 1, 2013. The permit has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit. Construction General Permit (Order No. 2009-0009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting. Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

The ensuing discussion regarding water quality and storm water runoff has been excerpted from multiple sources, including the Storm Water Data Report as prepared by the Caltrans Office of Design (2015), the Dominguez Watershed Master Plan as prepared by the Los Angeles County Department of Public Works (2004), the City of Torrance General Plan Update Environmental Impact Report (2009), and independent research performed by the Caltrans Division of Environmental Planning.

Regional Drainage. The City of Torrance lies at the western edge of the greater floodplain of the Los Angeles and San Gabriel Rivers. Historically, these rivers collected runoff from the surrounding mountains, spreading stormwater and sediment loads across the Los Angeles Basin. The natural rivers were rarely channelized, and changed their courses often, which is the basis for creation of the basin floor and its underlying aquifers. In the northeastern part of Torrance, the floodplain was slightly elevated and had been gently incised by the Dominquez Creek and its associated tributaries, ponds, and wetlands. In the central and western parts of the city, rainwater collected in shallow depressions within the dunes of the El Segundo Sand Hills. The southeastern part of the city was drained by shallow streams that meandered toward the Bixby Slough, a remnant of which is now called Machado Lake. Runoff from streams in the Palos Verdes Hills collected in depressions at the base of the hills or joined the Bixby Slough drainage system, eventually reach the San Pedro Bay. Along the western coastal margin, small channels conveyed runoff to the Pacific Ocean.

Urbanization of the local landscape and the channelization of creeks and rivers to form retention basins, storm drains, and flood control channels altered the natural drainage patterns of the city, much like the rest of the Los Angeles Basin. The main channels in Torrance, the Dominguez Creek and the Torrance Lateral, were channelized in the late 1920s. The Dominguez Channel, which is maintained by the Los Angeles County Flood Control District, collects storm runoff from section of the cities of Hawthorne, Gardena, Lawndale, and Redondo Beach. The channel flow southerly, emptying into the Los Angeles Harbor Area.

Local Drainage. Most of Torrance exists within the Dominguez Watershed, which covers 133 square miles in the southwestern portion of Los Angeles County. The primary waterway draining the Dominguez Watershed is the

Dominguez Channel, which extends 15 miles in a southeasterly direction from its origin in the City of Hawthorne to its final discharge point in the Los Angeles Harbor. The remainder of the city, near its western boundary, exists within the Lower Santa Monica Bay Watershed, where local runoff is directed to detention or retention basins scattered throughout the local area. Many of these basins occupy what were natural depressions between sand dunes. In the southeastern part of Torrance, runoff is directed via storm drain to the Walteria Retention Basin, where it is dissipated by infiltration and evaporation.

Groundwater. The City of Torrance almost entirely lies within the West Coast Groundwater (WCG) Basin, which spans much of the southwestern portion of the Los Angeles Basin. Groundwater levels throughout most of the WCG Basin are below sea level and generally flow in a southeasterly direction. The Torrance Municipal Water District (TMWD) only obtains about 12 percent of its total water from groundwater supplies, with roughly 65 percent of this groundwater from a desalter because of high salinity levels in local groundwater supplies. The WCG Basin is the source of groundwater for the TMWD, with four aquifers in the vicinity—the Gage, Gardena, Lynwood, and Silverado Aquifers.

Both the West Basin Municipal Water District (WBMWD) and the Water Replenishment District of Southern California (WRD) actively monitor the basin for water quality issues. WBMWD assists water purveyors in its service area in meeting drinking water standards through its Cooperative Basin-Wide Title 22 Groundwater Quality Program. The program includes wellhead testing, reservoir sample collecting, water quality testing, and reporting services. WRD conducts a comprehensive groundwater quality program to evaluate water quality compliance in production wells, monitoring wells, and recharge/injection areas. WBMWD currently coordinates groundwater quality compliance monitoring of wells for TMWD. TMWD collects water quality samples in the distribution system.

Environmental Consequences

All Build Alternatives

Disturbed Soil Area (DSA) and Net Additional Impervious Area. Disturbed soil areas (DSAs) include all proposed project construction activity that disturbs native soil and fill within project limits. This does not include routine or preventative maintenance activities to maintain existing highways (facilities), structures, and existing functions. Asphalt concrete, Portland cement concrete, aggregate base, shoulder backing, bridge decks, sidewalks, buildings, road side ditches, gutters, dikes, and culverts are all part of existing highway facilities, and are not considered in the calculation of DSA.

Proposed project construction can involve grading and soil compaction, an increase in impervious surfaces (roadways, roofs, sidewalks, parking lots, etc.), or a reduction of vegetative cover, all of which reduce infiltration and increase the amount of rainfall that ends up as runoff. When precipitation soaks into the ground, or infiltrates, some of it moves very slowly toward stream channels as groundwater and is gradually released over days, weeks, or months. Increasing the tributary area by paving undeveloped areas and draining into the existing storm drain system would increase impervious areas, thus collecting more surface runoff, which in general, tends to move more rapidly into channels than infiltration. Therefore, increasing the amount of impervious area in a watershed increases the total amount of water that a receiving channel must convey, and also increases the peak flow rate.

It is anticipated that the proposed project operations would slightly increase runoff volume, but it is not anticipated to affect downstream flow, discharge to lined channels, potential sediment loading, or cause other hydraulic changes to the storm drain system affecting downstream channel stability as a result of increases in Disturbed Soil Areas (DSAs) and Net Additional Impervious Areas (AIA). Changes in DSA and AIA by build alternative are presented in the following table.

Table 2.2.2-a Project Disturbed Soil Area (DSA) and Net Additional Impervious Area

Build Alternative	Total Disturbed Soil Area (DSA) in acres	Net Added Impervious Area (AIA) in acres
Alternative 1	15.8	6.3
Alternative 2	7.1	3.2
Alternative 3	8.8	3.8

Total Maximum Daily Loads (TMDLs). A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by the California Regional Water Quality Control Board, who identifies the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific data to support that use. A TMDL is the sum of allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality. The Clean Water Act (CWA), Section 303, establishes the water quality standards and TMDL programs.

The proposed project is located within the Los Angeles Regional Water Quality Control Board (LARWQCB) jurisdiction, Region 4, with no potential for significant water quality impairment resulting from the proposed project. The Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL became effective in the project study area on March 23, 2012. The pollutants of concern are copper (Cu), lead (Pb), zinc (Zn), polycyclic aromatic hydrocarbon (PAH), dichlorodiphenyl trichloroethane (DDT), polychlorinated biphenyl (PCB), benzopyrene ($C_{20}H_{12}$), and dieldrin for water column in the channel and harbors, and for sediments in the harbors. The TMDL requires the dischargers of the Los Angeles River and the San Gabriel River to monitor water quality at the mouth of each river. Caltrans will participate in groups of agencies to jointly comply with the TMDL. Project engineers shall consider treatment controls for the project and consult with the District NPDES Storm Water Coordinator.

Other Water Quality Concerns. As previously stated, the proposed project lies within the Los Angeles Regional Water Quality Control Board (LARWQCB), and particularly within the Dominguez Channel Watershed Hydrologic Sub-Area HSA 411.01. Storm water runoff in the project study area discharges through the storm drain systems and eventually out into the 303(d) listed Dominguez Channel (lined portion above Vermont Avenue). The 303(d) list is a list of impaired and threatened waters (stream/river segments, lakes) that the Clean Water Act (CWA) requires prioritization and development of TMDLs based on the severity of pollution and the sensitivity of the uses to be made of the waters. Within this context, the pollutants of concern are ammonia, copper, diazinon, indicator bacteria, lead, toxicity, and zinc.

Construction-Related Effects. Since no work would occur within any Waters of the United States, the proposed project does not require Section 401 water quality certification. While construction activities have the potential to increase discharge of accidental pollutants into the storm drain systems, required implementation of temporary Best Management Practices (BMPs) will reduce the potential of such. BMPs are designed to maintain construction areas in such a condition that storm flows do not carry pollutants off-site into the drainage system. The construction site BMP strategies are discussed in the next subsection entitled, "Avoidance, Minimization and/or Mitigation Measures."

No Build Alternative

If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils or increase in impervious areas; therefore, it would present no potential impacts in terms of water quality or storm water runoff.

Avoidance, Minimization and/or Mitigation Measures

National Pollution Discharge Elimination System (NPDES). Section 402 of the Clean Water Act (CWA) establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. A National Pollutant Discharge Elimination System (NPDES) permit is required for all point discharges of pollutants to surface waters, where a point source is defined as a discernible, confined, and discrete conveyance, such as a pipe, ditch, or channel. In accordance with the Los Angeles County Municipal Storm Water NPDES Permit, a storm water management program shall be implemented per the Municipal Separate Storm Sewer System (MS4) permit granted to the City of Torrance. For compliance with Caltrans' NPDES permit, a storm water management program shall be developed for pre-construction, construction, and post-construction Best Management Practices (BMPs) within Caltrans' right-of-way.

Stormwater BMPs. Stormwater Best Management Practices (BMPs) is a term used to describe a type of water pollution control. Stormwater BMPs are techniques, measures, or structural controls used to manage the quantity and improve the quality of stormwater runoff. The goal is to reduce or eliminate the contaminants collected by stormwater as it moves into streams and rivers to maintain the water quality, which protects both the environment and public.

BMP Strategies for Targeted Design Constituents (TDC). A Targeted Design Constituent (TDC) is a pollutant that has been identified during studies to be discharging with a load or concentration that exceeds commonly allowable standards and which is considered treatable by currently available Caltrans-approved treatment BMPs. The TDC for the proposed project are Nitrogen (N), Copper (Cu), Lead (Pb), and Zinc (Zn) sediment. Four biofiltration swales and one biofiltration strip are the proposed BMPs for treatment of the aforementioned pollutants, and appropriate for the physical/hydraulic conditions in the project study area. The locations and specifications of the proposed BMPs are summarized in the following table.

Table 2.2.2-b Proposed BMPs/Biofiltration Swales/Strips

Post Mile	Location	Length (feet)	Slope (%)	Flow Depth	Water Quality Flow (cubic feet/sec)
NORTHBOUND					
14.90	Shoulder of northbound I-405 mainline, just north of Western Avenue	150	1.1	0.49	2.06
15.10	Shoulder of northbound I-405 mainline, just north of Van Ness Avenue	100	0.5	0.40	0.96
15.43	Inside northbound I-405 on-ramp loop from Crenshaw Boulevard	100	0.25	N/A	0.19
SOUTHBOUND					
15.20	Shoulder of southbound I-405 mainline, just north of Van Ness Avenue	100	0.5	0.40	0.95
15.50	Inside southbound I-405 on-ramp loop from Crenshaw Boulevard	100	0.5	0.33	0.69

Temporary Construction BMPs. The duration of construction for the proposed project is estimated at four years. Whenever possible, every effort shall be made to schedule earth-disturbing activities outside of anticipated rain events. To mitigate any potential runoff or run-on within the project area, construction site BMPs shall be installed prior to the start of construction. Additionally, the contractor shall be responsible for the implementation of the following BMPs including, but not limited to the following:

- Perimeter Controls: runoff control measures shall be placed at the top of all excavation and embankment slopes
- Slope protection/slope interruption devices shall be implemented on applicable slopes during the construction period, and wherever possible, early implementation of permanent erosion control seeding or landscape planting shall be performed
- The contractor shall provide and maintain stabilized construction site entrances and exits throughout
- Regular watering of non-paved sites along with regular street sweeping and vacuuming on paved surfaces
- All slopes shall be protected with fiber rolls, silt fences, temporary slope drains and early slope paving or landscaping as defined in the approved Storm Water Pollution Prevention Plan (SWPPP) especially during the rain seasons from October 1 to May 1
- The total active disturbed soil area within the proposed project limits will be maintained to a minimum by focusing on construction activities that avoid earthwork and by implementing the approved construction site BMPs
- The contractor will be required to manage all stock piles against wind and water erosion and contain concrete wastes with concrete washouts
- All catch basins and drainage inlets will include gravel bag berms or storm drain inlet protection
- For all construction equipment, fuels, and toxic chemicals spill prevention and spill control measures will be implemented throughout construction

2.2.3 GEOLOGY / SOILS / SEISMIC / TOPOGRAPHY

Regulatory Setting

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

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. Structures are designed using the Department’s Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

Findings in the District Preliminary Geotechnical Report (2014), produced by the Caltrans Office of Geotechnical Design, show that the proposed project site is within the Los Angeles Basin geomorphic province. The province is an alluvium-filled basin that is up to several miles thick at its deepest point, and is located at the boundary of two geomorphic provinces; the Peninsular Ranges and the Transverse Ranges, with faulting and subsurface features within the basin sub-parallel to the San Andreas Fault. More specifically, the project site is located north of the Port of Los Angeles and northeast of the Palos Verdes Hills, and between the Newport-Inglewood Fault Zone and the Compton and Palos Verdes Faults.

Geologic Materials. Subsurface materials at the Crenshaw Boulevard undercrossing and at the Western Avenue and Arlington Avenue undercrossings (east and west of the Crenshaw Boulevard interchange, respectively) generally consist of interbedded medium-dense to dense alluvial soils, with a thin layer of dark brown soft clay/loose silt near the surface. In general, the alluvial soils are laterally discontinuous beds of sand/silty sand, with interbeds of silt/silty clay. The densities of granular material range from medium-dense to dense.

Groundwater. Subsurface investigations reveal that groundwater was encountered at the Crenshaw Boulevard and Arlington Avenue undercrossings at depths of 32 feet and 29 feet respectively. Database searches utilizing the California Department of Water Resources Water Data Library and the State Water Resources Control Board Geotracker website yielded no results for nearby historical groundwater elevation data, however, data exists for several monitoring wells at the nearby Honeywell Aerospace facility (approximately 0.7 miles southeast of the interchange). Historical data for the monitoring well nearest to the proposed project site show that the soil is dry to a depth of 52.5 feet below ground level.

Faulting and Seismicity. A ground motion hazard analysis was performed utilizing the Caltrans Acceleration Response Spectrum (ARS) Web Tool, Version 2.3.06. The probabilistic analysis showed an estimated Peak Ground Acceleration (PGA) for the proposed project site at 0.54g. PGA provides a measurement of instrumental intensity, that is, ground shaking by seismic instruments, and generally speaking the PGA for the proposed project site is considered to be very high, but well-designed structures can survive if the duration of the seismic event is short. The proposed project site is not within any California Geological Survey (CGS)/Alquist-Priolo designated Earthquake Fault Zone (EFZ) for surface fault rupture hazards.

Liquefaction and Liquefaction-Induced Ground Settlement. Because groundwater was encountered on site at depths of 29-32 feet, liquefaction potential is considered to be low, and liquefaction-induced lateral spreading hazard is estimated to be low as subsurface material generally consists of medium-dense to dense granular materials.

Environmental Consequences

Alternative 1. The addition of auxiliary lanes on the I-405 mainline, would warrant the subsequent widening of the Van Ness Avenue Bridge and undercrossing, and would require the further development of new structural elements and foundation work. Standard, open-ended steel pipe piles or matching of the existing foundation pipe (CIDH pile) represent a feasible alternatives to support the proposed bridge widening, but further subsurface investigation and analyses are required to further evaluate and confirm the suitability of pile foundation recommendations.

All Build Alternatives. All proposed build alternatives include the addition or reconstruction of retaining walls and/or soundwalls. The approximate maximum excavation, or approximate bottom of footing elevation for each structure is summarized in the following table.

Table 2.2.3-a Approximate Maximum Excavation for Retaining Wall and Soundwall Structures

Structure No.	Direction	Approximate Bottom of Footing Elevation (ft)
Retaining Wall No. 753	Northbound	60
Retaining Wall No. 775	Northbound	71
Retaining Wall No. 781	Northbound	71
Retaining Wall No. 799	Northbound	66
Retaining Wall No. 764	Southbound	64
Retaining Wall No. 794	Southbound	59
Retaining Wall No. 800	Southbound	62
Retaining Wall No. 806	Southbound	55
Soundwall No. 753	Northbound	67
Soundwall No. 770	Southbound	72
Soundwall No. 806	Southbound	70

The nature of the proposed project site is a highly developed and disturbed urban setting, and the proposed project is not expected to pose any adverse impacts to any natural or unique geologic landmarks or landforms. Furthermore, there are no existing geologic conditions that would pose significant limitations on development so long as they are addressed through common design and engineering processes and practices. These conditions are summarized in the following table.

Table 2.2.3-b Potential for Geologic Hazards

Evaluated Geologic Condition	Potential to Limit Development	Remarks
Soil Corrosion	Unknown	On-site soils to be tested for corrosion potential in additional investigations
Surface Fault Rupture Hazard	Low	The project is not located within any California Geological Survey (CGS) designated Earthquake Fault Zone (EFZ)
Scour Hazard	None	The proposed project site does not intersect any waterway
Liquefaction	Low	Data shows groundwater occurrence at an approximate elevation of 33 ft. which indicates a low potential for liquefaction hazard
Landslide Hazard	Low	The topography of the proposed project site on level ground indicates a low potential for landslides. Additionally, the site is located approximately 4.7 miles from the coast and according to the CGS Tsunami Inundation Map for the Torrance/San Pedro Quadrangle a tsunami or seiche is not likely to affect this site
Seismically Induced Ground Settlement	Low	The upper 32 feet of soils consist of medium-dense to dense granular materials, showing the potential of seismically induced ground settlement to be low

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils; therefore, it would present no potential impacts on geologic resources.

Avoidance, Minimization and/or Mitigation Measures

Alternative 1. The addition of auxiliary lanes on the I-405 mainline, and the subsequent widening of the Van Ness Avenue Bridge and undercrossing are specific to Alternative 1, carry specific geotechnical recommendations. Driven concrete piles are not considered to be feasible regarding the bridge widening and supporting foundation type because of the medium-to-dense nature of subsurface soils, and spread footings are not recommended in interbedded medium-dense to dense granular material. Standard, open-ended steel pipe piles at bridge abutments and bents represent a feasible alternative to support the proposed widening. Matching the existing foundation type (CIDH pile) might also be feasible, but would require further evaluation regarding disposal of contaminated materials (drill fluid and soil cuttings). If CIDH piles are used, a wet method may need to be adopted considering the shallow water table in the project study area.

All Build Alternatives. It is recommended that retaining walls associated with the proposed project be supported on spread footings with some possible rework where soft clay/loose sand is encountered below the bottom of the footings. If forthcoming investigations for the proposed project site reveal peak ground acceleration (PGA) greater than 0.6g, specially designed retaining walls may be required. Because groundwater was encountered on site at depths of 29-32 feet, proposed soundwalls can be constructed as standard walls supported on 16 foot Cast In Drilled Holes (CIDH) piles. CIDH piles are used to support structures built on ground subject to movement. The piles are drilled through unstable ground layers to more support substratum.

Additional Geologic Testing

Further subsurface investigation, laboratory testing and engineering analyses are required to provide the appropriate recommendations to ensure the design of structures, their foundations, and paving and grading associated with the proposed project is geologically sound. The result of these efforts shall be presented in the final Foundation Report (FR) and will include the following:

- Soil boring, sampling and laboratory testing to evaluate soil strength, moisture, classification, particle size distribution, consolidation, collapse potential, compaction, and corrosion potential
- Conversion of some soil borings to piezometers to measure groundwater levels and further evaluate the occurrence of groundwater
- Further analyses of site geology and subsurface conditions
- Seismic studies to include further evaluation of liquefaction potential and seismically induced settlement
- Evaluation of all geotechnical data and production of a final report that summarizes all data and the resulting design recommendations

2.2.4 HAZARDOUS WASTE / MATERIALS

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

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

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

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

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and clean up contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

Affected Environment

The proposed project site is a typical freeway interchange facility providing access to north and southbound Interstate 405 (I-405) from Crenshaw Boulevard and 182nd Street via on and off-ramps. The facilities exist within a highly urbanized and previously disturbed area that consists of the existing interchange and roadway facilities, adjacent banked slopes, and a number of vacant parcels that will require acquisition with the proposed project. Prior to freeway use, the site appears to have been either undeveloped, or used for agricultural activities.

During the initiation phase of the proposed project, a general screening was performed to determine the potential to encounter hazardous waste, hazardous materials, and contamination, and assess the need for subsequent studies. The screening generally consists of project evaluation, a departmental record review, regulatory agency records review, and a general field visit. The Preliminary Hazardous Waste Assessment (Caltrans Office of Environmental Design, October 14, 2014) prepared for this project indentified general existing hazardous waste concerns for all build alternatives. Of particular concern were the potential occurrence of hazardous waste/materials as related to existing thermoplastic traffic striping/pavement markings, aerially deposited lead, treated wood waste, and asbestos-containing materials as presented in the following table.

Table 2.2.4-a General Hazardous Waste/Materials of Concern in the Project Study Area

Hazardous Waste/Materials of Concern	Occurrence
Existing Yellow and White Traffic Striping and Pavement Markings	The existing yellow thermoplastic and lead based painted traffic stripe and/or pavement markings will be disturbed and/or removed during construction of the proposed project. Yellow thermoplastic and lead based painted traffic stripe and/or pavement markings used prior to 1997 may contain high concentrations of lead and chromium. Residue produced from the removal of such may contain heavy metals in concentrations that exceed thresholds established by the California Health and Safety Code and Title 22 of the California Code of Regulations (22CCR).
Aerially Deposited Lead (ADL) Contaminated Soils	Soils within the project vicinity, particularly in areas that are unpaved, have the potential for ADL contamination, related to previous and historical use of leaded gasoline additives. Particulate emissions in engine exhaust contained lead from leaded gasoline, which was deposited in unpaved areas adjacent to roadways and potentially from runoff to roadway embankments and adjacent right-of-way.
Treated Wood Waste (TWW)	The removal and disposal of metal beam guardrails, thrie beam barriers, piles, and roadside signs present the potential for contamination as the associated wood products are typically treated with preservation chemicals that protect the wood against insect attack and fungal decay. These chemicals may be hazardous (carcinogenic) and include, but are not limited to, arsenic, chromium, copper, creosote, and pentachlorophenol.
Asbestos Containing Materials (ACM)	Structural demolition work at the Van Ness Avenue undercrossing bridge, (associated with Alternative 1), has the potential to generate ACM, as it may be present in construction materials used in drainage piping, joint seals, and railing shim plates.

Potential Occurrence of Contamination in Parcels Associated with the Proposed Project. During the screening process, it was also determined that subsequent studies would be required to fully assess the potential for contamination in parcels associated with the proposed project, especially because it includes extensive excavation, structure modification and demolition, and requires partial and full acquisition of right-of-way. In most cases, a Phase I Environmental Site Assessment Report was prepared in support of the aforementioned, and to fully identify potential or known hazardous waste, hazardous materials, and contamination in the project area. The findings of such are presented in the following table.

Table 2.2.4-b Potential Occurrence of Contamination in Parcels Associated with the Proposed Project

Parcel Owner/Address	APN No.	Occurrence
ARCO Service Station 3015 W. 182nd Street	4095-022-013	This parcel has been occupied by a gasoline service station since 1963 and is presently an ARCO Service Station (#0154) operated by Tesoro. The site is currently developed with two underground storage tanks (USTs), four product dispensers with associated piping, a service station building, and a parking area on the property. Soil and groundwater beneath the site has been impacted by petroleum hydrocarbons from releases at the former dispensers (removed in 1999) and former fuel USTs (removed in 2001). Soil and groundwater investigation detected free product in one monitoring well (B-3). Free product was also removed from 1990 to 2001, and no free product was detected since 2001. Soil vapor extraction (SVE) was performed at eight wells between 1989 to 1994. In 2009, a new SVE system was installed and operated in combination with air sparging. As of 2012, the SVE system had removed 13,198 pounds of hydrocarbons from the subsurface. In June 2000, a concrete vault located in the station building was excavated and removed. Soil samples collected from each end of the concrete vault excavation reported oil range hydrocarbons as high as 20,000 mg/kg. It does not appear any further investigation or excavation was performed in the area. A request for "site closure" status was submitted to the LARWQCB in August of 2012. A pre-closure notification was issue by the LARWQCB on February 24, 2014 for site closure under the Low Threat Closure Policy (LTCP).
Coffee Bean & Tea Leaf 18201 Crenshaw Boulevard	4091-026-009	The parcel is currently developed as a food establishment with associated paved parking and drive aisle areas. Historical aerial photographs show the parcel as agricultural dry farmed land through the 1940s. It appears the parcel sat unused for some time until the late 1950s when it was developed as a gasoline service station until the late 1990s/early 2000s. Four underground storage tanks (USTs) were once located on-site, and several soil and groundwater investigations and remedial actions were conducted under the oversight of the Los Angeles Regional Water Quality Control Board (LARWQCB), including soil excavation, soil vapor extraction, and groundwater monitoring. The LARWQCB issued "site closure" status on March 9, 2010, which is a status or designation that remedial actions or level of remediation achieved is satisfactory to conclude environmental studies and cleanup.
Former Mobile Service Station 18200 Crenshaw Boulevard	4095-020-023/ 4095-020-024	The parcels are now vacant, but were formerly occupied by a Mobil 18-D9E service station. Historical aerial photographs indicate land use at the property was primarily agricultural in the 1940s through the early 1950s. This land use is considered a recognized environmental condition under ASTM E-1527-13 due to the potential for residual pesticides, and requires further assessment of the environmental condition of the parcel and any potential occurrence of related hazardous waste and/or materials. A gasoline service station occupied the parcel beginning in the late 1950s until 2003, and four underground storage tanks (USTs) were located on site. Several soil and groundwater investigations and remedial actions were conducted under the oversight of the LARWQCB, including soil excavation and disposal, soil vapor extraction and air sparging, free product removal, and groundwater monitoring. The LARWQCB issued "site closure" status for the parcels under the Low Threat Closure Policy (LTCP) in correspondence dated September 8, 2014. This status is a designation that remedial actions or level of remediation achieved is satisfactory to conclude environmental studies and cleanup.
George P. Johnson 18500 Crenshaw Boulevard	4090-021-037	The parcel is currently occupied by a warehouse with office space and a paved parking area. Historical aerial photographs show the parcel used for agricultural dry farmed land until the late 1960s/early 1970s, and subsequent nursery operations with greenhouses reported. Historical agricultural use is considered a recognized environmental condition as defined under ASTM E-1527-13 due to the potential for residual pesticides, and requires further assessment of the environmental condition of the parcel and any potential occurrence of related hazardous waste and/or materials.
Yniguez Family Trust/ McDonalds 18145 Crenshaw Boulevard	4091-019-032	The parcel is currently developed as a food establishment with associated paved parking and drive aisle areas. The parcel was previously occupied by a Shell Service Station with four underground storage tanks (USTs) that were removed in 1985. Several soil and groundwater investigations and remedial actions were conducted under the oversight of the Los Angeles Regional Water Quality Control Board (LARWQCB), including soil excavation, soil vapor extraction, and groundwater monitoring. Current cleanup status is designated as open, though eligible for "site closure" status per the LARWQCB's latest site evaluation

References:

(1) Phase I Environmental Site Assessment Report, Coffee Bean and Tea Leaf, 18201 Crenshaw Boulevard, Torrance, California, APN No. 4091-026-009, Project ID 0713000238, EA 29360, prepared by Stantec Consulting Services Inc., August 8, 2014

(2) Phase I Environmental Site Assessment Report, George P. Johnson, 18500 Crenshaw Boulevard, Torrance, California, APN No. 4091-026-009, Project ID 0713000238, EA 29360, prepared by Stantec Consulting Services Inc., August 8, 2014

(3) Remedial Cost Estimate, ARCO Service Station, 18166 Crenshaw Boulevard and 3015 West 182nd Street, Torrance, California, APN 4095-022-013, ID 0713000238, EA 29360, prepared by Stantec Consulting Services Inc, September 2, 2014

(4) Site Investigation Work Plan, Former Mobil Station 18D-9E, 18200 Crenshaw Boulevard, Torrance, California, APN 4095-020-023 & 4905-020-024, ID 0713000238, EA 29360, prepared by Stantec Consulting Services Inc., September 23, 2014

(5) Update to the Site Conceptual Model and Groundwater Monitoring Report, Former Shell Service Station, 18145 Crenshaw Boulevard (at 182nd Street), Torrance, California, CRWQCB-LA CASE: 905040143, prepared by Wayne Perry Inc., July 10, 2013

Environmental Consequences

All Build Alternatives

Potential Exposure to General Hazardous Waste/Materials of Concern. Soil excavation and earth-moving activities associated with all build alternatives of the proposed project could expose workers to contaminants associated with existing thermoplastic traffic striping/pavement markings, aerially deposited lead, and treated wood waste. Structural demolition work associated with Alternative 1 at the Van Ness Avenue undercrossing bridge further has the potential to expose workers to contaminants associated with asbestos containing materials.

During construction, exposure to contaminants associated with existing thermoplastic traffic striping/pavement markings and treated wood waste can be avoided fully, or minimized as needed through adherence to protocols for the removal, handling, and disposal of such. A site-wide aerially deposited lead (ADL) investigation (within existing right-of-way) will be implemented to more accurately assess lead impacted soils in the project study area. The scope of the ADL investigation will be dictated by which project build alternative is selected and more specifically by construction features during the final phases of design.

Recommendations for Additional Site Investigations. Because Phase I Environmental Site Assessment Reports identified potentially contaminated sites or properties, further investigation and evaluation is required to more adequately determine contamination, and the risks associated with remediation. A Phase II environmental site investigation is recommended for partial acquisition and construction on the Coffee Bean and Tea Leaf parcel (APN No. 4091-026-009) and the George P. Johnson parcel (APN No. 4090-021-037), to include sampling of soils to evaluate any residual concentration of pesticides due to former agricultural uses; aerially deposited lead (ADL); and asbestos containing materials (ACM). Additionally, sampling of groundwater is recommended to evaluate whether residual total petroleum hydrocarbons (TPH) or fuel-related constituents are present, given the proximity of former underground storage tanks (USTs) and dispensers to these parcels.

A Phase II Environmental Site Investigation is also recommended for the former Mobil Service Station parcels (APN No. 4095-020-023 and 4095-020-024) to further determine if any residue of contaminants (both soil and groundwater) are present and within adjacent Caltrans right-of-way, even in lieu of the LARWQCB's Low Threat Closure Policy (LTCP) site closure status designation. The site investigation would assess the nature and extent of remaining soil impacts on the parcels with constituents of concern including aerially deposited lead (ADL), residual pesticides, residual arsenic-based pesticides/herbicides, volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH), and heavy metals as listed in the California Code of Regulations, Title 22, Chapter 11, Article 3, Section 66261.24. The results of this investigation will be used to prepare a remediation plan to manage, handle, and dispose of impacted soils during construction and post-construction, should long-term monitoring or remedial actions be required.

A review of existing environmental data at the ARCO Service Station (APN No, 4095-022-013) has already been completed that evaluated the magnitude and distribution of constituents of concern (COCs) in the subsurface soil and groundwater that exceed regulatory thresholds. Recommendations for remediation, handling, management, and disposal of impacted media can be found in the following, subsection entitled Avoidance, Minimization, and/or Mitigation Measures.

No Build Alternative

If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing environment, and requiring no disturbance of soils; therefore, it would present no potential for exposure to hazardous waste and/or materials.

Avoidance, Minimization, and/or Mitigation Measures

Existing Yellow and White Traffic Stripe and Pavement Markings. Preparation of a project-specific Lead Compliance Plan (LCP) and Debris Containing and Disposal Work Plan are required to address the removal, containment, storage, sampling, and disposal of yellow thermoplastic and lead based painted traffic strip and/or pavement markings, and to prevent or minimize worker exposure to lead while handling the debris/residue. [California Code of Regulations (8CCR), Title 8, Section 1532.1, "Lead," and Cal-OSHA Construction Safety Order].

Aerially Deposited Lead (ADL) Contaminated Soil. During construction, excess ADL soils require special handling and waste management, especially when disturbed during earth-moving activities. The Caltrans Office of Environmental Design will initiate a project-specific ADL site investigation to evaluate whether the excess ADL spoil generated can be reused on the project site and/or along the project corridor by invoking the California Department of Toxic Substances Control (DTSC) Variance (July 2009). If the excess ADL soils cannot be reused on the project site and/or along the project corridor, the site investigation will also determine whether they are classified as federal waste and require off-site disposal at a permitted Class I California hazardous waste (non-RCRA) disposal facility. Collectively, the site investigation data will assist in the preparation of the necessary Lead Compliance Plan as required under California Code of Regulations (8CCR), Title 8, Section 1532.1, "Lead," and Cal-OSHA Construction Safety Order.

Treated Wood Waste (TWW).. Removal and disposal of metal beam guardrails, thrie beam barriers, piles, and roadside signs shall be managed under the California Code of Regulations, Title 22, Division 4.5, Chapter 34, which specifies guidelines for storage, accumulation, shipment/transport, and disposal of TWW at specific landfills.

Asbestos Containing Materials (ACM). Surveying and sampling will be required to determine procedures for the proper removal, handling and disposal of ACM during construction. Upon completion and analyses of surveys and sampling, an Asbestos Compliance Plan (ACP) shall be completed and signed by a Certified Industrial Hygienist (CIH), which outlines potential risks and appropriate monitoring plans, as well as safety measures to reduce the risk of worker exposure to contamination. Additionally, the production of a Dust Control Plan (DCP) will be required to be approved by the South Coast Air Quality Management District (SCAG) before commencing any work in areas containing ACM. The DCP will outline procedures to prevent dust emission during excavation, stockpiling, transportation, or placement of materials containing ACM.

Remediation of Parcels Associated with the Proposed Project. Additional site investigation work is required to include sampling to evaluate any residual concentrations of contamination that may be present on each site and within Caltrans right-of-way. The results of the additional site investigations will be used to prepare the appropriate remediation cost estimates to manage, handle, and dispose of any impacted soils during construction and following construction, should long-term monitoring or remedial actions be required. The following table presents information regarding each parcel associated with the proposed project, whether additional site investigation work is required, and the current cost estimates for additional investigations and remediation.

Table 2.2.4-c Potential Remediation of Contamination in Parcels Associated with the Proposed Project

Parcel Owner/Address	APN No.	Further Investigation?
ARCO Service Station 3015 W. 182nd Street	4095-022-013	NO Constituents of Concern (COCs) identified and Site Investigation Work Plan complete
Coffee Bean & Tea Leaf 18201 Crenshaw Boulevard	4091-026-009	YES Additional Phase II Site Investigation required
Former Mobile Service Station 18200 Crenshaw Boulevard	4095-020-023/ 4095-020-024	YES Additional Phase II Site Investigation Required
George P. Johnson 18500 Crenshaw Boulevard	4090-021-037	YES Additional Phase II Site Investigation Required

2.2.5 AIR QUALITY

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM10) and particles of 2.5 micrometers and smaller (PM2.5), and sulfur dioxide (SO2). In addition, national and state standards exist for lead (PB) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity. The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs or projects that do not conform to State Implementation Plan (SIP) for attainting the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional—or, planning and programming—level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO2), ozone (O3), particulate matter (PM10 and PM2.5),

and in some areas (although not in California) sulfur dioxide (SO2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years for the RTP) and 4 years (for the TIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter (PM10 or PM2.5). A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

Affected Environment

The ensuring discussion has been excerpted from the Air Quality Assessment (January 2015) prepared for the proposed project by the Caltrans Office of Environmental Design, Air Quality Branch.

General Climatic and Meteorological Conditions in the Project Study Area. The proposed project is located within the South Coast Air Basin (SCAB), which is comprised of parts of Los Angeles, Riverside, and San Bernardino counties, and all of Orange County. The Basin is bounded on the west by the Pacific Ocean and surrounded on all other sides by mountains. To the north lie the San Gabriel Mountains, to the north and east the San Bernardino Mountains, to the southeast the San Jacinto Mountains, and to the south the Santa Ana Mountains. The Basin forms a low plain and the mountains channel and confine airflow with tends to trap air pollutants.

The Basin's severe air pollution problem is a consequence of the combination of the mountainous terrain surrounding the Basin that trap pollutants as they are pushed inland with the sea breeze, emissions from the nation's second largest urban area, and meteorological conditions what are adverse to the dispersion of those emissions. The average wind speed for Los Angeles is the lowest of the nation's ten largest urban areas. In addition, the summertime daily maximum mixing heights (an index of how well pollutants can be dispersed vertically in the atmosphere) in Southern California are the lowest, on average, in the U.S. due to strong temperature inversions in the lower atmosphere that effectively trap pollutants near the surface. The Southern California area is also an area with abundant sunshine, which drives the photochemical reactions which form pollutants such as ozone and a significant portion of fine Particulate Matter ($PM_{2.5}$).

In the Basin, high concentrations of ozone are normally recorded during the late spring and summer months, when more intense sunlight drives enhanced photochemical reactions. In contrast, higher concentrations of carbon monoxide are generally recorded in late fall and winter, when nighttime radiation inversions trap the emissions at the surface. High Inhalable Particulate Matter (PM_{10}) and $PM_{2.5}$ concentrations can occur throughout the year, but occur most frequently in fall and winter in the Basin. Although there are changes in emissions by season, the observed variations in pollutant concentrations are largely a result of seasonal differences in weather conditions.

The climatological station closest to the site that monitors temperature is the Torrance monitoring station (#048973) maintained by the Western Regional Climate Center. The annual average maximum temperature recorded by 1/1/1932 to 3/31/2013 at this station is 22.2 degrees Celsius/71.9 degrees Fahrenheit, and the annual average minimum is 11.3 degrees Celsius/52.3 degrees Fahrenheit. December and January are typically the coldest months in this area of the Basin.

Almost all rainfall in Los Angeles County falls during the winter/early spring (November through April). Summer rainfall is normally restricted to scattered thundershowers in lower elevations, and somewhat heavier activity in the mountains. The Torrance monitoring station (#048973) also monitors rainfall levels. Average monthly rainfall measured at this station varied from 0.05 centimeters (cm) (0.02 inches) in July to 1.07 cm (0.42 inches) in October, 3.3 cm (1.31 inches) in November, and 7.7 cm (3.04 inches) in January with an average annual total of 34.4 cm (13.55 inches).

Criteria Pollutants. Since the passage of the Clean Air Act (CAA) and subsequent amendments, the Federal Environmental Protection Agency (EPA) has established and revised the National Ambient Air Quality Standards (NAAQS). The NAAQS was established for six major pollutants or criteria pollutants. The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e. impairment of visibility, damage to vegetation and property). The six criteria pollutants are ozone (O_3), carbon monoxide (CO), atmospheric particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). The following table presents a list of attainment status for the South Coast Air Basin (SCAB) in which the proposed project is located, based on designations promulgated by the EPA.

Table 2.2.5-a Criteria Pollutants – Federal (NAAQS) and State (CAAQS) Attainment Status in the South Coast Air Basin (SCAB)

Criteria Pollutant	NAAQS			CAAQS	
	Averaging Time (National Standard)	Designation (Classification)	Attainment Date	Averaging Time (State Standard)	Designation
2008 8-Hour Ozone (O_3)	8-hour (0.075 ppm)	Nonattainment (Extreme)	12/31/2032	0.070 ppm (137 µg/m3)	Nonattainment
Carbon Monoxide (CO)	1-Hour (35 ppm) 8-hour (9 ppm)	Attainment (Maintenance)	6/11/2007	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment
Respirable Particulate Matter (PM_{10})	24-Hour (150 µg/m^3)	Attainment (Maintenance)	N/A	24-Hour (150 µg/m3)	Nonattainment
			N/A	Annual (20 µg/m3)	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	24-Hour (35 µg/m3)	Nonattainment	12/14/2014	No separate State standard	Nonattainment
	Annual (12.0 µg/m3)	Nonattainment	4/15/2015	Annual (12.0 µg/m3)	Nonattainment
Nitrogen Dioxide (NO_2)	1-Hour (100 ppb)	Attainment/Unclassified	N/A	0.18 ppm (339 µg/m3)	Nonattainment
	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998	0.030 ppm (57 µg/m3)	Nonattainment
Sulfur Dioxide (SO_2)	1-Hour (75 ppb)	Designations Pending	N/A	0.25 ppm	Attainment
	24-Hour (0.14 ppm) Annual (0.03 ppm)	Attainment/Unclassified	N/A	0.04 ppm (105 µg/m3)	Attainment
Lead (Pb)	3-Months Rolling (0.15 µg/m3)	Nonattainment (Partial – LA portion)	12/31/2015	30 day concentration (1.5 µg/m3)	Nonattainment

ppm = parts per million ppb = parts per billion µg/m3 = micrograms per cubic meter

State Implementation Plan (SIP) Status. The planning required for nonattainment areas is part of the Air Quality Management (AQM) process. This process relates air quality to emissions data in order to determine the reductions and control measures needed to meet the National Ambient Air Quality Standards (NAAQS). The AQM approach translates measured air quality problems into a regulatory clean air plan, or State Implementation Plan (SIP). The SIP includes control measures that "clean the air" and meet the NAAQS level by the area's attainment date. Essentially, the SIP is a legal agreement between California and the federal government to commit resources to improving air quality, and a current list and status of SIPs for the Los Angeles / South Coast Air Basin (SCAB) is presented in the following table.

Table 2.2.5-b Applicable State Implementation Plans (SIPs) in the South Coast Air Basin (SCAB)

SIP	Status	Designation Date	Classification
Carbon Monoxide (CO)	Maintenance	11/15/1990	Serious
Lead (Pb)	Nonattainment	12/31/2010	N/A
Nitrogen Dioxide (NO_2)	Maintenance	12/10/2001	Serious
Ozone -1Hr (1979) [O_3]	Revoked NAAQS	11/15/1990	Extreme
Ozone-8Hr (1997) [O_3]	Nonattainment	6/15/2004	Subpart 2/ Extreme
Ozone-8Hr (2008) [O_3]	Nonattainment	7/20/2012	Extreme
Fine Particulate Matter (1997) [$PM_{2.5}$]	Nonattainment	4/5/2005	Moderate
Fine Particulate Matter (2006) [$PM_{2.5}$]	Nonattainment	12/14/2009	Moderate
Particulate Matter (1987) [PM_{10}]	Maintenance	7/26/2013	Serious

Health and Atmospheric Effects and Typical Sources of Pollutants. Since the passage of the Clean Air Act (CAA) and subsequent amendments, the EPA has established and revised the National Ambient Air Quality Standards (NAAQS). The NAAQS are two-fold: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e. impairment of visibility, damage to vegetation and property). The following table summarizes the latest applicable state and national ambient air quality standards and health effect summary for all pollutants of concern.

Table 2.2.5-c Federal and State Ambient Air Quality Standards and Health Effect Summary for All Criteria Pollutants

Pollutant	Averaging Time	Federal [8] Standard	State [8] Standard	Principal Health and Atmospheric Effects	Typical Sources
Ozone (O_3) [2]	1 hour 8 hours	--- [4] 0.075 ppm (4th highest in 3 years)	0.09 ppm 0.070 ppm	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.
Respirable Particulate Matter (PM_{10}) [2]	24 hours Annual	150 µg/m^3 --- [2] (expected number of days above standard < or equal to 1)	50 µg/m^3 20 µg/m^3	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.
Fine Particulate Matter ($PM_{2.5}$) [2]	24 hours Annual 24 hours (conformity process [5]) Secondary Standard (annual; also for conformity process [5])	35 µg/m^3 12.0 µg/m^3 65 µg/m^3 12 µg/m^3 (98th percentile over 3 years)	--- 12 µg/m^3 --- ---	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	35 ppm 9 ppm ---	20 ppm 9.0 ppm [1] 6 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Nitrogen Dioxide (NO_2)	1 hour Annual	0.100 ppm [6] (98th percentile over 3 years) 0.053 ppm	0.18 ppm 0.030 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.075 ppm [7] (99th percentile over 3 years) 0.5 ppm [9]	0.25 ppm --- 0.04 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.
Lead (Pb)[3]	Monthly Rolling 3-month average	--- 0.15 µg/m^3 [11]	1.5 µg/m^3 ---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.

Continued - Federal and State Ambient Air Quality Standards and Health Effect Summary for All Criteria Pollutants

Pollutant	Averaging Time	Federal [8] Standard	State [8] Standard	Principal Health and Atmospheric Effects	Typical Sources
Visibility Reducing Particles (VRP)	8 hours	---	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	Reduces visibility. Produces haze. NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.
Sulfate	24 hours	---	25 $\mu g/m^3$	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.
Hydrogen Sulfide (H_2S)	1 hour	---	0.03 ppm	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.
Vinyl Chloride[3]	24 hours	---	0.01 ppm	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; ppb=parts per billion (thousand million)

1 Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.

2 Annual PM_{10} NAAQS revoked October 2006; was 50 $\mu g/m^3$. 24-hr. $PM_{2.5}$ NAAQS tightened October 2006; was 65 $\mu g/m^3$. Annual $PM_{2.5}$ NAAQS tightened from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ December 2012 and secondary annual standard set at 15 $\mu g/m^3$.

3 The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

4 Prior to 6/2005, the 1-hour ozone NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still be in use in some areas where 8-hour ozone emission budgets have not been developed, such as the S.F. Bay Area.

5 The 65 $\mu g/m^3$ $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 $\mu g/m^3$ NAAQS was promulgated in 2006. The 15 $\mu g/m^3$ annual $PM_{2.5}$ standard was not revoked when the 12 $\mu g/m^3$ standard was promulgated in 2012. The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (7/20/2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

6 Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

7 EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of 9/2012.

8 State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.

9 Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

10 Standards no longer apply in CA starting in 2013 (1 year after designations to attainment/unclassified statewide) were completed. Do not use or quote any more. Will be removed in 2013 edition of this table.

11 Lead NAAQS are not considered in Transportation Conformity analysis.

Environmental Consequences

All Build Alternatives

Regional Air Quality Conformity. As the federally-designated Metropolitan Planning Organization (MPO) for the six-county Southern California region, the Southern California Association of Governments (SCAG) is required by law to be responsible for regional transportation conformity determinations on the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the Federal Transportation Improvement Program (FTIP). Additionally, SCAG is responsible for preparing the regional transportation strategy and control measures portion of the Air Quality Management Plan (AQMP) for the South Coast Air Basin (SCAB), and providing the socioeconomic growth forecast and transportation activity projections to all the air districts in the SCAG region.

The most current approved plans are the 2012 RTP and the 2013 FTIP. The 2012 RTP was adopted by SCAG on April 4, 2012; FHWA and the FTA approved the RTP on June 4, 2012. The 2013 FTIP was federally approved on December 14, 2012, and the most recent Amendment to the 2013 FTIP is No. 13-19, approved by FHWA and the FTA on July 17, 2014.

A request for an amendment has been submitted to SCAG to include the proposed project in the regional emissions analysis for the next conforming RTP. When the proposed project is successfully amended into the conforming RTP, the project will be considered to have satisfied regional conformity requirements.

Project Level Air Quality Conformity and Local Impacts. Under the requirements of the Clean Air Act Amendments, proposed transportation project must be derived from an RTP that conforms to the applicable local air quality plans in the State Implementation Plan (SIP). Projects must also be included in a Transportation Improvement Program (TIP) that conforms with the SIP. As previously stated, while the 2012 RTP and 2013 FTIP are the most current and approved plans, the proposed project has yet to be included in the regional emissions analysis supporting such. An amendment has been submitted to include the proposed project in the regional emissions analysis, and when successfully amended into the conforming RTIP and FTIP, the project will be considered to have satisfied regional conformity requirements.

Local impacts, also known as "hot spots" are assessed for carbon monoxide (CO) and particulate matter ($PM_{2.5}$ and PM_{10}). The CO impacts are assessed using the "Transportation Project-Level Carbon Monoxide Protocol" (Protocol) developed by the Institute of Transportation Studies at the University of California Davis for Caltrans. The protocol contains a series of flow charts with criteria to determine if the proposed project will result in local CO concentrations that exceed federal and state Ambient Air Quality Standards (AAQS). A $PM_{2.5}$ and PM_{10} hot-spot analysis is not required for projects that are not Projects of Air Quality Concern (POAQC). In the South Coast Air Basin (SCAB), the Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG) makes the determination whether projects are, or are not, a POAQC. The details of the aforementioned local impact analyses regarding carbon monoxide (CO) and particulate matter ($PM_{2.5}$ and PM_{10}) follow.

> **Carbon Monoxide (CO) Operational Impacts.** As previously mentioned, the analysis for carbon monoxide (CO) is based on the Caltrans/University of California Davis (UCD) CO Protocol, which determines whether the proposed project requires a qualitative or quantitative analysis, or whether one would be necessary. The analysis demonstrated that the proposed project is located in a carbon monoxide (CO) attainment-maintenance area with the North Long Beach monitoring station deemed representative of the proposed project site with available CO monitoring data. The most recent 3 year highest CO data indicate that there is no recorded violation of CO standards. The purpose of the proposed project is to improve traffic flow and reduce congestion within the project study area, therefore, it would not increase the percentage of vehicles operating in cold start mode, in which an increase by as little as 2 percent is considered potentially significant. Total peak hour volumes for opening year (2020) and horizon year (2040) remain

mostly unchanged when compared across "build" and No-Build" alternatives—increases in excess of 5 percent would be considered potentially significant. Lastly, the proposed project is not anticipated to worsen traffic flow or operations, rather it is anticipated that it would improve traffic conditions and reduce congestion within the project study area. Considering the aforementioned, all criteria in Section 4.7.1 of the CO Protocol have been satisfied, indicating that no further analysis is needed, and that the analysis has sufficiently addressed the CO impact, further demonstrating that the proposed project is not anticipated to cause or contribute to any new violations of the federal CO standard.

Particulate Matter (PM) Operational Impacts. The Federal Clean Air Act (FCAA) section 176(c)(1)(B) is the statutory criterion that must be met by all projects in nonattainment and maintenance areas that are subject to transportation conformity. In essence, it states that federally-supported transportation projects must not "cause or contribute to any new violation of any standard in any area; or delay timely attainment of any standard or any required interim emission reductions or other milestones in any area." For the proposed project to conform, the build design-value must be less than or equal to the no-build design-value at each receptor in the build scenario that exceeded the National Ambient Air Quality Standard (NAAQS). If one or more of these tests fails, the project cannot proceed. The conformity hot-spot test is required only if the project area is determined to be a Project of Air Quality Concern (POAQC) and if it exists in an area of non-attainment or maintenance for federal PM standards.

The proposed project is located in Los Angeles County within the South Coast Air Basin (SCAB), in an area designated as an attainment-maintenance area (effective 7/26/2013) for PM_{10}, but in nonattainment for $PM_{2.5}$. Ambient levels of 24-hour $PM_{2.5}$ are higher at the project location than the standard, but the ambient levels of annual $PM_{2.5}$ are measured lower than the standard. The purpose of the project is to improve critical weaving and merging movements to allow more efficient discharge of traffic load. The proposed project improvements are not anticipated to significantly increase the amount of truck traffic or decrease the Level of Service (LOS), but rather will improve traffic flow within project limits. Based on a qualitative assessment, the proposed project is not anticipated to result in new or worsened $PM_{2.5}$ or PM_{10} violations. On May 26, 2015 the Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG) concurred that the proposed project would not be a POAQC and would not cause, contribute to, or increase the severity of, or exceedence of the NAAQS for $PM_{2.5}$ or PM_{10}. Therefore, the proposed project meets conformity requirements for the Code of Federal Regulations, Chapter 40, Section 93.116 and 93.123 for both $PM_{2.5}$ and PM_{10} without the need for hot-spot analyses.

Construction (Short-Term) Impacts and Conformity. During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Anticipated emissions from construction equipment may include carbon monoxide (CO), nitrous dioxide (NO_x) volatile organic compounds (VOCs), directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat. Construction activities associated with the build alternatives of the proposed project would be temporary in nature and would not require more than five years to complete; therefore, construction emissions are not considered for conformity purposes, or included in regional and project-level conformity analysis [40 CFR 93.123(c)(5)].

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to-and-from the proposed project site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, sulfur dioxide (SO_2), NO_x, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets,

which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary day-to-day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

The EPA estimates that construction activities for large development projects add 1.09 tonne (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 14-9.02) pertaining to dust minimization requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction. The proposed project is located within the SCAB and is required to comply with the respective South Coast Air Quality Management District (SCAQMD) Fugitive Dust Rule to minimize emissions of fugitive dust during construction activities.

In addition to fugitive dust emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surround the construction site. In order to minimize the temporary exhaust emissions from the heavy-duty trucks and construction equipment adjacent to certain sensitive receptors, certain construction activities (e.g. extended idling, material storage, and equipment maintenance) would need to be conducted in areas at least 500 feet away from those sensitive receptors.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal standards can contain 300 parts per million (ppm) or more of sulfur, whereas on-road diesel is restricted to less than 15ppm of sulfur. However, under California law and Air Resources Board (ARB) regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15ppm sulfur), thus SO_2-related issues due to diesel exhaust is expected to be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

Naturally Occurring Asbestos (NOA). Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrystile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air disease and cancer.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released into the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. Serpentinite may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals.

Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The California Department of Conservation, Division of Mines and Geology have developed a map of the state showing the general location of ultramafic rock in the state. Los Angeles County is

one of the Counties identified as one of the Counties containing serpentinite and ultramafic rock. However, only the Catalina Island portion of Los Angeles County has been found to contain such rock; hence, it is not anticipated to be found in the project area. Therefore, no potential impacts from naturally occurring asbestos during project construction would occur.

Structural Occurrence of Asbestos. Structural demolition work at the Van Ness Avenue undercrossing bridge, (associated with Alternative 1), has the potential to generate Asbestos Containing Material, as it may be present in construction materials used in drainage piping, joint seals, and railing shim plates. For additional information on this topic, reference the Hazardous Waste/Materials section of this environmental document.

Occurrence of Lead (Pb). Lead is not typically an air quality issue for transportation projects unless the project involves disturbance of soils containing high levels of Aerially Deposited Lead (ADL), or painting or modification of structures with lead-based coatings. Soils within the project vicinity, particularly in areas that are unpaved, have the potential for ADL contamination, related to previous and historical use of leaded gasoline additives. Particulate emissions in engine exhaust contained lead from leaded gasoline, which was deposited in unpaved areas adjacent to roadways and potentially from runoff to roadway embankments and adjacent right-of-way. For additional information on this topic, reference the Hazardous Waste/Materials section of this environmental document.

Mobile Source Air Toxics (MSATs). In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), the EPA also regulates air toxics. Most air toxics originate from human-made sources, include on-road mobile sources, non-road mobile sources (e.g. airplanes), area sources (e.g. dry cleaners) and stationary sources (e.g factories or refineries).

MSATs are a subset of the 188 air toxics defined by the Clean Air Act (CAA). The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. In the EPA's latest final rule on the control of hazardous air pollutants from mobile sources, 93 compounds were identified, and from this list, seven in particular, were identified as priority mobile-source air toxics (MSATs); Acrolein (C_3H_4O), Benzene (C_6H_6), 1,3 – Butadiene (C_4H_6), DPM plus diesel exhaust organic gases (DEOG), Formaldehyde (CH_2O), Naphthalene ($C_{10}H_8$), and Polycyclic Organic Matter (POM).

Due to the emerging state of the MSAT-related science and techniques, there are no established criteria for determining the relative significance of air toxics emissions. Given the state, however, the FHWA, in its updated Interim Guidance published in December 2012, recommends a range of options deemed appropriate for addressing and documenting the MSAT issue in NEPA documents:

> **No Analysis** required for projects with no potential for meaningful MSAT effects – Applicable for categorically excluded projects under Code of Federal Regulations, Chapter 23, Section 771.117(c); exempt projects under Code of Federal Regulations, Chapter 40, Section 93.126; or projects with no meaningful impacts on traffic volumes or vehicle mix.
>
> **Qualitative analysis** required for projects with low potential MSA effects—Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.
>
> **Quantitative analysis** for project that have the potential for meaningful differences in MSAT emissions among project alternatives. In order to fall into this category, a project should:
>
> - create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant

number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and also
- Proposed to be located in proximity to populated areas

The scope of the proposed project is, among other alternatives, to add an auxiliary lane along the NB and SB I-405 and to enhance operations at the intersections with Crenshaw Blvd. The project scope proposes to add capacity to the freeway that is located in proximity to populated areas. A qualitative analysis was performed and derived in part from a study conducted by the FHWA entitled, "*A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*," which provided a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. Based on a review of the proposed scope, traffic data, and settings, this proposed project is anticipated to have meaningful differences in MSAT emissions among project alternatives. In accordance with the FHWA Interim Guidance, the proposed project therefore requires a quantitative analysis in an effort to: 1) evaluate the levels of emissions for the priority MSATs for the project alternatives for the current, opening, and horizon years; and 2) utilize its result as a basis for comparison and differentiate among the project alternatives. A summary of changes in future total MSAT emissions in comparison to the existing condition is provided in the following table. It should be noted that this MSAT emissions analysis does not include emissions from local arterials as detailed traffic data on arterials are not available. It is important to note that alternatives without new auxiliary lanes (Alternatives 2 and 3) are not anticipated to result in changes to the traffic volumes along the I-405 mainline, and thus their emissions are equivalent to those estimated for the No-Build Scenario.

Table 2.2.5-d Changes in MSAT Emissions along the I-405 Mainline in Grams/Day

MSAT	Existing	Opening Year (2020)			Horizon Year (2040)		
		No-Build (Alternative 4)	Build Alternative 1 Change from Existing	Build Alternative 1 Change from No-Build	No-Build (Alternative 4)	Build Alternative 1 Change from Existing	Build Alternative 1 Change from No-Build
Benzene (C_6H_6)	918	526	-364	29	388	-510	20
Acrolein (C_3H_4O)	32	14	-16	1	10	-21	1
Acetaldehyde (CH_3CHO)	406	272	-128	6	274	-135	-3
Formaldehyde (CH_2O)	1030	649	-362	19	620	-407	2
1,3 – Butadiene (C_4H_6)	144	67	-73	4	49	-90	5
Naphthalene ($C_{10}H_8$)	59	47	-9	3	48	-9	2
Polycyclic Organic Matter (POM)	16	11	-5	0	12	-4	0
Diesel Particulate Matter (PM)	2262	1403	-842	18	1597	-666	0
Diesel Exhaust Organic Gases (DEOG)	4028	3130	-845	52	3310	-806	-89

Incomplete or Unavailable Information for Project Specific MSAT Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the CAA and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing

human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#g) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers,

who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Tiered Approach for MSAT Impacts Analysis

Due to the emerging state of the MSAT-related science and techniques; there are no established criteria for determining the relative significance of air toxics emissions. Given the state, however, the FHWA, in its updated Interim Guidance published in December 2012, recommends a range of options deemed appropriate for addressing and documenting the MSAT issue in NEPA documents as described below.

No Analysis required for projects with no potential for meaningful MSAT effects – Applicable for categorically excluded projects under 23 CFR 771.117(c); exempt projects under 40 CFR 93.126; or projects with no meaningful impacts on traffic volumes or vehicle mix.

Qualitative analysis required for projects with low potential MSAT effects – Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.

Quantitative analysis for projects that have the potential for meaningful differences in MSAT emissions among project alternatives. In order to fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and also
- Proposed to be located in proximity to populated areas.

The scope of the proposed project is, among other alternatives, to add an auxiliary lane along the NB and SB I-405 and to enhance operations at the intersections with Crenshaw Blvd. The project scope proposes to add capacity to the freeway that is located in proximity to populated areas. Based on a review of the proposed scope, traffic data, and settings, this project is anticipated to have meaningful differences in MSAT emissions among project alternatives. In accordance with the FHWA Interim Guidance, the project therefore requires a quantitative analysis in an effort to: 1) evaluate the levels of emissions for the priority MSATs for the project alternatives for the current, opening, and horizon years; and 2) utilize its result as a basis for comparison and differentiate among the project alternatives.

The quantitative analysis performed for the proposed project acknowledges that the project may result in slightly increased exposure to MSAT emissions in certain locations compared to no project conditions. However, the analysis shows that exposure to MSAT emissions in the future will be less than current conditions. The concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

No Build Alternative

If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, and therefore no improvements to traffic conditions or reductions in congestion within the project study area, which all have an effect on local and regional air quality and existing conditions.

Avoidance, Minimization and/or Mitigation Measures

Most of the construction impacts to air quality are short-term in duration and therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce any temporary effects of construction on local air quality:

- The construction contract shall comply with Caltrans' Standard Specifications in Section 14 (2010).
    - Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including SCAQMD rules and regulations and local ordinances.
    - Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right of way line as required by the SCAQMD.
- Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.
- Wash off trucks as they leave the R/W as necessary to control fugitive dust emissions.
- Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites at least 500 feet from the sensitive receptors. Keep construction areas clean and orderly.
- Establish environmentally sensitive areas (ESAs) or their equivalent at least 500 feet away from sensitive air receptors within which construction activities such as extended idling, material storage, and equipment maintenance, would be prohibited, to the extent feasible.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.
- Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and may need to use controls such as dampened straw.

Minimization of PM_{10} During Construction and South Coast Air Quality Management District (SCAQMD) Rules. The SCAQMD adopts rules and regulations to implement portions of the Air Quality Management Plan (AQMP), which aims to control pollution from all sources, including stationary sources, area sources, and on-road and off-road mobile sources. Several of these rules may apply to construction or operation of the propose project. The most pertinent SCAQMD rules applicable to the proposed project are:

- **Rule 401 – Visible Emissions:** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminants for a period or periods aggregating more than three (3) minutes in any one (1) hour which are as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart or of such opacity as to obscure an observer's view to a degree equal to or greater than smoke.

- **Rule 402 – Nuisance:** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endangers the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 403 – Fugitive Dust:** SCAQMD's Rule 403 requires that fugitive dust be controlled with the best available control measures (BACM) in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. It also requires a dust control plan to be submitted and approved prior to construction. The dust control plan should describe all applicable dust control measures that will be implemented at the project; and should describe types of dust suppressant, surface treatments and other measures to be utilized at the construction sites to comply with the Rule. The specifics of Rule 403 are as follows:

    - No person shall cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the dust remains visible in the atmosphere beyond the property line of the emission source; or the dust emission exceeds 20 percent opacity, if the dust emission is the result of movement of a motorized vehicle.
    - No person shall conduct active operations without utilizing the applicable best available control measures included in Table 1 of Rule 403 to minimize fugitive dust emissions from each fugitive dust source type within the active operation.
    - No person shall cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring.
    - No person shall allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation. Notwithstanding the preceding, all track-out from an active operation shall be removed at the conclusion of each workday or evening shift.
    - No person shall conduct an active operation with a disturbed surface area of five or more acres or with a daily import or export of 100 cubic yards or more of bulk material without utilizing approved control measure/measures at each vehicle egress from the site to a paved public road.
    - Beginning January 1, 2006, any person who operates or authorizes the operation of a confined animal facility subject to Rule 403 shall implement the applicable conservation management practices specified in Table 4 of Rule 403.

    Additional Requirements for Large Operations Under Rule 403:

    - Any person who conducts or authorizes the conducting of a large operation subject to this Rule shall implement the applicable actions specified in Table 2 of this Rule at all times and shall implement the applicable actions specified in Table 3 of this Rule when the applicable performance standards cannot be met through use of Table 2 actions; and shall:

        - Submit a fully executed Large Operation Notification (Form 403 N) to the Executive Officer within 7 days of qualifying as a large operation;
        - Include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site;
        - Maintain daily records to document the specific dust control actions taken, maintain such records for a period of not less than three years; and make such records available to the Executive Officer upon request;

- Install and maintain project signage with project contact signage that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earthmoving activities;
- Identify a dust control supervisor that:
    - Is employed by or contracted with the property owner or developer;
    - Is on the site or available on-site within 30 minutes during work hours;
    - Has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements;
    - Has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class; and
    - Notify the Executive Office in writing within 30 days after the site no longer qualifies as a large operation as defined by paragraph (c)(18).

- Any Large Operation Notification submitted to the Executive Officer or AQMD-approved dust control plan shall be valid for a period of one year from the date of written acceptance by the Executive Officer. Any Large Operation Notification accepted pursuant to paragraph (e)(1), excluding those submitted by aggregate-related plants and cement manufacturing facilities must be resubmitted annually by the person who conducts or authorizes the conducting of a large operation, at least 30 days prior to the expiration date, or the submittal shall no longer be valid as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously accepted submittal or in an AQMD-approved dust control plan, the resubmittal may be a simple statement of no-change (Form 403NC).
- In summary, prior to construction, Rule 403 entails the implementation of best available fugitive dust control measures during active operations capable of generating dust. All measures attached in the Appendix of this report (or Tables 1 through 3 of Rule 403) applicable to the construction activities associated with the project should be implemented to the greatest extend feasible. The proposed project will comply with any federal, state, and local rules and regulations developed as part of implementing control measures in the respective SIPs.

Climate Change

Climate change is analyzed at the end of this chapter. Neither the United States Environmental Protection Agency (U.S. EPA) nor Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website[a], climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will aid decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders on climate change, the issue is addressed in a separate California Environmental Quality Act (CEQA) discussion at the end of this chapter and may be used to inform the National Environmental Policy Act (NEPA) decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the State has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

---

[a] http://www.fhwa.dot.gov/hep/climate/index.htm

2.2.6 NOISE

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act (CEQA). CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The CEQA noise analysis is included at the end of this section.

National Environmental Policy Act (NEPA) and 23 CFR 772. For highway transportation projects with FHWA (and the Department, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

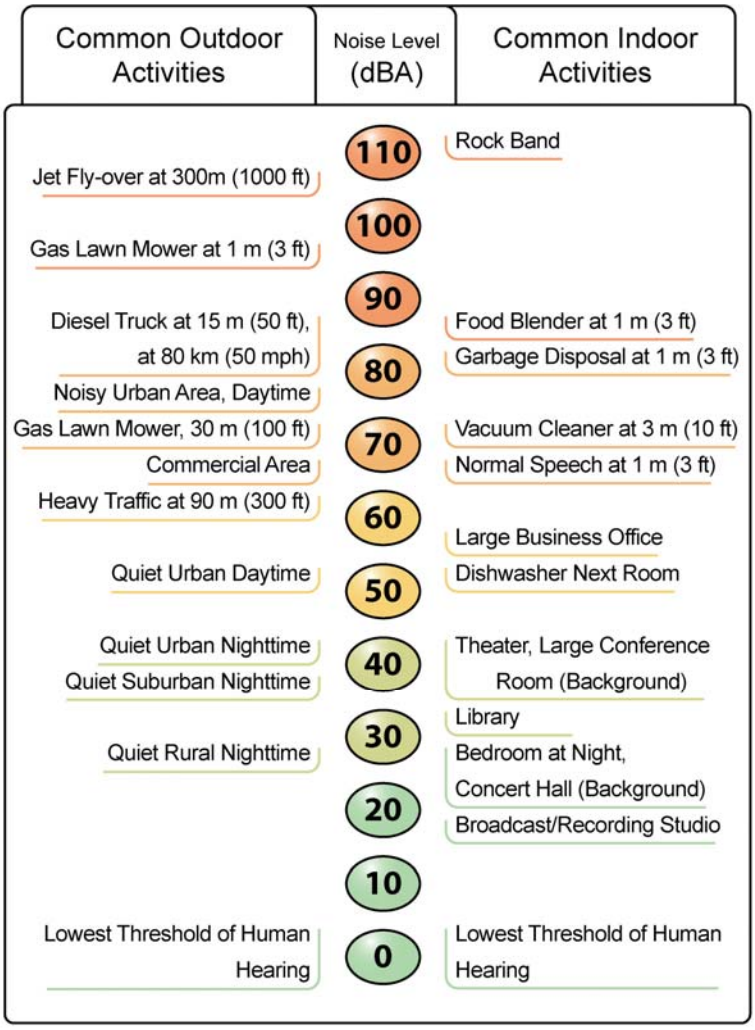
Table 2.2.6-a Activity Categories and Noise Abatement Criteria (NAC)

Activity Category	Activity L_{eq}[h][1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B[2]	67	Exterior	Residential
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52	Exterior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools, and television studios
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	No NAC Reporting Only		Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	No NAC Reporting Only		Undeveloped lands that are not permitted

[1] The Leq(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
[2] Includes undeveloped lands permitted for this activity category

The following Figure 2.2.6-a lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Figure 2.2.6-a Noise Levels of Common Activities



According to the Department's 2011 Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

Affected Environment

A field investigation was conducted to identify land uses that could potentially be affected by traffic and construction noise from the proposed project, with the results incorporated in the Traffic Noise Study Report for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, published July 2014, by the Caltrans Office of Environmental Design, Noise and Vibration Branch. The following technical information has been excerpted from this report, and is presented as follows.

Noise Receptors and Study Locations. Sensitive receptors in the project study area were categorized by land use type and extent of human use, detailed in Activity Categories as defined in the previous Figure 2.2.6-a. As stated in the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Although all developed land uses were evaluated in the analysis, special consideration was given to locations of frequent human use that would benefit from a lowered noise level. Accordingly, the analysis focused on locations with defined frequent human use, such as residences, schools, libraries, churches and temples, hospitals, recreation and sport areas, playgrounds, cemeteries, golf courses, hotels, and motels. These sensitive receptor locations are presented in the following table (colors correspond to categories as shown in Table 2.2.6-a).

Table 2.2.6-b Noise Receptors and Study Locations

No.	Receiver	Direction	Location	Land Use	Noise Abatement Category
1	NB1	Northbound	1872 187th Place	Residential	B (67)
2	NB2*	Northbound	18635 Saint Andrews Place	Residential	B (67)
3	MNB2	Northbound	1960 187th Place	Residential	B (67)
4	NB3	Northbound	La Carretera Park	Park	C(67)
5	MNB3	Northbound	18513 Haas Avenue	Residential	B (67)
6	NB4*	Northbound	2316 185th Street	Residential	B (67)
7	MNB4	Northbound	2316 185th Street	Residential	B (67)
8	NB5[24]	Northbound	2422 185th Street	Residential	B (67)
9	NB6	Northbound	2706 West 182nd Street	School	C (67)
10	NB6**	Northbound	2706 West 182nd Street	School	D (52)
11	MNB6	Northbound	2606 West 182nd Street	School	C (67)
12	NB7	Northbound	2818 West 182nd Street	Residential	B (67)
13	MNB7	Northbound	2818 West 182nd Street	Residential	B (67)
14	NB8	Northbound	3210 182nd Street	Residential	B (67)
15	MNB8	Northbound	3157 182nd Street	Residential	B (67)
16	SB1	Southbound	1925 West 190th Street	Hotel	E (72)
17	SB2	Southbound	2125 187th Street	Residential	B (67)
18	MSB2	Southbound	2101 187th Street	Residential	B (67)
19	SB3	Southbound	18303 Elgar Avenue	Residential	B (67)
20	MSB3	Southbound	18303 Elgar Avenue	Residential	B (67)
21	M2SB3	Southbound	3320 182nd Street	Residential	B (67)

[24] 24-Hour noise measurement site *Calibration purposes only. No frequent human use identified **Interior Noise Reading

Figure 2.2.6-b Noise Site Study Locations

The entire area within project limits is acoustically represented by these twenty-one (21) noise site study locations. Traffic noise readings were taken at twelve (12) locations and modeled at nine (9) sites. Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5), which is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 2004). Traffic noise was evaluated under existing conditions, design year without-project conditions, and design year conditions with the proposed project alternatives. Peak-hour traffic volumes, vehicle classification percentages, and traffic speeds in design year (2040) conditions input into the traffic noise model.

In accordance with 23 CFR 772, noise abatement is considered in areas of frequent human use that would benefit from a lowered noise level. A number of potential noise abatement measures were considered, and in consideration of the configuration and location of the proposed project, abatement in the form of noise barriers emerged as the most practical application. Each application has been evaluated for feasibility based on achievable noise reduction, specifically: noise reduction design goal, the cost of abatement, and viewpoints of benefitted receptors.

Existing Land Uses and Future Noise Environment. The proposed project is predicted to have the most effect on land uses that fall within Noise Abatement Criteria (NAC) Categories B and C in the project study area, and noise abatement has been considered accordingly. The following is a generalized discussion of noise abatement considered in these areas, and a detailed description of considered abatement (i.e. location and recommendations for length, height, and noise reduction of sound barriers) can be found in the following Environmental Consequences section, and in the subsequent Avoidance, Minimization, and/or Abatement Measures section.

NAC Activity Category B. This activity category consists mostly of residential land uses. Most of the noise sensitive land uses are the residences along I-405 between Western Avenue and 182nd Street. Traffic noise requiring abatement will be considered at receiver locations where predicted design-year noise levels are at least 12 dBA greater than existing noise levels (substantial noise increase), or where predicted design-year noise levels approach (within 1) or exceed the NAC of 67 dBA. All residential areas within the project limits have been considered for noise abatement (reference Table 2.2.6-b) and the recommended acoustically feasible sound barriers can be referenced later in the Avoidance, Minimization, and/or Abatement Measures section.

NAC Activity Category C. This activity category includes parks, schools, and places of worship. The following sensitive receptors have been identified, and summarized as follows:

1) **La Carretera Park** is located adjacent to northbound I-405 between Western Avenue and Van Ness Avenue. Reference Receiver NB3 for a representation of this area of frequent human use (children's playground). Based on the noise analysis, an increase in noise requiring abatement consideration is only required with Build Alternative 1, in which a soundwall has been recommended (SW-1A). Noise effects as a result of the proposed project could be considered a "Constructive Use" and impact under Section 4(f), but only if predicted project build noise levels exceed the NAC of 67 decibels as outlined in 23 CFR 772. In these instances, and with the recommended noise abatement, noise levels are not predicted to exceed the 67 decibel threshold for consideration under Section 4(f), and no further analyses are required in this context.
2) **Suika Preschool** is located near the northeast corner of Crenshaw Boulevard/182nd Street interchange along northbound I-405. This school is represented by Receiver NB6 (exterior reading at the children's playground and interior reading inside classroom). Based on the noise analyses, the exterior area of frequent human use at this school would see an increase in noise that would require abatement consideration under Build Alternatives 1 and 3. Noise abatement in the form of soundwalls (SW-1A under Build Alterative 1 and SW-3A under Build Alternative 3) have been recommended.
3) **Hamilton Adult Education Center** is located between Van Ness Avenue and Crenshaw Boulevard along northbound I-405. The Receiver MNB6 represents the exterior noise level near the freeway.

Based on the noise analyses, an increase in noise levels that require abatement consideration have prompted the recommendation of soundwalls (SW-1A under Build Alternative 1 and SW-3A under Build Alternative 3).

Environmental Consequences

Under 23 CFR 772.7, projects are categorized as Type I, Type II project, or Type III projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. Based on the proposed build alternatives, this project has been deemed to be a Type I project. As such, traffic noise analyses have been conducted for this project in accordance with the Protocol for Type I projects.

The future unabated noise levels have been predicted to be in the range of 57-72 dBA-Leq(h) under Build Alternative 1, 56-67 dBA-Leq(h) under Build Alternative 2, and 56-69 dBA-Leq(h) under Build Alternative 3, resulting in the previously described soundwall recommendations. The following tables provide a summary of the traffic noise modeling results for all build alternatives.

Table 2.2.6-c Alternative 1 | Potential Effects of Noise Requiring Consideration of Abatement

No.	Receiver	Location	Existing Worst-Hour Noise Level (dBA)	Predicted Noise Level without Project [2040] (dBA)	Predicted Noise Level with Build Alternative 1 (dBA)	Noise Requiring Abatement Consideration
1	NB1	1872 187th Place	58.4	58.6	66.7	Yes
2	NB2*	18635 Saint Andrews Place	59.8	60.0	65.1	No
3	MNB2	1960 187th Place	63.7	64.0	71.8	Yes
4	NB3	La Carretera Park	59.1	60.6	67.3	Yes
5	MNB3	18513 Haas Avenue	59.9	61.2	66.6	Yes
6	NB4*	2316 185th Street	58.9	60.0	63.6	No
7	MNB4	2316 185th Street	62	63.0	68.5	Yes
8	NB5[24]	2422 185th Street	62.2	63.4	69	Yes
9	NB6	2706 West 182nd Street	62.3	64.3	65.5	Yes
10	NB6**	2706 West 182nd Street	51.1	-	-	-
11	MNB6	2606 West 182nd Street	62.3	64.6	66.6	Yes
12	NB7	2818 West 182nd Street	58.6	59.5	60.3	No
13	MNB7	2818 West 182nd Street	57	57.9	59.1	No
14	NB8	3210 182nd Street	63.4	63.4	63.4	No
15	MNB8	3157 182nd Street	63.5	63.5	63.5	No
16	SB1	1925 West 190th Street	55.3	55.6	56.6	No
17	SB2	2125 187th Street	59	59.8	66.2	Yes
18	MSB2	2101 187th Street	61	61.8	67.1	Yes
19	SB3	18303 Elgar Avenue	58	58.8	64	No
20	MSB3	18303 Elgar Avenue	58.2	59.4	65	No
21	M2SB3	3320 182nd Street	59.8	60.6	67.1	Yes

[24] 24-Hour noise measurement site

*Calibration purposes only. No frequent human use identified

**Interior Noise Reading

Table 2.2.6-d Alternative 2 | Potential Effects of Noise Requiring Consideration of Abatement

No.	Receiver	Location	Existing Worst-Hour Noise Level (dBA)	Predicted Noise Level without Project [2040] (dBA)	Predicted Noise Level with Build Alternative 2 (dBA)	Noise Requiring Abatement Consideration
1	NB1	1872 187th Place	58.4	58.6	58.7	No
2	NB2*	18635 Saint Andrews Place	59.8	60.0	60.1	No
3	MNB2	1960 187th Place	63.7	64.0	64.1	No
4	NB3	La Carretera Park	59.1	60.6	60.7	No
5	MNB3	18513 Haas Avenue	59.9	61.2	62.1	No
6	NB4*	2316 185th Street	58.9	60.0	63.3	No
7	MNB4	2316 185th Street	62.0	63.0	68.4	Yes
8	NB5[24]	2422 185th Street	62.2	63.4	68.9	Yes
9	NB6	2706 West 182nd Street	62.3	64.3	65.7	Yes
10	NB6**	2706 West 182nd Street	51.1	-	-	-
11	MNB6	2606 West 182nd Street	62.3	64.6	66.5	Yes
12	NB7	2818 West 182nd Street	58.6	59.5	60.3	No
13	MNB7	2818 West 182nd Street	57.0	57.9	59.0	No
14	NB8	3210 182nd Street	63.4	63.4	63.4	No
15	MNB8	3157 182nd Street	63.5	63.5	63.5	No
16	SB1	1925 West 190th Street	55.3	55.6	55.6	No
17	SB2	2125 187th Street	59.0	59.8	61.0	No
18	MSB2	2101 187th Street	61.0	61.8	62.7	No
19	SB3	18303 Elgar Avenue	58.0	58.8	64.0	No
20	MSB3	18303 Elgar Avenue	58.2	59.4	64.3	No
21	M2SB3	3320 182nd Street	59.8	60.6	67.1	Yes

[24] 24-Hour noise measurement site

*Calibration purposes only. No frequent human use identified

**Interior Noise Reading

Table 2.2.6-e Alternative 3 | Potential Effects of Noise Requiring Consideration of Abatement

No.	Receiver	Location	Existing Worst-Hour Noise Level (dBA)	Predicted Noise Level without Project [2040] (dBA)	Predicted Noise Level with Build Alternative 3 (dBA)	Noise Requiring Abatement Consideration
1	NB1	1872 187th Place	58.4	58.6	58.7	No
2	NB2*	18635 Saint Andrews Place	59.8	60.0	60.1	No
3	MNB2	1960 187th Place	63.7	64.0	64.1	No
4	NB3	La Carretera Park	59.1	60.6	60.7	No
5	MNB3	18513 Haas Avenue	59.9	61.2	62.1	No
6	NB4*	2316 185th Street	58.9	60.0	63.3	No
7	MNB4	2316 185th Street	62.0	63.0	68.4	Yes
8	NB5[24]	2422 185th Street	62.2	63.4	68.9	Yes
9	NB6	2706 West 182nd Street	62.3	64.3	65.7	Yes
10	NB6**	2706 West 182nd Street	51.1	-	-	-
11	MNB6	2606 West 182nd Street	62.3	64.6	66.5	Yes
12	NB7	2818 West 182nd Street	58.6	59.5	60.3	No
13	MNB7	2818 West 182nd Street	57.0	57.9	59.0	No
14	NB8	3210 182nd Street	63.4	63.4	63.4	No
15	MNB8	3157 182nd Street	63.5	63.5	63.5	No
16	SB1	1925 West 190th Street	55.3	55.6	56.4	No
17	SB2	2125 187th Street	59.0	59.8	66.3	Yes
18	MSB2	2101 187th Street	61.0	61.8	67.9	Yes
19	SB3	18303 Elgar Avenue	58.0	58.8	64.0	No
20	MSB3	18303 Elgar Avenue	58.2	59.4	64.3	No
21	M2SB3	3320 182nd Street	59.8	60.6	67.1	Yes

[24] 24-Hour noise measurement site

*Calibration purposes only. No frequent human use identified

**Interior Noise Reading

No Build Alternative. If the proposed project were not built, there would be no alterations or improvements to the existing interchange facilities, posing no changes to the existing noise environment, and requiring no minimization of noise effects; therefore, it would present no potential impacts to the existing noise environment.

Avoidance, Minimization, and/or Abatement Measures

Alternative 1 | Recommended Soundwalls

Soundwall SW-1A. This soundwall, analyzed on the freeway edge of the shoulder on northbound I-405, would provide benefit to properties adjacent to the mainline between Western Avenue and Crenshaw Boulevard. It is predicted that this soundwall would provide noise reduction to the Okada Plant Nursery, the residential properties that back to the mainline, and La Carretera Park on its eastern end, and Suika Preschool, Christ the King Lutheran Church, Hamilton Adult Education Center, and additional residential properties that back to the mainline on its western end. A section of this new soundwall would replace the entire existing 10 foot high soundwall to accommodate widening along the mainline. SW-1A would be 16 feet in height, and is predicted to provide a 10 decibel noise reduction in this particular area.

Soundwall SW-1B. This soundwall, analyzed on the freeway edge of the shoulder on southbound I-405, would provide benefit to the residential area located just east of Van Ness Avenue, and would replace the entire existing 10-12 foot high soundwall. SW-1B will be 16 feet in height, and is predicted to reduce noise levels by 7 decibels.

Soundwall SW-1C. This soundwall, analyzed on the freeway edge of shoulder (mainline and transitioning onto the off-ramp to Crenshaw Boulevard) on southbound I-405, would provide benefit to the residential area adjacent to the mainline and off-ramp to Crenshaw Boulevard. It would replace a section of the existing 12 foot high soundwall that is slated for removal with the proposed roadway widening. The north end of the soundwall will join the existing soundwall along the edge of the shoulder, will be 16 feet in height, and is predicted to provide a 5 decibel noise reduction in this particular area.

Figure 2.2.6-c Alternative 1 | Recommended Soundwalls

Alternative 2 | Recommended Soundwalls

Soundwall SW-2A. This soundwall, analyzed on the freeway edge of the shoulder along northbound I-405, would provide benefit to the residential properties that back to the freeway mainline west of Van Ness Avenue on its eastern end, and the Hamilton Adult Education Center, Christ the King Lutheran Church, and Suika Preschool as it terminates further west. It would replace a section of the existing 10 foot high soundwall slated for removal with the proposed widening, would be constructed at a height of 14 feet, and is predicted to provide a 7 decibel noise reduction in the particular area.

Soundwall SW-2B. This soundwall, analyzed on the freeway edge of the shoulder along southbound I-405 (mainline and transitioning onto the off-ramp to Crenshaw Boulevard) would provide benefit to the residential properties that back to the freeway mainline between 182nd Street and Crenshaw Boulevard. This soundwall would replace a section of the existing 12 foot high soundwall that is slated for removal with the proposed widening. The western end of the soundwall would join the existing soundwall along the edge of the shoulder, would be 16 feet in height, and is predicted to provide a 5 decibel noise reduction in this particular area.

Figure 2.2.6-d Alternative 2 | Recommended Soundwalls

Alternative 3 | Recommended Soundwalls

Soundwall SW-3A. This soundwall, analyzed on the freeway edge of the shoulder along northbound I-405, would provide benefit to the residential properties that back to the freeway mainline west of Van Ness Avenue on its eastern end, and the Hamilton Adult Education Center, Christ the King Lutheran Church, and Suika Preschool as it terminates further west. It would replace a section of the existing 10 foot high soundwall slated for removal with the proposed widening, would be constructed at a height of 14 feet, and is predicted to provide a 7 decibel noise reduction in the particular area.

Soundwall SW-3B. This soundwall was analyzed on the freeway edge of the shoulder along southbound I-405, and would provide benefit to the residential properties that back to the freeway mainline between Wilton Place on the east and Van Ness Avenue on the west. This soundwall would replace a section of the existing 10 foot high soundwall slated for removal with the proposed widening, would be constructed at a height of 16 feet, and is predicted to reduce noise levels by 7 decibels in this particular area.

Soundwall SW-3C. This soundwall was analyzed on the freeway edge of the shoulder (mainline and transitioning onto the off-ramp to Crenshaw Boulevard) on southbound I-405., and it would benefit the residential area located between 182nd Street and Crenshaw Boulevard. It would replace a section of the existing 12 foot high soundwall that is slated for removal to accommodate widening with this proposed project alternative. The north end of this soundwall would join the existing soundwall along the edge of the shoulder, will be constructed at a height of 16 feet, and is predicted to provide a 5 decibel noise reduction in this particular area.

Figure 2.2.6-e Alternative 3 | Recommended Soundwalls

Abatement Feasibility and Reasonability

In accordance with state and federal policies, noise barriers are not necessarily required to reduce noise to levels to below the 67 decibel threshold (or other Noise Abatement Criteria). Abatement and noise barriers, however, must be acoustically feasible (provide at least a 5 decibel noise reduction at impacted receivers) and reasonable (7 decibel noise reduction to at least one receiver). The following table shows the feasibility and reasonability of each proposed barrier by build alternative within project limits.

Table 2.2.6-f Summary of Abatement Feasibility/Reasonability

Build Alternative	Soundwall No.	Height (feet)	Approximate Length (feet)	Noise Attenuation (dBA)	Number of Benefitted Receivers	Total Reasonable Allowance Per Barrier	Feasible/ Reasonable
1	SW-1A	16	4850	10	42-44	$2,982,000 to $3,124,000	yes/yes
	SW-1B	16	1051	7	7-8	$497,000 to $568,000	yes/yes
	SW-1C	16	1426	5	6-8	$426,000 to $568,000	yes/no
2	SW-2A	14	2150	7	1820	$1,278,000 to $1,420,000	yes/yes
	SW-2B	16	1426	5	6-8	$426,000 to $568,000	yes/no
3	SW-3A	14	2150	7	18-20	$1,278,000 to $1,420,000	yes/yes
	SW-3B	16	1051	7	6-7	$426,000 to $497,000	yes/yes
	SW-3C	16	1426	5	6-8	$426,000 to $568,000	yes/no

Abatement Measures for Construction-Related Noise

To minimize any potential for short-term, construction-related noise impacts, the following abatement measures are recommended:

- Effective temporary noise barriers, when they are feasible, shall be used in an attempt to minimize any noise between construction equipment and noise-sensitive receptors
- Noise-generating equipment in operation at the proposed project site shall be fully equipped with effective noise control devices (i.e. mufflers, lagging, and/or motor enclosures). Noise from each piece of construction equipment shall not exceed 86 dBA (L_{max}) at a distance of 15m (50 feet). All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated
- Noise generating construction activities within 50 meters (165 feet) of residential units shall be restricted to hours between 7:00AM and 8:00PM, Monday through Friday and 8:00AM and 6:00PM on Saturday. No noise-generative construction activities shall take place on Sundays and holidays.

CEQA Noise Analysis

When determining whether the effects of noise are significant under the California Environmental Quality Act (CEQA), the baseline noise level is compared to the build noise level. Unlike the noise analysis required under the National Environmental Policy Act (NEPA) which is centered on noise abatement criteria, the CEQA assessment entails looking at the setting of the effects of noise, and how large or perceptible any noise increase would be in

the given area. Some key considerations include: the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of affected residences, and the absolute noise level.

In typical noisy environments, changes in noise of 1-to-2 decibels are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 decibels in the same environments and further, a 5 decibel increase is generally perceived as a distinctly noticeable increase, and a 10 decibel increase is generally perceived as a doubling of loudness.

The following 2.2.6-g lists all noise receivers included in the Traffic Noise Study Report, and utilizing the receiver data, and compares the existing, or baseline noise levels, to predicted noise levels by build alternative. The current land use is listed for each receiver to provide some context, and any increase or decrease in noise levels is noted in the column marked "diff.". In consideration of the aforementioned, any significant noise effect is expressed in the last column, providing a screening for receivers and locations that require further analysis and consideration, which is then presented in the subsequent section.

Table 2.2.6-g Baseline versus Build Noise Level (CEQA)

No.	Receiver	Location	Setting	Existing Worst-Hour Noise Level (dBA)	Predicted Noise Level with Build Alternative 1 (dBA)	Diff.	Predicted Noise Level with Build Alternative 2 (dBA)	Diff.	Predicted Noise Level with Build Alternative 3 (dBA)	Diff.	Potentially Significant Effect?
1	NB1	1872 187th Place	Residential	58.4	66.7	+8.3	58.7	+0.2	58.7	+0.3	Yes (Alt. 1)
2	NB2*	18635 Saint Andrews Place	Residential	59.8	65.1	+5.3	60.1	+0.3	60.1	+0.3	Yes (Alt. 1)
3	MNB2	1960 187th Place	Residential	63.7	71.8	+8.1	64.1	+0.3	64.1	+0.4	Yes (Alt. 1)
4	NB3	La Carretera Park	Park	59.1	67.3	+8.2	60.7	+1.5	60.7	+1.6	Yes (Alt. 1)
5	MNB3	18513 Haas Avenue	Residential	59.9	66.6	+6.7	62.1	+2.2	62.1	+2.2	Yes (Alt. 1)
6	NB4*	2316 185th Street	Residential	58.9	63.6	+4.7	63.3	+4.4	63.3	+4.4	Yes (Alt. 1/3)
7	MNB4	2316 185th Street	Residential	62	68.5	+6.5	68.4	+6.4	68.4	+6.4	Yes (Alt. 1/3)
8	NB5[24]	2422 185th Street	Residential	62.2	69	+6.8	68.9	+6.7	68.9	+6.7	Yes (All Alts.)
9	NB6	2706 West 182nd Street	School	62.3	65.5	+3.2	65.7	+3.4	65.7	+3.4	No
10	NB6**	2706 West 182nd Street	School	51.1	-		-		-		-
11	MNB6	2606 West 182nd Street	School	62.3	66.6	+4.3	66.5	+4.2	66.5	+4.2	Yes (Alt. 1/3)
12	NB7	2818 West 182nd Street	Residential	58.6	60.3	+1.7	60.3	+1.7	60.3	+1.7	No
13	MNB7	2818 West 182nd Street	Residential	57	59.1	+2.1	59.0	+2	59.0	+2	No
14	NB8	3210 182nd Street	Residential	63.4	63.4	0	63.4	0	63.4	0	No
15	MNB8	3157 182nd Street	Residential	63.5	63.5	0	63.5	0	63.5	0	No
16	SB1	1925 West 190th Street	Hotel	55.3	56.6	+1.3	55.6	+0.3	56.4	-0.2	No
17	SB2	2125 187th Street	Residential	59	66.2	+7.2	61.0	+2	66.3	+0.1	Yes (Alt. 1)
18	MSB2	2101 187th Street	Residential	61	67.1	+6.1	62.7	+1.7	67.9	+6.9	Yes (Alt. 1/3)
19	SB3	18303 Elgar Avenue	Residential	58	64	+6	64.0	6	64.0	+6	Yes (All Alts.)
20	MSB3	18303 Elgar Avenue	Residential	58.2	65	+6.8	64.3	+6.1	64.3	+6.1	Yes (All Alts.)
21	M2SB3	3320 182nd Street	Residential	59.8	67.1	+7.3	67.1	+7.3	67.1	+7.3	Yes (All Alts.)

[24] 24-Hour noise measurement site *Calibration purposes only. No frequent human use identified **Interior Noise Reading

Residential Areas Adjacent to the Freeway Mainline. Receivers were strategically placed in residential areas on both the north and south side of the freeway mainline to measure the existing worst-hour noise levels, and provide a baseline for modeling predicted noise levels for each build alternative. Existing worst-hour noise levels in these areas range from 58.2 decibels to 63.7 decibels, which is typical of an urbanized environment with sound levels akin to a business office or a normal group conversation. Build Alternative 1 poses the greatest potential effect to noise levels, particularly at Receiver No. 3, where noise levels are predicted to rise to 71.8 decibels. This would be the largest increase of all receivers in the area (+8.3 decibels), but implementation of recommended abatement measures (16 foot soundwalls in this particular area) would provide a 10 decibel noise reduction offset, bringing the increase in noise down to +3.3 decibels/62 decibels total. This increase is not significant, as it would be barely perceptible to the human ear.

La Carretera Park. This park is located adjacent to the northbound I-405 mainline between Western Avenue and Van Ness Avenue, and is represented by Receiver No. 4 (NB3) with an existing worst-hour noise level of 59.1 decibels. These noise levels too, are typical of an urbanized environment, and Build Alternative 1 poses the greatest potential for significant effects as it is predicted to push the noise levels up to 67.3 decibels (+8.2 decibels). Implementation of recommended abatement measures (16 foot soundwalls in this particular area) will offset this increase by 9 decibels, bringing it down to +3.2 decibels/59 decibels total. This increase is not significant, as it would be barely perceptible to the human ear, and at 62.3 decibels, the noise environment would be indifferent to that of average street traffic at 25 feet.

Suika Preschool and Christ the King Lutheran Church. This school and church are located next to each other on West 182nd Street, north of, and adjacent to the freeway mainline, and both are represented by Receivers No. 9/10/11, with existing exterior worst-hour noise levels measured at 62.3 decibels. These existing noise levels are moderately loud, but typical of an urbanized environment in a location within close proximity of a major highway. Here too, Alternative 1 poses the greatest potential to effect the noise levels, but the increase in noise at exterior Receivers No. 9/11 are not as drastic as these properties are set back further than the adjacent residences and La Carretera Park that back up to the freeway mainline. Alternative 1 is predicted to increase noise levels to Receiver No. 9 by +3.2 decibels to 65.5 decibels total, and to Receiver No. 11 by +4.3 decibels to 66.6 decibels total. Implementation of recommended abatement measures (16 foot soundwalls in this particular area) would provide a 7 decibel noise reduction offset, which would bring noise below existing worst-hour levels, therefore the effects of the proposed project on these receptors are not significant.

To illustrate the differences between CEQA and NEPA 23 CFR 772 analyses, consider the following example:
The existing noise level at residential Site 1 is 67 dBA; the predicted noise level under build alternative 2 is 70 dBA. This 3 dBA increase between existing noise levels and the build alternative would be barely perceptible to the human ear. Therefore, under CEQA, no significant noise impact would occur as a result of the project and no mitigation is required. However, under NEPA 23 CFR 772, because the noise levels at this receptor already approaches or exceeds the noise abatement criteria of 67 dBA, noise abatement would need to be considered.

2.3 BIOLOGICAL ENVIRONMENT

2.3.1 NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. Where applicable, this section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Where applicable, habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species Section 2.3.5. Wetlands and other waters are also discussed below in Section 2.3.2.

Affected Environment

A field investigation was performed to survey the existing biological environment and how the proposed project alternatives and undertaking would effect that environment. The findings of this investigation are incorporated in the Natural Environment Study (Minimal Impacts) [NES-mi] for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, published August 2014, by the Caltrans Division of Environmental Planning, Biology Unit – District 7. The NES-mi is based on the aforementioned field investigations, reviews of relevant literature on the biological resources of the project study area and the surrounding vicinity (including biological databases), and a search for any applicable regional Habitat Conservation Plan (HCP) or Multiple Species Conservation Plan (MSCP).

The Biological Study Area (BSA) consists of urban freeway infrastructure with adjacent areas that have been highly disturbed and impacted, with minimal native biological resources. Vegetation within the BSA primarily consists of several non-native species that include eucalyptus trees (Eucalyptus ssp.), pine trees (*Pinus ssp*.), Brazilian pepper trees (*Schinus terebinthifolius*), Chinese elm trees (*Ulmus parvifolia*), silk oak trees (*Grevillea robusta*), Washington fan palms (*Washingtonia robusta*), English ivy (*Hedera helix*), and iceplant (*Carpobrotus edulis*). Several native California sycamore trees (*Platanus racemosa*) were also observed along the slopes of the highway.

Environmental Consequences

All Build Alternatives. The proposed project is not expected to pose any adverse effects on any natural or biological communities of concern, or impose any effects on wildlife corridors and/or habitat fragmentation that would lessen its biological value as the BSA exists within a highly developed and disturbed urban setting. The ornamental communities described above may experience minor effects, but due to the non-native nature of the plant communities within the BSA, and the highly developed and disturbed urban setting, the existing habitat quality is very low.

The BSA is not within any regional conservation plans, such as a Habitat Conservation Plan (HCP) or Multiple Species Conservation Plan (MSCP), and the proposed project as a whole does not pose any conflicts with any such plans. Additionally, the proposed project is not expected to pose adverse effects on any wildlife or waterfowl refuges subject to protection under Section 4(f) of the Department of Transportation Act of 1966. The highly disturbed and urbanized setting also indicates a low occurrence of wildlife species in the BSA; therefore, the chance of animal strikes on roadways is very low.

No Build Alternative. The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on natural communities.

Avoidance, Minimization and/or Mitigation Measures

The proposed project does not pose any adverse effects to natural communities, therefore no measures for avoidance, minimization or mitigation are required.

2.3.2 WETLANDS AND OTHER WATERS

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the

agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCB) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section for additional details.

Affected Environment

The U.S. Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information on the extent and status of wetlands in the U.S. via the National Wetlands Inventory Program. Impacts to wetlands and other aquatic habitat from the proposed project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Wetlands are identified based on vegetation, visible hydrology and geography, and the results are archived in the USFWS National Wetland Inventory (NWI). A screen and mapping inquiry were performed utilizing data from the NWI, and the findings show that there is no presence of waters of the U.S. in the immediate project study area, however, due to the hydrologic nature of wetlands (e.g. project activities that may affect local hydrology beyond the immediate project study area), consideration and evaluation was expanded to areas surrounding the project study area, and the following wetland types were found to intersect in one or more locations.

Table 2.3.2-a USFWS NWI Wetland Types beyond the Immediate Project Study Area

Wetland Types	NWI Classification Code	Total Acres
Freshwater Emergent Wetland	PEMB	0.8453
Riverine	R2UBHr	52.4382
Riverine	R4SBAr	0.0739
Riverine	R4SBCr	8.4615

PEMB = Palustrine system, Emergent class, Saturated water regime
R2UBHr = Riverine system, Lower Perennial subsystem, Unconsolidated Bottom class, Permanently Flooded water regime, Artificial Substrate special modifier
R4SBAr = Riverine system, Intermittent subsystem, Streambed class, Temporary Flooded water regime, Artificial Substrate special modifier
R4SBCr = Riverine system, Intermittent subsystem, Streambed class, Seasonally Flooded water regime, Artificial Substrate special modifier

Environmental Consequences

All Build Alternatives. Caltrans performed a screening and mapping inquiry utilizing reconnaissance level data derived from the USFWS National Wetland Inquiry (NWI), and it showed that there is no presence of waters of the U.S. in the immediate project study area. Any effects on local hydrology beyond the immediate project study area were considered and evaluated, and it has been determined that the proposed project is not expected to result in any adverse effect to drainages or waters of the U.S.

No Build Alternative. The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on drainages or waters of the U.S.

Avoidance, Minimization, and/or Mitigation Measures

The proposed project is not expected to result in any adverse effect to drainages or waters of the U.S., therefore no measures for avoidance, minimization or mitigation are required, and no Wetlands Only Practicable Finding is required under Executive Order 11990.

2.3.3 PLANT SPECIES

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 2.3.5 Threatened and Endangered Species in this document for detailed information about these species.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

Affected Environment

The Natural Environment Study – Minimal Impacts (NES-mi) summarizes technical documents (e.g. focused species studies, wetland assessments, biological assessments, etc.) related to the effects on biological resources in the Biological Study Area (BSA) for use in this environmental document. The ensuing discussion has been excerpted from the NES-mi, and is presented as follows.

The BSA exists within a highly disturbed and impacted suburban setting along I-405 between post-miles 14.4 and 15.6 in the City of Torrance, Los Angeles County. The project area of all alternatives includes various vegetated slopes consisting mostly of isolated patches of weedy vegetation and landscape ornamental shrubs and trees. The habitat associated with sensitive plant species do not occur within the project area of all build alternatives. This conclusion is based on field surveys, and a review of relevant literature on the biological resources of the study area and the surrounding vicinity (including biological databases), and particularly the California Rare Plant Ranks, maintained by the California Native Plant Society (CNPS). The results of such are summarized in the following table.

Table 2.3.3-a CNPS Listed Plant Species and Presence within the Project Study Area

Common Name *Scientific Name*	Status	General Habitat Description	Presence/ Potential/ Absence	Rationale
PLANTS				
California Orcutt Grass *Orcutta californica*	California Native Plant Society List 1B.1	Vernal pools	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Gambel's watercress *Rorippa gambellii*	California Native Plant Society List 1B.1	Marshes and swamps (freshwater or brackfish)	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Marsh sandwort *Arenaria paludicola*	California Native Plant Society List 1B.1	Freshwater marsh, marsh and swamp, wetland	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
San Fernando Valley Spineflower *Chorizanthe parryi var. fernandina*	California Native Plant Society List 1B.1	Sandy soils, coastal scrub (sandy)	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Spreading navarretia *Navarretia fossalis*	California Native Plant Society List 1B.1	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas or vernal pools	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.

Environmental Consequences

All Build Alternatives. The preceding table shows that the habitat associated with the CNPS listed sensitive plant species do not exist within the project study area, therefore the presence of all listed species are not anticipated. Based on these conclusions, the proposed project is not anticipated to have an adverse effect on any sensitive plant species. While some clearing and grubbing of existing ornamental vegetation may occur during construction, these activities are not anticipated to have an adverse effect on any sensitive plant species.

No Build Alternative. The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on sensitive plant species.

2.3.4 ANIMAL SPECIES

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code

Affected Environment

The potential effects of the proposed project on the existing biological environment, including the presence of sensitive animal species, were determined through investigations and field surveys, with the results documented in the Natural Environment Study (Minimal Impacts) [NES-mi] for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project (published August 2014, by the Caltrans Division of Environmental Planning, Biology Unit – District 7). The methodology regarding sensitive animal species findings included a review of databases that catalog the locations of known observations of state and federally listed species and habitat; the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Wildlife (CDFW) and sensitive species data provided from the United States Fish and Wildlife Service (USFWS). The following table summarizes the results of the aforementioned, specifically, the presence of listed sensitive species.

Table 2.3.4-a State and Federally Listed Sensitive Animal Species and Habitat of Concern in the Project Study Area

Common Name *Scientific Name*	Status	General Habitat Description	Presence/ Potential/ Absence	Rationale
CDFW STATE LISTED				
Bank swallow *Riparia riaria*	CDFW Threatened	Colonial nester; nests primarily in riparian and other lowland habitat west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Hoary bat *Lasiurus cinereus*	CDFW CNDDB Listed	Prefers open habitat or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage or medium to large trees	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area. General habitat for this species is present within the project quadrangle, however, no habitat was observed within the project area during field surveys.
Pallid bat *Antrozous pallidus*	CDFW Species of Special Concern	Deserts, grasslands, shrublands, woodlands and forests, most common in open, dry habitat with rocky areas for roosting	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Southwestern Willow Flycatcher *Empidonax traillii extimus*	CDFW Endangered	Riparian woodlands in Southern California	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area. General habitat for this species is present within the project quadrangle, however, no habitat was observed within the project area during field survey.
Western pond turtle *Emys marmorata*	CDFW Sensitive Species of Concern	Aquatic, artificial flowing waters, march and swamp, habitat includes permanent and intermittent waters or rivers, creeks, small lakes and ponds, man-made stock ponds, and sewage treatment ponds	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	CDFW Endangered	Riparian obligate species primarily in willow-cottonwood riparian forests, but can occur in alder and box alder dominated riparian habitat	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area. General habitat for this species is present within the project quadrangle, however, no habitat was observed within the project area during field surveys.
USFWS FEDERALLY LISTED				
California Condor *Gymnopyps californianus*	USFWS Endangered	Cliffs, ledges, large trees of Douglas fir, Ponderosa Pine, and snags	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.

Common Name *Scientific Name*	Status	General Habitat Description	Presence/ Potential/ Absence	Rationale
USFWS FEDERALLY LISTED (CONTINUED)				
California red-legged frog *Rana draytonii*	USFWS Threatened	Quiet pools of streams, marshes, and occasionally ponds	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Coastal California gnatcatcher *Polioptila californica californica*	USFWS Threatened	Dense coastal scrub habitat in arid washes, on mesa, and on slopes of coastal hills	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area. General habitat for this species is present within the project quadrangle, however, no habitat was observed within the project area during field surveys.
Least Bell's vireo *Vireo bellii pusillus*	USFWS Endangered	Riparian growth along water or dry parts of intermittent streams	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Riverside fairy shrimp *Streoticephalus woottoni*	USFWS Endangered	Deep vernal pools	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Santa Ana sucker *Catostomus santaanae*	USFWS Threatened	Permanent streams in water ranging in depth from a few centimeters to a meter or more	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Southern Steelhead *Oncorhynchus mykiss irideus*	USFWS Endangered	Aquatic, south coast flowing waters	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.
Vernal pool fairy shrimp *Branchinecta lynchi*	USFWS Threatened	Vernal pools	**ABSENCE**	The habitat associated with this species does not occur within the project area and as a result, the presence of this species is not anticipated in the project area.

Environmental Consequences

All Build Alternatives. The preceding table summarizes the state and federal listing of sensitive species within the larger Torrance Quadrangle per the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Wildlife (CDFW) and sensitive species data provided from the United States Fish and Wildlife Service (USFWS). More specifically, the tables summarizes the presence of the listed species within the immediate project study area, and it has been determined that the proposed project is not expected to have an adverse effect on regional species and/or habitat of concern, particularly within or directly adjacent to the project limits.

While the general habitat for the state-listed Hoary bat (*Lasiurus cinereus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) are present within the larger Torrance Quadrangle, and the general habitat for the federally-listed Coastal California gnatcatcher (*Polioptila californica californica*) is present within the larger Torrance Project Area, no habitat were observed within the immediate project study area, therefore, the proposed project is not expected to have an adverse effect on these species and/or their habitat.

Structural demolition will occur and noise may potentially affect common wildlife species that typically inhabit an urbanized environment; however, no presence of any sensitive or species of concern are expected to be present in the project study area.

No Build Alternative. The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on sensitive animal species.

Avoidance, Minimization, and/or Mitigation Measures

Observation of Sensitive Species/Species of Concern During Construction. In the instance that any sensitive or species of concern are observed during construction activities, all work shall cease and the District Biologist shall be notified immediately. Work shall not resume until clearance is given by the District Biologist.

Migratory Bird Protection. Any vegetation removal, utility relocation or structural demolition occurring during the bird-nesting season (February 15th to September 1st) shall require the notification of the District Biologist (with two weeks advance notice) so that determinations can be made regarding impacts to nesting birds. In the event that nesting birds are observed, the Resident Engineer shall cease all construction activities in the immediate area until it is determined that the fledglings have left their nests. Coordination with the District Biologist shall be initiated, and maintenance of a buffer shall be maintained during all phases of construction (150 feet for songbirds and 500 feet for raptors. Nesting birds shall not be impacted by any construction activity, including noise and dust pollution, in addition to destruction of habitat.

The federal Migratory Bird Treaty Act (16 USC 703-711, and 50 CFR Pt 10 and Fish & Game Code 3503, 3513, and 3800) protect migratory and nongame birds, their occupied nests, and their eggs. The federal Endangered Species Act of 1973 (16 USC 1531 and 1543, and the California Endangered Species Act, Fish & Game Code 2050-2115.5) prohibit the take of listed species and protect occupied and unoccupied nests.

2.3.5 THREATENED AND ENDANGERED SPECIES

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a No Effect finding. Section 3 of FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitat. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by the CDFW. For species listed under both the FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

Affected Environment

As previously mentioned, the existing biological environment, including the presence of threatened and endangered species, was studied through an investigation and field survey that evaluated the potential effects of the proposed project on that environment, and summarized in the Natural Environment Study (Minimal Impacts) [NES-mi] for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, published August 2014, by the Caltrans Division of Environmental Planning, Biology Unit – District 7. The findings regarding threatened and endangered species in the project study area were derived from this report, and via a review of databases that catalog the locations of known observations of state and federally listed species and habitat; the California Natural Diversity Database (CNDDB), which is maintained by the California Department of Fish and Wildlife (CDFW) and sensitive species data provided from the United States Fish and Wildlife Service (USFWS).

- **Plant Species.** There are five known listed plant species that occur within the larger Torrance project area. These plant species include: California Orcutt Grass (*Orcutta californica*), Gambel's watercress (*Rorippa gambellii*), Marsh sandwort (*Arenaria paludicola*), San Fernando Valley Spineflower (*Chorizanthe parryi var. fernandin*), Spreading navarretia (*Navarretia fossalis*). The habitat associated with these species do not occur within the immediate project study area and as a result, the presence of these species are not anticipated to occur in the project area.
- **Wildlife Species.** There are fourteen known listed wildlife species that occur within the larger Torrance Quadrangle. These animal species include: Bank swallow (*Riparia riaria*), Hoary bat (*Lasiurus cinereus*), Pallid bat (*Antrozous pallidus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Western pond turtle (*Emys marmorata*). Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), California Condor (*Gymnopyps californianus*), California red-legged frog (*Rana draytonii*), Coastal California gnatcatcher (*Polioptila californica californica*), Least Bell's vireo (*Vireo bellii pusillus*), Riverside fairy shrimp (*Streoticephalus woottoni*), Santa Ana sucker (*Catostomus santaanae*), Southern Steelhead (*Oncorhynchus mykiss irideus*), and Vernal pool fairy shrimp (*Branchinecta lynchi*). While the general habitat for the aforementioned state and federally listed species are present within the larger Torrance Quadrangle, none of the associated habitat were observed within the immediate project study area and as a result, the presence of these species are not anticipated to occur in the project area.

Environmental Consequences

All Build Alternatives. As previously discussed, the presence of five known listed plant species and fourteen known listed wildlife species have been observed within the larger Torrance Project Quadrangle, but neither the species nor their associated habitat were observed within the immediate project study area, therefore no adverse effects to threatened or endangered species are anticipated as a result of the proposed project.

No Build Alternative. The No Build Alternative would pose no changes to the existing environment; therefore, it would have no adverse effect on threatened or endangered species.

Avoidance, Minimization, and/or Mitigation Measures

Because no adverse effects to threatened or endangered species are anticipated, no measures for avoidance, minimization, or mitigation are required.

2.3.6 INVASIVE SPECIES

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State's invasive species list maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Affected Environment

The existing biological environment, including the presence of invasive species, was studied through an investigation and field survey that evaluated the potential effects of the proposed project on that environment, and summarized in the Natural Environment Study (Minimal Impacts) [NES-MI] for the I-405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, published August 2014, by the Caltrans Division of Environmental Planning, Biology Unit – District 7. The findings regarding invasive species in the project study area were derived from this report, and it was determined that the project study area is dominated by non-native species, most of which are ornamental cultivars that are regularly planted along public roads for aesthetic reasons and particularly, erosion control. Site surveys revealed that a number of non-native, weedy species that are considered invasive were also observed, including ice plant, English Ivy, wild oat, ripgut grass, castor bean, and wild radish. These species do not appear on the California Noxious Weed List.

Environmental Consequences

All Build Alternatives. It is possible that construction activities could cause the disturbance and spread of the identified invasive species in adjacent areas. These species, however, are not part of the California Noxious Weed List.

No Build Alternative. The No Build Alternative would cause no changes or disturbance to the existing environment, and therefore, the spread of invasive species would not be intensified through construction activities.

Avoidance, Minimization and/or Mitigation Measures

Executive Order 13112. In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control included in the proposed project will not use any species on the California Noxious Weed List. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or near construction areas. This includes the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

2.4 CUMULATIVE IMPACTS

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitat and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the Council on Environmental Quality (CEQ) Regulations.

Affected Environment

The intent of the proposed project is to address existing and forecasted operational deficiencies at the I-405 at Crenshaw Boulevard/182nd Street Interchange, and improve circulation and safety on the freeway mainline, on-and-off-ramps, and intersections immediate to the interchange. While capacity-increasing by design, the project does not pose any potential for incursion into surrounding neighborhoods or undeveloped lands, or a geographic location that is conducive to influencing growth, whether resulting from physical constraints, planning and zoning factors, or local political considerations.

The circumstances of the proposed project's setting places certain limitations on potential new development that might occur adjacent to the proposed project site and thereby contribute to cumulative impacts of the type that occur when multiple projects are located in nearby proximity. The general nature of areas surrounding the proposed project site and within the project study area is highly urban in nature and heavily developed. It is worth noting that growth and development continues to occur within a larger, regional context, which has the potential to affect conditions in the project study area, especially in terms of future traffic conditions and resulting effects on local air quality and noise. In order to account for future development, future increases in growth were incorporated into the assumption of the analysis of the proposed project's impacts. The traffic analysis is partially based on modeling performed by the Southern California Association of Governments (SCAG) that account for ambient growth in the region.

As previously discussed in the Land Use section of this environmental document, the City of Torrance has adopted four redevelopment project areas within the vicinity of the proposed project, which could potentially contribute to localized cumulative impacts. Studies also identified four development projects within roughly 5 miles of the proposed project site that may not have been fully accounted for in regional projections produced by the SCAG. These development projects are summarized in the following table.

Table 2.4-a Development Projects of Concern in the Project Study Area

Name of Development	Lead Agency/ Jurisdiction	Proposed Use	Current Status	Approximate Distance from Project Area
El Camino Community College Facilities Master Plan	El Camino Community College District	Redevelopment and construction of operations and maintenance facilities to accommodate projected enrollments with a net increase in 34,721 square feet. Addition of 700 parking spaces to existing parking structure	Supplemental environmental studies completed on 26 April 2013	1.2 miles
South Bay Metro Green Line Extension Transit Corridor	Los Angeles County	8.7 mile South Bay Metro Green Line Extension Transit Corridor to provide new rail service into the South Bay area, connecting Los Angeles International Airport (LAX) to the City of Torrance.	Environmental studies currently in preparation	2 miles
Rockefeller Group Professional Center Development	City of Torrance	351,200 square feet of medical/office, professional office and light industrial condominium buildings	Construction in progress	4.8 miles
Providence Health System/PMB Daily Breeze Medical Facilities	City of Torrance	Construction of new 7 story hospital tower totaling 389,216 square feet in conjunction with reconfiguration of adjacent properties	Construction in progress	5.1 miles

Four Caltrans improvement projects were also identified that may have the potential to contribute to localized cumulative impacts if the appropriate planning and implementation strategies are not deployed. Of the four projects, two would likely complete construction before commencement of construction of the proposed project, and the close coordination would be required regarding the remaining two projects of concern to minimize short-term, cumulative effects that may result from consecutive work and construction activities. These Caltrans projects of concern are summarized in the following table.

Table 2.4-b Caltrans Projects of Concern in the Vicinity of the Proposed Project

Project EA	Route	Post Mile	Project Description	Construction Status/Estimated Construction Date
23390	405	10.8/11.4	I-405 at Avalon Boulevard Interchange Improvement Project	In construction
28850	405 (Northbound)	11.7	Northbound I-405 at Del Amo Boulevard Commercial Vehicle Station Rehabilitation Project	In construction
28910	405 (Southbound)	11.7	Southbound I-405 at Del Amo Boulevard Weigh Station Reconstruction	2/18/2015
29370	405 (Northbound) to 110 (Southbound)	12.2/13.2	Northbound I-405 to Southbound I-110 Connector Improvement Project	3/01/2018

Environmental Consequences

Identification and definition of project-specific resources to consider in cumulative effect analyses is based on the degree of impact, ranging from none to significant. Resource topics where the proposed project could cause a potentially significant direct or indirect impact are included in the ensuing discussions. Resource topics where the proposed project has little-to-no potential to cause direct or indirect impacts, and will not contribute to a cumulative impact on that resource are not evaluated.

Cumulative impacts on given resources are defined by the Resource Study Areas (RSAs). Each resource has a specific RSA, which is delineated to include the project area as well as areas outside of the project where the proposed project's activities, in combination with activities in other project in the area, could contribute to cumulative impacts on the resource. Potential cumulative impacts on each resource are evaluated for both construction and operation of the proposed project. Because the build alternatives for the proposed project are similar in geometry and project footprint, the build alternatives are considered to have similar cumulative impacts in this analysis.

Land Use. The proposed project is a regionally planned interchange improvement anticipated in regional and local plans, intended only to address existing and forecasted operational deficiencies at the interchange, and improve circulation and safety on the mainline, on-and-off-ramps, and intersections immediate to the interchange. As previously discussed, any proposed project components that would not occur within existing infrastructure and right-of-way would occur on lands that are currently adjacent to freeway facilities with no significant conversion of land use. The full and partial acquisition of adjacent properties associated with the proposed project would not cause any changes in land use, zoning, or activities, and there would be no meaningful alteration to existing land use patterns in the proposed project area. The proposed project is completely consistent with the Torrance general plan, and is intended to support existing and projected future land use in the proposed project area and vicinity, and would not alter any land use relationships nor contribute to any cumulative effects on land use patterns in the vicinity of the proposed project site.

Growth. The proposed project is a regionally planned interchange improvement anticipated in regional and local plans, intended only to address existing and forecasted operational deficiencies at the interchange, and improve circulation and safety on the mainline, on-and-off-ramps, and intersections immediate to the interchange. In general, project-related growth is considered to be remote and speculative, as the nature of the proposed project

is merely an interchange improvement project—it is not a new facility that has the potential to induce any meaningful changes in patterns of land use, population density, or growth rate. While capacity increasing by design, it does not pose any potential for incursion into surrounding neighborhoods or undeveloped lands, or a geographic location that is conducive to influencing growth, whether resulting from physical constraints, planning and zoning factors, or local political considerations. In all, the proposed project is a response to traffic congestion that is a result of growth that has already occurred or will soon occur and therefore, would not contribute to cumulative growth impacts.

Community Impacts – Community Character. As previously discussed, the proposed project does not pose any potential for incursion into surrounding neighborhoods or alteration of land use patterns in the project study area. Further, the proposed project would not adversely affect public services in the project study area, and in all, would not contribute to any cumulative effects on community character.

Community Impacts – Environmental Justice. The proposed project would provide a new benefit to the community in that it will improve circulation and safety on the freeway mainline, on-and-off-ramps, and intersections immediate to the interchange. Therefore, the proposed project could not cause unequal distribution of significant impacts, nor contribute to any cumulative effects on the community within the context of environmental justice.

Utilities and Emergency Services/Community Services. The proposed project would have no adverse effect on the long-term operations of utilities, emergency services, and/or community services. To the extent that the proposed project improves operational conditions at the interchange and surrounding intersections in the vicinity, it would improve the effectiveness of emergency services, therefore it would not contribute to any cumulative effect on such.

Traffic and Transportation/Bicycle Facilities. The traffic study prepared for the proposed project is based on, and includes traffic from anticipated regional growth, therefore, the traffic study methodology is cumulative in nature and the results of the traffic analysis for the proposed project represents a cumulative analysis. As indicated, the proposed project inclusive of cumulative effects will improve traffic operations at the interchange and improve circulation and safety on the freeway mainline, on-and-off-ramps, and intersections immediate to the interchange, and would be of a net benefit. Any cumulative, construction-related effects on traffic and facilities would be short-term and temporary in nature, and less than significant. The proposed project would not adversely effect any existing or planned bicycle facilities, and would not contribute to cumulative effects on such.

Cultural Resources. The proposed project is not expected to have an impact on cultural resources. Notwithstanding, impact minimization measures have been identified for implementation should unexpected cultural resources be encountered (in compliance with 36 CFR 800). These measures call for cessation f construction and implementation of procedures for the proper identification and treatment of such resources, based on guidelines required on all construction projects, therefore there would be no contribution to cumulative effects on these resources.

Hydrology and Floodplain. The proposed project is located outside of the base floodplain and would not be subject to flooding during proposed project operation, and while a negligible increase in runoff volume is anticipated, it is not anticipated to affect downstream flow, discharge to line channels, potential sediment loading, or cause other hydraulic changes to the storm drain system affecting downstream stability as a result of increases in Disturbed Soil Areas (DSAs) and Net Additional Impervious Areas (AIA). Hydrology and floodplain impacts are typically of a localized character, and while cumulative impacts can occur with multiple projects within a common drainage area, no significant cumulative effects on hydrology and floodplain are anticipated.

Water Quality and Storm Water Run-Off. The proposed project, as well as other related projects would be required to comply with the Los Angele County Department of Public Works (LACDPW) guidelines for drainage, and require the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that specifies

Best Pollutants Management Practices (BMPs) that will reduce pollution in stormwater discharges. Implementation of these procedures would minimize potential impacts on water quality, and would avoid significant cumulative effects on such.

Geology/Soils/Seismic/Topography. The nature of the proposed project site is a highly-developed and disturbed urban setting, and the proposed project is not expected to pose any adverse impacts to any natural or unique geologic landmarks or landforms. Furthermore, there are no existing geologic conditions that would pose significant limitations on development so long as they are addressed through common design and engineering processes and practices. There are no projects adjacent to the proposed project site that would contribute to any adverse cumulative effect on public and/or property safety or local geologic conditions.

Paleontology. The proposed project is not expected to have an impact on paleontological resources. Notwithstanding, impact minimization measures have been identified that would be implemented if unexpected paleontological resources are encountered in deep excavations. These measures include cessation of construction and implementation of procedures for the proper identification and treatment of such resources, based on guidelines required on all construction projects, therefore there would be no contribution to cumulative effects on these resources.

Hazardous Waste/Materials. The proposed project's operations would not involve the use of hazardous materials, and would not have impacts with regard to hazardous wastes. Therefore, the proposed project operations would not contribute to cumulative effects regarding hazardous wastes.

During construction, hazardous contaminants may be encountered in soils/groundwater in associated and adjacent properties, and in areas adjacent to the freeway mainline, which would be addressed through soil testing and standard mitigation measures to reduce potential and cumulative impacts. Soil/groundwater contamination related to associated/adjacent properties would be due to the nature and previous use of those sites, and remediation would occur to reduce the potential and cumulative impacts of such.

Air Quality. Construction-produced emissions from the proposed project in combination with the same emissions from any related projects or projects of concern in the RSA that are occurring concurrently have the potential to create short-term, cumulative impacts to local air quality, though they would be temporary in nature, and would be minimized by complying with SCAQMD rules and regulations during construction. Under CFR 93.123(c)(5), temporary increases in emissions are those occurring no more than five years in a specific site. Moreover, once complete, the project would reduce congestion within the interchange, increase travel speeds and safety, which altogether reduce vehicle emissions leading to air quality improvement.

Noise and Vibration. With the inclusion of soundwalls as proposed with each build alternative, the proposed project operations would provide a reduction in noise at sensitive receptors in the project study area. Therefore, the proposed project would not contribute to any cumulative impact on noise.

Biological Environment. The proposed project would have no impacts on natural communities, plant species, or threatened and endangered species, and therefore, could not contribute to cumulative effects on these resources.

Avoidance, Minimization, and/or Mitigation Measures

The proposed project is intended to address existing and forecasted operational deficiencies at the interchange, and improve circulation and safety on the mainline, on-and-off-ramps, and intersections immediate to the interchange, and is not anticipated to contribute to any adverse, cumulative effects on the aforementioned resources, therefore no avoidance, minimization, and/or mitigation measures are proposed.

2.5 CLIMATE CHANGE

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” "Greenhouse Gas Mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively.

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California’s GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level GHG analysis. FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.
Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form

the basis for EPA's regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.

The U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

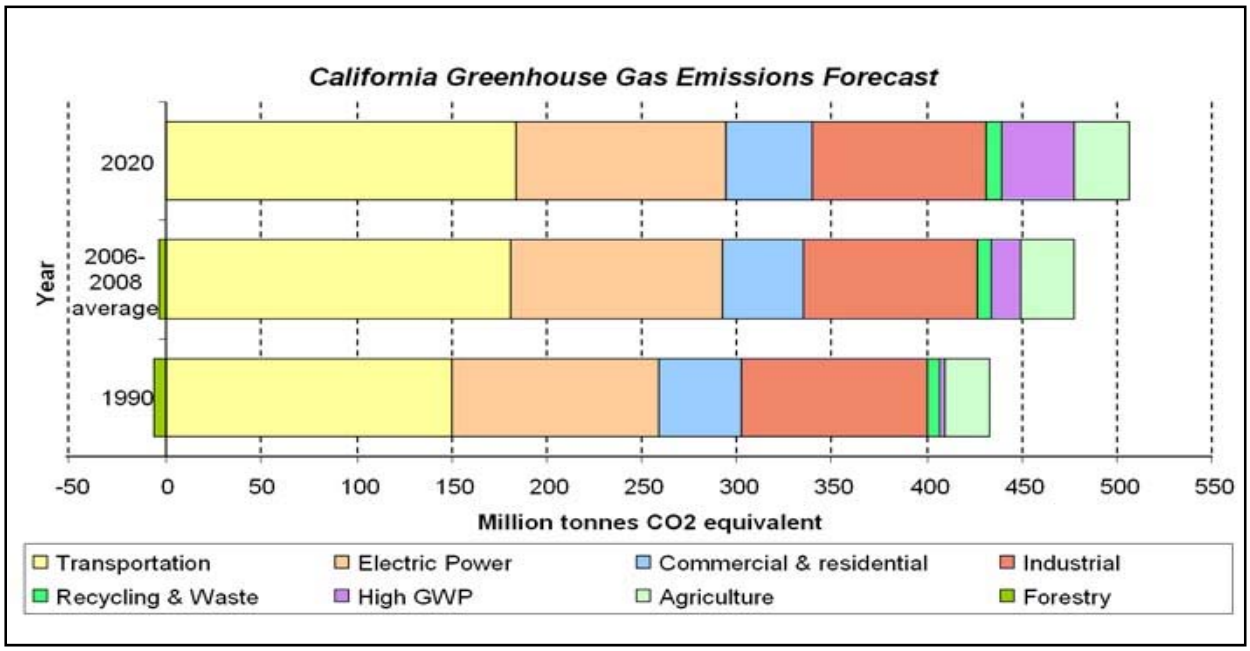
The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 2.5-a California Greenhouse Gas Forecast

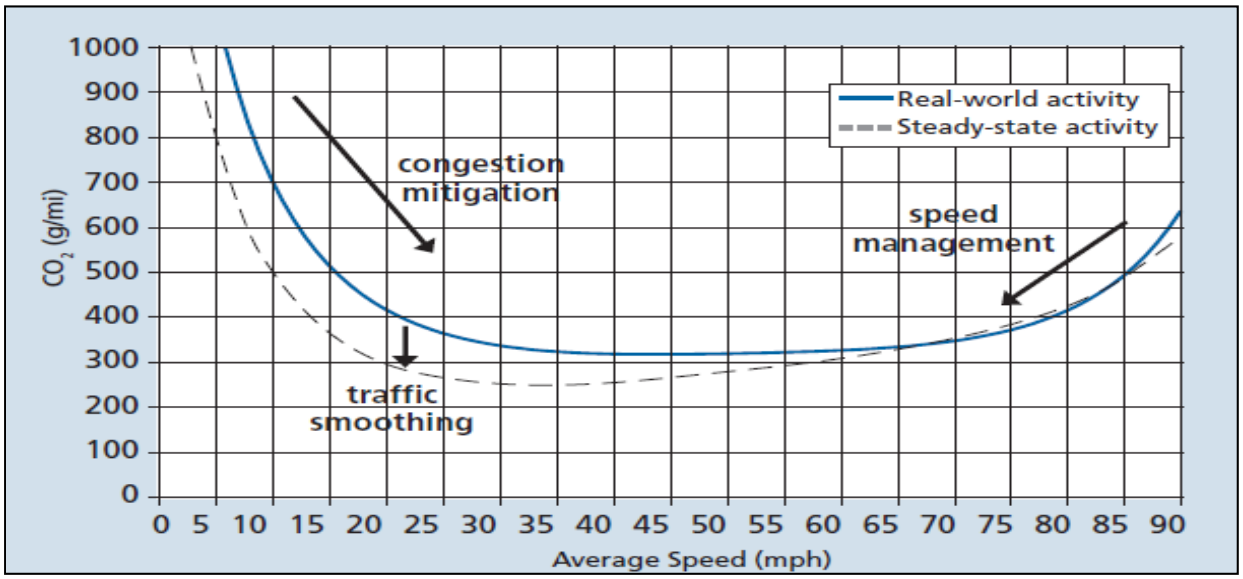


Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide (CO2) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure ## below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO2, may be reduced.

Figure 2.5-b Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions



Currently, there is a need to improve the operational conditions on I-405 mainline and on-ramp and off-ramps to 182nd Street and Crenshaw Blvd as well as at local arterials within the project area. The project improvements are aimed at improving traffic circulation and reducing congestion within the project limits. The proposed project is anticipated to significantly improve intersection delay and LOS. The objective of the proposed project is consistent with the strategies for reducing GHG emissions from transportation sources.

Operational Emissions

Sources of operational GHG emissions are the same as those analyzed for criteria pollutant emissions and include GHG emissions from vehicles traveling along the project corridor. Project-related GHG emissions (No-Build and Build Alternative) were estimated using the CTEMFAC tool. It should be noted, however, that climate change, as it relates to man-made GHG emissions, is by nature a global and cumulative impact.

According to the Association of Environmental Professionals (AEP), in its paper titled *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*, "an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases." The following GHG emissions estimate is presented for the purpose of disclosing project-related emissions.

The project GHG emissions are evaluated for the following:

- The changes in the future GHG emissions along the project corridor compared to the existing emissions in 2014.
- The changes in GHG emissions for the Build Alternative along the project corridor compared with the No-Build scenario.

The following table summarizes GHG emissions estimated based on forecast travel activities along the mainline in the existing, opening (2020), and horizon years (2040).

Table 2.5-a Greenhouse Gas (GHG) Emissions in Tons/Day

GHG	Mixed Flow (tons/day)					HOV (tons/day)					Total Mainline (grams/day)				
		2020		2040			2020		2040			2020		2040	
	Existing	No-Build	Build	No-Build	Build	Existing	No-Build	Build	No-Build	Build	Existing	No-Build	Build	No-build	Build
CO_2	120.002	121.217	128.428	129.852	136.457	18.493	18.567	18.567	19.290	19.290	138.495	139.784	149.995	149.142	155.747
CO_2 (Pavley+LCFS)	111.754	94.601	99.977	94.441	98.677	16.944	13.75	13.75	12.583	12.583	128.698	108.351	113.727	107.024	111.260

*Pavley+LCFS: Pavley and Low Carbon Fuel Standards

The following table provides a summary of anticipated changes in project GHG emissions based on forecast traffic data. It should be noted that these GHG emissions are only useful in comparing results among build alternatives or among milestone years. These numbers are not necessarily an accurate reflection of what the true GHG emissions will be because GHG emissions are dependent on other factors that are not part of the model such as the fuel mix and consumption, rate of acceleration, and the aerodynamics and efficiency of the vehicles.

Table 2.5-b Summary of Changes in GHG Emissions in Tons/Day

GHG	Existing Conditions (tons/day)	Opening Year (2020)			Horizon Year (2040)		
		No-Build Alternative (Alternative 4)	Build Alternative (Alternative 1)		No Build Alternative (Alternative 4)	Build Alternative (Alternative 1)	
			Change from Existing	Change from No-Build		Change from Existing	Change from No-Build
CO_2	138.498	139.784	8.500	7.211	149.142	17.252	6.605
CO_2 (Pavley+LCFS)	128.698	108.351	-14.971	5.376	107.024	-17.438	2.909

*Pavley+LCFS: Pavley and Low Carbon Fuel Standards

Construction Emissions

Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during the construction phases.

In combination with innovations such as longer pavement lives, improved traffic management plans and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Contractors are also required to comply with the requirements applicable to state and local regulations including the Fugitive Dust Rule under SCAQMD to minimize construction emissions.

Greenhouse Gas Reduction Strategies

The Department continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown this figure.

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

The following table summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 2.5-c Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Department	Local governments	Review and see to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Department	Local and regional agencies and other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional agencies	Department	Regional plans and application process	0.975	7.8
Operational Improvements and Intelligent Transportation Systems Deployment	Strategic growth Plan	Department	Regions	State ITS; Congestion Management Plan	0.007	2.17
Mainstream Energy and GHG Consideration in Plans and Projects	Office of Policy Analysis and Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines and technical assistance	Not Estimated	Not Estimated
Educational and Informational Program	Office of Policy Analysis and Research	Interdepartmental, Cal/EPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening and Fuel Diversification	Division of Equipment	Department of General Services		Fleet replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy conservation opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5% limestone cement mix 25% fly ash cement mix >50% fly ash/slag mix	1.2 0.36	3.6
Goods Movement	Office of Goods Movement	Cal/EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total Reduction (MMT)					**2.72**	**18.67**

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations. The following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS commonly consists of electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system
- In addition, the Los Angeles County Metropolitan Transit Authority (METRO) provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity
- Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. The proposed project includes planting in the intersection slopes, drainage channels, and seeding in areas next to frontage roads as well as planting a variety of different-sized plant material and scattered skyline trees where appropriate. These trees will help offset any potential CO_2 emissions release
- The proposed project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost $60 to $70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the projects CO_2 emissions
- According to Caltrans Standard Specifications, the contractor must comply with all local South Coast Air Quality Management District (SCAQMD) rules, ordinances, and regulations for air quality restrictions

Adaptation Strategies

"Adaptation strategies" refer to how the Department and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increased storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011 , outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks .

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009) , which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates
- The range of uncertainty in selected sea level rise projections
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems
- A discussion of future research needs regarding sea level rise

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. While filing of a Notice of Preparation is not required for this level of environmental documentation, the proposed project is outside the coastal zone and direct impacts to transportation facilities due to project sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 3 | COMMENTS AND COORDINATION

THIS PAGE INTENTIONALLY LEFT BLANK

Introduction

Early and continuous coordination with the general public and public agencies is an essential part of the environmental process, as it helps planners determine the necessary scope of environmental documentation and the level of analysis required. Consequently, it also facilitates the identification of potential impacts and the appropriate avoidance, minimization and/or mitigation measures to counter any anticipated adverse effects. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings and interagency coordination meetings. This chapter summarizes the results of Caltrans' efforts to fully identify, address, and resolve project-related issues through early and continue coordination.

Transportation Planning, Preliminary Environmental Studies and Project Initiation

In November 2008, Los Angeles County voters approved the Measure R ballot measure that authorized a half-cent sales tax to finance new transportation projects and programs, and accelerate those already in the pipeline. The tax took effect in July of 2009, and an ordinance called the Traffic Relief and Rail Expansion Ordinance was created, which included an expenditure plan defining specific projects to be funded, timeframes for availability of funds, and expected levels of funding for transportation projects, including not just the expansion of light rail and subway services, but also freeway improvements, and funds for local cities to spend on their own transportation infrastructure. The project, as proposed, is a component of the aforementioned Measure R ordinance and expenditure plan for transportation improvements in the South Bay area.

In September of 2011, the Caltrans Division of Planning, began the transportation planning and scoping process, which provided the framework for selecting, scoping, and constructing the Interstate 405 at Crenshaw Boulevard/182nd Street Interchange Improvement Project, and identified community concerns to be addressed early in the process to ensure efficient project delivery. This information helped to properly define and scope the project in concert with the affected community and the alternatives previously considered.

In April of 2013 a Minor Operational Analysis and Assessment Report was prepared that examined the operational conditions on northbound and southbound Interstate 405 in the City of Torrance, within the vicinity of Crenshaw Boulevard. It revealed a continued deterioration in Level of Service (LOS), and extreme congestion was observed on local arterials, namely northbound and southbound Crenshaw Boulevard, in addition to northbound and southbound 182nd Street, particularly during peak travel periods.

In May of 2013, the Division of Environmental Planning published a Preliminary Environmental Analysis Report (PEAR) that provided the initial environmental evaluation of the proposed project and identified environmental constraints that had the potential to affect project design, alternatives, cost, schedule, and delivery. It also estimated the scope, schedule, and costs associated with the subsequent environmental compliance process and documented assumptions and risks to develop those estimates. Based on the results of the PEAR, it was determined that an Initial Study/Environmental Assessment (IS/EA), leading to a Negative Declaration/Finding of No Significant Impact (ND-FONSI) would be the appropriate level of environmental study, and that a higher-level Environmental Impact Report/Environmental Impact Statement (EIR/EIS) would not be necessary.

In June of 2013, the proposed project was published on the list of planned and programmed projects and strategies in the Division of Planning's Transportation Concept Report for Interstate 405, which is a strategic policy and planning document that identifies existing and future route conditions as well as future needs for each route on the State Highway System (SHS). A purpose and need was developed and derived from the aforementioned reports, and Project Development Team (PDT) was identified, and the main stakeholders were identified: Caltrans, the Los Angeles County Metropolitan Authority (Metro), and the City of Torrance.

Continued Development of Design and Environmental Studies

On January 22, 2014, Caltrans hosted a kick-off meeting for what is known as the Project Approval/Environmental Document (PA/ED) phase of the proposed project. Representatives from the Caltrans Divisions of Project Management, Design, and Environmental were present, including technical specialists from each environmental branch. Funding sources were identified and a preliminary schedule was determined to produce the deliverables for this phase of the project, along with the establishment of obligations for reporting to Metro on a monthly basis. Formal planning and preparation of the appropriate design and environmental documentation was initiated and critical issues were identified. In particular, the discussion was centered on the necessary acquisition of properties immediate to the interchange and related hazardous waste remediation on those properties, and also inclusion of the proposed project in regional air quality emissions modeling for the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

On February 20, 2014, the Caltrans Division of Operations, Traffic Engineering Branch presented the Caltrans PDT with the Draft Traffic Study Report for the proposed project which identified operational deficiencies on the freeway mainline and the local arterials interfacing with the interchange and the necessary measures for remediation. The results of this study helped to refine the design of the build alternatives to be studied from an environmental standpoint, and on February 25, 2014, the Caltrans PDT met with Metro and the City of Torrance at Metro Headquarters to officially kick-off interagency coordination, discuss the build alternatives, and finalize the design and the associated scope of work for the project as a whole.

Presently, the Project Development Team (PDT) consists of all Caltrans staff associated with the proposed project, and also includes representatives from Metro and the City of Torrance, which continue to meet for monthly PDT meetings to discuss the status of design and environmental studies, as well as collaborate on solutions regarding critical issues that have the potential to affect delivery of the proposed project. Circulation of this IS/EA environmental document will mark the beginning of further outreach to elected officials, and other governmental agencies, local stakeholders, and other interested and potentially affected parties –reference Chapter 5 of this environmental document (Distribution List) for a full listing.

CHAPTER 4 | LIST OF PREPARERS

THIS PAGE INTENTIONALLY LEFT BLANK

Caltrans District 7, Division of Environmental Planning | Initial Study/Environmental Assessment

Ron Kosinski, Deputy District Director
Garrett Damrath, Office Chief
Eduardo Aguilar, Branch Chief (CEQA/NEPA)
Anthony R. Baquiran, Associate Environmental Planner (CEQA/NEPA, CIA)
Mohammed Shaikh, Senior Environmental Planner (CEQA/NEPA Reviewer)
Susan Tse, Associate Environmental Planner (Technical Reviewer)

Caltrans District 7, Division of Environmental Planning | Project Development Team/Specialists

Paul Caron, Branch Chief (Biology)
Kelly Ewing-Toledo, Branch Chief (Cultural Resources)
Dawn Kukla, Branch Chief (Paleontological Resources)
Caprice Harper, Associate Archaeologist
Mary Ngo, Project Biologist
Francesca Smith, Architectural Historian

Caltrans District 7, Division of Environmental Planning | Environmental Engineering

Steve Chan, Senior Transportation Engineer/District Coordinator (Hazardous Waste)
Yunus Ghausi, Senior Transportation Engineer (Traffic Operations)
Jin S. Lee, Senior Transportation Engineer (Noise and Vibration)
Andrew Yoon, Senior Transportation Engineer (Air Quality)
George Chammas, Transportation Engineer (Traffic Operations)
Frank Gonzales, Engineering Geologist (Hazardous Waste)
Liberty San Agustin, Associate Transportation Planner (Air Quality)
Samia Soueidan, Transportation Engineer (Noise and Vibration)

Caltrans District 7, Division of Design

Marvin Davis, Supervising Transportation Engineer
Steve Trieu, Supervising Transportation Engineer
Jane Yu, Transportation Engineer
Kevin Nguyen, Transportation Engineer

Caltrans District 7, Division of Project Management

Medhi Salehinik, Project Manager/Senior Transportation Engineer
Jatinder Gaur, Assistant Project Manager/Transportation Engineer

Caltrans District 7, Division of Right of Way

Dan Murdoch, Office Chief
Michele Graves, Senior Right of Way Agent, Utilities
Roy Gallegos, Associate Right of Way Agent

Caltrans District 7, Division of Design, Office of Engineering Services

Dave Bhalla, Senior Transportation Engineer (Hydraulics)
Shiva Karimi, Senior Transportation Engineer (Geotechnical Design)
Shirley Pak, Senior Transportation Engineer (Water Quality Reviewer)
Ron Russak, Senior Landscape Architect
Kristopher Barker, Engineering Geologist (Geotechnical Design)
Jimmy Chan, Transportation Engineer (Construction Water Quality Reviewer)
Vincent Chen, Transportation Engineer (NPDES Water Quality Reviewer)
Mark Yu, Transportation Engineer (TMDL Water Quality Reviewer)
Ara Jitechian, Transportation Engineer (Hydraulics)
George Olguin, Associate Landscape Architect

ICF International

Lee Lisecki, Principal, Environmental Planning (Consultant Project Manager, Public Outreach)

Arellano Associates

Laura Muna-Landa, Project Manager (Subconsultant, Public Outreach)
Raul Velazquez, Associate (Subconsultant, Public Outreach)

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 5 | DISTRIBUTION LIST

THIS PAGE INTENTIONALLY LEFT BLANK

LOCATIONS WHERE IS/EA CAN BE VIEWED

Copies of the IS/EA were made available for viewing at the following locations:

- Caltrans website: http://www.dot.ca.gov/dist07/resources/envdocs
- Caltrans District 7
  100 S. Main Street
  Los Angeles, CA 90012
- City of Torrance Public Works Department
  20500 Madrona Avenue
  Torrance, CA 90503
- Torrance Public Library, El Reiro Branch
  126 Vista del Parque
  Redondo Beach, CA 90277
- Torrance Public Library, Henderson Branch
  4805 Emerald Street
  Torrance, CA 90503
- Torrance Public Library, Katy Geissert Civic Center Library
  3301 Torrance Boulevard
  Torrance, CA 90503
- Torrance Public Library, North Torrance Branch
  3604 Artesia Boulevard
  Torrance, CA 90504
- Torrance Public Library, Southeast Branch
  23115 S. Arlington Avenue
  Torrance, CA 90501
- Torrance Public Library, Walteria Branch
  3815 W. 242nd Street
  Torrance, CA 90505

IS/EA DISTRIBUTION LIST

Elected Officials

Federal	
Senator Barbara Boxer	U.S. Senate
Senator Dianne Feinstein	U.S. Senate
Congressman Ted Lieu	U.S. Congressional District 33
Congresswoman Maxine Waters	U.S. Congressional District 43
State	
Senator Ben Allen	California State Senate 26th District
Senator Isadore Hall, III	California State Senate 35th District
Assembly Member David Hadley	California State Assembly 66th District
County	
Supervisor Mark Ridley-Thomas	Los Angeles County Board of Supervisors 2nd District
Supervisor Don Knabe	Los Angeles County Board of Supervisors 4th District
City of Torrance	
Mayor Patrick J. Furey	City of Torrance Office of Mayor
Councilwoman Heidi Ann Ashcraft	City of Torrance City Council
Councilman Gene Barnett	City of Torrance City Council
Councilman Tim Goodrich	City of Torrance City Council
Councilman Mike Griffiths	City of Torrance City Council
Councilman Geoff Rizzo	City of Torrance City Council
Councilman Kurt Weideman	City of Torrance City Council

Governmental Agencies

Federal Agencies
Department of Housing and Urban Development, Los Angeles Field Office
Native American Tribal Councils

Federal Agencies (continued)
U.S. Army Corps of Engineers, District Engineer
U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Energy
U.S. Department of the Interior
U.S. Department of Transportation, Federal Highway Administration
U.S. Environmental Protection Agency Region 9, Office of Planning and Public Affairs
U.S. Federal Emergency Management Agency
U.S. Fish and Wildlife Service, Environmental Review Section
State Agencies
California Air Resources Board
California Department of Fish and Game
California Department of Transportation, Headquarters
California Highway Patrol (Torrance)
California Native American Heritage Commission
California Native Plant Society
California Regional Water Quality Control Board - Los Angeles Region
California Transportation Commission
State of California Resources Agency
State Clearinghouse Office of Planning and Research
Regional Agencies
Metropolitan Water District of Southern California
South Bay Cities Council of Governments
South Coast Air Quality Management District
Southern California Association of Governments
Southern California Edison Company (SCE Corp)
Los Angeles County
County of Los Angeles, Department of Public Works
County of Los Angeles Department of Regional Planning
County of Los Angeles Fire Department
County of Los Angeles Metropolitan Transportation Authority
County of Los Angeles Sheriff's Department, Torrance Station
Los Angeles County Sanitation District 5, Whittier Administration Office
City of Torrance
City of Torrance City Manager
City of Torrance Community Development Department
City of Torrance Community Services Department
City of Torrance Environmental Quality and Energy Conservation Commission
City of Torrance Fire Department
City of Torrance Parks and Recreation Commission
City of Torrance Planning Commission
City of Torrance Police Department
City of Torrance Public Works Department
City of Torrance Traffic Commission
City of Torrance Transit
Other Cities
City of Carson Planning Department
City of Compton, Planning Department
City of Gardena, Community Development and Planning
City of Hermosa Beach Planning Division
City of Lawndale Planning Division
City of Long Beach Development Services
City of Lomita Community Development Department
City of Los Angeles Planning Department

Other Cities (continued)
City of Los Angeles Department of Transportation
City of Los Angeles Department of Water and Power
City of Manhattan Beach Community Development
City of Rancho Palos Verdes Community Development Department

Local

Homeowners Associations
Begonia Village (Vitco Properties)
Belmar North Homeowners Association
Delthorne Homeowners Association
Hillside Homeowners Association
Horizon Management (Summerwind Homeowners Association)
Knolls Lodge/Manor Homeowners Association
La Terrazza Homeowners Association
League of Women Voters
Merit-Carson Owners Association
New Horizons South Bay Association
North Torrance Homeowners Association
Old Torrance Neighborhood Association
Pacific South Bay Homeowners Association
Pueblo Homeowners Association
Riviera Homeowners Association
Royal Western Mobile Home Park Homeowners Association
Save Historic Old Torrance
Seaside Ranchos Homeowners Association
South Bayport Homeowners Association
Southeast Torrance Homeowners Association
Southwood Homeowners Association
Southwood Riviera Association
Torrance-Windemere Homeowners Association
West Torrance Homeowners Association
Other Interested and Potentially Affected Parties
Bartlett Senior Citizens Center
The Daily Breeze
Herma Tillim Senior Citizens Center
Ken Miller Recreation Center
Normandale Recreation Center
Palos Verdes-South Bay Group Sierra Club
Sierra Club Los Angeles Chapter
South Bay Economic Development Partnership
Torrance-South Bay YMCA - YMCA of Metro Los Angeles
Torrance Unified School District

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A | CEQA ENVIRONMENTAL CHECKLIST

THIS PAGE INTENTIONALLY LEFT BLANK

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, references can be found within the body of the environmental document itself in the appropriate section. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

I. AESTHETICS: Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?				**X**
b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				**X**
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			**X**	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			**X**	

II. AGRICULTURE AND RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				**X**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**X**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				**X**
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**X**
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				**X**

III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?			**X**	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			**X**	
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			**X**	
d) Expose sensitive receptors to substantial pollutant concentrations?			**X**	
e) Create objectionable odors affecting a substantial number of people?			**X**	

IV. BIOLOGICAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

V. CULTURAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				X
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

VI. GEOLOGY AND SOILS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	

VII. GREENHOUSE GAS EMISSIONS: Would the project:	
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?pursuant to §15064.5?	

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

IX. HYDROLOGY AND WATER QUALITY: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?			X	
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	
f) Otherwise substantially degrade water quality?			X	

IX. HYDROLOGY AND WATER QUALITY (continued): Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow				X

X. LAND USE AND PLANNING: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

XI. MINERAL RESOURCES: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

XII. NOISE: Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?			X	
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

XIII. POPULATION AND HOUSING: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

XIV. PUBLIC SERVICES:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				X
Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

XV. RECREATION:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

XVI. TRANSPORTATION/TRAFFIC: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
e) Result in inadequate emergency access?				X
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			X	

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X

XVII. UTILITIES AND SERVICE SYSTEMS (continued): Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			X	

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

APPENDIX B | RESOURCES RELATIVE TO THE REQUIREMENTS OF SECTION 4(F)

THIS PAGE INTENTIONALLY LEFT BLANK

La Carretera Park is the only publicly owned park within the vicinity of the proposed project, and is located approximately one mile east of the I-405 at Crenshaw Boulevard/182nd Street Interchange, but immediately adjacent to the freeway mainline between Van Ness and Western Avenues. The park is approximately 3 acres and its Spanish name appropriately translates to "the highway." The land was sold to the City of Torrance by the State of California when it became excess freeway land in 1966, and since then, it has been developed to include a sheltered picnic area, barbecues, children's play area, softball diamond and basketball court.

Section 4(f) / Code of Federal Regulations, Title 23, Part 774 (23 CFR 774). Since the mid-1960s, federal transportation policy has reflected an effort to preserve publicly owned public parks and recreation areas, waterfowl and wildlife refuges, and historic sites considered to have national, state, or local significance. The Department of Transportation Act of 1996 included a special provision to carry out this effort, which was 23 CFR 774, or Section 4(f). Section 4(f) stipulated that the Federal Highway Administration (FHWA) and other U.S. Department of Transportation agencies cannot approve the use of land from a significant publicly owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless there is no feasible and prudent alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from use. La Carretera Park qualifies as a public park protected under Section 4(f).

Section 4(f) defines "use" in three ways; permanent incorporation/permanent easement; temporary occupancy; and constructive use. Permanent incorporation involves a right-of-way acquisition of Section 4(f) protected land as part of the transportation project. In other words, the transportation agency or project sponsor directly purchases the property (fee simple acquisition), and the property sustains a permanent impact—essentially, changing the Section 4(f) protected property to a transportation facility. While La Carretera Park is directly adjacent to the I-405 freeway facilities, none of the proposed build alternatives require the acquisition of these Section 4(f) protected public lands or conversion of these lands to transportation facilities.

Permanent easement is defined as an acquisition of a permanent easement on the Section 4(f) property for transportation or related purposes. Although the underlying ownership of the land may remain with the original owner, the transportation owner or operator acquires a permanent interest in the use or maintenance of some portion of the property that disrupts the Section 4(f) function. Some examples of this use include maintenance access, utility access, and placement of and/or maintenance of drainage features. None of the proposed build alternatives require the acquisition of a permanent interest in the use or maintenance of La Carretera Park for any of the aforementioned activities or, any other activities that may require such.

During construction, a temporary occupancy of a Section 4(f) property often occurs during activities such as slope grading or when land is used to provide staging or access areas. Once the easement is no longer needed, the Section 4(f) property is typically restored to the condition in which it was originally found, but depending upon conditions, such activities—even though temporary in nature—may be considered adverse in terms of the Section 4(f) statute's preservation purpose, and would therefore be considered a Section 4(f) use. Because of the following criteria, temporary occupancy of La Carretera Park would not occur:

- The scope of work on the land is minor and related solely to the reconstruction of an existing soundwall at the southernmost edge of La Carretera Park
- Use of the land would be of short duration (less than the time needed for construction of the project as a whole)
- There would be no change in ownership of the land
- There would be no temporary or permanent adverse changes to the activities, features, or attributes of La Carretera Park
- Any temporary alterations or disturbance to the lands would be fully restored to a condition at least as good as prior to the construction of the proposed project

Based on the aforementioned, none of the proposed build alternatives would require any temporary activities that would be considered adverse in nature, and no temporary occupancy of the Section 4(f) protected La Carretera Park would be required.

Lastly, a constructive use of Section 4(f) lands occur only in the absence of a permanent incorporation of land or a temporary occupancy of the type that constitutes a Section 4(f) use. Constructive use occurs when the proximity impacts of the proposed project on an adjacent or nearby Section 4(f) protected property are substantially impaired. Substantial impairment occurs when the protected activities, features, or attributes of the Section 4(f) property are substantially diminished. In those situations where a potential constructive use can be reduced below a substantial impairment by the inclusion of mitigation measures, there will be no constructive use and Section 4(f) does not apply.

Caltrans considered the proposed project within this context, and identified the potential for the proposed project to impair activities at La Carretera Park via Build Alternative 1, where adding an auxiliary lane on the northbound I-405 would bring traffic noise closer to the Section 4(f) protected park. Noise studies indicate an existing worst-hour noise level of 59.1 decibels at the park, which is typical of an urbanized environment. Build Alternative 1 posed the greatest potential for significant effects as it was predicted to push noise levels up to 67.3 decibels (+8.2 decibel increase), but implementation of recommended noise abatement measures (construction of a new 16 foot soundwall) would offset the noise increase by 5 decibels, bringing projected levels down to 62.3 decibels (+3.2 decibel increase), which is considered to be negligible and insignificant, as it would be barely perceptible to the human ear, and at 62.3 decibels, the noise environmental would be indifferent to that of average street traffic at 25 feet. Implementation of proposed mitigation/noise abatement would reduce any potential for substantial impairment to the Section 4(f) protected La Carretera Park, therefore no constructive use would occur, and Section 4(f) does not apply.

APPENDIX C | TITLE VI POLICY STATEMENT

THIS PAGE INTENTIONALLY LEFT BLANK

Director's Policy

Number:	DP-28-R1
Effective Date:	3/19/15
Supersedes:	DP-28 (12-2006)
Responsible Program:	Office of Business and Economic Opportunity

TITLE Title VI of the Civil Rights Act of 1964 and Related Nondiscrimination Statutes

POLICY

The California Department of Transportation (Caltrans), as a recipient of federal financial assistance, incorporates Title VI of the Civil Rights Act of 1964, Section 162 (a) of the Federal-Aid Highway Act of 1973, Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973/Americans With Disabilities Act of 1990 (Title VI) into its programs, policies, activities, and services. This ensures that no person in the state of California is excluded from participation in, denied the benefits of, or otherwise subjected to discrimination in Caltrans programs, policies, activities, and services on the grounds of race, color, national origin, sex, age, or disability.

INTENDED RESULTS

The intent of this policy is to identify, resolve, and include Title VI considerations in the planning and project delivery process, and with Caltrans partners, to ensure the public is not discriminated against, either intentionally or unintentionally, as a result of transportation decisions. This policy is consistent with other Caltrans policies: Equal Employment Opportunity (DP-01-R10); Environmental Policy (DP-04); Caltrans' Workforce (DP-11); Caltrans' Disadvantaged Business Enterprise Program (DP-13-R2); Working with Native American Communities (DP-19); Environmental Justice (DP-21); and Context Sensitive Solutions (DP-22) to ensure nondiscrimination, equal and equitable activities, and access to services.

RESPONSIBILITIES

Director:

- Ensures Caltrans actions and services are consistent with Title VI laws and regulations. (28 Code of Federal Regulations (C.F.R.) § 42.101 (2014).)
- Appoints a Title VI Coordinator pursuant to 23 C.F.R. part 200.9(a)(4) and (b)(1) (2014).
- Delegates daily operations of the Caltrans Title VI Program to the Assistant Director, Office of Business and Economic Opportunity (OBEO).

Assistant Director, OBEO:

- Promotes awareness of Title VI issues.
- Administers the Caltrans Title VI Program in the development and implementation of the Federal Highway Administration, Federal Transit Administration, and Federal Aviation Administration Title VI compliance program.
- Serves as the Caltrans Title VI Coordinator.
- Maintains the Title VI Program Plan.
- Provides technical expertise and training on Title VI matters.
- Conducts compliance reviews of divisions and districts to ensure compliance with Title VI requirements.
- Prepares and submits federal mandated reports.

Deputy Directors for Planning and Modal Programs and Project Delivery:

- Promote awareness of Title VI issues.
- Promote Title VI considerations in statewide planning and project delivery by ensuring compliance with Title VI requirements.
- Ensure local partners, as subrecipients, comply with Title VI Program requirements in planning and project delivery and ensure nondiscrimination.

District Directors:

- Promote awareness of Title VI issues.
- Appoint a Title VI Liaison.
- Submit Title VI Program Accomplishments/Goals Report annually, including program updates, as required by the Title VI Program Plan.

Chiefs, Divisions of Engineering Services and Procurement & Contracts:

- Promote awareness of Title VI issues.
- Ensure Caltrans' federally assisted contracts and procurements are consistent with Title VI requirements, including, but not limited, to the inclusion of nondiscrimination clauses.

Division Chiefs:

- Promote awareness of Title VI issues.
- Appoint a Title VI Liaison if required by the Title VI Program Plan.
- Submit Title VI Program Accomplishments/Goals Report annually, including program updates, as required by the Title VI Program Plan.

Managers and Supervisors:

- Promote awareness of Title VI issues.
- Actively support Title VI and ensure their employees understand and comply with Caltrans policies.
- Ensure employees receive Title VI training every two years.

District and Division Title VI Liaisons:

- Promote awareness of Title VI issues, requirements, policies, and procedures.
- Provide technical assistance to internal and external stakeholders regarding Title VI requirements.
- Collect data and report on Title VI activities, including outreach events and trainings.
- Assist with Title VI monitoring and compliance activities.

Employees:

- Comply with Caltrans policies regarding Title VI in their day-to-day activities.
- Complete Title VI training every two years.

APPLICABILITY

This policy applies to all Caltrans employees and extends to subrecipients, such as contractors, grantees, and local agencies that receive federal financial assistance from Caltrans.

MALCOLM DOUGHERTY
Director

3/19/2015
Date Signed

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX D | DRAFT ENVIRONMENTAL COMMITMENTS RECORD

THIS PAGE INTENTIONALLY LEFT BLANK

UTILITIES AND EMERGENCY SERVICES

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
1-1	Minimization of Construction Effects on Utilities	Design/ Resident Engineer		Design, Construction		IS/EA	Relocation of utilities shall be conducted in a manner to minimize any disruption to services those utilities provided.

TRAFFIC AND TRANSPORTATION, PEDESTRIAN AND BICYCLE FACILITIES

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
2-1	Temporary Traffic Controls	Resident Engineer		Construction		IS/EA	Temporary traffic controls, signing, barriers, and flagmen shall be employed as necessary and appropriately for the efficient movement of traffic, and to facilitate construction of the proposed project improvements while maintaining the best possible traffic flows, therefore minimizing disruption.
2-2	Street and Ramp Closures (General)	Design/ Resident Engineer		Design, Construction		IS/EA	A ramp and lane closure plan shall be developed, and construction activities shall be staged in such a manner to minimize the need for street and/or ramp closures. To the greatest extent possible, such closures (when required) shall be made during off-peak and/or overnight periods. In advance of and during closure periods, appropriate temporary signage (in accordance with Caltrans and city guidelines) shall be used to warn motorists of the closure and direct them to alternate routes.
2-3	Transportation Management Plan (TMP)	Design/ Resident Engineer		Design, Construction		IS/EA	A Transportation Management Plan (TMP) shall be developed, focusing on informing the public and affiliated parties of construction dates, activities, and alternative routes. Where possible, the TMP shall include public information centers, additional project signage, local and regional newspaper advertising, close coordination with local neighborhood and business associations, project newsletters, and other strategies to disseminate the appropriate information in the project study area.

VISUAL / AESTHECTICS

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
3-1	Landscape Architecture Design Guidelines	Design/ Landscape Architect/ Resident Engineer		Design, Construction		IS/EA	The general alignment and profile of the highway shall fit the character of the area traversed and follow the existing terrain as closely as possible to minimize unsightly scars caused by excavation and embankment work.
3-2	Landscape Architecture Design Guidelines	Design/ Landscape Architect/ Resident Engineer		Design, Construction		IS/EA	Slopes shall be rounded to blend with the surrounding topography.
3-3	Landscape Architecture Design Guidelines	Design/ Landscape Architect/ Resident Engineer		Design, Construction		IS/EA	Protection of desirable vegetation (e.g. trees, specimen plantings, diminishing native species, or historical plantings) is preferred, wherever possible. Destruction of desirable vegetation shall be avoided, if possible, or minimized.
3-4	Landscape Architecture Design Guidelines	Design/ Landscape Architect/ Resident Engineer		Design, Construction		IS/EA	Areas adjacent to all of the proposed project improvements, including areas affected by construction/staging activities, shall be re-landscaped to an appearance similar to the existing conditions, and in a manner so as to blend with the appearance of the existing conditions in the Caltrans right-of-way adjacent to the project site, and consistent with standard Caltrans practices.

CULTURAL RESOURCES

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
4-1	Unexpected Discovery Provisions	Resident Engineer		Construction		IS/EA and SSP 14-2.02A	If cultural materials are discovered during construction, all earth moving activity within and around the immediate area shall be diverted until a qualified Caltrans archaeologist under the direction of the District Heritage Resource Coordinator can assess the nature and significance of the find. Work can only resume after approval to proceed is given by the District Heritage Resource Coordinator.

CULTURAL RESOURCES (Continued)

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
4-2	Unexpected Discovery Provisions	Resident Engineer		Construction		IS/EA and SSP 14-2.02A	If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are through to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). Prior to this time, the person who discovered the remains will have contacted Kelly Ewing-Toledo, District 7, Heritage Resource Coordinator at 213-897-4095. Work will be conducted with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

HYDROLOGY AND FLOODPLAIN

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
5-1	General Precautions During Construction	Resident Engineer		Construction		IS/EA	During construction, the contractor shall be responsible for protection of the workplace from the adverse effects of flooding by means such as plastic sheeting, fiber rolls, berms, minimizing earthwork during the rainy season, and slope stabilization to minimize sediment from clogging the protected drainage inlet BMPs, gravel bags, berms with greater porosity and structural integrity to allow runoff into drainage inlets while retaining sediment, and pumping of flooded temporary low spots created by construction activities.

WATER QUALITY AND STORMWATER RUNOFF

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
6-1	Best Management Practices (Construction)	Resident Engineer		Construction		IS/EA	• Perimeter Controls: Runoff Control will be placed at the top of all excavation and embankment slopes. • Slope Protection and Slope Interruption devices shall be implemented on applicable slopes during the construction period. Wherever possible, early implementation of permanent erosion control seeding or landscape planting shall be performed. • At all construction site entrances, the contractor will provide construction stabilized entrances/ exits. • Regular watering of the non-paved sites along with street sweeping and vacuuming will be required on paved surfaces within and adjacent to the project site. • All slopes shall be protected with fiber rolls, silt fences, temporary slope drains and early slope paving or landscaping as defined in the approved Storm Water Pollution Prevention Plan (SWPPP) especially during the rainy season defined as occurring from October 1 to May 1. • All slopes shall be protected with fiber rolls, silt fences, temporary slope drains and early slope paving or landscaping as defined in the approved Storm Water Pollution Prevention Plan (SWPPP) especially during the rainy season defined as occurring from October 1 to May 1. • During the rainy season, the total active disturbed soil area within the project limits will be maintained to a minimum by focusing on construction activities that avoid earthwork, keeping active areas to a minimum, and by implementing the approved Construction Site BMPs. • The contractor will be required to manage all stock piles against wind and water erosion and contain concrete wastes within concrete washouts. • All catch basins and drainage inlets will include a perimeter of gravel bag berms or storm drain inlet protection. • For all construction equipment, fuels, and toxic chemicals spill prevention and spill control measures will be implemented

GEOLOGY AND FLOODPLAIN

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
7-1	Geotechnical Design Guidelines	Design		Design		IS/EA, Geotechnical Studies	With Alternative 1, the addition of auxiliary lanes on the I-405 mainline, and the subsequent widening of the Van Ness Avenue Bridge and undercrossing are specific to Alternative 1, carry specific geotechnical recommendations. Driven concrete piles are not considered to be feasible regarding the bridge widening and supporting foundation type because of the medium-to-dense nature of subsurface soils, and spread footings are not recommended in interbedded medium-dense to dense granular material. Standard, open-ended steel pipe piles at bridge abutments and bents represent a feasible alternative to support the proposed widening. Matching the existing foundation type (CIDH pile) might also be feasible, but would require further evaluation regarding disposal of contaminated materials (drill fluid and soil cuttings). If CIDH piles are used, a wet method may need to be adopted considering the shallow water table in the project study area.
7-2	Geotechnical Design Guidelines	Design		Design		IS/EA, Geotechnical Studies	With all build alternatives, it is recommended that retaining walls associated with the proposed project be supported on spread footings with some possible rework where soft clay/loose sand is encountered below the bottom of the footings. If forthcoming investigations for the proposed project site reveal peak ground acceleration (PGA) greater than 0.6g, specially designed retaining walls may be required. Because groundwater was encountered on site at depths of 29-32 feet, proposed soundwalls can be constructed as standard walls supported on 16 foot Cast In Drilled Holes (CIDH) piles. CIDH piles are used to support structures built on ground subject to movement. The piles are drilled through unstable ground layers to more support substratum.
7-3	Additional Geologic Testing	Design		Design		IS/EA, Geotechnical Studies	Further subsurface investigation, laboratory testing and engineering analyses are required to provide the appropriate recommendations to ensure the design of structures, their foundations, and paving and grading associated with the proposed project is geologically sound. The result of these efforts shall be presented in the final Foundation Report (FR).

HAZARDOUS WASTE

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
8-1	Existing Yellow and White Traffic Stripe and Pavement Markings	Design/ Resident Engineer		Design, Construction		IS/EA, Hazardous Waste Assessment	Preparation of a project-specific Lead Compliance Plan (LCP) and Debris Containing and Disposal Work Plan are required to address the removal, containment, storage, sampling, and disposal of yellow thermoplastic and lead based painted traffic strip and/or pavement markings, and to prevent or minimize worker exposure to lead while handling the debris/residue. [California Code of Regulations (8CCR), Title 8, Section 1532.1, "Lead," and Cal-OSHA Construction Safety Order].
8-2	Aerially Deposited Lead (ADL)	Design/ Resident Engineer		Design, Construction		IS/EA, Hazardous Waste Assessment	During construction, excess ADL soils require special handling and waste management, especially when disturbed during earth-moving activities. The Caltrans Office of Environmental Design will initiate a project-specific ADL site investigation to evaluate whether the excess ADL spoil generated can be reused on the project site and/or along the project corridor by invoking the California Department of Toxic Substances Control (DTSC) Variance (July 2009). If the excess ADL soils cannot be reused on the project site and/or along the project corridor, the site investigation will also determine whether they are classified as federal waste and require off-site disposal at a permitted Class I California hazardous waste (non-RCRA) disposal facility. Collectively, the site investigation data will assist in the preparation of the necessary Lead Compliance Plan as required under California Code of Regulations (8CCR), Title 8, Section 1532.1, "Lead," and Cal-OSHA Construction Safety Order.
8-3	Treated Wood Waste (TWW)	Design/ Resident Engineer		Design, Construction		IS/EA, Hazardous Waste Assessment	Removal and disposal of metal beam guardrails, thrie beam barriers, piles, and roadside signs shall be managed under the California Code of Regulations, Title 22, Division 4.5. Chapter 34, which specifies guidelines for storage, accumulation, shipment/transport, and disposal of TWW at specific landfills.
8-4	Asbestos Containing Materials (ACM)	Design/ Resident Engineer		Design, Construction		IS/EA, Hazardous Waste Assessment	Surveying and sampling will be required to determine procedures for the proper removal, handling and disposal of ACM during construction. Upon completion and analyses of surveys and sampling, an Asbestos Compliance Plan (ACP) shall be completed and signed by a Certified Industrial Hygienist (CIH), which outlines potential risks and appropriate monitoring plans, as well as safety measures to reduce the risk of worker exposure to contamination. Additionally, the production of a Dust Control Plan (DCP) will be required to be approved by the South Coast Air Quality Management District (SCAG) before commencing any work in areas containing ACM. The DCP will outline procedures to prevent dust emission during excavation, stockpiling, transportation, or placement of materials containing ACM.
8-5	Additional Site Investigations and Remediation of Parcels Associated with the Proposed Project	Design/ Resident Engineer		Design, Construction		IS/EA, Hazardous Waste Assessment	Additional site investigation work is required to include sampling to evaluate any residual concentrations of contamination that may be present on each site and within Caltrans right-of-way. The results of the additional site investigations will be used to prepare the appropriate remediation cost estimates to manage, handle, and dispose of any impacted soils during construction and following construction, should long-term monitoring or remedial actions be required.

AIR QUALITY

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
9-1	Minimization Measures to Offset Short-Term, Construction Related Impacts	Resident Engineer		Construction		IS/EA	• The construction contract shall comply with Caltrans' Standard Specifications in Section 14 (2010). Section 14-9.01 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including SCAQMD rules and regulations and local ordinances. Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18. • Apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emission or at the right of way line as required by the SCAQMD. • Spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas. • Wash off trucks as they leave the R/W as necessary to control fugitive dust emissions. • Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. • Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. • Locate equipment and materials storage sites at least 500 feet from the sensitive receptors. Keep construction areas clean and orderly. • Establish environmentally sensitive areas (ESAs) or their equivalent at least 500 feet away from sensitive air receptors within which construction activities such as extended idling, material storage, and equipment maintenance, would be prohibited, to the extent feasible. • Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic. • Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation.

AIR QUALITY (Continued)

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
9-1 (cont)	Minimization Measures to Offset Short-Term, Construction Related Impacts	Resident Engineer		Construction		IS/EA	• Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter. • Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads. • Wash off trucks as they leave the R/W as necessary to control fugitive dust emissions. • Properly tune and maintain construction equipment and vehicles. Use low-sulfur fuel in all construction equipment as provided in California Code of Regulations Title 17, Section 93114. • Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities. • Locate equipment and materials storage sites at least 500 feet from the sensitive receptors. Keep construction areas clean and orderly. • Establish environmentally sensitive areas (ESAs) or their equivalent at least 500 feet away from sensitive air receptors within which construction activities such as extended idling, material storage, and equipment maintenance, would be prohibited, to the extent feasible. • Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic. • Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to minimize emission of dust (particulate matter) during transportation. • Promptly and regularly remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter. • Route and schedule construction traffic to avoid peak travel times as much as possible, to reduce congestion and related air quality impacts caused by idling vehicles along local roads.

AIR QUALITY (Continued)

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
9-1 (cont)	Minimization Measures to Offset Short-Term, Construction Related Impacts	Resident Engineer		Construction		IS/EA	• Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and may need to use controls such as dampened straw.
9-2	Minimization of PM10 During Construction	Resident Engineer		Construction		IS/EA	SCAQMD - Rule 401 – Visible Emissions: A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminants for a period or periods aggregating more than three (3) minutes in any one (1) hour which are as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart or of such opacity as to obscure an observer's view to a degree equal to or greater than smoke.
9-3	Minimization of PM10 During Construction	Resident Engineer		Construction		IS/EA	SCAQMD - Rule 402 – Nuisance: A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endangers the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.
9-4	Minimization of PM10 During Construction	Resident Engineer		Construction		IS/EA	SCAQMD - Rule 403 – Fugitive Dust: SCAQMD's Rule 403 requires that fugitive dust be controlled with the best available control measures (BACM) in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. It also requires a dust control plan to be submitted and approved prior to construction. The dust control plan should describe all applicable dust control measures that will be implemented at the project; and should describe types of dust suppressant, surface treatments and other measures to be utilized at the construction sites to comply with the Rule.

NOISE

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
10-1	Minimization of Short-Term, Construction-Related Noise	Resident Engineer		Construction		IS/EA	Effective temporary noise barriers, when they are feasible, shall be used in an attempt to minimize any noise between construction equipment and noise-sensitive receptors
10-2	Minimization of Short-Term, Construction-Related Noise	Resident Engineer		Construction		IS/EA	Noise-generating equipment in operation at the proposed project site shall be fully equipped with effective noise control devices (i.e. mufflers, lagging, and/or motor enclosures). Noise from each piece of construction equipment shall not exceed 86 dBA (Lmax) at a distance of 15m (50 feet). All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated
10-3	Minimization of Short-Term, Construction-Related Noise	Resident Engineer		Construction		IS/EA	Noise generating construction activities within 50 meters (165 feet) of residential units shall be restricted to hours between 7:00AM and 8:00PM, Monday through Friday and 8:00AM and 6:00PM on Saturday. No noise-generative construction activities shall take place on Sundays and holidays.

BIOLOGY

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
11-1	Vegetation Removal and Replacement	Design/ Landscape Architect/ Biologist/ Resident Engineer		Design, Construction		IS/EA	Large, mature trees that are removed shall be replaced in-kind with native trees , and shrubs and vegetative ground cover shall also be replaced in-kind, with native, drought tolerant plants. Where native California sycamore trees (Platanus recemosa) require removal, they shall be replaced in-kind, and at the appropriate replacement ratio dictated by local jurisdictional guidelines.
11-2	Observation of Sensitive Species During Construction	Resident Engineer		Construction		IS/EA	In the instance that any sensitive or species of concern are observed during construction activities, all work shall cease and the District Biologist shall be notified immediately. Work shall not resume until clearance is given by the District Biologist.

BIOLOGY (Continued)

Log No.	Commitment Type	Responsible Party	Monitoring Frequency	Implementation/ Monitoring Phase	SSP# / NSSP#	Env Doc/ Permits/ Specs/ Plans/ Estimates REFERENCE	Commitment Measure
11-3	Migratory Bird Protection	Resident Engineer		Construction		IS/EA	Any vegetation removal, utility relocation or structural demolition occurring during the bird-nesting season (February 15th to September 1st) shall require the notification of the District Biologist (with two weeks advance notice) so that determinations can be made regarding impacts to nesting birds. In the event that nesting birds are observed, the Resident Engineer shall cease all construction activities in the immediate area until it is determined that the fledglings have left their nests. Coordination with the District Biologist shall be initiated, and maintenance of a buffer shall be maintained during all phases of construction (150 feet for songbirds and 500 feet for raptors. Nesting birds shall not be impacted by any construction activity, including noise and dust pollution, in addition to destruction of habitat.
11-4	Invasive Species	Design/ Landscape Architect/ Biologist/ Resident Engineer		Design, Construction		IS/EA	In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control included in the proposed project will not use any species on the California Noxious Weed List. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or near construction areas. This includes the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

THIS PAGE INTENTIONALLY LEFT BLANK