State Route 57 Northbound Improvement Project

Orange County, California
District 12 – ORA-57 (PM 11.5 – 12.5)
1213000099/EA 0M9700

Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact



Prepared by the
State of California, Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

March 2019

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General Information about This Document

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study with Mitigated Negative Declaration/Environmental Assessment for the proposed project located in Orange County, California. The Department is the lead agency under the National Environmental Policy Act (NEPA). The Department is the lead agency under the California Environmental Quality Act (CEQA). The document tells you why the Project is being proposed, what alternatives have been considered for the Project, how the existing environment could be affected by the Project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

The Initial Study/Draft Environmental Assessment was circulated to the public for 30 days from October 11, 2018 to November 9, 2018. Comments received in conjunction with the circulation of the Draft Document are included in Chapter 4. Throughout this document, a vertical line in the margin indicates a change was made since circulation of the Draft Document. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document and the related technical studies are available for review at the Caltrans District 12 Office at 1750 East 4th Street, Suite 100, Santa Ana, CA 92705, on weekdays from 8:00 am to 5:00 pm. This document may also be downloaded from the following website:

http://www.dot.ca.gov/d12/DEA/57/0M970

Alternative Formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette or on computer disk. To obtain a copy in one of these alternate formats, please contact Van Nguyen at District 12's Public Information Office by phone at (657) 328-6363 or by e-mail at Van.Nguyen@dot.ca.gov, or use California Relay Service, 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (voice). California Relay Service, at 1(909) 383-6300 (TTY).

SCH# 2018101029
12 –ORA-57- PM 11.5 – 12.5
EFIS 1213000099
EA 0M9700

Improving the northbound State Route (SR) 57 from Orangewood Avenue (PM 11.5) to Katella Avenue (PM 12.5). Improvements include upgrading non-standard median and sight distances, and reconfiguration of the existing on- and off-ramps.

Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C), 49 USC 303, and/or 23 USC 138

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies:
California Transportation Commission
Orange County Transportation Authority

_____ _____

Chris Flynn
Deputy District Director
District 12 Division of Environmental Analysis
California Department of Transportation
CEQA and NEPA Lead Agency

Date

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

State Route 57 Northbound Improvement Project

The California Department of Transportation (Caltrans) has determined that Alternative 2 (Preferred Alternative) will have no significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the attached Environmental Assessment (EA) and the associated Technical Studies and Design documents, which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

_____ _____

Date

Chris Flynn
Deputy District Director
District 12 Division of Environmental Analysis

SCH #2018101029

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans and/or the Department) proposes to widen the northbound side of the State Route (SR) 57 freeway from 0.3 mile south of the Orangewood Avenue undercrossing (post mile [PM] 11.5) north to the Katella Avenue undercrossing (PM 12.5), a distance of about one mile. The SR 57 Northbound Improvement Project (Project) includes the proposed construction of a 550-foot section of the fifth general purpose (GP) lane in the northbound direction of SR 57 through the Katella Avenue interchange, upgrades to the non-standard median and sight distances, and reconfiguration of the existing on- and off-ramps to improve operation between the Orangewood Avenue interchange and the Katella Avenue interchange.

Determination

The Department has prepared an Initial Study for this Project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed Project would have no effect on:

- Agriculture and Forest Resources, Land Use and Planning, Mineral Resources, Population and Housing, and Tribal Cultural Resources.

In addition, the proposed Project would have less than significant effects on:

- Recreation, Utilities and Service Systems, Aesthetics, Air Quality, Cultural Resources, Hydrology and Water Quality, Geology and Soils, Hazards and Hazardous Materials, Noise, Transportation and Traffic, and Public Services.

With the following mitigation measures incorporated, the proposed Project would have less than significant effects on:

- Biological Resources:

  WET-1: Unavoidable permanent losses of streambeds and jurisdictional waters (less than 0.1 acre), will be compensated at the pre-approved mitigation sites identified in Table E-1 of Appendix E of the OCTA M2 NCCP/HCP. Additionally, for temporary disturbances to streambeds, the impact areas will be restored to their pre-project conditions, when appropriate, to achieve the no-net-loss standards.

_____ _____

Chris Flynn
Deputy District Director
District 12 Division of Environmental Analysis
California Department of Transportation

Date

Summary

In this section, a summary of the temporary and permanent impacts of the three Build Alternatives are compared to each other as well as to the No-Build Alternative. Additional avoidance, minimization, and mitigation measures are also summarized in the table.

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TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
Land Use	None	*Permanent* None *Temporary* TCEs estimated at 1,803 sq. ft. from city of Anaheim and 78,000 sq. ft. from OCFCD	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2
Parks and Recreation	None	*Permanent* None *Temporary* Temporary trail/bike path delays/detour for SART segment. Project TMP required.	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2
Growth	None	Permanent: None	Permanent: None	Permanent: None
Community Impacts	None	*Permanent* Where required, existing curb ramps, sidewalks, curbs and gutters will be reconstructed to meet Caltrans and ADA's current standards *Temporary* Regular construction noise associated with the operation of equipment and machinery, and dust from construction activities within project area Protect/preserve existing vegetation within State ROW when feasible	*Permanent* Same as Alternative 2 *Temporary* Same as Alternative 2	*Permanent* Same as Alternative 2 *Temporary* Same as Alternative 2

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
Utilities/ Emergency Services	None	Permanent None Temporary Partial closure of the freeway as well as partial and full ramp closures. Detour routes would be provided to direct traffic to adjacent ramps per the project TMP.	Permanent None Temporary Same as Alternative 2	*Permanent* None Temporary Same as Alternative 2
Traffic and Transportation	Permanent **HOV Lane** – Opening (2025) and Design (2045) Years: All HOV lane segments are anticipated to operate below capacity. **Basic Freeway Segment** – Opening Year (2025): one segment operates at LOS E in the AM only; Design Year (2045); three segments in the AM operate at LOS E or F and one in the PM operates at LOS E. **Freeway Weave Segment** – Opening Year (2025): Orangewood Avenue Direct On-Ramp to Katella Avenue Off-Ramp: AM: E; Design Year (2045): Orangewood Avenue Direct On-Ramp to Katella Avenue Off-Ramp: AM: F and PM: E. **Intersection LOS** – Opening (2025) and Design (2045)	Permanent **HOV Lane** – Same as No Build **Basic Freeway Segments** – Design Year (2045): North of Katella Avenue Direct On-Ramp: AM: E **Freeway Weave Segment** – None **Intersection LOS** – Same as No Build Temporary Full facility closures, lane modifications, mainline lane closures, ramp closures/relocation, and other closures	*Permanent* **HOV Lane** – Same as No Build **Basic Freeway Segment** – Same as Alternative 2 **Freeway Weave Segment** – Design Year (2045): The study freeway weave segment is anticipated to operate at an unsatisfactory level of service: Orangewood Avenue to Katella Off-Ramp: AM: E **Intersection LOS** – Same as No Build *Temporary* Same as Alternative 2	*Permanent* **HOV Lane** – Same as No Build **Basic Freeway Segment** – Same as Alternative 2 **Freeway Weave Segment –** Same as Alternative 2A **Intersection LOS** – Same as No Build Temporary Same as Alternative 2

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
	Years: All study intersections operate at LOS D or better except North Eckhoff Street / Chapman Avenue: AM: F, PM: F			
Visual/ Aesthetics	None	*Permanent* None *Temporary* DSA: 9.4 acres Vegetation removal during clearing and grubbing activities *Measures* **Measure AV-1** requires replacement in kind of disturbed landscaping **Measure AV-2** requires development of an Aesthetics/ Landscape Master Plan in coordination with Caltrans Landscape Architecture Unit	*Permanent* None *Temporary* DSA: 9.6 acres Same as Alternative 2	*Permanent* None *Temporary* DSA: 8.7 acres Same as Alternative 2
Cultural	None	*Permanent* While not anticipated, Caltrans standard specifications for uanticipated cultural resource discoveries apply. *Temporary* None	*Permanent* While not anticipated, Caltrans standard specifications for unanticipated cultural resource discoveries apply. *Temporary* None	*Permanent* While not anticipated, Caltrans standard specifications for unanticipated cultural resource discoveries apply. *Temporary* None
Hydrologic and Floodplain		*Permanent* None *Temporary*	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
		Clear water diversion and dewatering may be necessary during construction.		
Water Quality and Storm Water Runoff	None	*Permanent* The additional impervious area created by the Project may result in impacts to the existing hydrograph, including increases in low flow and peak flow, velocity, and volume to the Santa Ana River Reach 2. *Temporary* Construction related impacts could result in increased erosion and polluted storm water runoff.	*Permanent* Same as Alternative 2 *Temporary* Same as Alternative 2	*Permanent* Same as Alternative 2 *Temporary* Same as Alternative 2
Geology/Soil/ Seismicity/ Topography	None	*Permanent* None *Temporary* Construction activities such as grading and trenching could increase potential for erosion *Measure* **GEO-1:** Seismic Induced Liquefaction	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2
Paleontology	None	*Permanent* If there is an unanticipated discovery, Caltrans standard specifications will be followed. *Temporary* None	*Permanent* Same as Alternative 2 *Temporary* None	*Permanent* Same as Alternative 2 *Temporary* None

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
Hazardous Waste and Materials	None	*Permanent* None *Temporary* Contaminants may be encountered during construction and operations. Below are measures to be taken during the construction phase. *Measures* **HAZ-1:** Thermoplastic Pavement Marking **HAZ-2:** Aerially Deposited Lead **HAZ-3:** Polychlorinated Biphenyls **HAZ-4:** Groundwater Dewatering	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2
Air Quality	None	*Permanent* None *Temporary* Degradation of air quality may occur due to airborne dust generated by construction activity	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary- Construction Impacts* Same as Alternative 2
Noise	None	*Permanent* None *Temporary* Typical construction noise associated with equipment operation *Measures* Compliance with Caltrans Standard Specifications	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
Natural Communities	None	*Permanent* None *Temporary* Suitable nesting, roosting and foraging habitats may temporarily be impacted due to construction operation and activities.	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2
Wetlands and Other Waters	None	*Permanent* None *Temporary* Excavation and grading from required widening of piers within the Santa Ana Riverbed will have temporary impacts to the riverbed. *Measures* **BIO-1:** Delineation of Environmentally Sensitive Areas. **BIO-2:** Restoration of Temporary Impacts **BIO-3:** Trash control **BIO-4:** Onsite Training **BIO-5:** Biological Monitoring **BIO-6:** Jurisdictional Aquatic Resources and Species Policy **BIO-7:** Dewatering/Water Diversion **BIO-8:** Use of Best Management Practices During Construction **BIO-9:** Best Management Practices Incorporated into Project Design	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2

TOPIC	Alternative 1 No Build	Build Alternatives		
		Alternative 2 (Preferred Alternative)- Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	**Alternative 2A- Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp**	**Alternative 2B - Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp**
		WET-1: Compensatory Mitigation		
Plant Species	None	*Permanent* None *Temporary* Landscape that will be impacted during construction will be replaced in kind according the Landscape Master Plan for this Project.	*Permanent* None *Temporary* Same as Alternative 2	*Permanent* None *Temporary* Same as Alternative 2

NEPA Assignment

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of five years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

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Appendix C. Environmental Commitments Record

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1. PROPOSED PROJECT

1.1 Introduction

Caltrans, as assigned by the Federal Highway Administration (FHWA), is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). Caltrans, in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen the northbound side of the State Route (SR) 57 freeway from 0.3 mile south of the Orangewood Avenue undercrossing (post mile [PM] 11.5) north to the Katella Avenue undercrossing (PM 12.5), a distance of about one mile (**see Figure 1-1: Project Vicinity).** The proposed improvements include the construction of a 550-foot section of the fifth general purpose (GP) lane in the northbound direction of SR 57 through the Katella Avenue interchange, upgrades to the non-standard median to meet existing standards and improve stopping sight distances, and reconfiguration of the existing on- and off-ramps to improve operation between the Orangewood Avenue interchange and the Katella Avenue interchange.

The proposed 1-mile freeway improvement Project is listed in the Southern California Association of Government's (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, and in SCAG 2019 Federal Transportation Improvement Program (FTIP) 19-00 under ID 2M0735A and ORA131303 respectively and described as "Add 1 MF lane northbound between Orangewood and Katella. (Utilize toll match for RSTP) ENG only." The project listings are shown in Appendix E, Required Consultation/Concurrence Documentation, in the Air Quality Conformity Documents. The SCAG 2016-2040 RTP/SCS Amendment 2 was found to be conforming by the Federal Highway Administration (FHWA) in March 2018.

The Project is eligible for federal-aid funding, but potential funding sources also include state and local programs. The local funding program includes Measure M 2 (which has recently been rebranded as Orange County Go (OC Go) as of July 2018), is a half-cent sales tax to fund transportation improvements in Orange County. Funding sources will continue to be explored in subsequent project development phases to assemble a project-specific funding package. The anticipated construction start date for the Project is in January 2023, and projected completion is in January of 2025.

Figure 1-1: Project Vicinity

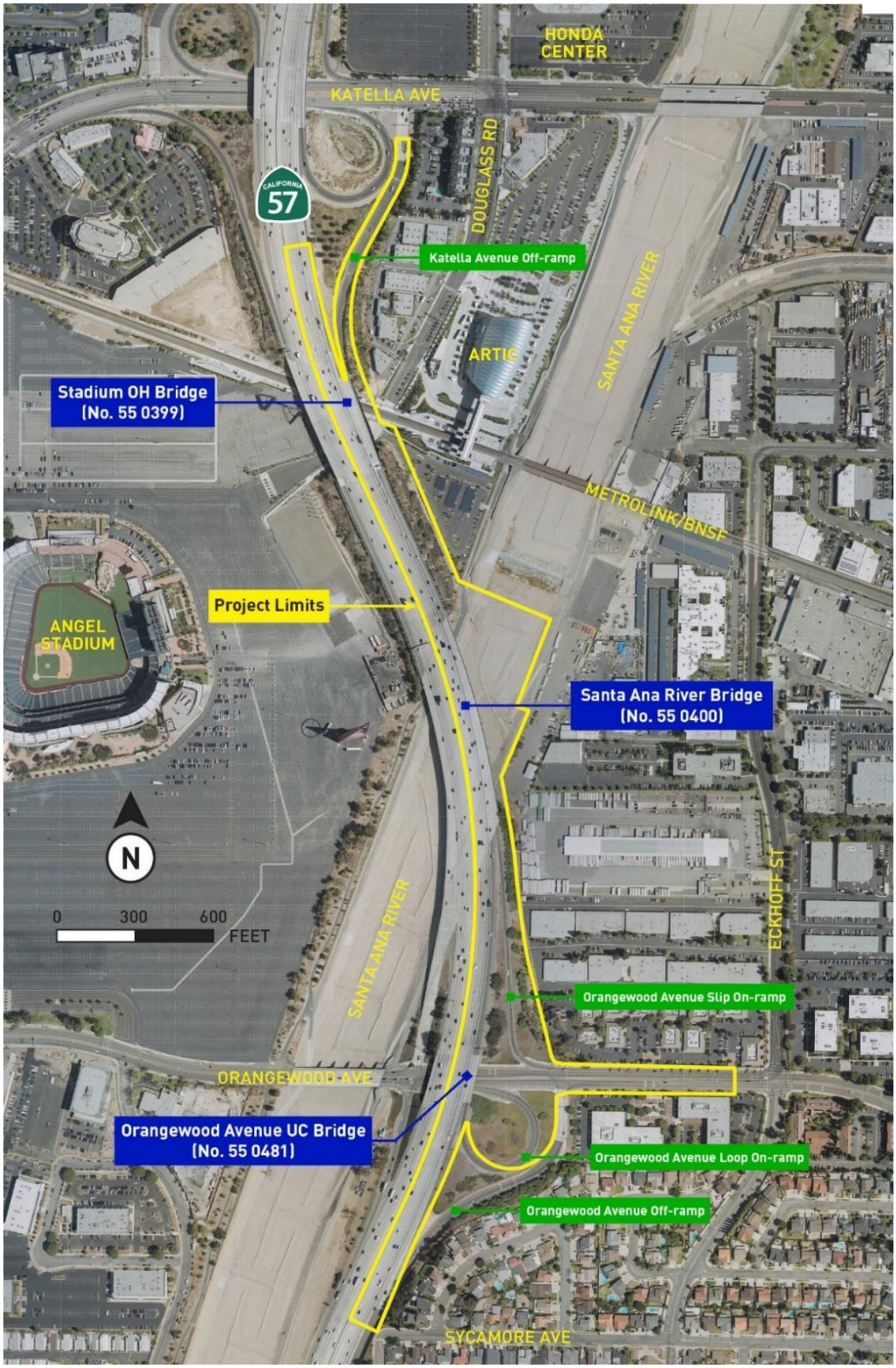


Source: WSP, Google Maps and Preliminary Design Plans. Prepared for the SR 57 NB Improvement Project, 2018.

The project area is located in the southern portion of the SR 57 freeway corridor as it travels through the cities of Orange and Anaheim in Orange County (see **Figure 1-2: Project Setting**). At the project location, the divided freeway has four to five GP lanes, an auxiliary lane, and a high-occupancy vehicle (HOV) lane. The outside and inside roadway shoulders vary in width from 4 feet to 20 feet.

Several transportation improvement projects are proposed within close proximity to the project area including the City of Anaheim's proposed improvements along Orangewood Avenue, which includes widening the bridge over the Santa Ana River immediately west of the project corridor, removing the right-turn lane onto the NB SR 57 on-ramp and adding a left-turn lane onto the SB SR 57 on-ramp. The City's adopted Fiscal Year (FY) 2017-2018 Budget (July 1, 2017) identifies improvements for the Katella Avenue and Douglass Road intersection. The City of Orange adopted FY 2017-2018 Budget identifies planned synchronization of traffic signals on Orangewood Avenue. In addition, the California High-Speed Rail Authority is proposing the Los Angeles to Anaheim section of the High-Speed Rail Project that would share the existing rail track corridor used by Metrolink and terminate at the existing Anaheim Regional Transportation Intermodal Center (ARTIC; California High-Speed Rail Authority, 2016). The final rail alignment and station configuration at the ARTIC site have not been selected at this time, but will be decided following publication of the Final EIR/EIS. See **Table 2-70: Cumulative Projects List** for a list of reasonably forseeable projects associated with project area.

Figure 1-2: Project Setting



Source: WSP, Google Maps and Preliminary Design Plans. Prepared for the SR 57 NB Improvement Project, 2018.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed Project is to:

- Relieve existing and future northbound SR 57 congestion and improve mobility on the regional transportation system by adding capacity.
- Extend the northbound SR 57 fifth General Purpose (GP) lane between Orangewood Avenue and Katella Avenue to establish lane continuity.
- Improve northbound SR 57 freeway operations by eliminating and reducing existing nonstandard design features and improving weave length between interchanges.

1.2.2 Need

State Route 57 is a major north-south freeway that extends from the Interstate (I) 5 and SR 22 interchange in Orange County north to the SR 57 and SR 210 interchange in Los Angeles County. Increased traffic volumes and limited capacity within the corridor have caused mobility and congestion issues. Recent modeling analysis using 2016 traffic count data showed acceptable levels of service (LOS) C and D for the northbound freeway analysis; however, the 2011-2014 accident rates also show that the total number of accidents on the Katella Avenue off-ramp are higher than statewide averages. The forecast continued population and employment growth for Orange County is anticipated to further degrade the freeway LOS within this segment of the freeway by 2045 with unacceptable LOS E and F. The OCTA 2014 Long Range Transportation Plan (September 12, 2014) and the locally approved OC Go (formerly named Measure M2) funding for freeway improvements identify the need to make improvements to SR 57.

The 0.75-mile segment from the Orangewood Avenue interchange to the Katella Avenue off-ramp currently has an inside HOV lane, four to five GP lanes, and one auxiliary lane. The auxiliary lane merges with the fifth GP lane located between the Orangewood Avenue loop on-ramp and the Katella Avenue off-ramp. The merge results in a gap of 0.75 mile on the mainline with only four GP lanes between where the fifth GP lane merges with the auxiliary lane north of the Orangewood Avenue loop on-ramp and where the fifth GP lane resumes north of the Katella Avenue off-ramp. The loss of both the auxiliary lane and the fifth GP lane within the 0.75-mile mainline segment results in excessive lane changes and congestion. The proposed Project addresses this existing gap in the fifth lane, as well as several nonstandard design issues representing the most critical features adversely affecting mainline operations in this segment of the freeway (Orangewood Avenue to Katella Avenue). As such, the Project is intended to address the following needs:

- SR 57 is currently congested during peak periods, and the future northbound SR 57 mainline between the Orangewood Avenue and Katella Avenue interchanges is forecast to lack sufficient capacity, which will result in poor mobility.

- The existing northbound SR 57 mainline lacks continuity in the fifth general purpose lane from the Orangewood Avenue northbound on-ramp to 550 feet immediately north of the Katella Avenue northbound off-ramp.
- Several existing nonstandard design features, including weaving and merging issues, adversely affect freeway operations.

1.2.2.1 Capacity, Transportation Demand, and Safety

Existing Capacity and LOS

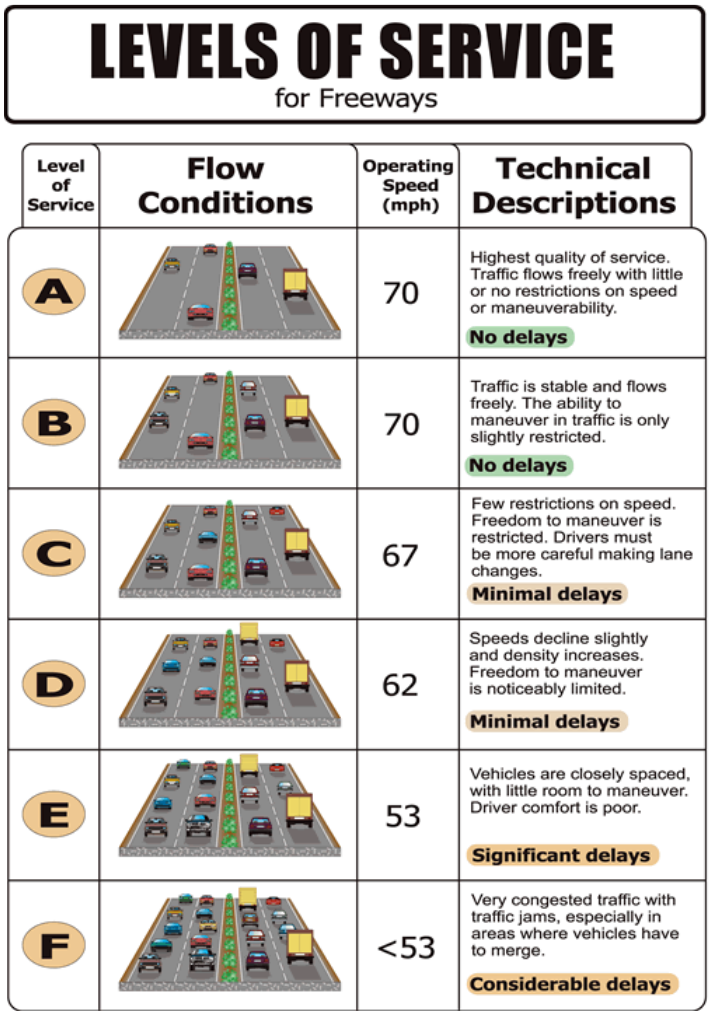
The Highway Capacity Manual (HCM) (Transportation Research Board (TRB), 2010) defines level of service (LOS) as a quality measure that describes operational conditions for traffic flow on different types of transportation facilities. A LOS measure reflects such performance measures as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Six LOS categories are defined for freeways and range from "A" for the best operating conditions to "F" for the worst. **Table 1-1: Freeway LOS Criteria** presents freeway LOS categories and the correlated traffic density in terms of passenger cars per mile per lane (pc/mi/ln). For example, LOS C typically has 18 to 26 passenger cars per mile per lane for a basic freeway segment**. Figure 1-3: Caltrans Freeway Level of Service** illustrates the six LOS conditions for freeways and provides typical operating speeds and traffic flow descriptions. The *Transportation Concept Report* (Caltrans, June 2015) identifies LOS D as the Caltrans acceptable LOS for SR 57.

Table 1-1: Freeway LOS Criteria

LOS	Basic Freeway Segment Density (Pc/mi/ln)	Freeway Weaving Segment Density (Pc/mi/ln)
A	0 - 11	0 - 10
B	> 11 - 18	> 10 - 20
C	> 18 - 26	> 20 - 28
D	> 26 - 35	> 28 - 35
E	> 35 - 45	> 35 - 43
F	> 45	> 43

Notes: Pc/mi/ln = passenger cars per mile per lane
Source: TRB, HCM 2010.

Figure 1-3: Caltrans Freeway Level of Service



Source: Caltrans, Standard Environmental Reference (SER) 2017
http://www.dot.ca.gov/ser/.

Table 1-2: SR 57 Freeway Operations for Existing and No Build, presents existing and future freeway segment density and LOS for the northbound GP lanes of the SR 57 freeway segments for the project limits. Most freeway segments will continue to operate at an acceptable level of service in both the Opening (2025) and Design (2045) Years. However, there will be some segments that experience a slight degradation in LOS, including: Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp, Katella Avenue off-ramp to the limits of the proposed lane addition, and North of Katella Avenue direct on-ramp. In the Design Year, the Orangewood Avenue loop on-ramp to Orangewood direct on-ramp segment will operate at LOS E in the AM peak hour. The Katella Avenue off-ramp to the proposed lane addition will operate at LOS E during the AM peak hour in the Opening Year, and LOS F and E in the Design Year's AM and PM peak periods, respectively. The North of Katella Avenue direct on-ramp is expected to operate at LOS E during the AM peak hour in the Design Year.

Table 1-2: SR 57 Freeway Operations for Existing and No Build (Opening Year and Design Year)

Segment Location	Peak Hour	Existing (2016) Density[1] (pc/mi/ln)	Existing (2016) LOS	Opening Year (2025) Density[1] (pc/mi/ln)	Opening Year (2025) LOS	Design Year (2045) Density[1] (pc/mi/ln)	Design Year (2045) LOS
South of Chapman Avenue loop on-ramp	AM	25.2	C	27.2	D	30.4	D
	PM	19.2	C	19.9	C	21.6	C
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM	22.3	C	24	C	26.4	D
	PM	17.7	B	18.4	C	20.0	C
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM	23.1	C	25.4	C	28.0	D
	PM	18.6	C	19.4	C	21.0	C
Orangewood Avenue off-ramp to lane drop	AM	21.6	C	23.7	C	26.0	C
	PM	18.0	C	18.7	C	20.3	C
Lane drop to Orangewood Avenue loop on-ramp	AM	26.4	D	29.5	D	33.3	D
	PM	21.6	C	22.5	C	24.6	C
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM	28.1	D	32.8	D	37.6	E
	PM	23.2	C	25.4	C	28.1	D
Katella Avenue off-ramp to lane addition	AM	33.1	D	38.9	E	46.3	F
	PM	29.1	D	33.1	D	38.0	E
Lane addition to Katella Avenue loop on-ramp	AM	24.7	C	27.6	D	31.0	D
	PM	22.4	C	24.6	C	27.2	D
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM	26.2	D	30.4	D	34.5	D
	PM	24.1	C	27.9	D	31.2	D
North of Katella Avenue direct on-ramp	AM	26.8	D	31.2	D	35.5	E
	PM	25.3	C	29.8	D	33.7	D

Notes: Density[1] = passenger car/mile/lane. Bolded cells = LOS "E" or "F," which are below the acceptable level.
Source: Draft Traffic Operations Analysis Report (TOAR) for the project Approval and Environmental Document, 2018.

Table 1-3: SR 57 Weaving Segment Analysis for Existing and No Build presents the weave segment analysis for the existing and future conditions. The weaving segment of Orangewood Avenue direct on-ramp to Katella Avenue off-ramp indicates that this segment would operate without the project at an unacceptable LOS E during the AM peak hour in the Opening Year 2025 and during the AM and PM peak hours in the Design Year 2045.

Table 1-3: SR 57 Weaving Segment Analysis for Existing and No Build (Opening Year and Design Year)

Segment Location	Peak Hour	Existing (2016) Density (pc/mi/ln)	Existing (2016) LOS	Opening Year (2025) Density (pc/mi/ln)	Opening Year (2025) LOS	Design Year (2045) V/C Ratio[1] Density (pc/mi/ln)	Design Year (2045) LOS
Orangewood Avenue direct on-ramp to Katella Avenue off-ramp	AM	33.2	D	37.7	E	1.035	F
	PM	28.7	D	31.9	D	35.3	E

Note: VC Ratio[1] = If volume over capacity is greater than 1 then LOS is F and no density numerical value is determined.
Source: TOAR 2018.

Regional Population and Traffic Forecast

The SR 57 Northbound Improvement Project corridor includes on- and off-ramps within the cities of Anaheim and Orange, both of which have plans for redevelopment at higher densities than currently exist. The larger of the two cities, the City of Anaheim, has just recently completed a new subarea plan for a large area west of the freeway corridor called *The Platinum Triangle Master Land Use Plan* (City of Anaheim, 2016). This plan outlines a vision to blend mixed uses for an 820-acre area that would have up to 9,500 dwelling units, 5 million square feet of office space, 2.2 million square feet of commercial uses, industrial development at a maximum floor area ratio of 0.50, and institutional development floor area ratio of 3.0. Three major projects listed on the City's February 2017 list of approved, but not constructed projects, will add 2,830 dwelling units, 647,600 square feet of commercial space and 77,000 square feet of office space in the near-term future. Similarly, the City of Orange has identified the Katella Avenue Corridor west of SR 57 as one of eight focus areas for future development. The Katella Avenue Corridor area just east of SR 57 would allow mixed uses including high-density residential development (Orange City General Plan, 2010).

According to the city and county population and employment data, the project area is forecast to continue its historic growth trends (see **Table 1-4: Population and Employment Trends, 2010-2045**). Both population and employment growth was relatively strong between 2010 and 2016 as the region recovered from the 2007-2009 Recession. Population growth in Orange County over the next two decades will be more moderate, with the ratio of population to employment forecasted to continue recent trends. **Table 1-4: Population and Employment Trends, 2010-2045** shows population and employment in the county is projected to increase through 2045 by over 202,710 and 160,266 respectively.

Table 1-4: Population and Employment Trends, 2010-2045

	2010	2016	2025	2045
POPULATION				
Anaheim	336,265	358,136	372,275	413,775
Orange	136,386	141,420	145,232	155,589
Orange County	3,010,232	3,183,371	3,347,741	3,550,451
EMPLOYMENT				
Anaheim	148,400	163,400	209,332	257,689
Orange	64,200	70,000	99,393	107,536
Orange County	1,387,400	1,538,000	1,855,034	2,015,300

Sources: America Labor Market Information System (ALMIS), Major Employers in Orange County 2017; Caltrans, California County Level Economic Forecast 2016-2050 2016a; California Department of Finance (DOF), Table E-4 Population Estimates for cities, counties, and the State 20122-2016 with 2010 Benchmark 2016, 2017; California Employment Development Department(CEDD), 2014-2024 Industry Employment Projections: Orange County 2016b; CEDD, 2014-2024 Industry Employment Projections: LA County 2016c; SCAG, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy 2016.

Table 1-5: Existing and Future Freeway Traffic Volumes, 2016 and 2045 summarizes the existing 2016 and the forecasted Design Year 2045 average daily traffic (ADT) volumes for the proposed project northbound freeway segments. Existing study area freeway mainline volumes were collected from the Caltrans Freeway Performance Measurement System (PeMS) database. The existing traffic volume on the freeway northbound mainline within the project limits ranges from 110,200 ADT to 130,800 ADT.

Table 1-5: Existing and Future Freeway Traffic Volumes, 2016 and 2045

Segment	Existing (2016)	Horizon (2045)
South of Chapman Avenue loop on-ramp	110,200	126,340
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	118,000	133,190
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	121,900	142,060
Orangewood Avenue off-ramp to lane drop	115,800	132,660
Lane drop to Orangewood Avenue loop on-ramp	121,300	142,320
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	124,000	146,080
Katella Avenue off-ramp to lane addition	110,600	128,960
Lane addition to Katella Avenue loop on-ramp		
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	115,900	139,200
North of Katella Avenue direct on-ramp	130,800	156,930

Source: TOAR 2018.

Growth factors from the Orange County Transportation Analysis Model (OCTAM) were applied to the existing traffic volumes for several freeway segments along the study area corridor to project 2045 traffic volumes. Due to forecasted increased land use density in the region as well as adjacent to the study area, traffic volumes are projected to range between 126,340 ADT and 156,930 ADT. This represents an increase that ranges between approximately 13 and 17 percent.

Accident Data

Preliminary accident data for the SR 57 freeway mainline and ramp facilities was obtained from Caltrans recent 3-year (2012-2015) accident data (see **Table 1-6: Existing Accident Data on Northbound SR 57, 2012-2015**). The data collected cover both the mainline segments of SR 57 in the corridor as well as the on- and off-ramps. The data includes actual numbers of accidents and accident rates for fatalities, fatalities plus injuries, and total injuries. **Table 1-6** also has statewide average accident rates for other freeways in the state with similar characteristics. The accident rates for fatalities, fatalities plus injuries, and total accidents for the SR 57 mainline segments were below the statewide average accident rates for the July 1, 2012 to June 30, 2015 period.

SR 57 freeway-to-arterial ramps accident rates are lower than state averages with three exceptions; the Chapman Avenue westbound on-ramp, the Katella Avenue northbound off-ramp and the Katella Avenue westbound on-ramp.

Table 1-6: Existing Accident Data on Northbound SR 57, 2012-2015

Segment	Actual Accident Rate			Statewide Average Accident Rate		
	F	F+I	Total	F	F+I	Total
Freeway Mainline Segments						
Chapman Ave EB loop on-ramp to Orangewood Ave EB loop on-ramp	0.000	0.13	0.33	0.003	0.27	0.88
Orangewood Ave EB loop on-ramp to Katella Ave EB loop on-ramp	0.000	0.19	0.50	0.003	0.28	0.91
Katella Ave EB loop on-ramp to Katella Ave WB on-ramp	0.000	0.25	0.78	0.004	0.32	1.04
Freeway-To-Arterial Ramps						
Chapman Ave EB loop on-ramp*	0.000	0.170	0.510	0.003	0.230	0.710
Chapman Avenue WB on-ramp*	0.000	**0.450**	**0.680**	0.003	0.190	0.560
Orangewood Ave NB off-ramp	0.000	0.280	0.280	0.004	0.320	0.920
Orangewood Ave EB loop on-ramp	0.000	0.000	0.610	0.003	0.230	0.710
Orangewood Ave WB on-ramp	0.000	0.000	0.000	0.003	0.190	0.560
Katella Ave NB off-ramp	0.000	**1.190**	**2.130**	0.004	0.320	0.920
Katella Ave EB loop on-ramp*	0.000	0.130	0.270	0.003	0.230	0.710
Katella Ave WB on-ramp*	0.000	**0.460**	0.460	0.003	0.190	0.560

Notes:
* = adjacent to study area
F = Fatal accidents, F+I = fatal accidents plus injury accidents, Total = total accident rates
Totals include property-damage-only (non-injury) accidents (which are not shown in this table)
Source: Caltrans, Traffic Accident Surveillance and Analysis Systems (TASAS) Table B and TASAS Selective Accident Retrieval (TSAR) for a 3-year period 2012-2015.
BOLD indicates a collision rate that is higher than the statewide average collision rate for similar facilities.

1.2.2.2 Roadway Design Features

Fifth General Purpose Lane Gap

The missing section of the fifth GP lane between Orangewood Avenue and Katella Avenue contributes to traffic congestion along the northbound SR 57 corridor. Within the project limits, the fifth GP lane exists in a section from south of the Orangewood Avenue loop on-ramp north to the diverge point for the Katella Avenue off-ramp, and then a section from just south of the Katella Avenue loop on-ramp to further north beyond the project limits. In between the two sections there is a 550-foot missing gap in the fifth GP lane.

The gap in the fifth GP lane acts as a bottleneck, as it causes the traffic to shift lanes into the adjacent fourth GP lane for the distance of the gap.

Center Median Widths

The design standard width for a center median is 22 feet. There are two sections along the SR 57 study area where the median width is nonstandard. One section is about 900 feet centered over the Orangewood Avenue undercrossing where the existing median width is about 8 feet. The second section is almost 1,200 feet centered over the railroad overhead, where the median width is about 16 feet.

Horizontal Curve Sight Distance

The horizontal curve sight distance is the distance a freeway motorist can see in front of their vehicle while driving on a curved section of the freeway. The design standard for a freeway mainline horizontal curve is 750 feet of stopping sight distance (SSD), which corresponds to a design speed of 70 miles per hour (mph). The existing curved portion of SR 57 as it crosses over Orangewood Avenue has only 474 feet of SSD, which corresponds with a design speed of only 52 mph. The horizontal curve sight distances of the on- and off-ramps also are nonstandard, which tends to cause traffic to slow when they should be accelerating to enter the freeway through lanes.

Weaving Length

The weaving length of a freeway is the distance allowed for motorists to safely increase vehicle speed and merge from the on-ramp auxiliary lane into the adjacent through freeway lane. The design standard for weaving length is 2,000 feet. For the SR 57 Orangewood Avenue on-ramp, the existing weave length is only 1,310 feet.

1.2.2.3 Transportation Planning and Legislation

The *Orange County SR-57 Final Report* (August 2010) comprehensively evaluated transportation issues along a 12-mile segment on SR 57 from the I-5/SR 55 Interchange north to the Los Angeles County Line. The report identified congestion northbound as substantially greater than southbound. The report identified the northbound segment between the I-5/SR 22 and Orangethorpe Avenue, including the Orangewood Avenue to Katella Avenue segment, as a bottleneck condition where traffic demand exceeds the effective carrying capacity of the roadway.

In 2006, Orange County voters passed a renewal of a two decades old sales tax measure to fund transportation improvement projects. This local funding program is referred to as Measure M2 (M2), which continues the half-cent sales tax to fund projects through 2041. The purpose of M2 Project G is to relieve congestion and improve operational nonstandard design features on SR 57. For planning, engineering, and funding management, Project G was divided into five segments for phased construction. At this time, three of the five project segments have been constructed – 1) Katella Avenue to Lincoln Avenue, 2) Orangethorpe Avenue to Yorba Linda Boulevard, and 3) Yorba Linda Boulevard to Lambert Road. The SR 57 Northbound Improvement Project is the

fourth segment of Project G improvements contained in the locally adopted M2 freeway improvement plan. The fifth Project G segment of SR 57 from Lambert Road to the Los Angeles County Line is in project development.

The OCTA Board approved the Measure M2 *Next 10 Plan* on November 16, 2016, to set priorities and funding commitments through 2026. Conceptual engineering and environmental review for the Orangewood Avenue to Katella Avenue segment of Project G is scheduled to be completed in early 2019.

1.2.2.4 Regional System Linkages

SR 57 is a major north-south regional freeway that extends from central Orange County approximately 25 miles to the north along the eastern portion of Los Angeles County. The freeway is about 30 miles east of Los Angeles and passes through the cities of Orange, Anaheim, Fullerton, Brea, Pomona, and San Dimas. The freeway starts at the Interstate (I) 5 and SR 22 interchange at the south end and travels north crossing SR 91, SR 60, I-10, ending at SR 210. Each of these freeways generally travel east-west connecting the cities of Lakewood, Downey, Los Angeles, and Pasadena to the west in Los Angeles County with the cities of Corona, Riverside, Fontana, and San Bernardino in the east in Riverside and San Bernardino counties. Thus, the freeway provides substantial inter-regional freeway connections and carries high volumes of vehicular, transit, and truck traffic.

The 1-mile section of SR 57 within the project study area provides access to land uses that include single family residential, commercial, and light industrial (freight shipping) that extend along Orangewood Avenue and north and east of SR 57. On the west side of the Santa Ana River located west of the freeway, there is commercial development and the Anaheim Regional Transportation Intermodal Center (ARTIC). No airports exist nearby. The freeway crosses over the Amtrak and Metrolink railroad tracks. The Angel Baseball Stadium surrounded by a very large parking lot is west of SR 57. Along Katella Avenue and to the north along both sides of the freeway, land uses are mixed commercial and office developments. The Honda Center ice rink and concert venue is northeast of the freeway. Older development tends to be 1-2 stories, whereas new residential and office complexes include buildings that are 4-6 stories in height. Traffic generators in the area include the following major employers: Kaiser Permanente, California Department of Media Relations, Orange County Children's Hospital, St. Joseph Hospital, UC Irvine Medical Center, and Disneyland.

1.2.3 Independent Utility and Logical Termini

The FHWA regulations (23 Code of Federal Regulations [CFR] 771.111 [f]) require that a proposed project (action) be evaluated for independent utility and logical termini. The following sections discuss these two issues.

1.2.3.1 Independent Utility

Independent utility is a project's ability to be usable and a reasonable expenditure, even if no additional transportation improvements are made nor additional related projects constructed in the area. Independent utility considers the action in relationship to local socioeconomics, environment, and transportation needs. By considering the 'whole' of a project, an action avoids the potential for unexpected outcomes that may require corrective actions and need for other projects, and segmentation (addressing a piece of a problem and considering a partial resolution) can be reduced. Regardless of other actions, the project must offer transportation benefits that "stand alone" and are not dependent upon the implementation of other projects. Additionally, to be considered of independent utility, a project must not preclude other potential transportation projects from being implemented in the future.

The proposed Build Alternatives would complete the missing gap in the fifth GP lane on SR 57 between Orangewood Avenue and Katella Avenue, provide a wider center median, improve sight distance on horizontal curves of the freeway, and would improve merge length between existing on- and off-ramps to improve weaving distance. These minimal improvements would increase freeway capacity and would substantially improve freeway operations and lessen peak period congestion that is currently below acceptable levels of service. Moreover, the project benefits would not require the completion of any other projects.

1.2.3.2 Logical Termini

Logical termini are required for project development to establish project boundaries that allow for a comprehensive response to a transportation deficiency. Rational end points are required for transportation improvements and the review of environmental impacts. In particular, the limits of a project should reasonably address the following three interrelated criteria:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
2. Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made; and
3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements." [1]

Addressing these three criteria includes the appropriate consideration and selection of project limits. The end points of a project should fully encompass the proposed transportation improvements and their related environmental effects.

The proposed improvements focus on extending a fifth northbound GP lane on SR 57 between the Orangewood Avenue and Katella Avenue interchanges. The proposed Project in fact is the southernmost segment of a multi-phased project to improve overall operations of SR 57 between

[1] (http://www.environment.fhwa.dot.gov/projde/tdmtermin.asp; *The Development of Logical Project Termini*, FHWA, November 5, 1993)

Orangewood Avenue north to the Los Angeles County limits. The proposed improvements between Orangewood and Katella Avenues are consistent with the recently constructed freeway design improvements between Katella Avenue north to Lincoln Avenue. Furthermore, the fifth GP lane already exists in the freeway segment immediately south of Orangewood Avenue. The other elements of the proposed Project address key nonstandard design issues along this segment of SR 57 to additionally improve freeway operation and reduce congestion, particularly during peak periods. At about 1-mile in length, the proposed Project is of sufficient length to address environmental concerns. The proposed Project would be a reasonable expenditure that would provide substantial benefit without requiring additional improvements in the foreseeable future. The proposed Project would not restrict consideration of other transportation improvements in the future.

1.3 Project Description

This section describes the proposed action and the project alternatives developed to meet the purpose and need of the Project, while avoiding or minimizing environmental impacts. A total of four alternatives are evaluated in detail for the proposed Project. Three Build Alternatives and the No Build Alternative. The three Build Alternatives include Alternative 2 (Preferred Alternative), Alternative 2A, and Alternative 2B. The latter two Build Alternatives originated as options to Alternative 2 (Preferred Alternative) but are sufficiently different that they are evaluated as full alternatives. Alternative 1 is the No Build Alternative.

The Project is located in Orange County within the cities of Anaheim and Orange and extends 1 mile from 0.3 mile south of the Orangewood Avenue undercrossing (PM 11.5) to the Katella Avenue undercrossing (PM 12.5). At this location, the divided freeway has four to five GP lanes, an auxiliary lane, and a high-occupancy vehicle (HOV) lane. The outside and inside roadway shoulders vary in width from 4 feet to 20 feet. In this section, there are two on-ramps at Orangewood Avenue (one on-ramp, one loop on-ramp), one off-ramp at Orangewood Avenue, and one off-ramp at Katella Avenue.

The proposed Project would widen the SR 57 freeway within the existing right-of-way to minimize impacts to the adjacent land uses, though additional air rights would be required for widening the bridge structure over the Metrolink rail tracks. Proposed operational improvements would include construction of the missing section of the fifth GP lane, extension of the existing auxiliary lane from the Orangewood Avenue off-ramp to the Katella Avenue off-ramp to improve weave movements between the two ramps, adding to the length of the on- and off-ramps, and adding a second lane to the Katella Avenue off-ramp to provide additional storage capacity, and extension of the merge length between the existing freeway on-/off-ramps to improve weaving distance.

This project contains a number of standardized project measures which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental

impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

The Project is consistent with City of Orange's and City of Anaheim's general plans. The proposed freeway improvements would remedy existing operational problems and nonstandard design features.

Project costs (includes construction and capital R/W costs only) for the Build Alternatives have been estimated ranging from approximately $38 to $43 million for current cost and $49 to $55 million for escalated cost. Construction is anticipated to last 24 months; beginning in January 2023 and concluding in January 2025.

1.3.1 Alternatives

1.3.1.1 Alternative 2 (Preferred Alternative), 2A, and 2B - Build Alternatives

All three Build Alternatives considered for this Project include design features which meet the purpose and need of this Project while avoiding and minimizing environmental impacts. All alternatives are discussed and compared in Section 1.3.3 Comparison of Alternatives.

Common Design Features

There are several design features that are common to the three Build Alternatives:

- Construct the missing section of the fifth GP lane between the Katella Avenue northbound off-ramp and the bridge structure over Katella Avenue (Katella Avenue UC Bridge);
- Widen and implement seismic retrofit by strengthening two SR 57 bridge structures: Orangewood Avenue UC Bridge (No. 55 0481) and the Santa Ana River Bridge (No. 55 0400);
- Restripe the northbound HOV lane and the mainline GP lanes from about 640 feet south of the Orangewood Avenue eastbound loop on-ramp to 600 feet south of the Katella Avenue UC Bridge;
- Modify the two existing eastbound Orangewood Avenue loop on-ramp turn lanes from free right turns to a newly configured 90-degree traffic controlled intersection located slightly east of the current location;
- Construct a full intersection at Orangewood Avenue and the NB SR 57 ramps;
- Increase the weave length between the Orangewood Avenue on-ramp(s) and the Katella Avenue off-ramp;
- Utilities within the project area will remain protected in place. Coordination with utility companies during final design as well as construction would be required to accommodate existing utilities and avoid conflicts.

- Add a second lane to the Katella Avenue off-ramp;
- Provide replacement landscaping and permanent irrigation with a three-year plant establishment period (PEP);
- Improve bridge deck surfaces and spot locations through pavement rehabilitation; and
- Coordinate metered on-ramps and the traffic signals on Orangewood Avenue to control congestion.
- Under all Build Alternatives a continuous Auxiliary Lane would be provided between Orangewood Avenue and Katella Avenue.
- During the Design and Construction Phases, a Traffic Management Plan (TMP) will be coordinated with Orange County Parks (OC Parks) and Orange County Flood Control District (OCFCD) for temporary construction-related impacts to the Santa Ana River Trail (SART) and bike path. The TMP will address safety for trail and bike path users, during and throughout construction, and will also be coordinated with the cities of Orange and Anaheim.
- Sidewalks, curbs, and gutters where impacted by the Project would be re-constructed to meet current ADA Standards (28 CFR 35.151) in order to maintain access for all community members. Existing curb ramps at all crosswalks within the project limits that are affected by the project will be reconstructed to Caltrans latest standards (2015 Revised Standard Plan RSP A88A).
- A TMP was prepared for the Project that includes strategies and measures to avoid and minimize disruption to local access, roadways, and bike and pedestrian facilities during construction.
- A Landscape Master Plan would be developed for the Project and would discuss measures to preserve existing plants, revegetation of disturbed areas with a three-year Plant Establishment Period, and corridor theming, including structure aesthetics and screening. During construction, every effort will be employed to maintain existing mature trees within the State's Right of Way (ROW). Vegetation removed during construction would be replaced in kind to maintain the Classified Landscaped Freeway designation. New landscaping will be consistent with existing landscaping.
- Context sensitive solutions will be considered to help reflect the unique character of the community, reduce the visual effects of the Project and provide compatibility with existing resources and features. Contextual elements such as retaining walls, bridge abutments, lighting, landscaping and slopes will be considered for application of the following solutions:
    - During construction, lighting would be shielded and/or focused on work areas to minimize ambient spillover into adjacent areas.

  - Grading cuts and fills would be contoured to visually blend with the surrounding landscape to the extent practical.
  - The color and aesthetic treatment of the highway and associated structures, such as retaining walls, medians, bridge abutments and columns would be applied consistently with other highway structures in the project vicinity.
  - The Project would retain as much existing vegetation as possible, particularly mature trees that are located between the highway and adjacent land uses.

- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by.
- The project's contractors will comply with the South Coast Air Quality Management District (SCAQMD) rules and regulations during construction operations. This includes rules:
  - Rule 401 - Visible Emissions. Rule 401 states that no person shall discharge air contaminants of specified opacity for more than 3 minutes in 1 hour.
  - Rule 402 - Nuisance. Under Rule 402, no air contaminant shall be released into the atmosphere that causes a public nuisance. The rule prohibits discharge of air contaminants that could cause injury, detriment, nuisance, or annoyance to the public. An offensive odor can be considered a nuisance or annoyance.
  - Rule 403 – Fugitive Dust. The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.
  - Rule 403.1 – Supplemental Fugitive Dust Control Requirements for Orange County Sources. The purpose of this rule is to reduce or prevent the amount of fine particulate matter (PM10) entrained in the ambient air from anthropogenic (man-made) fugitive dust sources.
  - Rule 404 – Particulate Matter – Concentration. Under Rule 404, a person shall not discharge into the atmosphere from any source, particulate matter in excess of the concentration at standard conditions, as specified in the rule.
  - Rule 405 – Solid Particulate Matter – Weight. Under Rule 405, a person shall not discharge into the atmosphere from any source, solid particulate matter including lead and lead compounds, in excess of the rates specified in the rule.

- The proposed Project is a Covered project under the OCTA Conservation Plan (i.e., Project G). The OCTA M2 Conservation Plan includes Streambed Program Guidelines (Conservation Plan Appendix E), which outline potential conditions and the process for submittal of a project-level Notifications of Lake or Streambed Alterations (NLSA) and the issuance for individual Lake or Streambed Alteration Agreements (LSAA) for this Project pursuant to California Fish and Game Code sections 1600–1616. The Streambed Program requires the evaluation of streambed avoidance options and specification of

minimization measures prior to compensatory mitigation and ensures adequate mitigation based on habitat and type of aquatic resource to address state regulatory obligations.

- Similar to the OCTA Conservation Plan, OCTA and Caltrans have worked with the US Army Corps of Engineers (USACE) to define a Programmatic Individual Permit for the 13 M2 freeway projects which establishes Letter of Permission (LOP) procedures. This Permit (SPL-201200830-VCL) streamlines the individual project level Section 404 permitting for the M2 freeway projects. On a parallel process, the State Water Resource Control Board (SWRCB) has committed to following the same process established for the Section 404 permitting. In order for the USACE to issue the 404 Programmatic Permit, the SWRCB must first issue a General 401 Certification. Advanced mitigation is being provided for the General 401 Certification and is consistent with the compensatory mitigation credits required for the USACE Permit.
- Once the Project design is approved and concurrence is received regarding the mitigation statement, LOPs and the project-level 401 Certification would then authorize the discharge of dredged or fill material associated with the specific project designs, include any special conditions, and indicate the amount of mitigation acreage to be deducted from the appropriate site. This step is anticipated to be completed during the design phase of this Project. Project level applications will be processed through the SWRCB. The SWRCB will coordinate with the specific Regional Water Quality Control Board as necessary.
- To address seismic requirements, bridge strengthening (seismic retrofit) will be included for the three existing bridges being widened within the project limits (PM 11.5-12.5). These are the Orange Avenue UC Bridge (No. 55 0481), the Santa Ana River Bridge (No. 55 0400), and the Stadium OH Bridge (No. 55 0399). Seismic retrofit would be limited to strengthening the existing bridge structures. It is expected that the retrofit work would occur within the bridge superstructure (‘inside’ the bridge) and along the abutments. Retrofit could include some column work, but no pile or foundation improvement work is expected.

Other Project Elements

Each project alternative includes the following standardized measures that are included as part of the project description. Standardized measures (such as Best Management Practices [BMPs]) are those measures that are generally applied to most or all Department projects. These standardized or pre-existing measures allow little discretion regarding their implementation and are not specific to the circumstances of a particular project. More information on each measure can be found in the applicable sections of Chapter 2.

Community

- Caltrans Standard Specification 5-1.31: Requires that the job site be neatly maintained in areas visible to the public.
- Caltrans Standard Specification 7-1.03: Apply a dust palliative for the prevention or alleviation of dust nuisance.
- Caltrans Standard Specifications Section 5-1.39: Before Contract acceptance, restore damaged work to the same state of completion as before the damage.
- Caltrans Standard Specifications Section 7-1.03: Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners.
- Caltrans Standard Specifications Section 7-1.04: Do not construct a temporary facility that interferes with the safe passage of traffic. Control dust resulting from the work, inside and outside the right-of-way. Move workers, equipment, and materials without endangering traffic. Whenever your activities create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public. Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone.

Cultural

- Caltrans Standard Specification 14-2.03A: If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- Public Resources Code 7050.5: If human remains are discovered, further disturbance and activities shall cease in any area or nearby area suspected to overlie remains and the County Coroner shall be contacted.
- Public Resources Code 5097.98: If discovered human remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendant (MLD).

Geology/Soil/Seismicity/Topography

- The Project will be constructed and designed in accordance with Caltrans Standard Specifications 19 regarding avoidance of damaging groundwater utilities or structures during excavations associated with the project constructions. In areas where compacted fill will be placed, the soil, dry or saturated soil, and otherwise unsuitable materials, will be removed prior to fill placement. Fill placed on sloping ground will be properly keyed

and benched into existing ground and placed as specified in the Caltrans Standard Specifications.

Paleontology

- Caltrans Standard Specification 14-7.03: If unanticipated paleontological resources are discovered all work within 60-feet of the discovery must cease and the construction resident engineer must be notified. Work cannot continue near the discovery until authorized.

Hazardous Waste and Materials

- Caltrans Standard Specification Section 13-4.03G: Controls dewatering work and discharge activities associated with dewatering.

Air Quality

- The construction contractor must comply with the Department's Standard Specifications in Section 14-9 (2015) to minimize impacts to Air Quality.
- Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
- Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18.

Noise

- Caltrans Standard Specifications Section 14.8-02: Control and monitor noise resulting from work activities. Do not exceed 86 dBA L_{max} at 50 feet from the job site from 9 p.m. to 6 a.m.

Biology

- In compliance with the Executive Order on Invasive Species, EO 13112, invasive species would be removed from the Project and controlled during construction. The Project includes construction methods and measures to reduce the potential for the spread of invasive species including, removal of invasive species in ground disturbed areas and equipment inspections to reduce the transport of invasive species.

Unique Design Features

The following discussion addresses the unique features of each Build Alternative as they relate to implementation of the Project.

Alternative 2 (Preferred Alternative): Modify Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (Widen 3 Bridges)

Major construction under Alternative 2, the Preferred Alternative, would widen three bridges; the Orangewood Avenue UC Bridge (No. 55 0481), the Santa Ana River Bridge (No. 55 0400), and the Stadium OH Bridge (No. 55 0399). Widening the Orangewood Avenue UC would allow the on-ramp merge point with the through traffic to be extended several hundred feet to the north. Extending the merge point would allow merging traffic to have a longer distance to gain speed to match the speed of mainline traffic. Widening the Santa Ana River Bridge allows for an adjustment of the overall mainline alignment to address the nonstandard design features (i.e. median width and stopping sight distance on horizontal curves). Widening the Stadium OH Bridge would accommodate the fifth GP lane. Refer to **Figure 1-4: Alternative 2 (Preferred Alternative) - Modify Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (**Widen 3 Bridges)

Right-of-Way

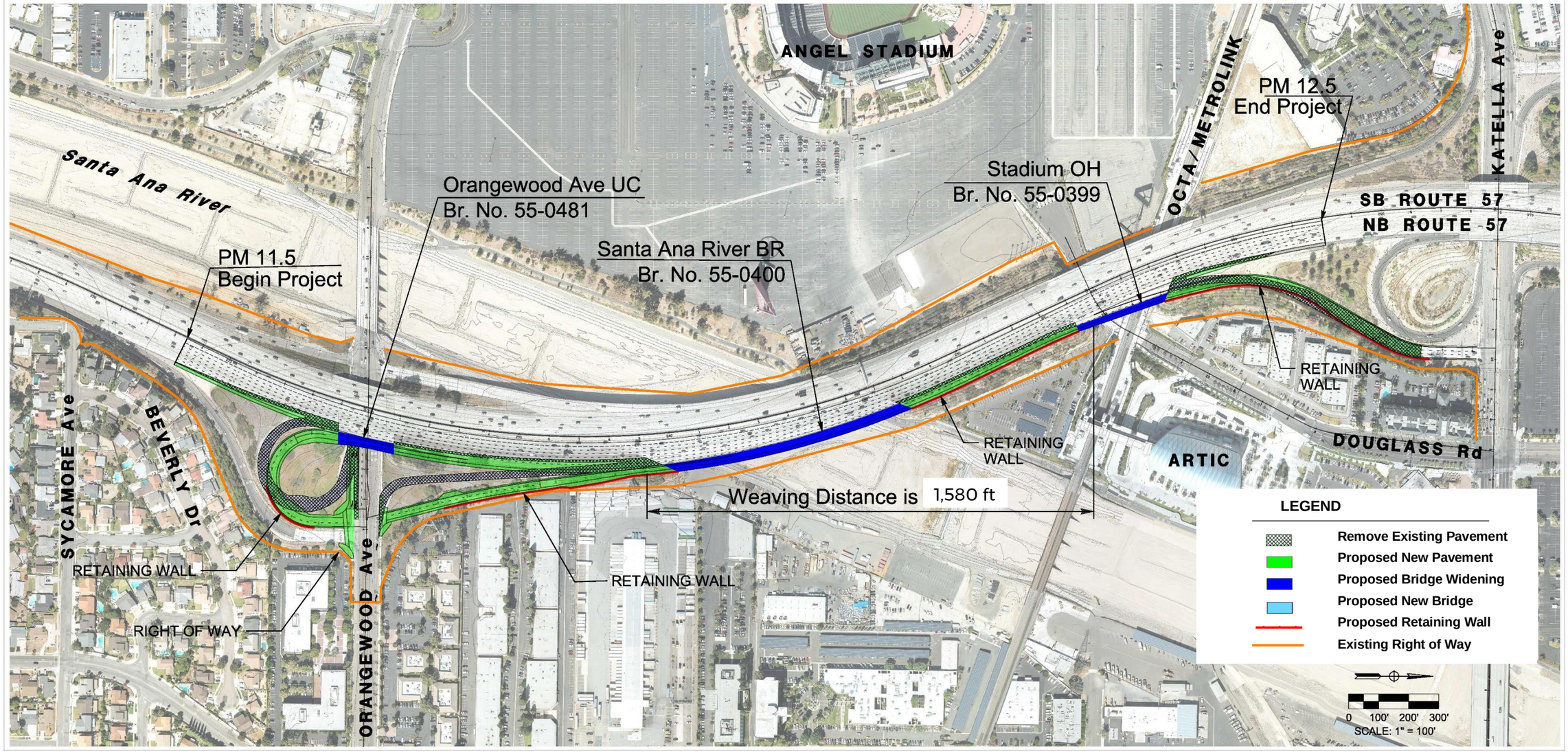
Widening and strengthening the Santa Ana River Bridge would require modifying the existing pier walls beneath the bridge within the existing highway easement. To gain access to the pier walls construction vehicles would have to enter the riverbed via an existing maintenance road located at the toe of slope along the NB SR 57 embankment. The maintenance road is within Caltrans right of way and leads to a gate on the west levee of the Santa Ana River Trail/Bike Path with access down into the riverbed. Access to the maintenance road would require crossing a small parcel that is within Caltrans access control, but the underlying fee owner is the City of Anaheim (ARTIC parking lot driveway off Douglas Road). The parcel leads to the maintenance road. At this time, an agreement exists between Caltrans and the City of Anaheim for maintenance of the freeway. A 1,803 square foot TCE (access only) from the City of Anaheim would be required to gain access to the existing maintenance road.

Likewise, work within the river would require use of a parcel owned by the Orange County Flood Control District (OCFCD). Portions of the affected parcel are within Caltrans existing highway easement. A 78,800-square foot TCE from OCFCD (in addition to the area already included in the existing highway easement) would be required to work within the river.

Widening and strengthening the Stadium OH Bridge would require a revised highway easement over the existing railroad (RR) tracks from OCTA (property owner) to the Caltrans (freeway owner). The 1,359-square foot expansion of the highway easement would provide Caltrans the same rights to the expanded area as exist for the area that is currently covered by the existing highway easement.

Additionally, authority to modify an existing public rail crossing must be granted by the California Public Utilities Commission (CPUC) through a formal application process that results in a *General Order No. 88-B* issued by the Commission. This project will need to apply for approval by the CPUC.

Figure 1-4: Alternative 2 (Preferred Alternative) - Modify Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (Widen 3 Bridges)



Source: Project Report Plans. Prepared for the SR 57 NB Improvement Project, 2018.

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Access Modifications

Under the Preferred Alternative, both existing Orangewood Avenue on-ramps would be retained, but widened to two lanes. The Orangewood Avenue westbound on-ramp to northbound SR 57 would be reconfigured to a signalized intersection with Orangewood Avenue. The westbound turn lane would direct traffic to the widened two-lane on-ramp. The ramp would also be moved east of its current location to reduce the curvature of the on-ramp. Similarly, the eastbound loop on-ramp would be relocated eastward opposite the new location of the on-ramp access. Both eastbound and westbound traffic currently enter the freeway via the loop and on-ramps without entering the intersection. This would be revised such that traffic accessing both on-ramps would be controlled by the intersection signal. The Orangewood Avenue on-ramps would merge with the auxiliary lane from Chapman Avenue and continue north to the Katella Avenue off-ramp. The proposed modifications would improve the weaving length between the westbound Orangewood Avenue on-ramp and the Katella Avenue off-ramp from 1,310 feet to 1,580 feet; however, the length would remain nonstandard (standard length is 2,000 feet in urban areas). Construction of a full intersection on Orangewood Avenue would also enhance pedestrian and bicycle safety.

Alternative 2A: Eliminate Orangewood Avenue On-Ramp, Construct Katella Avenue Off-Ramp (Widen 2 Bridges, Construct New Stadium OH Bridge)

Similar to the Preferred Alternative, major construction under Alternative 2A would widen the Orangewood Avenue UC Bridge (No. 55 0481) and the Santa Ana River Bridge (No. 55 0400), but also would construct a new bridge. The freeway HOV and GP lanes would be restriped to establish a continuous fifth GP lane and to address nonstandard design features (i.e. median width and sight distance on horizontal curves). The alternative would maintain the auxiliary lane configuration from the Orangewood Avenue interchange north to the Katella Avenue off-ramp. See **Figure 1-5: Alternative 2A - Eliminate Orangewood Avenue On-Ramp, Construct Katella Avenue Off-Ramp (Widen 2 Bridges, Construct New Stadium OH Bridge).**

Right-of-Way

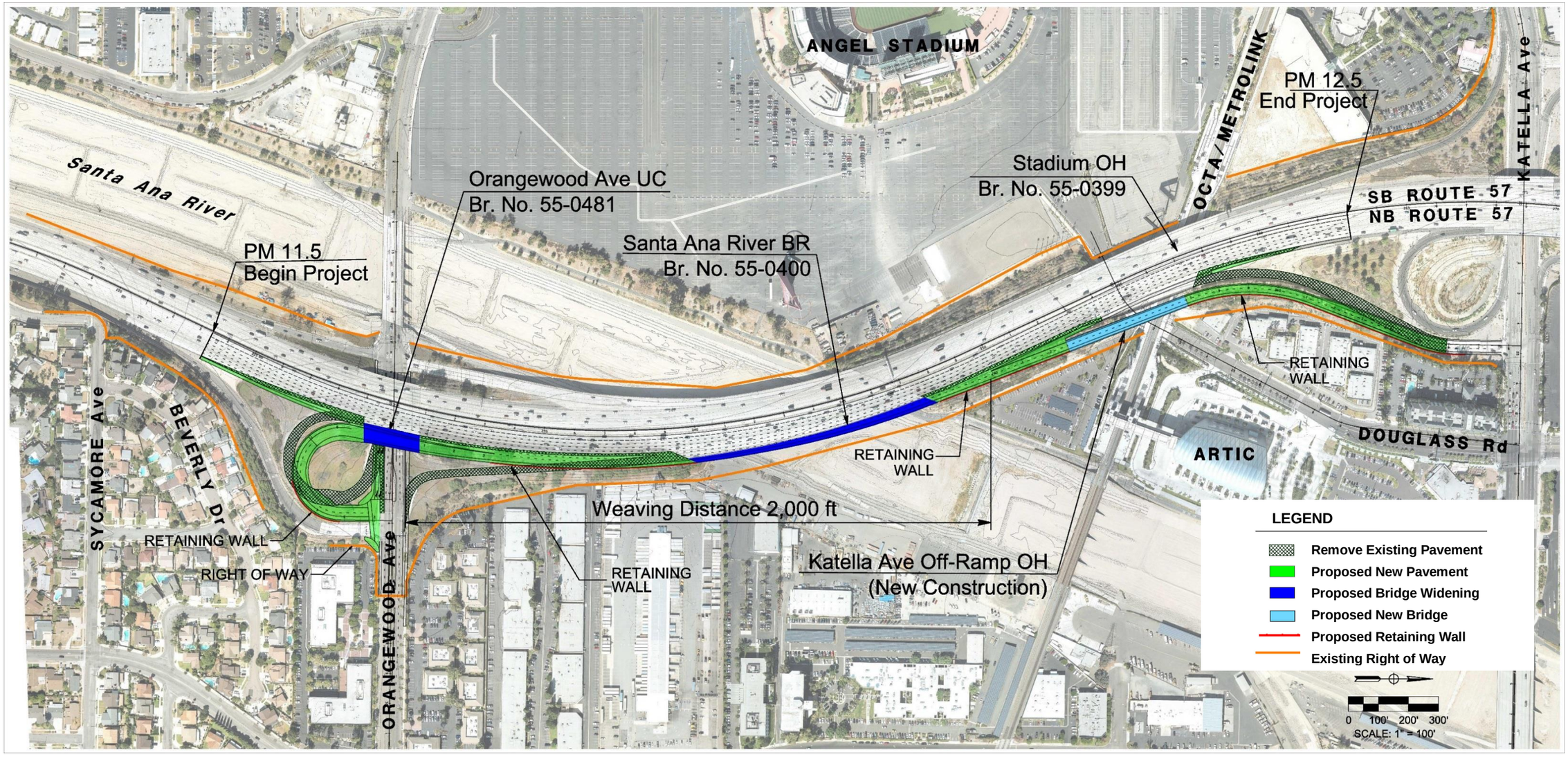
Widening and strengthening the Sana Ana River Bridge would require the same access to the Santa Ana River via the maintenance road described under the Preferred Alternative resulting in an 1,803-square foot TCE (access only) from the City of Anaheim and a 78,800-square foot TCE from OCFCD.

Instead of widening the Stadium OH Bridge (No. 55 0399), Alternative 2A would construct a new bridge structure adjacent to the existing freeway to carry the Katella Avenue off-ramp traffic. The off-ramp would have two lanes transitioning to three lanes at the Katella Avenue intersection. It would be longer to increase ramp storage capacity. The existing Stadium OH Bridge would continue to carry the mainline traffic. The new bridge structure would require a 3,290-square foot (0.08 acre) revised highway easement over the existing railroad.

Access Modifications

Under Alternative 2A the existing Orangewood Avenue westbound on-ramp would be eliminated, improving the weaving distance between the Orangewood Avenue on-ramp and the Katella Avenue off-ramp from 1,310 feet to 2,000 feet meeting current design standard requirements. A fully signalized intersection on Orangewood Avenue would be constructed to control both eastbound and westbound vehicular access to the modified Orangewood Avenue loop on-ramp. A third lane would be constructed for the loop on-ramp to accommodate an HOV bypass lane. Ramp storage per the Ramp Meter Design Manual cannot be provided due to the constraints of the site; however, queued vehicles are forecast to be stored in the turn lanes so as not to impact the through lanes on Orangewood Avenue. The lanes would be restriped to accommodate two westbound left-turn lanes and revised medians on Orangewood Avenue.

Figure 1-5: Alternative 2A - Eliminate Orangewood Avenue On-Ramp, Construct Katella Avenue Off-Ramp (Widen 2 Bridges, Construct New Stadium OH Bridge)



Source: Project Report Plans. Prepared for the SR 57 NB Improvement Project, 2018.

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Alternative 2B: Eliminate Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (Widen 3 Bridges)

Like the Preferred Alternative, major construction under Alternative 2B would widen three bridges; the Orangewood Avenue UC Bridge (No. 55 0481), the Santa Ana River Bridge (No. 55 0400), and the Stadium OH Bridge (No. 55 0399). All other features noted under Alternative 2 related to the widening and restriping of the freeway to address nonstandard design issues would be the same under Alternative 2B. See **Figure 1-6: Alternative 2B - Eliminate Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (Widen 3 Bridges)**

Right-of-Way

Widening and strengthening the Sana Ana River Bridge would require the same access to the Santa Ana River via the maintenance road described under the Preferred Alternative resulting in an 1,803-square foot TCE (access only) from the City of Anaheim and a 78,800-square foot TCE from OCFCD.

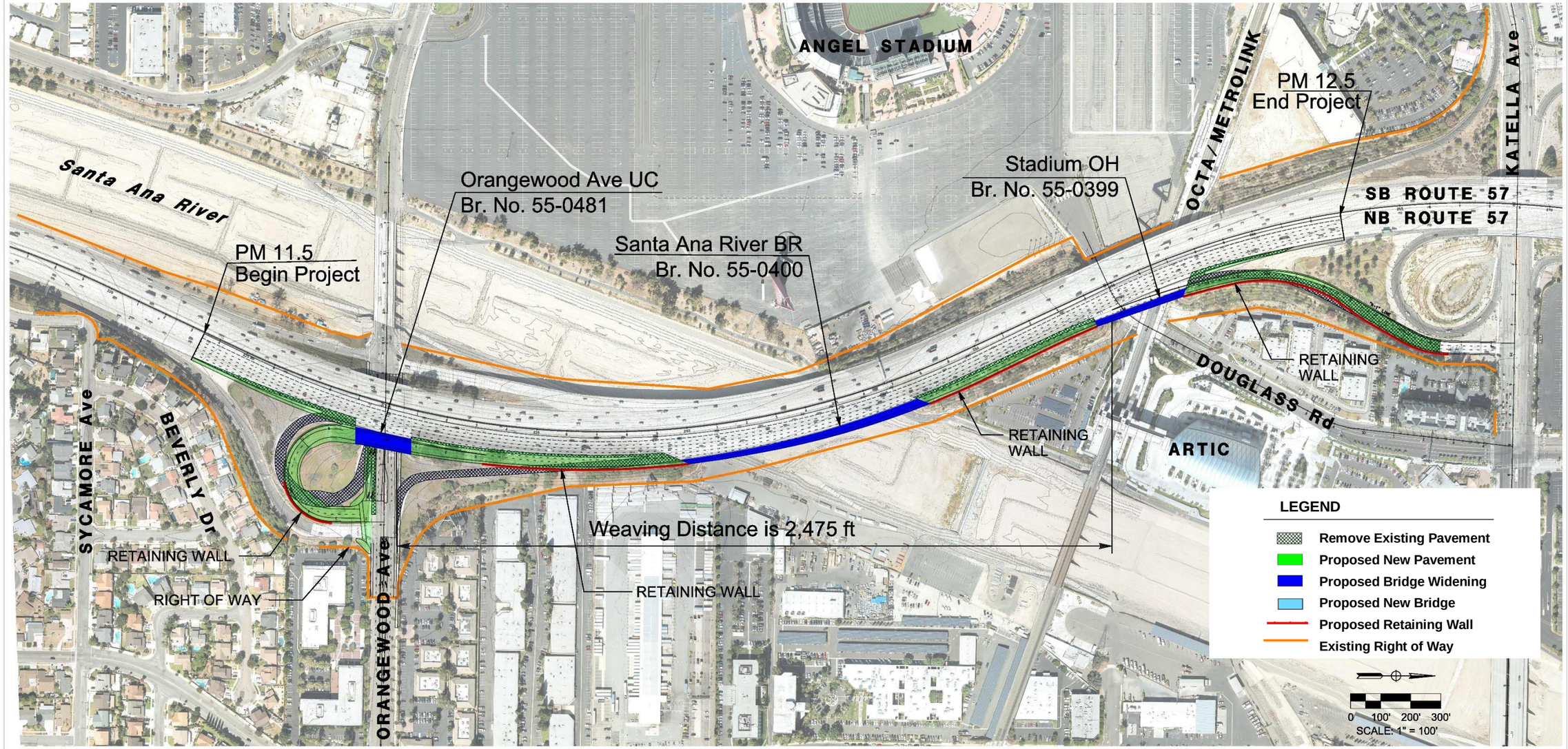
Widening the Stadium OH Bridge would require the same 1,359 square foot (0.03 acre) revised highway easement over the existing SCRRA RR tracks as under the Preferred Alternative.

Access Modifications

Like Alternative 2A, Alternative 2B would eliminate the Orangewood Avenue westbound on-ramp, which would improve the freeway mainline weave length between the Orangewood loop on-ramp and Katella Avenue off-ramp from 1,310 feet to 2,475 feet, which exceeds the current design standard requirements. Improvements to the Orangewood Avenue loop on-ramp and intersection to control eastbound and westbound vehicular access to the on-ramps would be the same as described under Alternative 2A.

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Figure 1-6: Alternative 2B - Eliminate Orangewood Avenue On-Ramp, Widen Katella Avenue Off-Ramp (Widen 3 Bridges)



Source: Project Report Plans. Prepared for the SR 57 NB Improvement Project, 2018.

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Construction

Construction Staging

All Build Alternatives would be constructed in three stages:

Stage 1:

- Close the outside shoulder of the NB SR 57 mainline from the Orangewood Avenue NB loop on-ramp to Katella Avenue and construct the NB SR 57/Orangewood Avenue Bridge widening and the Santa Ana River Bridge widening for all three alternatives.
- For Alternative 2A, construct the new Katella Avenue off-ramp Bridge over Douglass Road, the OCTA railroad right of way and the ARTIC station platforms.
- For Alternatives 2 (Preferred Alternative) and 2B, construct the NB SR 57/Stadium Overhead Bridge widening.

Stage 2:

- For all Build Alternatives, construct mainline approach widening of the additional general purpose lane and new shoulders from just south of the NB SR 57/Orangewood Avenue Bridge to NB SR 57/Katella Avenue Bridge.
- For all Build Alternatives, construct the new NB SR 57/Orangewood Avenue loop on-ramp, construct right side of NB SR 57/Katella Avenue off-ramp and construct embankment slopes and retaining walls, where applicable.
- For Alternatives 2A and 2B, remove and regrade the NB SR 57/Orangewood Avenue on-ramp and NB SR 57/Orangewood Avenue loop on-ramp.
- For the Preferred Alternative only, construct the new NB SR 57/Orangewood Avenue on-ramp at new alignment.

Stage 3A:

- For all alternatives, during a 55-hour weekend closure, complete ramp construction for a portion of the NB SR 57/Orangewood Avenue loop on-ramp.
- For the Preferred Alternative only, switch traffic to new NB SR 57 direct ramp.
- For Alternatives 2A and 2B, restripe the outside widened lanes and shoulder where the NB SR 57/Orangewood Avenue on-ramp join to the mainline was removed.
- For all Build Alternatives set temporary Katella Avenue off-ramp configuration and construct left side of the NB SR 57/Katella Avenue exit-ramp.

Stage 3B:

- For all Build alternatives, remove existing NB SR 57 loop on-ramp and finish approach work.

- For Alternative 2B only, remove existing NB SR 57 direct ramp and regrade area between new ramp, mainline and Orangewood Avenue.
- For all Build alternatives, complete construction of the right shoulder and embankment for the Katella Avenue off-ramp, and restripe mainline to ultimate configuration.

Construction Closures

Certain construction activities such as setting up and taking down falsework for structures, may require full nighttime closure of both the local streets passing under the freeway or particular freeway on- or off-ramps. Affected local arterials include Orangewood and Katella Avenues, and Douglass Road. Construction activities are anticipated to require a weekend closure of the Orangewood Avenue loop on-ramp. Temporary closure of traffic lanes or freeway on- or off-ramps would be closely coordinated with the City of Anaheim to address event traffic associated with both Angel Stadium and the Honda Center.

Access to adjacent private property would be maintained throughout the construction period. No full-freeway closures on SR 57 are anticipated. All changes or restrictions in use of the freeway or local streets would be communicated to the public.

1.3.1.2 Alternative 1 – No Build

Under the No-Build Alternative, no improvements are proposed and the freeway geometry would remain the same as existing conditions. The No-Build Alternative is considered a baseline condition to measure and compare the proposed Build Alternative improvement concepts. In addition, the No-Build Alternative describes the context for evaluating potential environmental impacts under the National Environmental Policy Act (NEPA). Existing and projected future increases in traffic congestion would not be addressed and the level of service on the freeway would continue to decline in the future. The No-Build Alternative would require no capital expenditure. No improvements beyond normal maintenance and operation activities are expected.

In the No-Build Alternative (baseline), the freeway will consist of the existing four to five GP lanes, a high-occupancy vehicle (HOV) lane, and one auxiliary lane. The auxiliary lane will still merge with the fifth GP lane between the Orangewood Avenue off-ramp and the Orangewood Avenue loop on-ramp, as it is currently configured. A 0.75 mile section on the mainline will remain with only four GP lanes and one auxiliary lane. The auxiliary lane will exit at the Katella Avenue off-ramp leaving only four GP lanes.

Additionally, there will be several non-standard features remaining within the project area. There will be two sections of the freeway within the project area where the left shoulder is non-standard and does not provide standard stopping sight distance. Similarly, the horizontal curve sight distances of the on- and off-ramps will also remain nonstandard. An additional non-

standard feature that will remain is the weaving length between the Orangewood Avenue on-ramp and the Katella Avenue off-ramp.

1.3.2 Comparison of Alternatives

In this section, the attributes of the three Build Alternatives are compared and contrasted against each other as well as to the No-Build Alternative. The Alternative 2 calls for the reconfiguration and widening of the Orangewood Avenue loop on-ramp and on-ramp as well as widening of the Katella Avenue off-ramp. Alternative 2A would reconfigure and widen the Orangewood Avenue loop on-ramp, eliminate the Orangewood Avenue on-ramp, and construct a new longer and wider Katella Avenue off-ramp. Alternative 2B would reconfigure the Orangewood Avenue loop on-ramp, eliminate the Orangewood Avenue on-ramp, and widen the existing Katella Avenue off-ramp. With proposed changes for the Katella Avenue off-ramp, all three of the Build Alternatives would re-stripe the freeway and allow for continuation of an auxiliary lane and complete the gap in the fifth GP lane between the Katella Avenue off-ramp and the Katella Avenue loop on-ramp. **Table 1-7: Comparison of Build Alternatives** presents a comparison of the Build Alternatives with the comparison criteria listed from south to north along the freeway corridor.

After comparing and weighing the benefits and impacts of all feasible alternatives, such as site and weave distance as listed in **Table 1-7**, the Project Development Team (PDT) has identified Alternative 2 as the Preferred Alternative. Under the California Environmental Quality Act (CEQA), since no unmitigable significant adverse impacts were identified, the Department has prepared a Mitigated Negative Declaration (MND). Similarly, the Department, as assigned by the Federal Highway Administration (FHWA), determined the National Environmental Policy Act (NEPA) action does not significantly impact the environment, hence the Department has issued a Finding of No Significant Impact (FONSI).

Table 1-7: Comparison of Build Alternatives

Criteria	Alternative 1 No-Build	Alternative 2 (Preferred Alternative) Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	Alternative 2A Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp	Alternative 2B Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp
Construction of missing fifth GP lane	Fifth GP lane is not continuous, missing 550 ft. gap between Katella Ave off-ramp and loop on-ramp	Widening Katella Ave off-ramp allows for continuous fifth GP lane	Construction of new Katella Ave off-ramp west of the existing structure allows for continuous fifth GP lane	Same as Alternative 2
Center median width at Orangewood Ave	Remains as existing at 8 ft. Design standard is 22 ft.	Widened to be 8-22 ft. Design standard is 22 ft.	Same as Alternative 2	Same as Alternative 2
Sight Distance on horizontal curve at Orangewood Ave	Remains as existing at 474 ft. Design standard is 750 ft.	Lengthened to 635 ft. Design standard is 750 ft.	Same as Alternative 2	Same as Alternative 2
Orangewood Ave EB loop on-ramp	No change to loop on-ramp	Loop on-ramp entrance shifted eastward, widened to two lanes transitioning to one lane with extended merge point	Loop on-ramp entrance shifted eastward, widened to three lanes transitioning to two lanes with extended merge point	Same as Alternative 2A
Orangewood Ave WB on-ramp	No change to on-ramp	On-ramp shifted east, adds one lane to on-ramp, ramp is upgraded and lengthened to extend merge point with through traffic	Eliminates on-ramp.	Same as Alternative 2A

Table 1-7: Comparison of Build Alternatives (continued)

Criteria	Alternative 1 No-Build Alternative	Alternative 2 (Preferred Alternative) Modified Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp	Alternative 2A Eliminated Orangewood Avenue On-Ramp, New Katella Avenue Off-Ramp	Alternative 2B Eliminated Orangewood Avenue On-Ramp, Widened Katella Avenue Off-Ramp
Modifications to Orangewood Ave arterial intersection	No change. Orangewood Ave EB has two right lanes to access loop on-ramp and two through-lanes; Orangewood Ave WB has one right lane to access on-ramp and two through-lanes.	Extends existing EB right-turn lanes to new 90-degree intersection. Shifts ramp east to new 90-degree intersection. Signal controlled access for both loop and on-ramps.	Extends existing EB right-turn lanes to new 90-degree intersection. Adds second WB left-turn lane. Signal controlled access for eastbound and westbound lanes to loop on-ramp.	Same as Alternative 2A
Auxiliary lane between Chapman Ave and Orangewood Ave	No change. Auxiliary lane ends at Orangewood Avenue off-ramp	Extends auxiliary lane through the Orangewood Avenue interchange to the Katella Avenue off-ramp	Same as alternative A	Same as alternative A
Weaving distance between Orangewood Ave on-ramp and Katella Ave off-ramp	No change to existing weave length of 1,310 ft. Design standard is 2,000 ft.	Weave length increased to 1,580 ft. Design standard is 2,000 ft.	Weave length increased to 2,000 ft. Meets standard.	Weave length increased to 2,475 ft. Exceeds standard.
Sight distance on horizontal curve northbound	Non-standard at 423 ft. Standard is 750 ft.	Improved to design standard at 750 ft.	Same as Alternative 2	Same as Alternative 2
Katella Ave off-ramp	No change to existing. Off-ramp is one lane changing to three lanes mid-way to the intersection with Katella Ave	Existing structure widened from one lane to two lanes changing to three lanes to meet intersection with Katella Ave	New longer two-lane bridge structure adjacent to existing bridge changing to three lanes to meet existing intersection with Katella Ave	Same as Alternative 2

1.3.3 Identification of the Preferred Alternative

Consistent with the California Department of Transportation (Caltrans) Process Manual, the Project Development Team (PDT) is tasked with selecting between the No Build Alternative and three Build Alternatives (Alternatives 2 [Preferred Alternative], 2A and 2B) as the Preferred Alternative (PA) to move forward into the Design Phase. A public hearing (open house format) was held on October 25, 2018. All comments received from circulation of the Draft Environmental Document (DED) and the public hearing have been reviewed and considered in the context of identifying a PA.

The following needs were described and included in the DED:

- SR 57 is currently congested during peak periods, and the future northbound SR 57 mainline between the Orangewood Avenue and Katella Avenue interchanges is forecast to lack sufficient capacity, which will result in poor mobility;
- The existing northbound SR 57 mainline lacks continuity in the fifth general purpose lane from the Orangewood Avenue northbound on-ramp to 550 feet immediately north of the Katella Avenue northbound off-ramp.
- Several existing nonstandard design features, including weaving and merging issues, adversely affect freeway operations.

The project was initiated to implement the fifth general purpose lane to close the gap and provide capacity within the project area.

The PDT met on December 13, 2018 to discuss the merits of all the alternatives. The proposed project addresses the existing gap in the fifth general purpose lane, as well as several nonstandard design issues representing the most critical features adversely affecting freeway mainline operations in this segment of SR-57. Alternative 2 modifies both existing on-ramps to northbound SR 57 at Orangewood Avenue. Alternatives 2A and 2B eliminate the slip/tangent on-ramp from westbound Orangewood Avenue to northbound SR 57 and diverts the westbound traffic to make a left turn onto the modified loop on-ramp instead. Alternative 2 has greater ramp storage than Alternative 2A and 2B. The weave section between the Orangewood Avenue on-ramp and the Katella Avenue off-ramp operates at the lowest density (best operation) in Alternative 2. Alternatives 2A and 2B operate at a density approximately 10% higher (worse) than Alternative 2.

The PDT reviewed the evaluation criteria and the comparative data for the No Build Alternative and the three Build Alternatives. Based on the above reasons, the PDT recommends that Alternative 2 be selected as the PA to move forward into the Design Phase.

1.3.4 Alternatives Considered but Eliminated from Further Discussion prior to the "Draft" Initial Study/Environmental Assessment (IS/EA)

Several project alternatives were considered during project development, but were eliminated from detailed environmental review. The following discussion describes these alternatives that were considered, but were eliminated before the preparation of this draft environmental document.

1.3.4.1 Alternative 2C - New Katella Avenue Off-Ramp, Retains Orangewood Avenue On-Ramp

Alternative 2C included all the design elements of the Preferred Alternative plus elements of Alternative 2A. The alternative would complete the missing gap in the fifth GP lane, would re-construct a longer westbound Orangewood Avenue on-ramp like the Preferred Alternative, and would construct a new Stadium Bridge structure to accommodate the new longer Katella Avenue two-lane off-ramp like Alternative 2A. This alternative creates two major design concerns:

1. The spacing between the two interchanges at Orangewood and Katella would be reduced to less than current conditions reducing the weave length to only 882 feet, which is less than the existing weave length and the current design standard.
2. At the Orangewood Avenue on-ramp, the sight distance at the vertical crest curve would be only 335 feet, which would require traffic to drive below 50 mph (450 feet minimum for travel at 50 mph), which is less than the current design standard.

During the January 2017 Project Development Team (PDT) meeting, Caltrans design unit indicated that the 882-foot weave length was a fatal flaw and therefore, Alternative 2C was an infeasible solution and could not be presented to the public. The absolute minimum weave length distance that would be acceptable to Caltrans is the existing condition. The preferred design approach is to improve nonstandard design elements, here the weave length distance, to meet standard allowances to ensure the granting of a design deviation would be defensible. Based on additional design analysis as an effort to mitigate the nonstandard design issue, the PDT determined that the three proposed Build Alternatives presented in this environmental document provided the more viable options that more fully addressed the project's purpose and need. Therefore, Alternative 2C was eliminated from further discussion.

1.3.4.2 Alternative 3 – New Stadium Bridge, Modified Auxiliary to Eastbound Orangewood Avenue On-ramp

Alternative 3 represented a modified version of the Preferred Alternative that was evaluated during the Project Study Report-Project Development Support (PSR/PDS) phase of the Project. The alternative included all the improvements proposed under the Preferred Alternative including the modified Orangewood Avenue loop on-ramp and the new longer and wider Katella Avenue off-ramp. The alternative also included a proposed auxiliary lane that extended from the Orangewood Avenue loop on-ramp north and then becoming the second lane exiting at the Katella

Avenue off-ramp. The purpose of the auxiliary lane was to provide additional space for vehicle weaving when the weaving length did not meet current design standards. The design resulted in a gap in the existing auxiliary lane that currently terminates to the south of the Orangewood Avenue loop on-ramp.

Alternative 3 was eliminated as it does not address the existing freeway merge located just beyond the northbound Orangewood Avenue off-ramp. Here, the auxiliary lane terminates and does not continue through the Orangewood Avenue interchange. The PDT Team's evaluation of this alternative concluded that it failed to meet a critical nonstandard design issue included in the project purpose. The PDT decision was to eliminate Alternative 3 presented in the PSR-PDS phase of the Project and to drop it from further study in the Project Approval and Environmental Document (PA&ED) phase.

1.3.4.3 Alternative 4 – New Stadium Bridge, Modified Auxiliary to Westbound Orangewood On-ramp

Alternative 4 was also a modified version of the Preferred Alternative that was evaluated during the PSR/PDS phase of the Project. Alternative 4 included improvements proposed under the Preferred Alternative including the modified Orangewood Avenue loop on-ramp, a new longer Orangewood Avenue on-ramp, a new stadium bridge that is longer and wider Katella Avenue off-ramp. The alternative also included a proposed auxiliary lane that extended from the westbound Orangewood Avenue on-ramp north to become the existing second lane for the Katella Avenue off-ramp. The design resulted in a gap in the existing auxiliary lane that currently terminates to the south of the Orangewood Avenue loop on-ramp.

Alternative 4 was eliminated from further discussion as it also did not address the existing freeway merge located just beyond the northbound Orangewood Avenue off-ramp as the auxiliary lane is not continued through the Orangewood interchange. Like Alternative 3, the PDT Team's evaluation of this alternative concluded that it failed to meet a critical nonstandard design issue included in the project purpose. The PDT decision was to eliminate Alternative 4 presented in the PSR-PDS phase of the Project and to drop it from further study in the Project Approval and Environmental Document (PA&ED) phase.

1.3.4.4 Project Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives

Traffic Demand Management (TDM) and Traffic System Management (TSM) strategies are designed to increase freeway capacity without physically widening the freeway. TDM focuses on means of reducing the number of vehicle trips and vehicle miles traveled, and increasing vehicle occupancy. Typical activities would be promoting ride sharing programs and expanding mass transit. TSM strategies implement actions that improve the capacity of a transportation facility without increasing the number of through lanes. Examples of these strategies are ramp metering and auxiliary lanes. TSM strategies can also provide options for mass transit and ridesharing such as express lane on-ramps for mass transit and carpools. TDM and TSM strategies, however,

would not meet the project purposes to: establish lane continuity, improve operations due to nonstandard design issues, and relieve congestion due to lane capacity constraints.

Although TDM and TSM measures alone could not satisfy the purpose and need of the project, the following TSM measures have been incorporated in the proposed Build Alternatives for this Project:

- At the Orangewood Avenue loop on-ramp, the existing single lane on-ramp would be modified to two lanes under the Preferred Alternative or three lanes under Alternatives 2A and 2B and these on-ramp lanes would be metered.
- On Orangewood Avenue, the two existing eastbound turn lanes to the loop on-ramp would be extended further east and controlled by a traffic signal at a newly configured 90-degree intersection.
- On Orangewood Avenue, under the Preferred Alternative, the single westbound turn lane on Orangewood Avenue would direct traffic to the widened two-lane on-ramp. Under Alternatives 2A and 2B a second westbound left-turn lane would be added to allow westbound traffic to access the wider three-lane loop on-ramp.
- Under all Build Alternatives the traffic signals on Orangewood Avenue and the metered on-ramps would be coordinated to control congestion.
- Under all Build Alternatives a continuous Auxiliary Lane would be provided between Orangewood Avenue and Katella Avenue.

The proposal to have signal-controlled turning movements from Orangewood Avenue to the on-ramps would be new and would allow for coordination of the Orangewood Avenue intersection and the on-ramp metering. This signal coordination would be an improvement over existing conditions, which allows vehicles to turn directly onto the on-ramps without entering an intersection.

1.3.4.5 Reversible Lanes

Assembly Bill 2542 amended California Streets and Highways code, effective January 1, 2017, and requires that Caltrans or a regional transportation planning agency demonstrate that reversible lanes were considered when submitting a capacity-increasing project or a major street or highway lane realignment project to the California Transportation Commission for approval (California Streets and Highways Code, Section 100.015). For projects that do not meet the criteria (capacity increasing or a major street or highway lane realignment), this determination can be documented in the Project Initiation Document. Projects that do meet this criteria must be evaluated by District Traffic Operations to determine the feasibility of including reversible lanes in the project scope. This requirement applies to projects newly approved for programming after January 1, 2017.

Consideration was given to the reversible lanes configuration and it was determined that it is not feasible. It therefore was rejected as a build alternative for the Project and was not considered in the environmental review. The following is a discussion of the reasons for rejecting this alternative:

Geometric Feasibility of Reversible Lanes

Within the project limits, SR 57 is generally an eight to ten-lane divided, controlled-access freeway with four or five general purpose lanes in each direction and auxiliary lanes along portions of the freeway. The existing median width varies from 6 feet to 22 feet.

Freeway reversible lanes facilities must be separated by concrete barriers on both sides in a high-speed roadway setting. They are typically constructed in the median of freeway facilities and may be one, two or more lanes wide. Shoulders are required on both sides of the reversible lane(s) to accommodate travel in both directions. Additional shoulders are required outside the reversible lane envelope adjacent to the GP lanes creating a very wide typical section for the reversible lane facility. The amount of widening necessary for this reversible lane facility would be greater than Alternatives 2 (Perferred Alternative), 2A and 2B.

Proposing reversible lanes within the one-mile long project area would be inconsistent with the existing roadway operational condition north and south of the Project.

Traffic Demand and Analysis of Reversible Lanes

Reversible lanes add capacity to the peak direction by borrowing capacity from the off-peak direction. Traffic characteristics for successful implementation of reversible lanes consist of facilities that experience large directional traffic imbalances and congestion during peak periods and are forecast to do so in perpetuity. To warrant reversible lanes, peak-period traffic volumes should forecast substantial directional imbalance. A directional split of 70/30 percent is commonly used as a threshold for the level of traffic imbalance needed to warrant a reversible facility. The majority of SR 57 within the project limits has a directional split of approximately 55/45 percent.

Reversible lanes would not fulfill the purpose and need of the proposed Project in that they would not extend the northbound SR 57 fifth general purpose lane between Orangewood Avenue and Katella Avenue to establish lane continuity, nor would reversible lanes improve weave length between interchanges.

1.3.4.6 Intersection Control Evaluation (ICE)

The following alternative intersection control options at the SR 57/Orangewood Avenue intersections were considered and analyzed for the ICE:

- Yield-Control (Roundabout): This option would convert the existing configuration at the NB SR 57/Orangewood Ave off-ramp from a left turn, shared left and right turn, and a right turn into a yield-control (roundabout) intersection.
- Yield-Control (Roundabout) – SR 57 SB Intersection: This option would consider a roundabout at the intersection west of SR 57 SB Ramps and Orangewood Ave.

The roundabout options for the NB and SB SR 57/Orangewood Avenue intersection were found to have negligible operational benefits when compared to the existing signalized intersection. There would also be considerably high capital costs, right-of-way requirements, and environmental impacts.

- Diverging Diamond: This option would convert the existing diamond/partial cloverleaf interchange to an at-grade diverging diamond interchange (DDI).

The DDI is considered flawed in that the nonstandard weave on the NB 57 mainline (same as the Preferred Alternative) would remain, however the left turn queueing would be eliminated. Compared to the signalized intersection though, the DDI will not work with Alternatives 2A and 2B, which do eliminate the nonstandard weave on the NB 57 mainline. Queuing on the NB on ramp with the DDI could be as bad as the conventional signalized intersections with Alternatives 2A or 2B. Also, the traveling public's unfamiliarity with the DDI configuration, especially with the event traffic at Angel Stadium, could be problematic.

- Stop Control: This option would downgrade the existing NB SR 57/Orangewood Avenue intersection from signalized to stop-control.

Stop control is not a viable option because it would increase queuing on the ramps and Orangewood Avenue, increase driver frustration and could potentially impact pedestrian and cyclist safety.

1.4 Permits and Approvals Needed

Construction and operation of the Project would require permits and approvals from federal, state, and local government agencies.

Table 1-8: Permits and Approvals

Agency	Permit/Approval	Status
FEDERAL		
US Army Corps of Engineers	• Clean Water Act Section 404 Permit for filling or dredging waters of the US • Rivers and Harbors Act, Section 408 for work in flood control channel	Applications to be submitted after Project Report and Final IS/EA approval. Permits will be obtained prior to the start of construction.
FHWA	• Air Quality Conformity Determination	The Air Quality Conformity Report was submitted to FHWA after circulation of the Draft IS/EA, and concurrence was obtained on February 11, 2019.
STATE		
California Department of Fish and Wildlife	• California Fish and Game Code, Section 1602 Agreement for Streambed Alteration • Certificate of Inclusion in OCTA M2 NCCP/HCP	• All coordination will be completed during final design. Application to be submitted after Project Report and Final IS/EA approval. Permits will be obtained prior to the start of construction. • On March 26, 2019 a Cerificate of Inclusion (COI) was received from the USFWS.
California Public Utilities Commission (CPUC) Southern California Regional Rail Authority (SCRRA)	• Construction and maintenance agreements	A Construction and Maintenance Agreement between the State and railroad is required for any alternative that involves railroad bridge modification. In addition, California Public Utilities Commission (CPUC) approval is required for any alternative that involves railroad bridge modification. Authority to modify an existing public rail crossing must be granted by the California Public Utilities Commission (CPUC) through a formal application process that results in a *General Order No. 88-B* issued by the Commission. This project will need to apply for approval by the CPUC.

Table 1-8: Permits and Approvals (continued)

Agency	Permit/Approval	Status
REGIONAL		
Santa Ana Regional Water Quality Control Board	• CWA Section 401 Certification	Application to be submitted after Project Report and Final IS/EA approval. Permits will be obtained prior to the start of construction.
	• Dewatering Permit	Will be obtained prior to the start of construction
Local and Other		
City of Orange	• Freeway Agreement	Freeway agreement with Caltrans will be completed after adoption of the preferred alternative
City of Anaheim	• Freeway Agreement	Freeway agreement with Caltrans will be completed after adoption of the preferred alternative
Orange County Parks (OC Parks)	• Concurrence from official with jurisdiction for De minimis Finding for use of Santa Ana River Trail	• On February 7, 2019 a letter of concurrence was received from OC Parks.
Orange County Flood Control District (OCFCD)	• Highway Easement	• During final Design

Source: WQAR 2018; AQAR 2018; Delineation of Waters and Wetlands 2018; NES 2018.

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

As part of the scoping and environmental analysis carried out for the Project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

- **Coastal Zone:** The proposed Project is not included in a coastal zone, and therefore is not subject to the federal Coastal Zone Management Act of 1972 (CZMA) or to the California Coastal Act of 1976.
- **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 no State or federally designated or candidate rivers within the project area[2]. Therefore, the Project is not subject to the National Wild and Scenic Rivers Act (16 United States Code [USC] 1271) and the California Wild and Scenic Rivers Act (Pub. Res. Code sec. 5093.50 et seq.).
- **Farmlands/Timberlands:** The Project does not cross and is not near farmlands or timberlands, and therefore is not subject to the Farmland Protection Policy Act or the California Timberland Productivity Act of 1982.

2.1 Human Environment

2.1.1 Land Use

The land use section impact analysis is based upon the State Route 57 Northbound Improvement Project *Community Impact Assessment* (CIA) (June 2018).

2.1.1.1 Existing and Future Land Use

Existing Land Use

The Project is located in the cities of Orange and Anaheim in Orange County. The County of Orange is located along the Pacific Ocean between Los Angeles County to the north and northwest, San Bernardino County to the northeast, Riverside County to the east, and San Diego County to the southeast. Orange County stretches approximately 40 miles along the coast and extends inland approximately 20 miles, covering 798 square miles.

[2] National Wild and Scenic River System in the US, Wild and Scenic Rivers, https://nps.maps.arcgis.com/apps/MapJournal/index.html?appid=ba6debd907c7431ea765071e9502d5ac# accessed on February 16, 2018

The City of Orange and Anaheim are located in the middle north part of Orange County. The City of Orange is located south of Anaheim, east of Garden Grove, north of Santa Ana and west of Orange County unincorporated area. The City of Anaheim is located south of Yorba Linda, Placentia, Fullerton and Buena Park and north of Stanton, Garden Grove and Orange and west of Orange County unincorporated area.

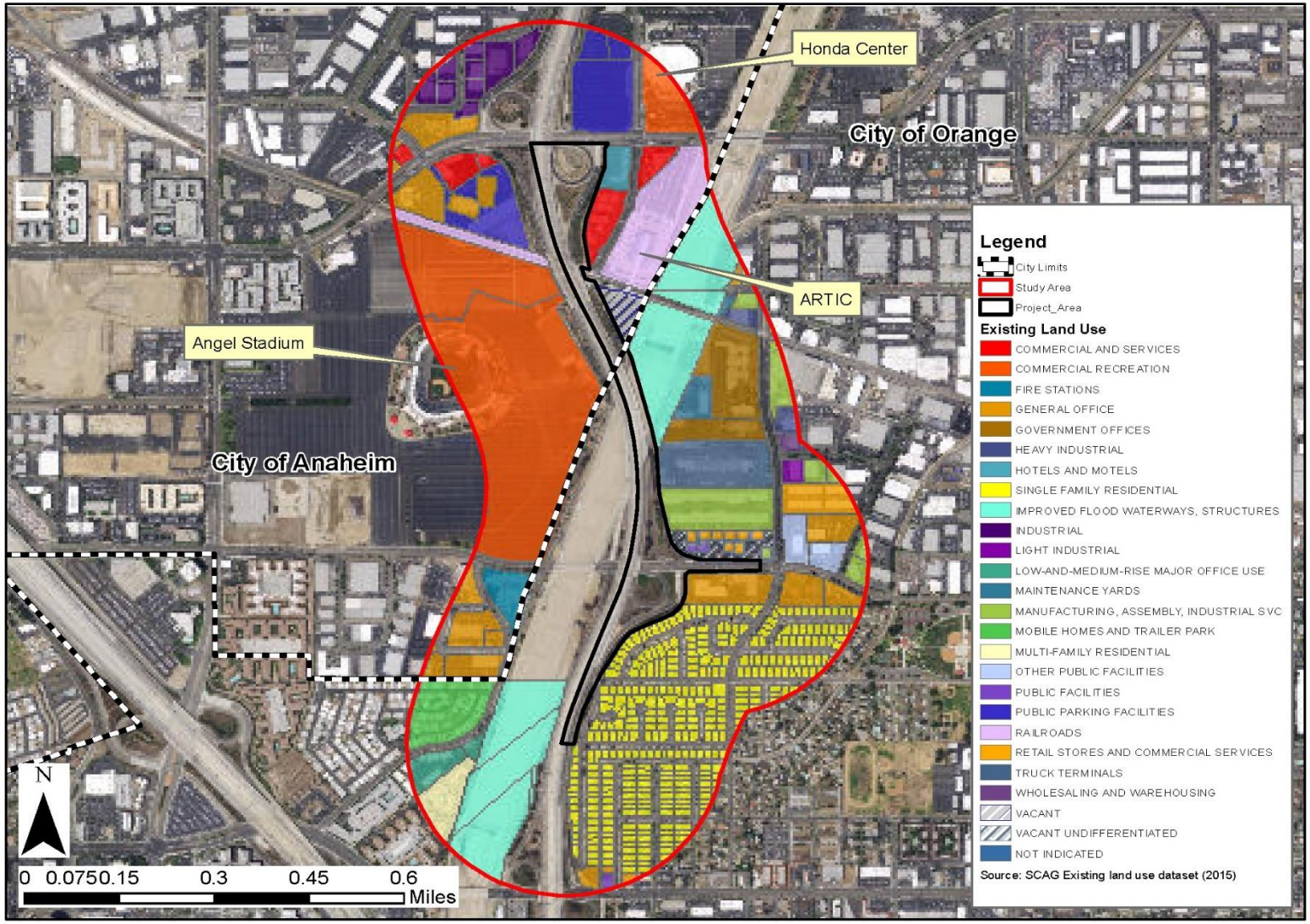
The project's 1-mile section of SR 57 has varied land uses adjacent to the freeway. The land use study area was delineated as a quarter-mile buffer around the Project and is identified in **Table 2-1: Existing Land Uses within the Study Area**. The total study area is approximately 337 acres, all of which are urban lands zoned mixed-use, commercial, residential, light industrial, and office (See **Figure 2-1: Existing Land Use within a quarter mile of the Study Area**). **Table 2-1** shows the total area of existing uses within the study area. Approximately 331of the acres in the study area are developed lands or public right-of-way. The 6 acres of undeveloped parcels include 2.5 acres in the City of Anaheim zoned for semi-public use, and 3.5 acres in the City of Orange zoned for office professional.

Table 2-1: Existing Land Uses within the Study Area

Land Use	Acres	Land Use	Acres
Commercial and Services	7.9	Mobile Homes and Trailer Park	7.4
Commercial Recreation	67.2	Multi-Family Residential	4.0
Fire Stations	3.2	Other Public Facilities	3.7
General Office	28.7	Public Facilities	0.7
Government Offices	11.6	Public Parking Facilities	15.8
Heavy Industrial	2.1	Railroads	16.8
Hotels and Motels	2.0	Retail Stores and Commercial Services	4.4
Improved Flood Waterways, Structures	41.3	Single Family Residential	50.2
Industrial	8.4	Truck Terminals	8.9
Light Industrial	0.9	Unknown	25.6
Low-and-Medium-Rise Major Office Use	3.2	Vacant	2.5
Maintenance Yards	2.7	Vacant Undifferentiated	3.5
Manufacturing, Assembly, Industrial SVC	13.7	Wholesaling and Warehousing	0.8
Total Acres in Study Area			337.0

Source: State Route 57 Northbound Improvement Project Community Impact Assessment (CIA) 2018.

Figure 2-1: Existing Land Use within a quarter mile of the Study Area



Source: CIA 2018.

At the south end of the Project are single-family residential land uses located east of SR 57 and south of Orangewood Avenue. In this area, the Santa Ana River is west of the freeway. Commercial and light industrial (freight shipping) land uses exist north of Orangewood Avenue and east of SR 57. At the point where SR 57 crosses over the Santa Ana River, land uses east of the freeway and west of the Santa Ana River include commercial development and the Anaheim Regional Transportation Intermodal Center (ARTIC). The freeway also passes over the Amtrak and Metrolink tracks at this location. Angel Stadium and a large parking lot are located west of SR 57. Along Katella Avenue and to the north, on both sides of the freeway, land uses are mixed commercial/office developments, including the city of Anaheim's Honda Center ice rink and concert venue.

Major employers in the area along SR 57 include: Kaiser Permanente, California Department of Media Relations, Orange County Children's Hospital, St. Joseph Hospital, UC Irvine Medical Center, Angel Stadium, and Disneyland.

Development Trend

City of Anaheim

Areas that have the greatest potential for future development due to available vacant land include areas located in the Platinum Triangle in the City of Anaheim. The Platinum Triangle is bounded by the Santa Ana River to the east, Cerritos Avenue to the north and Anaheim Way to the southwest.

Development activity within the study area was reviewed to determine whether any existing uses would be replaced. The City of Anaheim's development activity research tool, Andy's Map, was used to search current development activity within the study area. There is currently no development activity that would replace existing land uses within the land use study area (See **Table 2-2: Existing Zoning within the Study Area**). An approved conditional land use permit driven by ARTIC's efforts to provide commercial development within the facility will allow for the addition of a brewery and light beer manufacturing to occur at the ARTIC, which is currently a transportation facility use. This does not replace the existing land use (**Table 2-3: Development Activity within the Study Area**).

Table 2-2: Existing Zoning within the Study Area

City of Anaheim (from north to south)	City of Orange (from north to south)
Low density office	Recreation/open space
High intensity office	Light manufacturing
Public recreation	Office-professional
Industrial	Commercial-professional
Semi-public use	Single-family residential
General commercial	

Source: CIA 2018.

Table 2-3: Development Activity within the Study Area

Jurisdiction	Location	Development Type/Activity	Status	Change In Existing Land Use?
City of Anaheim	2400 Katella Ave	332,958 SF office space	Under Review	No
City of Anaheim	1725-1729 S. Douglass Road	10,000 SF improvement to existing plus 1,600 SF addition to industrial office building	Under Construction	No
City of Anaheim	2626 E. Katella Ave	Conditional use permit for brew pub/restaurant and onsite beer manufacturing at transit facility	Approved	No
City of Orange	606 N. Eckhoff Street	Request for office and storage at industrial building	Under Review	No

Source: CIA 2018.

City of Orange

Additionally, the proposed Project is located partially in the Eckhoff Street/Orangewood Avenue land use focus area identified in the City of Orange General Plan. The focus area is delineated by the Santa Ana river to the west, Orangewood Avenue to the south, Collins Channel to the North and Bitterbrush Channel to the east. The City of Orange General Plan encourages the "intensification and/or redevelopment of underutilized parcels" of the existing uses which largely consist of professional offices, commercial uses, warehouses, and distribution centers.

Development activity within the City of Orange was reviewed. There is currently no development activity listed in the city's Pending Land Use Application List (as of June 15, 2017) that would replace existing land uses (See **Table 2-2: Existing Zoning within the Study Area**). A request for office and storage at an existing industrial service building facility is currently under review; however, the request does not change the existing manufacturing, assembly and industrial service land uses (**Table 2-3: Development Activity within the Study Area**).

2.1.1.2 Consistency with State, Regional, and Local Plans

Regional Plans and Local Jurisdiction's general plans land use elements, transportation and recreation elements were reviewed to identify policies and goals relevant to the Project. The plans and policies considered for consistency evaluation are provided below.

Regional

Southern California Association of Governments 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy

On April 7, 2016, the SCAG adopted the 2016-2040 Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS). The 2016 RTP/SCS reflects the region's commitment to improve its mobility, sustainability and economy.

The proposed Project is included and consistent with the RTP. The identification number is 2M0735A. The Project is also included in the approved 2019 Federal Transportation Improvement Project (FTIP) under identification number ORA131303.

Orange County Transportation Authority's (OCTA) 2014 Long Range Transportation Plan

OCTA is now updating its Long-Range Transportation Plan. A Draft of the new plan (Designing Tomorrow, 2018) is available for review and comment on OCTA's website. The SR 57 Northbound Improvement Project is listed as an OC GO Committed Project in the draft 2018 LRTP. The draft plan forecasts needs for the 2040 design year, prioritizes planned projects, and identifies additional projects and strategies that address those needs, thereby providing safe and efficient mobility for the 2040 horizon.

Orange County General Plan

The Orange County General Plan focuses on the elements of the unincorporated areas – territories that are not located within a city – and addresses regional services and facilities such as parks, roads, flood control facilities, etc. These unincorporated areas are geographically and demographically diverse, with many parcels becoming developed and with increasing populations that allow them to be incorporated as cities. The Project is located within the City of Orange and the City of Anaheim, and therefore is not guided by the Orange County General Plan except through connections it may have to facilities and services in unincorporated areas. For the Project, these facilities and services include the Santa Ana River Trail, the Santa Ana River flood channel, and State Route 57 which connect to unincorporated areas in Orange County.

Orange County Transportation Authority M2 Natural Community Conservation Plan/ Habitat Conservation Plan

The Orange County Transportation Authority M2 Natural Community Conservation Plan/Habitat Conservation Plan (OCTA M2 NCCP/HCP) is a comprehensive regional Habitat Conservation Plan that was adopted in 2006. This Plan incorporates regional planning efforts from Caltrans, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, OCTA, local jurisdictions, and interested individuals and groups. The purpose of the OCTA M2 NCCP/HCP is to offset potential project-related effects on threatened and endangered species and their

habitats in a comprehensive manner. OCTA will be the sole Permittee receiving permits from the Wildlife Agencies with Caltrans included as a Participating Special Entity.

Local

The General Plans for the cities of Orange and Anaheim are the principal local policy documents for guiding future development in the two cities and all land use and zoning maps and diagrams need to be consistent with the general plans.

City of Orange General Plan

The City of Orange 2010 General Plan establishes a long-term vision for growth and change in the community through the year 2030. The General Plan establishes a road map for pursuit of the vision through a series of goals and policies that are used by City departments and decision makers in the review of development projects, identification of capital improvement projects, and more.

The General Plan includes "land use focus areas" that are identified by the city where future land use changes may occur. The Eckhoff Street/Orangewood Avenue land use focus area is partially located within the project study area. Land uses in the focus area include professional offices, commercial use, and warehouse and distribution centers. It is located within the City's Redevelopment Project Area and the City encourages "intensification and/or redevelopment of underutilized parcels." The land use plan for the area is consistent with citywide policies and the community vision.

City of Anaheim General Plan

The City of Anaheim General Plan was adopted in May 2004 and articulates the Anaheim Vision through the year 2025. Urban development in the area is also guided by The Platinum Triangle Master Land Use Plan, which brings high density, mixed-use, office, restaurant, and residential projects to replace older industrial developments.

2.1.1.3 Environmental Consequences

Temporary Impacts

Alternative 1- No Build

Under the No Build Alternative, no changes would be made to the existing environment. Therefore, no changes that would affect the land use of the area are expected to be associated with this Alternative and there would be no temporary impact.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Under all Build Alternatives, temporary use of space for construction staging area will be required within the Santa Ana River to widen the Santa Ana River Bridge. The construction area

would extend beyond Caltrans right of way. Construction staging and construction activities would be accommodated within Caltrans right of way with the exception of two temporary construction easements (TCEs) needed from a city-owned parcel and an Orange County Flood Control District (OCFCD)-owned parcel. All of the Build Alternatives would require an 1,803-square foot (0.04 acre) TCE from the City of Anaheim for access to an existing maintenance road. The city-owned parcel is within Caltrans access control, but the underlying fee owner is the City of Anaheim (ARTIC parking lot driveway off Douglas Road). The parcel leads to the maintenance road. At this time, an agreement exists between Caltrans and the City of Anaheim for maintenance of the freeway. A 1,803 square foot TCE (access only) from the City of Anaheim would be required to gain access to the existing maintenance road. All of the Build Alternatives would require a 78,800-square foot (1.8 acre) TCE from the OCFCD for access to the SR 57 bridge and installation of water diversion devices within the river to allow for construction on the pier walls beneath the bridge. Any incidental or unanticipated damage or disrepair that may result due to construction activities would be restored to pre-construction conditions.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not be consistent with all goals and policies identified in state, regional, and local plans and programs as described in **Table 2-4: Consistency with State, Regional, and Local Plans**.

The No Build Alternative does not follow the Federal Transportation Improvement Program (FTIP) plan since there would be no construction of a Mixed Flow (MF) lane northbound between Orangewood Avenue and Katella Avenue. The No Build Alternative does not align with state, regional, and local plans.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

All project improvements under the three Build Alternatives would occur within existing Caltrans right of way with the exception of a revised highway easement from OCTA over the Southern California Regional Rail Authority (SCRRA) (also known as Metrolink) railroad tracks. There is an existing highway easement between the State and OCTA for the Stadium Overhead across the OCTA property that includes rail service operated by Metrolink/SCRRA. The project would require revising the existing highway easement to expand the area incuded in the easement (an additional 1,359 square feet [0.03 acres] for Alternatives 2 (Preferred Alternative) and 2B or an additional 3,290 square feet [0.08 acre] for Alternative 2A). The revised highway easement would provide the State the same rights to the expanded area as exist for the area that is currently covered by the existing highway easement.

Table 2-4: Consistency with State, Regional, and Local Plans

Goal/Policy	Alternative Consistency Analysis	
	1 No Build	2 (Preferred Alt.)/2A/2B Build
State/Regional/Local Plans		
SCAG Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS)		
Goal 2: Maximize mobility and accessibility for all people and goods in the region.	Existing and future mobility is anticipated to further be degraded in this segment of the freeway without implementation of the Project.	Build Alternatives would relieve existing and future northbound congestion, thereby, improving mobility.
Goal 4: Preserve and ensure a sustainable regional transportation system.	Short- and long-term conditions of the freeway would continue to worsen without implementation of the proposed Project.	The Build Alternatives would increase freeway capacity by removing an existing bottleneck. It is anticipated to improve the regional transportation system.
Goal 5: Maximize the productivity of our transportation system.	Short and long-term conditions of the freeway would continue to worsen without implementation of the proposed Project.	There is a 0.75-mile gap where there are only four GP lanes. The build alternative would establish lane continuity which would improve the freeway operation, reduce congestion and maximize the capacity of the existing highway.
OCTA Long Range Transportation Plan		
Deliver on commitments, improve transportation system performance, and support sustainability.	Congestion and existing conditions would continue to worsen without implementation of the proposed Project.	Build Alternatives would remedy existing operational problems, nonstandard design and lane discontinuity which would maximize the efficiency and capacity of the freeway
Orange County General Plan		
Goal 1: Provide a useful, enjoyable, safe, and efficient public regional riding and hiking trail system to meet the needs and desires of the citizens of the entire County.	The no build alternative would not impact the regional hiking trail system.	Build Alternatives would not permanently impact the regional hiking trail system.
Goal 2: Create trail linkages between open space and recreation facilities, between community, municipal, state, and federal trail systems, and between the trail systems of surrounding counties.	The no build alternative would not impact the regional hiking trail system.	Build Alternatives would not permanently impact the regional hiking trail system.

Table 2-4: Consistency with State, Regional, and Local Plans (continued)

Goal/Policy	Alternative Consistency Analysis	
	1 No Build	2A/2B/2C Build
OCTA M2 Natural Community Conservation Plan/ Habitat Conservation Plan		
Chapter 5: Conservation Strategy	Under the No Build Alternative, no changes to the existing roadways would occur in the project area.	All Build Alternatives will implement applicable conservation strategies/avoidance and minimization measures.
City of Orange General Plan		
Goal 2.0: Provide an effective regional transportation network.	Congestion and existing conditions would continue to worsen without implementation of the proposed Project.	The Build Alternatives would increase freeway capacity by removing an existing bottleneck and implementing lane continuity. It is anticipated to provide a more effective transportation network.
Policy 2.3: Cooperate with and support local and regional agencies' efforts to improve regional arterials and transit in order to address increasing traffic congestion.	Congestion and short and long term existing conditions would continue to worsen without implementation of the proposed Project.	The Build Alternatives would relieve congestion and improve mobility on the project segment of northbound SR 57 (PM 11.5 to PM 12.5)
City of Anaheim General Plan		
Goal 1.2: Support improvements to highways passing near and through the City.	Short and long-term conditions of the freeway would continue to worsen without implementation of the proposed Project.	The Build Alternatives would improve freeway operation by eliminating existing nonstandard design features and maximizing freeway capacity.
Goal 2.3: Improve regional access for City residents and workers.	Short and long-term conditions of the freeway would continue to worsen without implementation of the proposed Project.	The Build Alternatives would reduce congestion by establishing lane continuity and would improve regional access through improve operations on SR 57.
Goal 15.1: Establish The Platinum Triangle as a thriving economic center that provides residents, visitors and employees with a variety of housing, employment, shopping and entertainment opportunities that are accessed by arterial highways, transit systems, and pedestrian promenades.	Without implementation of the proposed Project, access and congestions on SR 57 would continue to worsen.	The Project is consistent with the General Plan Elements and is identified in the city's Planned Roadway Network, at the time of the revised plan program.

Source: SCAG, 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy 2016; OCTA, 2014 Long Range Transportation Plan 2014; Orange County Public Works, General Plan 2005; City of Orange, General Plan 201; City of Anaheim, General Plan: Land Use 2004.

None of the Build Alternatives open new areas for development. The proposed improvements would not lead to changes in land use or density, therefore no land use or growth-related impacts are expected. The purpose of the Build Alternatives is to relieve existing congestion and improve operational nonstandard design features such as non-standard median widths, stopping sight-distances on horizontal curves, and weaving lengths between ramps. Additionally, the improvements are intended to address the lack of lane continuity (missing GP lane gap between Orangewood Avenue and Katella Avenue) and insufficient mainline capacity. The Build Alternatives are not expected to lead to changes in land use and density, therefore no land use impacts are expected. All Build Alternatives fulfill the FTIP plan with the addition of the MF lane northbound between Orangewood Avenue and Katella Avenue and align with state, regional, and local plans. The Build Alternatives would be consistent with all the state, regional, and local plans and programs listed in the previous section and described in **Table 2-4: Consistency with State, Regional, and Local Plans**. Therefore, none of the alternatives would result in a change to existing land use.

2.1.1.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed Project alternatives do not conflict with any applicable state, regional, or local programs, plans or policies, and would not affect existing or future land use. No avoidance, minimization, or mitigation measures are required.

2.1.2 Parks and Recreational Facilities

2.1.2.1 Regulatory Setting

The Project would affect facilities that are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409). The Park Preservation Act 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.

2.1.2.2 Affected Environment

Public parks, trails, and other recreational facilities that were identified in the *Community Impact Analysis* (June 2018), as being located within 0.5 mile of the project limits are presented in **Table 2-5: Parks, Trails, and Other Recreational Facilities within 0.5-mile of the Project Limits** and **Figure A-1: Resources Considered for Section 4(f) Analysis** found in Appendix A, Section 4(f) resources. Further analysis on parks and recreational facilities is included in Appendix A, Section 4(f) Resources.

El Camino Real Park

El Camino Real Park is located about a half mile east of the project study area. The park is owned and operated by the city of Orange. Park amenities include four baseball fields, six tennis

courts, two basketball courts, two volleyball courts, six handball courts, a tot-lot, a community room and a large picnic pavilion.

Table 2-5: Parks, Trails, and Other Recreational Facilities within 0.5-mile of the Project Limits

Name	Jurisdiction	Location	Approx. Distance from the Project	Type	Amenities
Santa Ana River Trail	Orange County	West side of the Santa Ana River between Katella Avenue and Orangewood Avenue within the project corridor	0 mile	Trail and Bike Path	14-miles in Orange County; Trail; Bicycle and Pedestrian Path; Equestrian Trail
El Camino Real Park	City of Orange	East of the corridor just south of Orangewood Avenue	0.4 mile	Local Park	18.67-Acre; Tennis courts (6), Baseball Fields (4), Volleyball Courts (2), Racquetball Courts (6), Basketball Courts (2), Restrooms, Picnic Pavilion, Children's Play Area, Community Building

Source: CIA 2018.

Santa Ana River Trail/Bicycle Path

The Santa Ana River Trail/Bicycle Path (SART) is a National Recreational Trail that extends along the Santa Ana River from Huntington Beach to San Bernardino County. The Orange County segment of the trail begins at the Huntington Beach Bicycle trail and ends at the Orange/Riverside County line. Within the project boundary, the trail is located along the top of the river's west levee crossing under SR 57 between Orangewood Avenue and Katella Avenue. The SART/Bicycle Path is wheelchair accessible and serves pedestrians, bicyclists and equestrians. The trail/bike path features an existing Class I bicycle facility within the project area that is 12 feet wide, asphalt paved and marked by two white paint boundaries, with a dashed yellow paint marker separating the southbound and northbound lanes. The trail/bike path is part of the regional Orange County Loop and has a direct connection to ARTIC, which encourages multimodal forms of transportation. There is limited vegetation along the trail (primarily along the SR 57 embankment west of the trail) and the shoulders of the trail are unpaved dirt.

2.1.2.3 Environmental Consequences

Temporary Impacts

Alternative 1- No Build

Under the No Build Alternative, there is no construction involved; therefore, no existing and planned parks or recreation facilities in the area would be affected and no direct or indirect adverse impacts on parks, recreational facilities would occur.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Temporary construction easements are required from OCFCD for work within the Santa Ana River associated with widening the freeway bridge deck and extending the supporting pier walls, and from the city of Anaheim for access across the city-owned parcel near the ARTIC parking lot located south of the railroad tracks off Douglass Road. None of these easements would affect El Camino Real Park.

The proposed Project (all Build Alternatives) includes widening the Santa Ana River Bridge, which would entail modifying the bridge embankments, extending the pier walls beneath the bridge, and widening the bridge deck. Widening the bridge would require erecting temporary support structures (falsework) to hold bridge components in place while it is being constructed. The falsework would need to span the SART/Bicycle Path where the bridge crosses over the trail. In addition to erection of the falsework, construction crews and equipment would need to periodically cross the SART/Bicycle Path to gain access to the riverbed and freeway bridge structure. To gain access to the riverbed and bridge, construction crews would use an existing maintenance road located at the toe of slope along the northbound SR 57 embankment to cross the SART/Bicycle Path **(Figure 2-2: Maintenance Road Access**). The maintenance road is within Caltrans right of way and leads to a gate with access to the SART/Bicycle Path and the west levee of the river (~PM 12.1). The maintenance road provides the closest and most efficient path of access to the river and bridge. Equipment crossing(s) the SART/Bicycle Path would be managed by flagmen to ensure trail user safety and continued access. In addition to equipment crossing(s) falsework to support the bridge structure during reconstruction would need to be installed (and later dismantled) over the SART/Bicycle Path. To install and tear down the falsework, the trail would be temporarily closed for a period of 12 hours at the beginning and end of the 9-month construction period. During construction, the trail would remain open to users during public access hours (7 a.m. – 6 p.m. Nov. 1 to Feb 28 and 7 a.m. – 9 p.m. Mar. 1 to Oct 31). The temporary closures would occur during non-public access hours. In the unlikely event of extended closure hours, and/or day time closures, the trail/bike path users will be directed to use a detour route as shown in **Figure 2-3: SART/Bicycle Path Detour Plan**. Modification of the freeway bridge deck and pier walls is expected to last 9 months (36 weeks) with access to the river across the SART/Bicycle Path needed for the duration of the 36-week construction period.

Figure 2-2: Maintenance Road Access



Source: WSP, August 2018

Following construction, areas used for construction purposes would be returned to their original uses. Any incidental or unanticipated damage or disrepair that may result due to construction activities would be restored to pre-construction conditions; therefore, the Project would not result in permanent impacts to the SART/Bicycle Path.

To minimize temporary construction-related impacts to the trail, during the Design and Construction Phases, a Traffic Management Plan (TMP) will be coordinated with Orange County Parks (OC Parks) and Orange County Flood Control District (OCFCD) for temporary construction-related impacts to the Santa Ana River Trail (SART) and bike path. The TMP is considered a living document, subject to change as required by changing circumstances. The TMP will address safety for trail and bike path users, during and throughout construction, and will be coordinated with the cities of Orange and Anaheim. Any related conditions from OCFCD and OC Parks will be addressed in the TMP. In addition, measures PF-LU-1, PF-LU-2 and PF-LU-3 will be incorporated into the project to minimize impacts to the trail and ensure trail user safety.

Figure 2-3: SART/Bicycle Path Detour Plan



Source: CIA 2018.

The SART/Bicycle Path was evaluated relative to the requirements of Section 4(f). Caltrans made a de minimis determination for the SART that the project would not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). Caltrans received written concurrence from OC Parks on February 7, 2019. See Appendix E: SART 4(f) Concurrence Letter.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not result in the acquisition a public park or recreation facility and would not cause changes to access or the operation of parks and recreation facilities within the study area.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Project improvements would primarily be located within the existing freeway right of way, which does not intersect El Camino Real park boundaries. A revised highway easement from OCTA (property owner) over the SCRRA railroad tracks is required for widening the bridge over the railroad tracks (Alternatives 2 [Peferred Alternative] and 2B) or for constructing a new bridge structure (Alternative 2A). The park is not located near the proposed improvements and therefore, would not be affected by the Project.

None of the Build Alternatives would result in the acquisition of land in use as a public park, and would not cause changes to access or the operation of parks and recreation facilities within the study area.

2.1.2.4 Avoidance, Minimization, and/or Mitigation Measures

No additional avoidance, minimization, or mitigation measures are required.

2.1.3 Growth

2.1.3.1 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 effects, 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…"

2.1.3.2 Affected Environment

The information used in this section is based on the *Community Impact Assessment* (June 2018).

Regional Setting

The population of Orange County has steadily increased from 2010 and is projected to continue to increase through the year 2045. (See **Table 2-6: Population and Employment Trends, 2010-2045**.) Population growth is an important factor in determining future travel demand. Increases in population, housing, and employment, as projected by SCAG in the 2016–2040 RTP/SCS, result in greater demand for transportation facilities and services. According to the 2016–2040 RTP/SCS, increased travel demand results in congestion on roadways if capacity does not keep up with the demand. The County of Orange, City of Anaheim, and City of Orange all include a growth element in their general plans, outlining policies to be implemented for transportation and services to manage growth.

Table 2-6: Population and Employment Trends, 2010-2045

	2010	2016	2025	2045
Population				
Anaheim	336,265	358,136	372,275	413,775
Orange	136,386	141,420	145,232	155,589
Orange County	3,010,232	3,183,011	3,351,315	3,595,775
Employment				
Anaheim	148,400	163,400	209,332	257,689
Orange	64,200	70,000	99,393	107,536
Orange County	1,387,400	1,538,000	1,855,034	2,015,300

Sources: ALMIS, Major Employers in Orange County 2017; Caltrans, 2016a; California Department of Finance (DOF) 2016, 2017; CEDD, 2016b, CEDD, 2016c; SCAG, 2016.

The proposed Project may result in a change in travel patterns for some drivers in the area, as the configuration of some ramps may be changed from their existing geometry. Accessibility to the SR 57 mainline is currently along Orangewood Avenue and Katella Avenue within the project boundaries and will continue to be along these corridors. The improvement of traffic flow along the SR 57 northbound mainline is expected to improve travel time for drivers using that route. However, the proposed Project itself would not cause development to occur in the region.

Project Setting

The project corridor passes through the cities of Anaheim and Orange and is designed to improve traffic flow through these two cities where the missing fifth GP lane is located between the Katella Avenue and Orangewood Avenue interchanges. The 2016–2040 RTP/SCS project list identifies a number of transportation improvement projects along SR 57 and freeways nearby to accommodate the projected transportation demand from the growth and infill development that is anticipated to continue into the future in this region. The Project is one in a series of projects designed to improve congestion and capacity through OCTA's OC Go transportation improvement projects program.

The existing lack of both the auxiliary lane and the fifth GP lane within the 0.75-mile freeway segment of the Project results in excessive lane changes and congestion. Increased traffic volumes and limited capacity within the corridor have caused mobility and congestion issues. Recent modeling analysis using 2016 traffic count data showed acceptable levels of service (LOS) C and D for the northbound freeway analysis; however, continued population and employment growth for Orange County is anticipated to further degrade the freeway LOS within this segment of the freeway by 2045 with unacceptable LOS E and F.

2.1.3.3 Environmental Consequences

Temporary Impacts

No improvements to SR-57 within the project limits would be implemented under the No Build Alternative. Therefore, the No Build Alternative would not result in temporary growth-inducing impacts.

Alternatives 2 (Preferred Alternative), 2A, & 2B - Build Alternatives

Any potential growth-related impacs of the Build Alternative would be permanent. There would be no temporary growth-inducing impacts under either of the build alternatives.

Permanent Impacts

Alternative 1 - No Build

The No Build Alternative would maintain current freeway geometry and accessibility, which will most likely decrease mobility due to congestion in the area as population continues to grow. Anticipated growth within the county would not be accommodated and overall performance of the mainline would continue to decline.

Alternatives 2 (Preferred Alternative), 2A, & 2B - Build Alternatives

As described above, the regional project area has experienced population, housing, and employment growth in recent decades. This growth is associated with existing and future land uses, development,

and economic growth. The region is projected to continue to experience population growth, which is expected to occur with or without implementation of the proposed Project.

Based on the criteria for performing a "first-cut screening" as described above, the likely growth potential for the proposed Project is analyzed below.

- How, if at all, does the Project potentially change accessibility?

Travel routes would not change substantially nor would general accessibility to the system change. Some minor changes to the ramps are proposed that are expected to result in enhanced safety, queuing, and improved merge/diverge movements. Improvements at project intersections are expected to help prevent deterioration of the level of service at the arterials as well. Ramps to the SR 57 mainline on Orangewood Avenue and Katella Avenue will be changed from existing geometry, but will not impact accessibility from these streets because the number of access points to SR 57 will not be removed.

These ramp changes would result in negligible to no change in travel time to get on northbound SR 57 from Orangewood Avenue and Katella Avenue. Additionally, this change in access would be more than offset by improvements from the project's addition of a fifth northbound general-purpose lane, safety enhancements from improvements to merge and diverge movements within the freeway segment, and congestion relief. Once completed, the Project would be expected to benefit access and circulation by relieving congestion, decreasing travel time, and improving the level of service along the Project segment of northbound SR 57 (Traffic Operations Analysis Report, March 2018). Bicycle and pedestrian facility continuity and access would not change from existing conditions.

- How, if at all, do the project type, project location, and growth-pressure potentially influence growth?

The Project itself is not anticipated to influence growth through its goals of relieving existing and future congestion and improving mobility along the one-mile project corridor. The Project is located within a built-out urban area with little to no vacant land to develop. Therefore, future growth would most likely be due to the potential for infill development and increase in land use density which will not occur adjacent to the Project during its construction according to project development lists (see **Table 2-70: Cumulative Projects List)**.

- Is project-related growth reasonably foreseeable as defined by NEPA?

Reasonably foreseeable future projects are those that are likely to occur in the future and will add to the cumulative impact on a particular resource. As discussed above, the proposed Project would not influence growth because the Project would not directly result in any changes to land use or encourage changes in population density. Growth in the region is anticipated to occur whether or not the Project is constructed. While the Project would result in some improvements in accessibility due to reductions in travel times, these improvements would not influence growth directly in an already built-out area.

- If there is project-related growth, how, if at all, will that impact resources of concern?

As discussed above, the proposed Project would not result in project-related growth. Accordingly, no resources of concern would be impacted.

Based on the above first-cut screening analysis, no further analysis with respect to growth is required for this Project.

2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

None of the proposed Build Alternatives would influence the location, type, or rate of future growth and development; therefore, no avoidance, minimization, and/or mitigation measures are needed.

2.1.4 Community Impacts

2.1.4.1 Community Character and Cohesion

Regulatory Setting

The National Environmental Protection Act (NEPA) of 1969, 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.

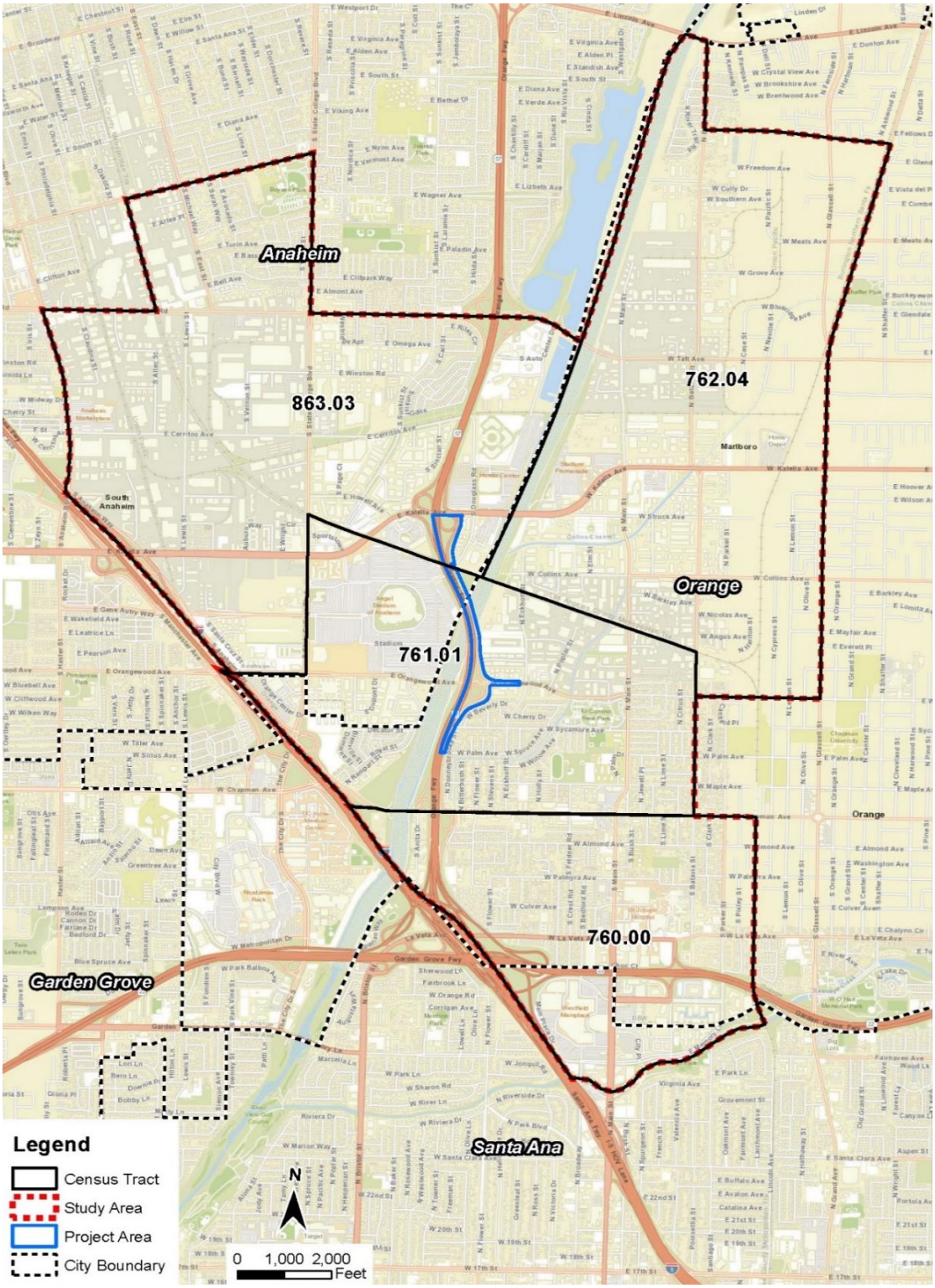
Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether 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

Information and analysis in this section is based on the August 2018 *Community Impact Assessment* prepared for the Project. The study area is the area in proximity to the proposed Project, which includes the populations and communities most likely to experience the potential impacts from the physical improvements associated with the Project. The study area includes all Census Tracts within approximately one-half mile of the project area. The population and housing study area includes four U.S. Census tracts[3] within the cities of Anaheim and Orange. See **Figure 2-4**: **Population and Housing Study Area**. The study area is a diverse mix of residential, commercial, industrial, recreational, and business areas. Neighborhoods are present throughout the study area. Destination venues such as Angel Stadium and Honda Center influence the active character of the surrounding neighborhoods and local streets.

[3] The U.S. Census provides data at various scales ranging from individual blocks on up to states and the country as a whole. However, the smaller the scale of data the more likely there is inherent error in American Community Survey (ACS) data estimates. For this study area, ACS sample survey data margins of error at the block group level exceed 50 percent. Therefore, U.S. Census data are provided at the census tract level to increase the accuracy of the data.

Figure 2-4: Population and Housing Study Area



Source: U.S. Census Bureau, Cartographic Boundary Shapefiles - Census Tracts 2017. https://www.census.gov/geo/maps-data/data/cbf/cbf_tracts.html

Community character and cohesion was evaluated using a community profile that consists of demographic characteristic, housing characteristics, economic and business conditions, and location of community services and facilities.

Demographic Characteristics

As shown in **Table 2-7: Population and Housing Demographic Data in and around the Study Area** below, about two-thirds of individuals in the study area census tracts identify as Hispanic or Latino and/or as a non-white, except in census tract 762.04 where nearly 80 percent of individuals identify as a minority.

In Orange County, 56 percent of individuals identify as a minority. Study area census tracts generally have a lower percentage of elderly and youth than the county, except in census tract 762.04 where over 30 percent of individuals are under 18 years old. Similarly, study area census tracts have a lower percentage of low-income individuals than the county, except in census tract 762.04 where approximately 26 percent of individuals are low-income. Disabled individuals over 18 years old and unemployment rates for individuals over 16 years old are similar to rates in the county. Median household incomes in the study area are similar to the county average of approximately $76,500, with census tract averages ranging between approximately $60,100 and $78,000.

Housing

Though land uses immediately bordering SR 57 are generally commercial and light industrial, there are two residential neighborhoods within a quarter mile of the Project, both within the City of Orange: a single-family subdivision south of Orangewood Avenue east of SR 57 and the 1970s-style Park Royale Mobile Home Park west of the Santa Ana River between Orangewood and Chapman Avenues near Angel Stadium. As shown on **Figure 2-5: Mobile Home Parks near the Project Area**, one additional mobile home park is near the project area: the 55+ adult-only Sunkist Gardens Mobile Home Park at the north end of the Project near the Honda Center. Apartment complexes are also scattered throughout the study area. Higher-density housing units tend to reside near the mixed-use sections of the study area, such as the current and planned complexes in the Platinum Triangle. Single family residential neighborhoods tend to surround the schools and parks in the study area, such as at the south end of the Project east of SR 57 around Portola Middle School, El Camino Real Park, and Sycamore Park.

Table 2-8: Household Characteristics in and Around the Study Area shows that the study area is made up of around 60 percent family households, except for census tract 762.04 where over 80 percent of households are occupied by families, compared to approximately 70 percent family households in the county. Fewer houses are owner-occupied in the study area than in Orange County, especially in census tract 762.04 where only 30 percent of units are owner-occupied compared to 59 percent in the county. Median home values for owner-occupied units in the study area are less than in Orange County. Vacancy rates in the study area are similar to that of the county.

Table 2-7: Population and Housing Demographic Data in and around the Study Area

	Geography						
	Tract 760.00	**Tract 761.01**	**Tract 762.04**	**Tract 863.03**	**City of Anaheim**	**City of Orange**	**Orange County**
2010 Census Data (Individuals)							
Total Population	8,371	8,933	4,492	6,212	336,265	136,386	3,010,232
Total Minority[1]	60%	67%	79%	66%	73%	53%	56%
Hispanic[2] or Latino	45%	46%	69%	44%	53%	38%	34%
Race[3]	35%	42%	46%	43%	47%	33%	39%
Black or African American Alone	3%	3%	2%	3%	3%	2%	2%
American Indian and Alaskan Native Alone	1%	1%	2%	1%	1%	1%	1%
Asian Alone	11%	16%	7%	17%	15%	11%	18%
Native Hawaiian and Pacific Islander Alone	0.3%	0.4%	0.4%	0.3%	0.5%	0.3%	0.3%
Some Oher Race Alone	16%	17%	30%	17%	24%	15%	14%
Two or more races	4%	5%	5%	5%	4%	4%	4%
Elderly (65+)	11%	6%	5%	10%	9%	11%	12%
Youth (<18)	20%	20%	31%	19%	27%	24%	24%
2011-2015 ACS Data[4] (Individuals)							
Total Population	8,442	10,045	4,560	6,707	341,542	133,331	3,078,518
Low-income[5]	12%	10%	26%	9%	17%	13%	13%
Disabled (18+)	8%	8%	7%	12%	10%	9%	10%
Unemployed (16+)	10%	11%	10%	5%	9%	8%	8%
2011-2015 ACS Data[4] (Households)							
Total Households	3,108	3,468	1,131	2,463	99,670	42,680	1,009,353
Median Income	$61,120	$77,702	$61,366	$73,495	$60,752	$78,513	$76,509

1. Minority refers to a person who identifies as any race other than White and/or identifies as Hispanic or Latino. A breakdown of minority by Hispanic or Latino and race is provided as well. Hispanic or Latino and race percentages do not add up to the total minority percentages because an individual who identifies as both a Hispanic or Latino and a race other than White is counted in both the Hispanic or Latino and race percentages but is only counted once under the total minority percentages.
2. Hispanic or Latino is independent of race and is the only ethnic minority option available on the 2010 U.S. Census (e.g., a person can be white and Latino, and would thus be a minority under Hispanic or Latino but would not be a minority under race).
3. Race minority refers to any race option on the 2010 U.S. Census other than White and regardless of Hispanic or Latino identification. A breakdown of minority by race is provided as it is collected by the 2010 U.S. Census.
4. ACS data are population estimates, so the data have inherent margins of error that can vary from small to large. As a result, ACS data may vary in accuracy, but it is the best data available for these demographics.
5. Low-income includes individuals considered "below the poverty level" by the U.S. Census Bureau, which derives poverty data using income thresholds based on family size (from one person to nine or more people) that are cross-classified by presence and number of family members under 18 years old. Unrelated individuals and two-person families are further differentiated by age of reference person. Poverty status is determined by comparing a person's total family income with the poverty threshold appropriate for that person's family size and composition. If the total income for that person's family is less than the threshold appropriate for that family, the person is considered "below the poverty level" (U.S. Census Bureau 2017).
Sources: U.S. Census Bureau 2010 (Table P5, P12), 2016 (Table B17201, BB25077)

Figure 2-5: Mobile Home Parks near the Project Area



Source: CIA 2018.

Table 2-8: Household Characteristics in and Around the Study Area

	Geography						
	Tract 760.00	Tract 761.01	Tract 762.04	Tract 863.03	City of Anaheim	City of Orange	Orange County
2010 Census Data							
Owner-occupied	42%	36%	30%	47%	48%	59%	59%
Renter-occupied	58%	64%	70%	53%	52%	41%	41%
2011-2015 ACS Data[1]							
Family Households	59%	61%	83%	62%	75%	72%	72%
Median Value[2]	$332k	$402k	$419k	$345k	$431k	$534k	$554k
Vacant Housing Units	5%	4%	3%	6%	5%	4%	5%

[1.] ACS data are population estimates, so the data have inherent margins of error that can vary from small to large. As a result, ACS data may vary in accuracy, but it is the best data available for these demographics.
[2.] Median home value collected for owner-occupied units only.
Sources: U.S. Census Bureau 2010 (Table H11) and 2016 (Table B11016, BB25077, B11016)

Economic Conditions

Employment and Income

Orange County economic forecasts anticipate continued job growth, especially in construction, education and health, and professional and business services. The most recent census data estimate median county income at just over $76,500, as previously shown in **Table 2-7: Population and Housing Demographic Data in and around the Study Area**. Employment and population are expected to continue to grow into the foreseeable future. **Table 2-9: Home Values Near the Project and in Orange County** shows that unemployment rate in the community study area ranges between 5 to 11 percent.

Table 2-9: Home Values Near the Project and in Orange County

	Geography						
	Tract 760.00	**Tract 761.01**	**Tract 762.04**	**Tract 863.03**	**City of Anaheim**	**City of Orange**	**Orange County**
2011-2015 ACS Data[1]							
Less than $149,999	7%	1%	11%	16%	8%	6%	2%
$150,000-$199,999	10%	0%	0%	9%	2%	2%	1%
$200,000-$249,999	0%	42%	14%	4%	0%	0%	33%
$250,000-$299,999	0%	56%	30%	5%	0%	0%	33%
$300,000-$499,999	70%	1%	31%	61%	53%	34%	10%
$500,000-$749,999	12%	1%	13%	5%	27%	39%	11%
$750,000 and Over	2%	0%	2%	0%	10%	19%	9%
Median Value[2]	$332k	$402k	$419k	$345k	$431k	$534k	$554k

[1]. ACS data are population estimates, so the data have inherent margins of error that can vary from small to large. As a result, ACS data may vary in accuracy but it is the best data available for these demographics.
[2]. Home values and median home values collected for owner-occupied units only.
Sources: U.S. Census Bureau 2016 (Table BB25075)

Business Activity

A wide variety of businesses of various sizes and type operate in the community study area. Major employers near the Project and surrounding area include Kaiser Permanente, California Department of Media Relations, Orange County Children's Hospital, St. Joseph Hospital, University of California Irvine Medical Center and Disneyland. There are multiple businesses in the project area, including Orangewood Corporate Plaza near the Orangewood Avenue/SR 57 intersection. Orangewood Corporate Plaza features "freeway access" on its current website. Across the street from Orangewood Corporate Plaza, is another business park. Additionally, various nearby businesses include freight and industrial supply companies, consulting businesses, and medical/social service providers.

Also in the area are the venues Angel Stadium and Honda Center, as well as businesses such as banks, restaurants, nonprofits, and markets. ARTIC, a regional transportation hub in Anaheim, serves area residents, commuters, and visitors.

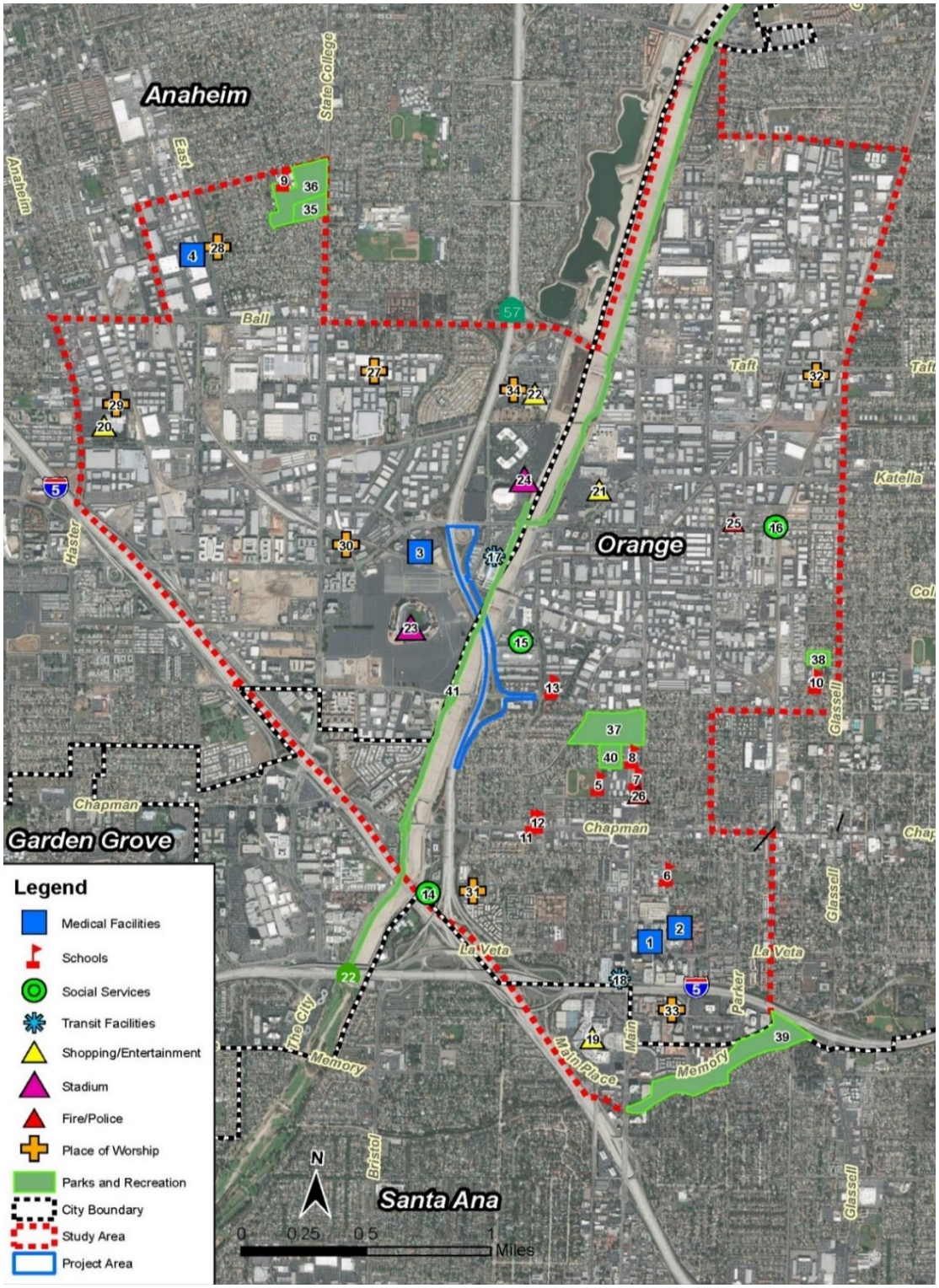
Fiscal Conditions

Property tax is derived from the assessed value of real property and allocated tax rates throughout Orange County. shows the assessed value of homes within the four census tracts intersecting within approximately a half-mile of the project area within Orange County. In the census tracts near the Project, 85 to 99 percent of homes are valued at less than $500,000, compared to 80 percent of homes in Orange County valued at less than $500,000. The median home value in the census tracts is lower than in the county, ranging from about $332,000 to $419,000, compared to $554,000 in Orange County. In summary, home values near the Project are generally lower than home values elsewhere in the county.

Community Facilities

Community facilities were determined by analyzing the Land Use study area. A variety of community facilities, such as the Orange County Social Services Agency Children and Family Services, serve the area near the Project. There are also numerous churches, schools, and parks, some of which are immediately adjacent to, or within, the community study area. Multiple medical facilities are near the Project, including major hospitals like St. Joseph Hospital and Children's Hospital of Orange County (CHOC) and minor facilities such as a dialysis center, ambulance service, blood testing lab, and orthopedic clinic. These facilities are mapped in **Figure 2-6: Community Facilities near the Project Area**, and listed in **Table 2-10: Community Facilities near the Project Area**.

Figure 2-6: Community Facilities near the Project Area



Source: CIA 2018. U.S. Census Bureau, Cartographic Boundary Shapefiles - Census Tracts 2017. https://www.census.gov/geo/maps-data/data/cbf/cbf_tracts.html

Table 2-10: Community Facilities near the Project Area

ID	Medical Facilities	21	Stadium Promenade
1	Children's Hospital of Orange County	22	The Phoenix Club
2	Saint Joseph Hospital	ID	**Stadium Promenade**
3	Kerlan-Jobe Orthopedic Clinic	23	Angel Stadium of Anaheim
4	Kaiser Permanente	24	Honda Center
ID	**Schools**	ID	**Fire/Police**
5	Portola Middle School	25	Orange Police Department
6	West Orange Elementary School	26	Orange City Fire Station #5
7	Far Horizons Montessori School	ID	**Places of Worship**
8	Sycamore Elementary School	27	The Overflowing Church
9	Theodore Roosevelt Elementary School	28	Church of Power Christian Fellowship
10	Richland Continuation High School	29	Calvary Chapel Anaheim Church & School
11	Pacific West College of Law	30	Saddleback Church Anaheim
12	South Coast College - Orange County Campus	31	St. John Maron Maronite Catholic Church
13	Azusa Pacific University - OC Regional Center	32	Church of Scientology Mission of Newport
ID	**Social Services**	33	Saint Matthew Ecumenical Catholic Church
14	Children's Home Society of California	34	Church of Southland
15	Orange County Social Service Agency	ID	**Parks and Recreation**
16	Social Service Organization - Mary's Kitchen	35	Anaheim Tennis Center
ID	**Transit Facilities**	36	Boysen Park
17	ARTIC	37	El Camino Real Park
18	OCTA	38	Killefer Park
ID	**Shopping/Entertainment**	39	Santiago Park
19	Main Place Mall	40	Sycamore Park
20	Anaheim Marketplace	41	Santa Ana River Trail

Source: CIA 2018

Environmental Consequences

Temporary Impacts

Alternative 1- No Build

No project construction work would occur under the No Build Alternative and thus it would not result in temporary construction impacts or require capital expenditure. The No Build Alternative would maintain current freeway geometry and not impact neighborhoods, communities, community character, or access.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Impacts from project construction under all Build Alternatives would be temporary in nature and limited to potential delays and detours from construction. None of the Build Alternatives would change population characteristics, housing character, or economic conditions. The Project would not change the urban character of the area, instead maintaining the character of the existing visual environment through landscaping and land use. The Project would not divide neighborhoods, or affect community cohesion because construction would remain primarily within existing right of way and not require relocations or property acquisitions that would displace residents or businesses. Project construction activities would not likely change economic forecasts or access, operations, and types of business activities in the study area.

All Build Alternatives would result in temporary, short-term construction-related impacts to access and circulation on local streets (Orangewood Avenue, Douglass Road and Katella Avenue).

Construction of the Build Alternatives may require short-term lane closures of northbound SR 57 mainline lanes. The existing number of lanes operating on northbound SR 57 would be maintained except during nighttime or off-peak periods where traffic may be shifted and limited to a few open lanes.

Weekend (55 hour) closure of the eastbound Orangewood on-ramp and northbound Katella off-ramp would be required under all Build Alternatives to accommodate shifting the Orangewood on-ramp east and for widening or building the Katella off-ramp. Under the Preferred Alternative, the westbound Orangewood on-ramp would also be closed (55-hour weekend closure) to accommodate shifting the ramp east. During weekend ramp closures, traffic would utilize alternative on- and off-ramps and detours on local streets.

Orangewood Avenue and Douglass Road are anticipated to require full nighttime closures for setting up and taking down falsework. Temporary lanes closures and traffic shifting could occur periodically along Orangewood Avenue to move traffic around construction activities. Detours routes would be provided for all temporary ramp or street closures. Detour routes would be signed and communicated to local residents and businesses, particularly local event venues. Special consideration of local events would be handled through the TMP and contingency

planning. During the Design Phase, the TMP would be coordinated with the cities of Orange and Anaheim Public Works Department or City Traffic Engineer to minimize impacts to local residents and businesses. Advance information and public awareness campaigns would help to reduce short-term delays and detours. During and throughout Construction, every effort would be made to maintain access to private parking lots along Orangewood. Private parking lots would be accessible both day and night for clients to local businesses and area visitors during events at nearby venues.

During project construction, the Build Alternatives could temporarily delay or detour how vehicles move to or from community facilities in the project area; however, short-term delays and detours would be managed through motorist awareness campaigns, incident and demand management, contingency plans, as well as other measures outlined in the Project's TMP. There is potential for delays, detours and/or closures along the SART/Bicycle Path. Access to the SART/Bicycle Path would be maintained for pedestrians, cyclists and equestrians throughout construction unless otherwise specified by the project TMP. As described in Air Quality Section 2.2.6 of this document, short-term degradation of air quality may occur during construction due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction-related activities, and construction equipment emissions. Construction related air quality effects would be greatest during site preparation, which may impact the community temporarily. Caltrans Standard Specifications (Section 14-9.03) requires the use of water or dust palliative compounds to reduce potential fugitive dust associated with site preparation. Construction activities could produce temporary greenhouse gas emissions from the operation of heavy-duty trucks and construction equipment. These emissions would be temporary and limited to the immediate area surrounding the construction site. Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable levels as distance from the site(s) increases.

As described in the Noise Section 2.2.7 of this document, construction noise would be short-term and may intermittently dominate the noise environment in the immediate area of construction. However, these effects would diminish with distance from the source and are not expected to substantially adversely affect residents or other sensitive receptors due to distance from the source, intervening topography, structures, and/or soundwalls that would block noise sources, and the temporary nature of construction activities. Construction activities are required to comply with Caltrans standards for noise controls, as well as local noise ordinances, that help to ensure work activities do not exceed specified noise levels.

Aesthetics Section 2.1.9 describes the project specific Aesthetics and Landscape Master Plan that would be developed to address landscaping and corridor theming if applicable. The Plan would include measures to preserve existing vegetation and mature trees within the State's existing Right of Way (ROW) where feasible and to revegetate disturbed areas and maintain the existing visual character of the community. These measures would help preserve the existing visual quality and community character.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not directly impact community resources and would not affect community character and cohesion. Under the No Build Alternative existing and projected future increases in traffic congestion would not be addressed and the level of service would continue to decline on the 1-mile segment of SR 57.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

All Build Alternatives are designed to improve traffic flow and safety by providing lane continuity via the fifth northbound GP lane, improving merge and diverge movements within the freeway segment, and providing congestion relief. The proposed improvement would be considered a benefit to the community by enhancing traffic movement on this major north-south highway. No residences would be displaced due to the Build Alternatives as the improvements will be within the right of way of the existing SR 57 geometry. The Project would not cause a new bisection of communities, change the urban nature or aesthetic quality of the study area, create new physical barriers (e.g., new fencing), or separate residents from community facilities. No private business parking would be affected. None of the Build Alternatives would relocate, change access to, or remove parking for any community facilities. Sidewalks at intersections impacted by the Project would be constructed according to ADA standards to maintain access for all community members. Access to neighborhoods, and businesses would not be altered and would be maintained under all Build Alternatives. No driveways would be altered as a result of the Project. Bicycle and pedestrian facility continuity and access would not change from existing conditions. Existing curb ramps at all crosswalks within the project limits that are affected by the Project will be reconstructed to Caltrans latest standards (2015 Revised Standard Plan RSP A88A) to maintain access for all community members. Where required, sidewalks, curbs and gutters would be re-constructed to meet current ADA standards (28 CFR 35.151), which would be benefit the community.

Improvements could benefit the quality of life for residents in the study area by decreasing travel time to work, community resources, recreation, and other destinations.

Alternatives 2A, & 2B – Build Alternatives (only)

Alternatives 2A and 2B would eliminate the Orangewood Avenue on-ramp and direct westbound traffic traveling on Orangewood Avenue to a new left turn lane that would provide access to the same loop ramp that eastbound traffic would use. Orangewood Avenue would be restriped in the westbound direction, including the existing striped median, to provide for dual westbound left-turn lanes. The second left-turn lane would accommodate the redirected traffic from the closed westbound ramp. This modification would not substantially alter local traffic patterns on Orangewood Avenue.

These proposed changes would not affect accessibility to the northbound SR 57 from Orangewood Avenue and would result in a negligible increase in travel time due to the installation of traffic/ramp signals. The closure of the Orangewood Avenue on-ramp under Alternatives 2A and 2B is not anticipated to impact existing housing or housing development, change access to community services and facilities, or result any changes that would affect community character and cohesion.

Avoidance, Minimization, and/or Mitigation Measures

The project's TMP will be implemented to reduce and minimize any construction related impacts to businesses and community facilities. With the implementation of the measures within the TMP, as well as those found within Aesthetics, Air Quality, and Noise Sections, no other measures are required.

2.1.4.2 Relocations and Real Property Acquisitions

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 (Uniform Act), 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.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment

According to the *Community Impact Assessment* (August 2018) conducted for this Project, no relocations for households and businesses are anticipated. Land use adjacent to the Project is varied along the SR 57 within the project boundary. At the south end of the Project are single-family residential land uses located east of SR 57 and south of Orangewood Avenue. In this area, the Santa Ana River is west of the freeway. Commercial and light industrial (freight shipping) land uses exist north of Orangewood Avenue and east of SR 57. At the point where SR 57 crosses over the Santa Ana River, east of the freeway and west of the Santa Ana River, land uses include commercial development and ARTIC. The freeway also passes over the Amtrak and Metrolink tracks at this location.

Refer to Section 2.1.1.1 for existing and future land use maps and Section 2.1.4.1 for information on housing profiles and a description of businesses in the study area.

Environmental Consequences

Temporary Impacts

Alternative 1- No Build

The No Build Alternative would not result in any changes or construction to the area and therefore it would not result in any relocations or real property acquisition.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Widening and strengthening the Santa Ana River Bridge would require modifying the existing pier walls beneath the bridge within the existing highway easement. To gain access to the pier walls construction vehicles would have to enter the riverbed via an existing maintenance road located at the toe of slope along the NB SR 57 embankment. The maintenance road is within Caltrans right of way and leads to a gate on the west levee of the Santa Ana River Trail/Bicycle Path with access down into the riverbed. Access to the maintenance road would require crossing a small parcel that is within Caltrans access control, but the underlying fee owner is the City of Anaheim (ARTIC parking lot driveway off Douglas Road). The parcel leads to the maintenance road. At this time, an agreement exists between Caltrans and the City of Anaheim for maintenance of the freeway. A 1,803 square foot TCE (access only) from the City of Anaheim would be required to gain access to the existing maintenance road.

Likewise, work within the river would require use of a parcel owned by the Orange County Flood Control District (OCFCD). Portions of the affected parcel are within Caltrans existing highway easement. A 78,800 square foot TCE from OCFCD (in addition to the area already included in the existing highway easement) would be required to work within the river.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not result in any changes or construction to the area and therefore it would not result in any relocations or real property acquisition.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Widening and strengthening the Stadium OH Bridge would require a revised highway easement over the existing railroad (RR) tracks from OCTA (property owner) to the Caltrans (freeway owner). Alternatives 2 (Preferred Alternative) and 2B would require a 1,359-square foot expansion of the highway easement and Alternative 2A would require a 3,290-square foot expansion of the highway easement. The expansion of the highway easement would provide Caltrans the same rights to the expanded area as exist for the area that is currently covered by the existing highway easement.

All right of way related activities will be performed in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as Amended.

Avoidance, Minimization, and/or Mitigation Measures

All of the Build Alternatives would require real property acquisitions. Areas affected by temporary construction easements would be returned to previous use upon completion of construction. Therefore, avoidance, minimization, and/or mitigation measures are not required.

2.1.4.3 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 2018, this was $25,100 for a family of four[4].

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 B of this document.

Affected Environment

Analysis of environmental justice impacts is a two-step process; the first is determining the presence of protected populations (minority or low-income populations), and the second is determining if the Project has a disproportionate adverse impact to minority and/or low-income populations.

Minority Population

Minority populations include American Indian, Asian or Pacific Islander, Black, and Hispanic population groups. **Table 2-11**: **Population and Housing Demographic Data of Population and Housing Study Area Census Tracts**, provides the percentage of racial demographics within the county, cities, and census tracts included in the study area.

Orange County's percent of Hispanic population is low in comparison to census tract groups within the study area. Orange County has a 34 percent Hispanic population while the lowest

[4] https://aspe.hhs.gov/poverty-guidelines

percentage of all census tracts within the study area is 44 percent. Hispanic populations in the study area census tracts range from 44.0 to 69.0 percent. The highest percentage being 69, is found in census tract 762.04.

Table 2-11: Population and Housing Demographic Data of Population and Housing Study Area Census Tracts

	Tract 760.00	Tract 761.01	Tract 762.04	Tract 836.03	City of Anaheim	City of Orange	Orange County
Total Population	8,371	8,933	4,492	6,212	336,265	136,386	3,010,232
Total minority[6] (%)	60%	67%	79%	66%	73%	53%	56%
Hispanic or Latino[7] (%)	45%	46%	69%	44%	53%	38%	34%
Race Minority [8] (%)	35%	42%	46%	43%	47%	33%	39%

Source: U.S. Census Bureau 2010 (Table P5, P12), 2016 (Table B17201, BB25077).

Low Income Population

The poverty level according to the Department of Health and Human Services for the Federal Fiscal Year 2018 guidelines is $25,100 for a family of four[5]. The median household income for all community study area groups shown in **Table 2-8: Household Characteristics in and Around the Study Area** is above the Department of Health and Human Services Threshold. The U.S. Census Bureau 2010 weighted average poverty threshold for individuals was used for the purpose of identifying low-income population within the study areas. According to Census estimates, poverty threshold for individuals is the income of $12,140. **Table 2-12: Income of Population in the Study Area** provides the percentage of individuals below poverty levels within census tracts and the cities and the county represented in the project study area.

Table 2-12: Income of Population in the Study Area

	Tract 760.00	Tract 761.01	Tract 762.04	Tract 863.03	City of Anaheim	City of Orange	Orange County
Individuals with Income Below Poverty Levels (%)	12%	10%	26%	9%	17%	13%	13%
Median Household Income ($)	$61,120	$77,702	$61,366	$73,495	$60,752	$78,513	$76,509

Sources: U.S. Census Bureau 2010 (Table P5, P12), 2016 (Table B17201, BB25077)

According to **Table 2-12: Income of Population in the Study Area**, 17 percent of individuals in the city of Anaheim have income below the poverty level. The city of Orange has 13 percent. **Table 2-12** also shows census tract 762.04 has almost triple the percentage of individuals with income below poverty levels than census tract 863.03.

[5] https://aspe.hhs.gov/poverty-guidelines

In addition, pockets of higher concentrations of minority and low-income populations likely exist at scales smaller than the census tract level, such as in the various mobile home parks and multi-family housing units as described in the Community Impacts Section 2.1.4.2, Housing.

Environmental Consequences

Temporary Impacts

Alternative 1- No Build

No construction is proposed under the Build Alternative; therefore, it would not directly impact low income and minority populations or the community as a whole.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternative

The proposed Project would have both adverse and beneficial impacts, as discussed in previous sections of this chapter. Environmental justice populations in the study area would experience these impacts as part of the general population and not specifically as a group. Project construction could cause temporary delays and detours on and around SR 57 in the study area, but these impacts would not be disproportionately borne by any low-income or minority individuals.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not directly impact low income and minority populations, but could result in indirect adverse impacts by not addressing existing and projected future increases in traffic congestion on the 1-mile segment of SR 57. As a result, travel to, from, and within the study area could be delayed for people who rely on SR 57 to get around, including environmental justice populations. However, these impacts would affect study area populations regardless of race, ethnicity, or income; therefore, the No Build Alternative would not result in disproportionate adverse impacts to environmental justice populations.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternative

None of the Build Alternatives would result in relocations or be expected to impact community cohesion, land use, public services, emergency services, or other community components. The planned improvement is located within existing Caltrans right of way and would not divide any community, affect or alter its character, or have the potential to disrupt any community activities.

The proposed Project would be expected to improve traffic congestion and safety conditions for all users and would not exclude the protected populations from the project's benefits. Closure of the Orangewood Avenue on-ramp under Alternatives 2A and 2B would result in minimal impacts because westbound access to SR 57 from Orangewood Avenue would be maintained via

the existing loop ramp currently used by drivers traveling east on Orangewood Avenue. Sidewalks at intersections impacted by the Project would be constructed according to ADA standards and there would be no impact to public transportation, a service transit dependent populations often rely on to access jobs, social networks, recreation, and other important facilities. Furthermore, the expected decreases in traffic congestion and delay as a result of the Project would be a net benefit for all community members traveling to, within, and from the study area, including environmental justice populations.

Overall, adverse and beneficial impacts from the Project would not be expected to be disproportionately experienced by environmental justice populations. Though minority and low-income populations exist within the study area, they are located throughout the study area and do not appear to be concentrated where they could disproportionately bear project impacts.

Avoidance, Minimization, and/or Mitigation

Based on the above discussion and analysis, the Build Alternatives would not cause disproportionately high and adverse effects on any minority or low-income environmental justice populations in accordance with the provisions of Executive Order 12898. No further environmental justice analysis is required.

2.1.5 Utilities/Emergency Services

2.1.5.1 Affected Environment

This section was prepared based on the Draft Project Report which uses a variety of informational sources including: Caltrans as-built plans, Right of Way Data Sheets, and Utility Plans. The Emergency Services section is based on the *State Route 57 Northbound Improvement Project Community Impact Assessment* (June 2018).

Many public utilities are located within the project area (i.e., the area disturbed during construction or in the freeway right of way). These include communication, electrical, water, and solid waste/sewer lines. Most of the existing utility lines are located within public right of way. Local jurisdictions along the project corridor provide public services. Additionally, there are private service providers. Descriptions of utilities, emergency service providers, and the Project's potential operational effects are described below.

Utilities

The major suppliers for utilities in the project area are listed in **Table 2-13: Utilities Serving the SR-57 Project Corridor** below. Utility infrastructure in the project study area includes storm drains, water lines, sewer lines, fiber optic cables and electric power.

Table 2-13: Utilities Serving the SR-57 Project Corridor

Utility Category	Utility Owner in the Project Area
Electricity	• Southern California Edison • City of Anaheim
Water	• City of Orange • Orange County Water District • City of Anaheim • Orange County Sanitation District
Sewer	• City of Anaheim • Orange County Sanitation District
Storm Drainage	• City of Orange • City of Anaheim • Orange County Flood Control Division (Santa Ana River)
Communication (Telephone, Cable, and Fiber Optics)	• Southern California Edison • MCI • AT&T • Caltrans

Source: Caltrans, SR 57 Utility As-Built Exhibit 2017.

Emergency Services

Fire Protection to the City of Anaheim and City of Orange is provided by the City of Anaheim Fire Department and the City of Orange Fire Department respectively. The closest stations are listed in **Table 2-14: Fire Stations in a 1-mile buffer of the project area**. Only stations located within a mile of the proposed project area are listed.

Table 2-14: Fire Stations in a 1-mile buffer of the project area

Station Number	Jurisdiction	Address	Distance
Station #07	City of Anaheim	2222 East Ball Road, Anaheim	4,400 feet
Station #05	City of Orange	1345 West Maple Avenue, Orange	3,900 feet
Station #06	City of Orange	345 City Drive South, Orange	1 mile

Source: City of Anaheim Fire Department, City of Orange Fire Department 2018.

Police Protection for the project site area is provided by the Orange Police Department located at 1107 North Batavia Street, Orange, approximately 1 mile east of the proposed project area and by the Anaheim Police Department, Main Station, located at 425 South Harbor Boulevard, Anaheim, located approximately 2.8 miles from the proposed project area.

Police services on freeways in California, including SR-57, are provided by the California Highway Patrol. The nearest California Highway Patrol office is located at 2031 East Santa Clara Avenue, in the City of Santa Ana approximately 3.0 miles east of the study area.

In addition to larger medical facilities like St. Joseph Hospital, several smaller medical services near the Project also provide ambulance service.

2.1.5.2 Environmental Consequences

Temporary Impacts

Alternative 1- No Build

Under the No Build Alternative, there would be no improvement to or construction on SR-57. Therefore, the No Build Alternative would not result in temporary effects on utilities and emergency services.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Utilities

No utility relocations outside of Caltrans right of way are required. Existing utilities are primarily located under the existing cross streets, transverse to the freeway right of way. None of the streets will be substantially modified to the point that any of the existing utilities would be affected. Utilities noted within Orangewood Avenue (fiber optics) and within the Santa Ana River Bridge (sewer and groundwater replenishment) would be protected in their original locations under all Build Alternatives, except for Caltrans-owned and -operated fiber optics/electric lines within the freeway right of way that would be relocated within Caltrans right of way. Existing utility service would be maintained through and after project construction.

Emergency Services

All Build Alternatives would require partial closure of the freeway and full and partial closure of the northbound Orangewood on-ramps and northbound Katella Avenue off-ramp. Roadway closures would be required to set-up and take down falsework for the bridge structures at Orangewood Avenue (bridge No. 55 0481) and at Douglass Avenue (bridge No. 55 0399). Partial freeway closures (one lane closure at most in the northbound direction only) would be required for the installation of K-rail and concrete operations. Pavement markings would be completed overnight and would not result in a full closure of the freeway.

Full and partial ramp closures are anticipated for the ramp improvements at Orangewood Avenue and Katella Avenue. Full closure of the ramps would only occur during the overnight period which is between 10:00 p.m. and 5:00 a.m. During closure of the ramps, detour routes would be provided to direct traffic to adjacent ramps per the project TMP.

Partial freeway and partial and full ramp closures for construction of the Build Alternatives, could result in delays for emergency services providers to/from emergency scenes. During ramp closures, detour routes would be identified, coordinated and approved by Caltrans and the affected local agencies prior to the closure per the project TMP. Emergency providers, as well as fire and police departments shall be notified in advance about the detour routes and the planned closures. During partial lane closures and ramp closures, a changeable message sign could be

used to provide information that can be accessible for travelers to make informed decisions regarding their travel plans. To minimize impacts, full ramp closures will only occur at nighttime. Reasonable access would be provided to law enforcement and emergency services as required. The project TMP provides incident management, construction strategies, demand management, alternative route and detour strategies, as well as a contingency plan to address construction related effects to travel patterns and access. The TMP addresses traffic delays and provides for public notification of closures, detours and potential delays to assist in minimizing impacts to emergency access and response times.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative would not result in permanent effects on utilities and emergency services.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

After project completion, operational improvements are expected to reduce congestion along the Project corridor, which in turn could improve response times for emergency services that use SR 57 to move throughout the area. Since the Project would not affect population growth or residential developments, there would be no change in demand for emergency services as a result of the Project.

Under Alternatives 2A and 2B the existing westbound Orangewood Avenue on-ramp would be closed. Westbound traffic that used the ramp would be redirected to a new second left-turn lane. The SR 57 northbound loop on-ramp would be realigned to accommodate the westbound left turn movements and the westbound Orangewood Avenue approach leg would be configured with dual left turn lanes to accommodate the future left turn volumes. Closure of the westbound Orangewood ramp would improve the weaving distance between the Orangewood on-ramp and Katella Avenue off-ramp, which would improve traffic operations in this segment of the freeway, including access by emergency vehicles. Closure of the westbound Orangewood Avenue on-ramp is not expected to create delays in emergency response times as described in Section 2.1.6, Traffic and Transportation.

2.1.5.3 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternatives would not result in temporary or permanent utility or emergency services related impacts. No avoidance, minimization or mitigation measures are required.

2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.6.1 Regulatory Setting

The Department, as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 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 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The 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.

2.1.6.2 Affected Environment

Information for this section was prepared using the Traffic Operations Analysis Report (April 2018).

Study Area

The Study Area includes all freeway segments and interchange ramps (i.e., merge/diverge areas and weaving segments) on northbound SR 57 from immediately south of the Chapman Avenue loop on-ramp to immediately north of the Katella Avenue direct on-ramp. The analysis also includes the ramp terminus intersections at all interchanges within the study area, and arterial intersections that are in the immediate vicinity.

Methodologies

The proposed Project is scheduled to be open to traffic in 2025. The design year for design of the proposed Build Alternatives is 2045. Therefore, the traffic analysis was conducted for the following future conditions:

- Existing Conditions – (2016)
- Alternative 1 (No Build) – Opening Year (2025)
- Alternative 1 (No Build) – Design Year (2045)

- Alternatives 2 (Preferred Alternative), 2A, 2B (Build Alternatives) – Opening Year (2025)
- Alternative 2 (Preferred Alternative), 2A, 2B (Build Alternatives) – Design Year (2045)

Forecasted Traffic Volumes

Opening Year (2025)

Opening Year refers to the year that the construction period ends and the Project is open to operation. Opening Year is used to determine the direct impacts the Project would have on traffic versus the existing conditions. The Opening Year (2025) traffic forecasts for the No Build Alternative were developed based on the forecasts from the latest version of the Orange County Traffic Analysis Model (OCTAM) 2035 Constrained Model which is consistent with SCAG 2012 Regional Transportation Plan (RTP). OCTAM was further developed using post-processing procedure to include traffic growth due to programmed or planned future cumulative (related) development projects. The 2025 freeway and intersection turning movement volumes were estimated by applying an overall compounded growth factor of 3.6 percent used in the *Platinum Triangle Expansion Project Traffic Study*. Similar to Alternative 1, the 2025 traffic forecasts for the Preferred Alternative were also developed using OCTAM. The OCTAM 2035 Constrained Model network was updated by including the Preferred Alternative geometry assumptions which are the sixth general purpose lane for SR 57 northbound mainline segment from Orangewood off-ramp to Katella off-ramp and the second lane for the Katella off-ramp. Since the year 2025 was not explicitly available from OCTAM, the traffic volumes for this analysis year were estimated. The 2025 freeway and intersection turning movement volumes were also estimated by applying an overall compounded growth factor of 3.6 percent. The 2025 intersection and freeway mainline traffic forecasts for Alternatives 2A and 2B are the same as the Preferred Alternative, except for the SR 57 northbound off-ramp intersections at Orangewood Avenue due to the proposed closure of the SR 57 northbound direct on-ramp under 2A and 2B Alternatives. The closure of this northbound direct on-ramp will shift westbound Orangewood Avenue traffic currently turning right onto northbound SR 57 to a left turn onto the SR 57 northbound loop on-ramp. The SR 57 northbound loop on-ramp would be realigned to accommodate the westbound left turn movements and the westbound Orangewood Avenue approach leg would be configured with dual left turn lanes to accommodate the future left turn volumes. Closure of the SR 57 northbound direct on-ramp would eliminate the two, successive adjacent on-ramps along the freeway mainline at the Orangewood Avenue interchange.

Design Year (2045)

The design year refers to the year that the facility would efficiently accommodate traffic demands. The design year takes into consideration regional land use changes, and other regional improvements in order to reflect the cumulative effect the Project has on the facility and its traffic.

The 2045 traffic forecasts for No Build were also developed using the same methodology outlined in the previous section. The 2045 freeway mainline volumes were estimated using a compound growth rate of 4.9 percent derived from OCTAM, while the 2045 intersection turning movements were estimated using the *Platinum Triangle Expansion Project Traffic Study* growth factor. The 2045 traffic forecasts for the Preferred Alternative were also developed using the same methodology. The 2045 freeway mainline volumes were estimated using a compound growth rate of 5.3 percent derived from OCTAM, while the 2045 intersection turning movements were estimated using the *Platinum Triangle Expansion Project Traffic Study* growth factor. The 2045 intersection and freeway mainline traffic forecasts for Alternatives 2A & 2B are the same for the intersections except for the SR 57 northbound off-ramp at Orangewood Avenue due to the proposed closure of the SR 57 northbound direct on-ramp.

Basic Freeway Segments and HOV Lane

Directional peak hours volumes on basic freeway segments were analyzed using the methodology contained in "Chapter 11 – Basic Freeway Segments" of the Highway Capacity Manual (2010), with calculations performed using the HCS2010 software version 6.90. The LOS criteria for basic freeway segments is presented in **Table 2-15: Basic Freeway Segments LOS Criteria**.

Table 2-15: Basic Freeway Segments LOS Criteria

Level of Service	Density (pc/ln/mil)
A	< 11
B	> 11 to 18
C	> 18 to 26
D	> 26 to 35
E	> 35 to 45
F	> 45

Source: TRB, HCM 2010.

The high-occupancy vehicle (HOV) lane was evaluated as a separate facility and was not included in the analysis of the basic freeway segments. The *Highway Capacity Manual (2010)* does not offer a detailed approach on how to analyze the level of service for an HOV lane. Since no method is available, Caltrans' guidelines for HOV facilities were considered to evaluate the performance of the HOV lane. Caltrans recommends a maximum HOV facility volume of 1,600 vehicles per hour per lane for a one-lane buffer-separated HOV facility. This HOV capacity, which is lower than the capacity for a general-purpose freeway lane, reflects Caltrans' desire for HOV facilities to operate at level of service that is better than LOS E.

Freeway Merge and Diverge Segments

Peak hour volumes along the ramp merge and diverge areas were analyzed based upon the methodology documented in "Chapter 13 – Freeway Merge and Diverge Segments" of the *Highway Capacity Manual (2010)*, with calculations performed using the *HCS2010* software version 6.90. The LOS criteria for freeway merge and diverge segments is presented in **Table 2-16: Freeway Merge and Diverge Segments LOS Criteria**.

Table 2-16: Freeway Merge and Diverge Segments LOS Criteria

Level of Service	Density (pc/ln/mil)
A	< 10
B	> 10.1 to 20
C	> 20.1 to 28
D	> 28.1 to 35
E	> 35
F	Demand exceeds capacity

Source: TRB, HCM 2010.

Freeway Weaving Segments

Peak hour volumes along the weaving segments were analyzed using the methodology contained in "Chapter 12 – Freeway Weaving Segments" of the *Highway Capacity Manual (2010)*, with calculations performed using the *HCS2010* software version 6.90. The HOV lane was treated as a separate facility and was not included in the analysis. The LOS criteria for weaving segments is presented in **Table 2-17: Freeway Weaving Segments LOS Criteria**.

Table 2-17: Freeway Weaving Segments LOS Criteria

Level of Service	Density (pc/ln/mil)
A	< 10
B	> 10 to 20
C	> 20 to 28
D	> 28 to 35
E	> 35 to 43
F	> 43

Source: TRB, HCM 2010.

Intersection Operations

Each study intersection was analyzed to determine peak hour operations and levels of service. The LOS for signalized and unsignalized intersections is generally based on delay values using the *Highway Capacity Manual (2010)* methodology. These values are calculated using the average delay (in seconds) per approaching vehicle. **Table 2-18: Signalized Operations LOS Criteria and Definitions** and **Table 2-19: Unsignalized Intersections LOS Criteria** present the LOS definition for signalized and unsignalized (stop-controlled) intersections, respectively. The *Synchro* software version 8.0 was used to analyze peak hour intersection traffic operating conditions. This is a widely accepted tool used to calculate LOS based on the delay methodology presented in the *Highway Capacity Manual (2010)*, which is the industry standard for analyzing traffic intersection operating conditions.

Table 2-18: Signalized Operations LOS Criteria and Definitions

Level of Service	Average Vehicle Delay (Seconds)	Definition
A	≤ 10	EXCELLENT. No vehicle waits longer than one red light and none of the approach signal phases are fully used.
B	> 10 to 20	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	> 20 to 35	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	> 35 to 55	FAIR. Delays may be substantial during portions of the peak hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	> 55 to 80	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: TRB, Interim Materials on Highway Capacity Transportation Research Circular No. 212 1980; TRB, HCM 2010.

Table 2-19: Unsignalized Intersections LOS Criteria

Level of Service	Average Vehicle Delay (in seconds)
A	< 10
B	> 10 to 15
C	> 15 to 25
D	> 25 to 35
E	> 35 to 50
F	> 50

Source: TRB, HCM 2010.

Intersection Control Evaluation (ICE)

Caltrans Traffic Operations Policy Directive 13-02, *Intersection Control Evaluation (ICE)* is a directive issued by Caltrans for all highway intersection projects, including both new construction and intersection improvements. The purpose of the directive is to provide a more balanced or holistic approach to the consideration and selection of access strategies and concepts during transportation planning, project identification, and initiation processes that contemplate the addition, expansion, or "full control" of intersections. In relation to this Project, ICE analysis focused on the existing SR 57/Orangewood Avenue interchange (currently operating under signalized conditions for a conventional diamond and loop-ramp operation) under yield-controlled (roundabout), and signalized-control (diverging diamond) scenarios.

ICE analysis consists of a two-step process, 1) Access Strategy and Configuration Assessment/Screening, and 2) Engineering Analysis.

The objective of step one (Access Strategy and Configuration Assessment/Screening) is to identify access solution concepts meriting further consideration. This approach focuses the expenditure of engineering resources on access strategies and configurations that should meet the transportation purpose and need consistent with system performance goals, the project context (including the needs and values of local communities), and financial constraints. This normally requires a planning-level capacity analysis to identify the preliminary size or footprint of the intersection. The footprint is usually based on the number and length of the approach lanes for a specific control strategy during the project design period or service life. The preliminary footprint evaluation determines if specific strategies are context-appropriate and practical to implement.

The objective of step two (Engineering Analysis) is to evaluate access alternatives. Step two evaluation activities include, but are not limited to:

- Intersection traffic control warrant studies
- Project alternative capacity, operational and safety analysis
- Design performance checks focused on accommodating the vehicle design, pedestrians, and bicyclists
- Economic analysis based on project cost estimates, including life-cycle cost considerations
- Consultations with and recommended by the District ICE Coordinator, functional unit personnel, and ICE Technical Assistance Program (TAP) personnel.

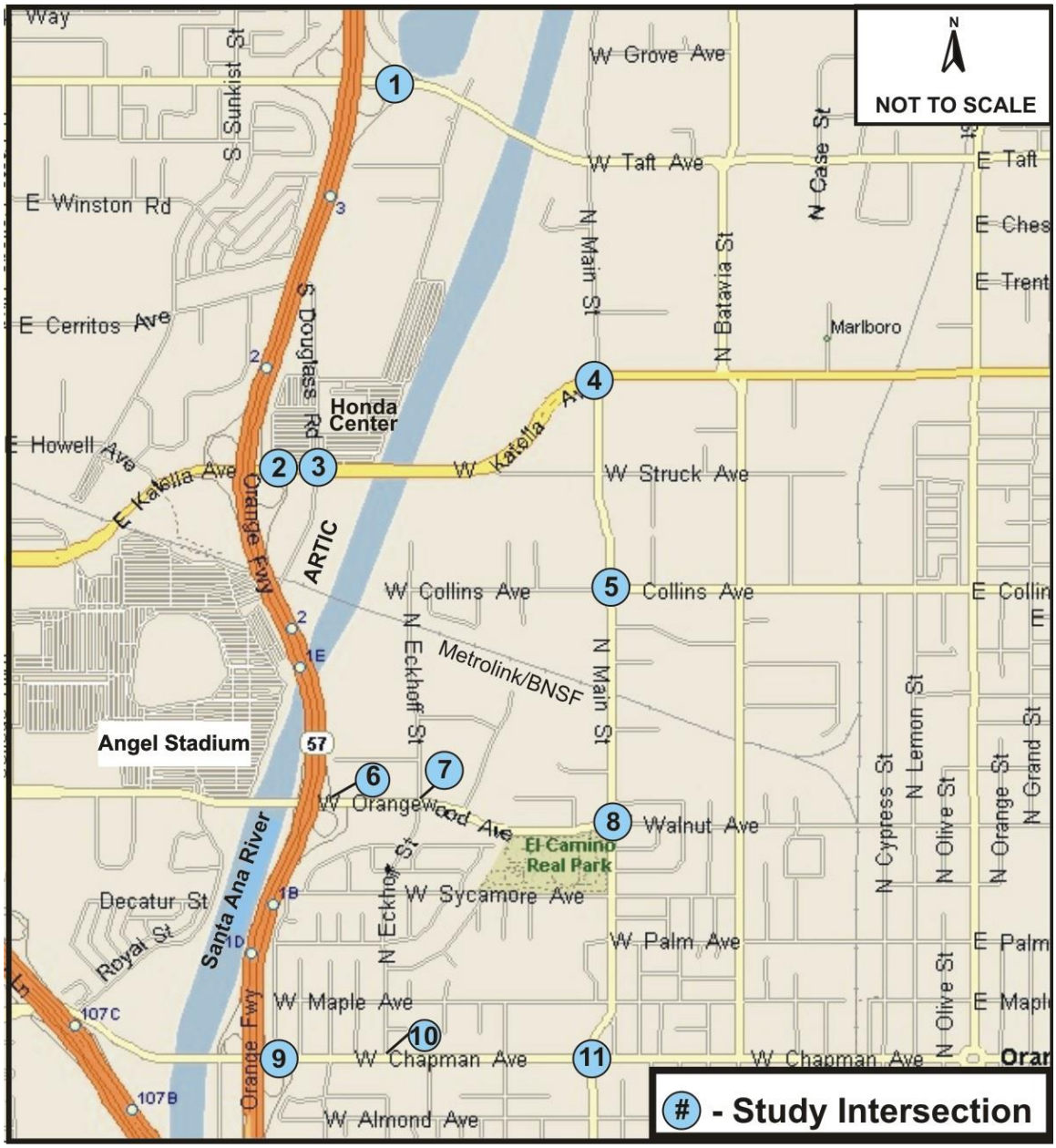
The result of step two activities is an engineering estimate and comparison of the system performance impacts, benefits, and costs expected over the design or service life of each control strategy and the No Build scenario.

Existing Conditions (2016)

Traffic Volumes

Intersection turning movement traffic counts were collected at the 11 study intersections on a typical weekday in May of 2016 when schools were in session and there were no morning or evening events at the adjacent venues. Study intersections and volumes are shown in **Figure 2-7: Study Intersections**.

Figure 2-7: Study Intersections



Source: TOAR 2018.

The counts were conducted during a two-hour morning peak period from 7:00 to 9:00 AM and during a two-hour afternoon peak period from 4:00 to 6:00 PM. Note that all SR 57 northbound on-ramps from Chapman Avenue to Ball Road operate as free right turns without stopping at the adjacent signalized intersection.

Freeway mainline and HOV lane volumes were collected from the Caltrans Performance Measurement System (PeMS) database[6]. Historical PeMS volume data for typical weekdays (Tuesday, Wednesday, and Thursday) during the month of October 2016 were extracted and averaged to obtain the AM and PM peak hour freeway mainline and HOV lane volumes. The data obtained from PeMS was taken during the October 2016 period because the percent observed was 100 percent and the average speeds during the AM and PM peak hours were 68.2 and 66.3 miles per hour, respectively. This confirms that the reported volumes took place during normal flow conditions and not during slow congested conditions. Consequently, the freeway mainline AM and PM peak hour volumes along the freeway segment between the Katella Avenue northbound off-ramp and the Katella Avenue northbound loop on-ramp were taken from PeMS and used to calculate the remainder of the AM and PM peak hour northbound freeway mainline volumes within the study area. Volumes were also obtained from the PeMS database for the same October 2016 time period. The existing freeway mainline and ramp peak hour volumes are summarized in **Table 2-20**: **Existing (2016) Freeway Mainline and Ramp Traffic Volumes**.

Table 2-20: Existing (2016) Freeway Mainline and Ramp Traffic Volumes

Segment Location	Peak Hour	Mixed-Flow	HOV
South of Chapman Avenue loop on-ramp	AM PM	7,720 5,600	440 540
Chapman Avenue loop on-ramp	AM PM	550 590	-
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	7,820 6,190	440 540
Chapman Avenue direct on-ramp	AM PM	270 330	-
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	8,090 6,520	440 540
Orangewood Avenue off-ramp	AM PM	530 220	-

[6] PeMS provides ten years of data for historical analysis. It integrates a wide variety of information from Caltrans and other local agency systems including: traffic detectors, incidents, lane closures, toll tags, census traffic counts, vehicle classification, weight-in-motion, and roadway inventory.

Table 2-20: Existing (2016) Freeway Mainline and Ramp Traffic Volumes (continued)

Segment Location	Peak Hour	Mixed-Flow	HOV
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	7,560 6,300	540 690
Orangewood Avenue loop on-ramp	AM PM	390 470	-
Orangewood Avenue loop on-ramp to Orangewood direct on-ramp	AM PM	7,950 6,770	540 690
Orangewood direct on-ramp	AM PM	190 310	-
Orangewood direct on-ramp to Katella Avenue off-ramp	AM PM	8,140 7,080	540 690
Katella Avenue off-ramp	AM PM	990 550	-
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	7,150 6,530	590 810
Katella Avenue loop on-ramp	AM PM	370 470	-
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM PM	7,520 7,000	590 810
Katella Avenue direct on-ramp	AM PM	140 310	-
North of Katella Avenue direct on-ramp	AM PM	7,660 7,310	650 1000

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

Basic Freeway Segments and HOV Lane

Table 2-21: Existing (2016) Basic Freeway Segment Analysis summarizes the existing weekday AM and PM peak hour levels of service for the Study Area freeway segments. The Study Area freeway segments are currently operating at satisfactory levels of service during both the AM and PM peak hours.

Table 2-21: Existing (2016) Basic Freeway Segment Analysis

Segment Location	Peak Hour	Existing (2016)	
		Density (pc/mi/ln)	LOS
South of Chapman Avenue loop on-ramp	AM	25.2	C
	PM	19.2	C
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM	22.3	C
	PM	17.7	B
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM	23.1	C
	PM	18.6	C
Orangewood Avenue off-ramp to lane drop	AM	21.6	C
	PM	18.0	C
Lane drop to Orangewood Avenue loop on-ramp	AM	26.4	D
	PM	21.6	C
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM	28.1	D
	PM	23.2	C
Katella Avenue off-ramp to lane addition	AM	33.1	D
	PM	29.1	D
Lane addition to Katella Avenue loop on-ramp	AM	24.7	C
	PM	22.4	C
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM	26.2	D
	PM	24.1	C
North of Katella Avenue direct on-ramp	AM	26.8	D
	PM	25.3	C

Source: TOAR 2018.

Existing AM and PM peak hour volume-to-capacity ratios for the HOV lanes segments are summarized in **Table 2-22: Existing (2016) HOV Lane Analysis**. As shown in the table, all HOV segments are currently operating within capacity.

Table 2-22: Existing (2016) HOV Lane Analysis

Segment Location	Peak Hour	Existing (2016) V/C Ratio
South of Chapman Avenue loop on-ramp	AM PM	0.28 0.34
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	0.28 0.34
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	0.28 0.34
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	0.34 0.43
Orangewood Avenue loop On-Ramp to Orangewood Avenue direct on-ramp	AM PM	0.34 0.43
Orangewood Avenue direct on-ramp to Katella Avenue off-ramp	AM PM	0.34 0.43
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	0.37 0.51
Katella Avenue loop on-ramp to Katella Avenue Direct on-ramp	AM PM	0.37 0.51
North of Katella Avenue direct on-ramp	AM PM	0.41 0.63

Source: TOAR 2018.

Freeway Weaving Segments

Table 2-23: Existing (2016) Weaving Segment Analysis summarizes the existing weekday AM and PM peak hour levels of service for the Study Area freeway weaving segment. The Study Area freeway weaving segment is currently operating at satisfactory levels of service D during both the AM and PM peak hours.

Table 2-23: Existing (2016) Weaving Segment Analysis

Segment Location	Peak Hour	Existing (2016) Density (pc/mi/ln)	LOS
Orangewood Avenue direct on-ramp to Katella Avenue off-ramp	AM PM	33.2 28.7	D D

Source: TOAR 2018.

Freeway Merge and Diverge Segments

Table 2-24: Existing (2016) Freeway Merge and Diverge Segment Analysis summarizes the Existing weekday AM and PM peak hour level of service for the Study Area freeway merge and diverge segments. The Study Area freeway merge and diverge segments are currently operating at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours.

Table 2-24: Existing (2016) Freeway Merge and Diverge Segment Analysis

Segment Location	Peak Hour	Merge/ Diverge	Existing (2016)	
			Density (pc/mi/ln)	LOS
Chapman Avenue loop on-ramp	AM PM	Merge	21.9 18.9	C B
Chapman Avenued irecto n-ramp	AM PM	Merge	20.4 18.0	C B
Orangewood Avenue off-ramp	AM PM	Diverge	28.1 23.2	D C
Orangewood Avenue loop on-ramp	AM PM	Merge	26.5 24.3	C C
Katella Avenue loop on-ramp	AM PM	Merge	24.3 23.9	C C
Katella Avenue direct on-ramp	AM PM	Merge	23.4 23.4	C C

Source: TOAR 2018.

Intersection Levels of Service

Table 2-25: Existing (2016) Intersection LOS Analysis summarizes the existing weekday AM and PM peak hour level of service for the Study Area intersections. The intersections are currently operating at satisfactory levels of service, except for North Eckhoff Street and Chapman Avenue intersections in both the AM and PM peak hours.

An off-ramp queuing analysis was also performed for the ramp terminus intersections to verify that ramp queues will not affect mainline operations. The queue lengths were evaluated using the *Synchro* software version 8.0, which accounts for 50th and 95th percentile queue lengths. The analysis indicated that all off-ramp intersections have adequate storage length.

Table 2-25: Existing (2016) Intersection LOS Analysis

Intersection	Peak Hour	Traffic Control Type	Existing (2016)	
			Delay	LOS
SR 57 Northbound Off-Ramp / Ball Road	AM	Signal	21.7	C
	PM		22.9	C
SR 57 Northbound Off-Ramp / Katella Avenue	AM	Signal	14.0	B
	PM		11.6	B
Douglass Road / Katella Avenue	AM	Signal	40.2	D
	PM		24.5	C
Main Street / Katella Avenue	AM	Signal	28.6	C
	PM		28.2	C
Main Street / Collins Avenue	AM	Signal	24.3	C
	PM		28.0	C
SR 57 Northbound On-Off Ramps / Orangewood Avenue	AM	Signal	30.6	C
	PM		20.8	C
North Eckhoff Street / Orangewood Avenue	AM	Signal	16.7	B
	PM		24.9	C
Main Street / Orangewood Avenue	AM	Signal	26.4	C
	PM		26.0	C
SR 57 Northbound Off-Ramp / Chapman Avenue	AM	Signal	10.7	B
	PM		13.8	B
North Eckhoff Street / Chapman Avenue	AM	One-Way Stop	43.5	E
	PM		78.8	F
Main Street / Chapman Avenue	AM	Signal	38.6	D
	PM		33.6	C

Source: TOAR 2018.

Pedestrian and Bicycle Facilities

Sidewalks in the Study Area are largely continuous and crosswalks are present at most intersections. Existing and proposed bicycle facilities in the Study Area are guided by the City of Anaheim's *Bicycle Master Plan* (2017), the *City of Orange Bikeways Master Plan Update* (2001), and the Orange County Transportation Authority's (OCTA) *2009 Commuter Bikeways Strategic Plan*.

The Santa Ana River Trail, an approximately 50-mile[7] Class I bike path along the Santa Ana River, is the only existing bicycle facility within the immediate vicinity of the Study Area. Other facilities adjacent to the Study Area include Class II bike lanes on Sunkist and Batavia Streets, a Class III bike route on Taft Avenue, and a Class I bike path along the Anaheim Coves (Anaheim Coves Trail).

[7] TrailLink. *Santa Ana River Trail.* (https://www.traillink.com/trail/santa-ana-river-trail/)

There are also a number of proposed bicycle facilities within the Study Area, including Class I bike paths along the Union Pacific Railroad right-of-way, the Bitterbush Channel, and Collins Channel, and Class II and Class III facilities proposed adjacent and perpendicular to the Study Area on Douglass Road, and Orangewood, Cerritos, and Katella Avenues. Existing and proposed bicycle facilities within the Study Area are presented in **Figure 2-8: Existing and Proposed Bicycle Facilities**. These bicycle facilities are not a part of this project, but are proposed by the cities of Anaheim and Orange.

2.1.6.3 Environmental Consequences

Temporary Impacts

Alternative 1- No Build

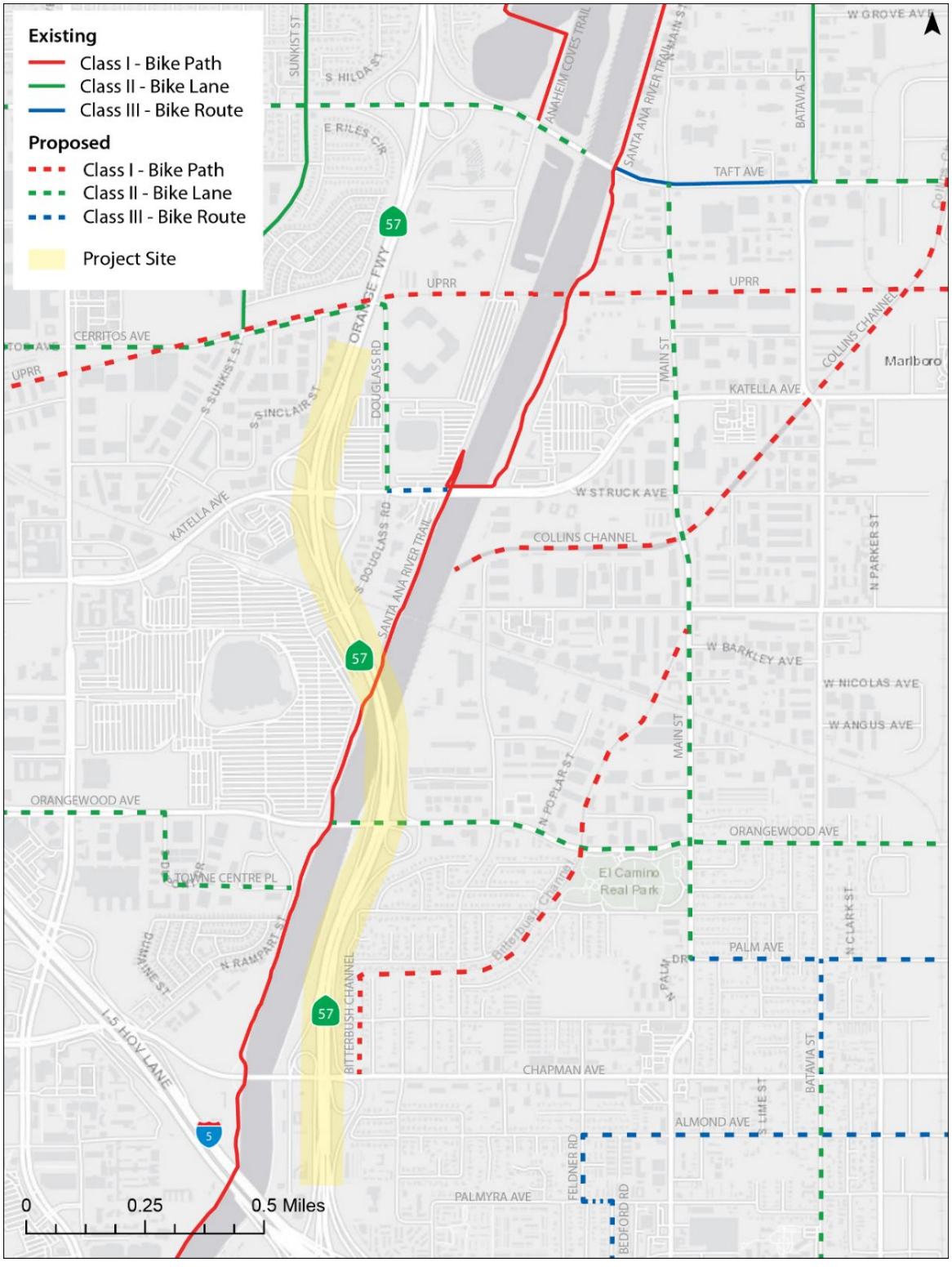
Under the No Build Alternative, no improvements are proposed and the freeway geometry would remain the same as existing conditions. Existing and projected future increases in traffic congestion would not be addressed with this alternative and the level of service would continue to decline in the future. The No Build Alternative would require no capital expenditure.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Construction of the Build Alternatives (Alternative 2 (Preferred Alternative), 2A, and 2B) is planned to require about 24 months, starting in January 2023, and ending in December 2025. The construction work zone (disturbed soil area) would be about 9.2 acres. Two temporary construction easements would be required from adjacent private property owners (1802.09 sq. ft. from City of Anaheim and 78,800 sq. ft. from OCFCD for access to an existing maintenance road and to accommodate access and construction within the river, respectively). Construction laydown or staging areas are anticipated to be accommodated within the existing freeway right of way. All Build Alternatives would result in temporary, short-term construction impacts to access and circulation, including detours and delays. Some of the short-term construction impacts are detailed below:

- **Full Facility Closures –** Full closures are anticipated for setting up and taking down false work for structures on Orangewood Avenue and Douglass Road. No full freeway closures on SR 57 are anticipated. Full ramp closures will only occur at nighttime to minimize impacts to motorists. Special consideration will be placed on closures for this Project due to the nearby Angel Stadium, Honda Center, ARTIC, and Phoenix Club.
- **Lane Modifications –** Lane modifications may be implemented to include: reduced lane widths, lane closures, reduced shoulder widths, shoulder closures, and lane shifts.

Figure 2-8: Existing and Proposed Bicycle Facilities



Source: City of Anaheim, Bicycle Master Plan (2017); OCTA, 2009 Commuter Bikeways Strategic Plan; City of Orange, Bikeways Master Plan Update (2001); City of Orange, Trails Map (2012); OCTA Bikeways Map (2015).

- **Mainline Lane Closures –** Existing number of lanes operating on SR 57 will be maintained except during nighttime or off-peak periods intermittently due to various construction activities including K-rail operations, concrete pouring, modifications to existing overhead sign panels, installation of vehicle detection systems, and installations of pavement striping. K-rail and concrete operations will require at most one lane closure on right side. Pavement markings will be completed as a nighttime operation closing half of the freeway at a time.
- **Ramp Closures/Relocation –** To allow room for ramp improvements or widening, partial and full closure of some ramps are proposed. Ramps would remain open while the number of lanes at the ramp may be reduced due to construction. These ramps include all northbound on- and off-ramps at Orangewood and Katella Avenues. During ramp closures, traffic would be detoured to adjacent ramps.
- **Other Closures –** Eastbound Orangewood Avenue right lane will be closed during parts of the loop on-ramp construction. This lane is a ramp entrance only, and will not affect throughput on Orangewood Avenue.

A TMP was prepared for the Project that includes strategies and measures to avoid and minimize disruption to local access, roadways, and bike and pedestrian facilities during construction. Temporary roadway, ramp, bike and pedestrian closures would be coordinated with Caltrans and the project team and would be limited to nighttime or off-peak hours. Detour routes would avoid routing traffic through local streets in communities and neighborhoods that are adjacent to the closure. Detour routes would be identified, coordinated, and approved by Caltrans and the affected local agencies prior to the closure. Advance planning, detour strategies, and public notifications would be provided for each full facility closure. A contingency plan would also be prepared for high-impact closures. The contingency plan would identify operations, equipment, processes, and materials that may fail and cause delayed opening of lane closures. The plan would also identify key operational decision points with a timeline listing the expected completion time of each critical path activity, as well as list and describe any and all standby equipment and secondary material suppliers to be available to complete the operations in the event of equipment failure or unexpected loss of material. In addition, emergency providers and police departments would be notified in advance about all planned closures and detour routes. Upon construction completion, detour signage and traffic signal timings would be restored to preconstruction conditions.

The TMP would be updated as needed during the design and construction phases of the Project. Bicycle and pedestrian access would be maintained during construction except during temporary short-term closures, most or all of which would happen at night. Transit routes would not be impacted. The TMP is considered a living document, subject to change as required by changing circumstances. Access to the SART/Bicycle Path would also be maintained for pedestrians, cyclists and equestrians throughout construction unless otherwise specified by the project TMP.

There is potential for flaggers, detours and/or closures to be incorporated into the TMP. Construction of any of the Build Alternatives could result in temporary construction-related delays and detours for transit users, however such impacts would be experienced by all NB SR-57 travelers. Bus routes that run along or adjacent to the project boundary, such as the 50 and 53, would be unlikely to change, be rerouted, or have bus stops changed due to construction. Delays may occur to bus routes adjacent to these boundaries due to construction limiting traffic lanes for construction purposes, but such delays and detours would be temporary and minimized by implementation of the project TMP. Katella Avenue is the closest local road to the Project that has bus routes running, whereas Orangewood Avenue does not host any bus routes.

Permanent Impacts

Alternative 1- No Build

Under the No Build Alternative, existing and projected future increases in traffic congestion would not be addressed and the level of service would continue to decline in the future. The No Build Alternative would require no capital expenditure.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Opening Year (2025)

Basic Freeway Segments

Table 2-26: Basic Freeway Segment LOS Summary (2025) summarizes the weekday AM and PM peak hour levels of service for the Study Area freeway segments under 2025 conditions. The Study Area freeway segments are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives.

The basic freeway segments under the Build Alternative scenarios will generally maintain existing LOS, however, there will be a slight degradation in LOS (from C to D) on the Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp segment during the AM peak hour for all Build Alternatives.

Some of the segments under the Build Alternative scenarios cannot be analyzed consistently from existing to future conditions, resulting in the (-) cells in **Table 2-26: Basic Freeway Segment LOS Summary (2025)**. For example, if the existing lane currently operates as a weave lane and has its configuration changed to a basic lane in the future, there is an analytical inability to provide an operational comparison between the two types of lanes. An example illustrating this includes the Katella Avenue off-ramp to lane addition segment that is currently operating at an unsatisfactory LOS E. In all Build Alternatives, a future configuration different from its existing configuration prevents the comparison of a level of service.

Table 2-26: Basic Freeway Segment LOS Summary (2025)

Segment Location	Peak Hour	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A & 2B	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
South of Chapman Avenue loop on-ramp	AM PM	27.2 19.9	D C	27.7 19.9	D C	27.7 19.9	D C
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	24.0 18.4	C C	24.4 18.4	C C	24.4 18.4	C C
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	25.4 19.4	C C	26.1 19.4	D C	26.1 19.4	D C
Orangewood Avenue off-ramp to lane drop	AM PM	23.7 18.7	C C	-	-	-	-
Lane drop to Orangewood Avenue loop on-ramp	AM PM	29.5 22.5	D C	-	-	-	-
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	-	-	24.4 18.8	C C	24.4 18.8	C C
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM PM	32.8 25.4	D C	26.5 21.0	D C	-	-
Katella Avenue off-ramp to lane addition	AM PM	38.9 33.1	E D	-	-	-	-
Lane addition to Katella Avenue loop on-ramp	AM PM	27.6 24.6	D C	-	-	-	-
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	-	-	27.6 24.8	D C	27.6 24.8	D C
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM PM	30.4 27.9	D D	30.4 28.1	D D	30.4 28.1	D D
North of Katella Avenue direct on-ramp	AM PM	31.2 29.8	D D	31.2 30.0	D D	31.2 30.0	D D

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Project -Build scenario.
Source: TOAR 2018.

HOV Lanes

Table 2-27: HOV Lane Summary (2025) summarizes the weekday AM and PM peak hour levels of service for the Study Area HOV lanes under 2025 conditions. The Study Area HOV lanes are anticipated to operate at satisfactory levels of service during both the AM and PM peak hours for all Build Alternatives.

The HOV lanes under the Build Alternative scenarios will generally maintain existing levels of service. The Orangewood Avenue direct on-ramp to Katella Avenue off-ramp is removed in the Alternatives 2A and 2B scenario.

Table 2-27: HOV Lane Summary (2025)

Segment Location	Peak Hour	No Build V/C Ratio	Alternative 2 (Preferred Alternative) V/C Ratio	Alternatives 2A and 2B V/C Ratio
South of Chapman Avenue loop on-ramp	AM PM	0.31 0.34	0.31 0.36	0.31 0.36
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	0.31 0.34	0.31 0.36	0.31 0.36
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	0.31 0.34	0.31 0.36	0.31 0.36
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	0.37 0.44	0.38 0.46	0.38 0.46
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM PM	0.37 0.44	0.38 0.46	0.38 0.46
Orangewood Avenue direct on-amp to Katella Avenue off-ramp	AM PM	0.37 0.44	0.38 0.46	-
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	0.40 0.54	0.40 0.54	0.40 0.54
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM PM	0.40 0.54	0.40 0.54	0.40 0.54
North of Katella Avenue direct on-ramp	AM PM	0.44 0.66	0.44 0.66	0.44 0.66

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

Freeway Weave Segment

Table 2-28: Freeway Weave Segment LOS Summary (2025) summarizes the weekday AM and PM peak hour levels of service for the Study Area freeway weave segment under 2025 conditions. The Study Area freeway weave segment is anticipated to operate at satisfactory levels of service D or better during both the AM and PM peak hours for all Build Alternatives.

Table 2-28: Freeway Weave Segment LOS Summary (2025)

Segment Location	Peak Hour	No Build		Alternative 2 (Preferred Alternative)		Alternative 2A		Alternative 2B	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Orangewood Avenue Direct On-Ramp to Katella Avenue Off-Ramp	AM	37.7	E	31.6	D	34.0	D	34.3	D
	PM	31.9	D	26.2	C	28.9	D	28.9	D

Source: TOAR 2018.

The freeway weave segment under the Build Alternative scenarios is expected to experience improved LOS for both AM and PM peak hours. The segment currently operates at an unsatisfactory LOS E during the AM peak hour, and is expected to improve to a satisfactory LOS D, under all Build Alternative scenarios. The segment's existing PM peak hour LOS D is expected to improve to LOS C under the Preferred Alternative, with densities also improving under Alternatives 2A and 2B. The LOS and density forecasted for the Preferred Alternative is better than the forecast for Alternatives 2A and 2B. Since the LOS for all three build alternatives in 2025 is D or better, all build alternatives are considered acceptable in urban areas where the LOS is required to be D or better.

Freeway Merge and Diverge Segments

Table 2-29: Freeway Merge and Diverge Segment LOS Summary (2025) summarizes the weekday AM and PM peak hour level of service for the Study Area freeway merge and diverge segments under 2025 conditions. The Study Area freeway merge and diverge segments are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives.

The freeway merge and diverge segments under the Build Alternative scenarios will generally maintain existing LOS. LOS improvements are expected on the Orangewood Avenue loop on-ramp segment for both Build Alternative scenarios. For the Preferred Alternative, the LOS will improve from an existing LOS D to LOS C during the AM peak hour, and the segment will be completely removed under Alternatives 2A and 2B.

Table 2-29: Freeway Merge and Diverge Segment LOS Summary (2025)

Segment Location	Peak Hour	Merge/ Diverge	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A and 2B	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Chapman Avenue loop on-ramp	AM PM	Merge	23.4 19.7	C B	23.9 19.8	C B	23.9 19.8	C B
Chapman Avenue direct on-ramp	AM PM	Merge	22.3 18.6	C B	23.3 18.8	C B	23.3 18.8	C B
Orangewood Avenue off-ramp	AM PM	Diverge	30.0 24.0	D C	30.6 24.1	D C	30.6 24.1	D C
Orangewood Avenue loop on-ramp	AM PM	Merge	30.4 27.3	D C	27.2 25.3	C C	-	-
Katella Avenue loop on-ramp	AM PM	Merge	27.7 27.5	C C	27.8 27.6	C C	27.8 27.6	C C
Katella Avenue direct on-ramp	AM PM	Merge	26.2 26.5	C C	26.2 26.6	C C	26.2 26.6	C C

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

Intersections

Table 2-30: Intersection LOS Summary (2025) summarizes the weekday AM and PM peak hour level of service for the Study Area intersections under 2025 conditions. The Study Area intersections are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives, with the exception of the following:

- Alternative 2 (Preferred Alternative): North Eckhoff Street and Chapman Avenue (AM and PM peak hours)
- Alternatives 2A and 2B: North Eckhoff Street and Chapman Avenue (AM and PM peak hours)

The intersections under the Build Alternative scenarios will generally maintain existing LOS. The one-way stop at North Eckhoff Street and Chapman Avenue is currently operating at LOS F for both AM and PM peak hours, delay is expected to worsen under Build Alternative scenarios.

Table 2-30: Intersection LOS Summary (2025)

Intersection	Peak Hour	Traffic Control Type	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A and 2B	
			Delay	LOS	Delay	LOS	Delay	LOS
SR 57 Northbound Off-Ramp / Ball Road	AM PM	Signal	21.6 23.6	C C	21.6 23.6	C C	21.6 23.6	C C
SR 57 Northbound Off-Ramp / Katella Avenue	AM PM	Signal	13.1 9.2	B A	14.6 9.4	B A	14.6 9.4	B A
Douglass Road / Katella Avenue	AM PM	Signal	28.8 23.6	C C	32.2 24.0	C C	32.2 24.0	C C
Main Street / Katella Avenue	AM PM	Signal	32.3 32.0	C C	32.8 31.7	C C	32.8 31.7	C C
Main Street / Collins Avenue	AM PM	Signal	24.3 28.2	C C	24.3 27.9	C C	24.3 27.9	C C
SR 57 Northbound On-Off Ramps / Orangewood Avenue	AM PM	Signal	26.1 14.3	C B	20.8 12.4	C B	20.1 22.2	C C
North Eckhoff Street / Orangewood Avenue	AM PM	Signal	19.2 25.3	B C	19.8 25.6	B C	19.6 25.6	B C
Main Street / Orangewood Avenue	AM PM	Signal	32.3 27.4	C C	33.4 27.3	C C	33.4 27.3	C C
SR 57 Northbound Off-Ramp / Chapman Avenue	AM PM	Signal	9.3 16.5	A B	9.4 16.8	A B	9.4 16.8	A B
North Eckhoff Street / Chapman Avenue	AM PM	One-Way Stop	110.6 OVF	F F	149.5 OVF	F F	149.5 OVF	F F
Main Street / Chapman Avenue	AM PM	Signal	44.3 35.7	D D	44.4 35.6	D D	44.4 35.6	D D

Note: Delay – average vehicle delay in seconds; unsignalized intersection delay for stop-controlled approach
Source: TOAR 2018.

Basic Freeway Segments

Table 2-31: Basic Freeway Segment LOS Summary (2045) summarizes the weekday AM and PM peak hour levels of service for the Study Area freeway segments under 2045 conditions. The Study Area freeway segments are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives, with the exception of the following:

- Alternative 2 (Preferred Alternative): North of Katella Avenue Direct On-Ramp (AM peak hour)
- Alternatives 2A and 2B: North of Katella Avenue Direct On-Ramp (AM peak hour)

Table 2-31: Basic Freeway Segment LOS Summary (2045)

Segment Location	Peak Hour	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A and 2B	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
South of Chapman Avenue loop on-ramp	AM PM	30.4 21.6	D C	31.0 21.7	D C	31.0 21.7	D C
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	26.4 20.0	D C	26.9 20.1	C C	26.9 20.1	C C
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	28.0 21.0	D C	29.0 21.2	D C	29.0 21.2	D C
Orangewood Avenue off-ramp to lane drop	AM PM	26.0 20.3	C C	-	-	-	-
Lane drop to Orangewood Avenue loop on-ramp	AM PM	33.3 24.6	D C	-	-	-	-
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	-	-	26.9 20.5	D C	26.9 20.5	D C
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM PM	**37.6** 28.1	**E** D	29.6 23.0	D C	-	-
Katella Avenue off-ramp to lane addition	AM PM	46.3 38.0	F E	-	-	-	-
Lane addition to Katella Avenue loop on-ramp	AM PM	31.0 27.2	D D	-	-	-	-
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	-	-	31.0 27.6	D D	31.0 27.6	D D
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM PM	34.5 31.2	D D	34.7 31.7	D D	34.7 31.7	D D
North of Katella Avenue direct on-ramp	AM PM	**35.5** 33.7	**E** D	**35.6** 34.2	**E** D	**35.6** 34.2	**E** D

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

The basic freeway segments under the Build Alternative scenarios will generally maintain existing LOS, however, Build Alternatives are expected to improve unsatisfactory LOS for the Orangewood Avenue loop on-ramp to Orangewood Direct on-ramp and Katella Avenue off-ramp to lane addition segments. The former is currently operating at LOS E and D for the AM and PM peak hours, respectively, and will be improved to LOS D and C under the Preferred Alternative, and removed under Alternatives 2A and 2B. The latter is currently operating at LOS F and E for the AM and PM peak hours, respectively, and will be removed under Build Alternative scenarios.

HOV Lanes

Table 2-32: HOV Lane Summary (2045) summarizes the weekday AM and PM peak hour levels of service for the Study Area HOV lanes under 2045 conditions. The Study Area HOV lanes are anticipated to operate at satisfactory levels of service during both the AM and PM peak hours for all Build Alternatives, with the exception of the following:

- Alternative 2 (Preferred Alternative): North of Katella Avenue Direct On-Ramp (AM peak hour)
- Alternative 2A and 2B: North of Katella Avenue Direct On-Ramp (AM peak hour)

Table 2-32: HOV Lane Summary (2045)

Segment Location	Peak Hour	No Build	Alternative 2 (Preferred Alternative)	Alternatives 2A and 2B
		V/C Ratio	V/C Ratio	V/C Ratio
South of Chapman Avenue loop on-ramp	AM PM	0.34 0.38	0.34 0.39	0.34 0.39
Chapman Avenue loop on-ramp to Chapman Avenue direct on-ramp	AM PM	0.34 0.38	0.34 0.39	0.34 0.39
Chapman Avenue direct on-ramp to Orangewood Avenue off-ramp	AM PM	0.34 0.38	0.34 0.39	0.34 0.39
Orangewood Avenue off-ramp to Orangewood Avenue loop on-ramp	AM PM	0.40 0.48	0.41 0.50	0.41 0.50
Orangewood Avenue loop on-ramp to Orangewood Avenue direct on-ramp	AM PM	0.40 0.48	0.41 0.50	-
Orangewood Avenue direct on-ramp to Katella Avenue off-ramp	AM PM	0.40 0.48	0.41 0.50	0.41 0.50
Katella Avenue off-ramp to Katella Avenue loop on-ramp	AM PM	0.43 0.58	0.44 0.59	0.44 0.59
Katella Avenue loop on-ramp to Katella Avenue direct on-ramp	AM PM	0.43 0.58	0.44 0.59	0.44 0.59
North of Katella Avenue direct on-ramp	AM PM	0.48 0.72	0.48 0.72	0.48 0.72

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

The HOV lanes under the Build Alternative scenarios will generally maintain existing levels of service. The Orangewood Avenue direct on-ramp to Katella Avenue off-ramp is removed in the Alternatives 2A and 2B scenario. The North of Katella Avenue direct on-ramp will continue to operate above capacity for Build Alternatives.

Freeway Weave Segment

Table 2-33: Freeway Weave Segment LOS Summary (2045) summarizes the weekday AM and PM peak hour levels of service for the Study Area freeway weave segment under 2045 conditions. The Study Area freeway weave segment is anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives, with the exception of the following:

- Alternatives 2A and 2B: Orangewood Avenue Direct On-Ramp to Katella Avenue off-ramp (AM peak hour)

Table 2-33: Freeway Weave Segment LOS Summary (2045)

		No Build		Alternative 2 (Preferred Alternative)		Alternative 2A		Alternative 2B	
Segment Location	Peak Hour	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Orangewood Avenue Direct On-Ramp to Katella Avenue Off-Ramp	AM	1.035	F	35.0	D	38.1	E	38.3	E
	PM	35.3	E	29.1	D	32.3	D	32.4	D

Source: TOAR 2018.

The freeway weave segment under the Build Alternative scenarios is expected to experience improved densities for both AM and PM peak hours. The segment currently operates at an unsatisfactory LOS F during the AM peak hour and LOS E during the PM peak hour. The segment is expected to improve to a satisfactory LOS D, during both peak hours under the Preferred Alternative. Alternatives 2A and 2B are also expected to improve PM peak hour LOS from LOS E to LOS D, while also improving LOS in the AM peak hour from LOS F to LOS E. The LOS and density forecasted for the Preferred Alternative is better than the forecast for Alternatives 2A and 2B. Since the Preferred Alternative is forecasted to operate at LOS D, the Preferred Alternative is considered acceptable in urban areas where the LOS is required to be D or better. Alternatives 2A and 2B operate at LOS E in the AM peak hour which does not meet the threshold of acceptability.

Freeway Merge and Diverge Segments

Table 2-34: Freeway Merge and Diverge Segment LOS Summary (2045) summarizes the weekday AM and PM peak hour levels of service for the Study Area freeway merge and diverge segments under 2045 conditions. The Study Area freeway merge and diverge segments are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives.

The freeway merge and diverge segment under the Build Alternative scenarios will generally maintain existing levels of service. The Orangewood Avenue loop on-ramp is removed in the Alternatives 2A and 2B scenario.

Table 2-34: Freeway Merge and Diverge Segment LOS Summary (2045)

Segment Location	Peak Hour	Merge/ Diverge	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A and 2B	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Chapman Avenue loop on-ramp	AM PM	Merge	26.1 20.8	C C	26.6 21.0	C C	26.6 21.0	C C
Chapman Avenue direct on-ramp	AM PM	Merge	24.0 20.1	C C	25.1 19.7	C C	25.1 19.7	C C
Orangewood Avenue off-ramp	AM PM	Diverge	32.3 25.9	D C	33.0 26.0	D C	33.0 26.0	D C
Orangewood Avenue loop on-ramp	AM PM	Merge	33.3 28.9	D D	29.1 26.6	D C	-	-
Katella Avenue loop on-ramp	AM PM	Merge	30.5 29.4	D D	30.7 29.7	D D	30.7 29.7	D D
Katella Avenue direct on-ramp	AM PM	Merge	28.9 29.2	D D	28.9 29.4	D D	28.9 29.4	D D

Note: (-) denotes a segment/ramp that doesn't exist in the No Build scenario or in a Build scenario.
Source: TOAR 2018.

Intersections

Table 2-35: Intersection LOS Summary (2045) summarizes the weekday AM and PM peak hour levels of service for the Study Area intersections under 2045 conditions. The Study Area freeway segments are anticipated to operate at satisfactory levels of service (LOS D or better) during both the AM and PM peak hours for all Build Alternatives, with the exception of the following:

- Alternative 2 (Preferred Alternative): North Eckhoff Street and Chapman Avenue (AM and PM peak hours)
- Alternatives 2A and 2B: North Eckhoff Street and Chapman Avenue (AM and PM peak hours)

Table 2-35: Intersection LOS Summary (2045)

Intersection	Peak Hour	Traffic Control Type	No Build		Alternative 2 (Preferred Alternative)		Alternatives 2A and 2B	
			Delay	LOS	Delay	LOS	Delay	LOS
SR 57 Northbound Off-Ramp / Ball Road	AM	Signal	22.0	C	22.0	C	22.0	C
	PM		24.5	C	24.5	C	24.5	C
SR 57 Northbound Off-Ramp / Katella Avenue	AM	Signal	14.0	B	14.3	B	14.3	B
	PM		9.5	A	9.7	A	9.7	A
Douglass Road / Katella Avenue	AM	Signal	30.2	C	31.3	C	31.3	C
	PM		25.0	C	24.5	C	24.5	C
Main Street / Katella Avenue	AM	Signal	34.0	C	34.1	C	34.1	C
	PM		34.0	C	32.9	C	32.9	C
Main Street / Collins Avenue	AM	Signal	26.0	C	25.9	C	25.9	C
	PM		30.3	C	29.5	C	29.5	C
SR 57 Northbound On-Off Ramps / Orangewood Avenue	AM	Signal	25.9	C	20.0	B	20.3	C
	PM		13.9	B	11.9	B	20.9	C
North Eckhoff Street / Orangewood Avenue	AM	Signal	19.4	B	20.7	C	20.5	B
	PM		27.0	C	22.4	C	27.44	C
Main Street / Orangewood Avenue	AM	Signal	37.5	D	38.5	D	38.5	C
	PM		30.2	C	30.4	C	30.4	C
SR 57 Northbound Off-Ramp / Chapman Avenue	AM	Signal	9.4	A	9.5	A	9.5	A
	PM		14.7	B	15.0	B	15.0	B
North Eckhoff Street / Chapman Avenue	AM	One-Way	OVF	F	OVF	F	OVF	F
	PM	Stop	OVF	F	OVF	F	OVF	F
Main Street / Chapman Avenue	AM	Signal	51.6	D	51.7	D	51.7	D
	PM		39.4	D	39.2	D	39.2	D

Note: Delay – average vehicle delay in seconds; unsignalized intersection delay for stop-controlled approach
Source: TOAR 2018.

The intersections under the Build Alternative scenarios will generally maintain existing LOS. The SR 57 northbound on-off ramps/Orangewood Avenue intersection is expected to improve from LOS C to LOS B during the AM peak hour for the Preferred Alternative, however the North Eckhoff Street/Orangewood Avenue intersection under the same scenario hour is expected to degrade from LOS B to LOS C. The Main Street/Orangewood Avenue intersection is expected to improve from LOS D to LOS C during the AM peak hour under Alternatives 2A and 2B scenarios. The one-way stop at North Eckhoff Street and Chapman Avenue is currently operating at LOS F for both AM and PM peak hours, delay is expected to worsen under Build Alternative scenario.

Bicycle and Pedestrian Facilities

Bicycle and pedestrian facility continuity and access would not change from existing conditions. The project would not preclude future additions of bicycle lanes in the project area. Sidewalks and intersections rebuilt as a result of the Project would be completed to current standards, including ADA.

Summary

The basic freeway segments for all Build Alternatives would operate at satisfactory levels of service (LOS D or better) for the opening (2025) and design (2045) years except for the segment north of the Katella Avenue on-ramp, which would operate at LOS E in the AM for the design year under all Build Alternatives. This is an improvement compared to Alternative 1, the No Build, where one segment operates at LOS E in the opening year (2025) and three segments operate at LOS E or F in the design year (2045). The HOV lane segments are anticipated to operate below capacity for all Build and No-Build Alternatives for both opening and design years. The study freeway weave segment is anticipated to operate at satisfactory levels of service (LOS D or better) for the opening and design years with the exception for the Orangewood Avenue to Katella Off-Ramp segment under Alternative 2A and 2B, which would operate at LOS E in the AM for the design year. This is also an improvement compared to Alternative 1, the No Build, where the weave segment would operate at LOS E or F in both the opening (2025) and design (2045) year. Lastly, the study area intersections are anticipated to operate at satisfactory levels of service (LOS D or better) during the AM and PM peak hours for all Build Alternatives, except for North Eckhoff Street and Chapman Avenue during both the AM and PM peak hours for all Build and No Build Alternatives for both opening and design year.

2.1.6.4 Avoidance, Minimization, and/or Mitigation Measures

The main purpose of the project is to complete the missing gap in the fifth general purpose lane to provide lane continuity and add capacity. Closing the gap in the fifth general purpose lane would help relieve existing and future congestion, as well as improve mobility within the corridor. In addition, the project also proposes to improve existing nonstandard features, which result in bottlenecks, traffic slowing and weaving challenges within the project segment of SR 57.

The proposed project would not worsen the existing HOV lane condition nor does it improve it. Therefore, the project would have no effect on the existing HOV lanes. Likewise, the project would not worsen existing conditions for the basic freeway segments, freeway weave segment and study intersections, and in some instances, would improve operations. Therefore, the project would have no effect or a beneficial effect on the basic freeway segments, freeway weave and study intersections.

Therefore, no additional avoidance, minimization, and/or mitigation measures are needed.

2.1.7 Visual/Aesthetics

2.1.7.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, 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]).

2.1.7.2 Affected Environment

This section was prepared with information presented in the *Visual Impact Assessment* (May 2018) that was prepared for this Project. This section details the existing visual resources of the project site, potential impacts caused by the Project on existing resources, and any measures that may be able to mitigate impacts.

The project corridor is partially included in segments of SR 57 that are Caltrans Classified Landscaped Freeways, according to the December 14, 2016 list published by Caltrans. Those segments are PM 11.5 to PM 12.02 and PM 12.11 to PM 12.5 in Orange County. The segment between PM 12.02 and PM 12.11 (total of 0.08 miles or 422 feet) is not included in the listing.

A Classified Landscaped Freeway is a section of freeway with planting that meets the criteria of the Outdoor Advertising Regulations and is used in the control and regulation of outdoor advertising displays. To qualify for classification planting must be:

- Within State right of way
- Continuous (no gaps greater than or equal to 200-feet)
- Ornamental
- At least 1,000-feet in length
- On at least one side of the freeway
- Requires reasonable maintenance

Visual Setting

The project corridor is a highway that cuts through an urban landscape, bounded by features of the built environment such as surface parking lots, large buildings, and the concrete banks of the Santa Ana River. The background views as seen from the corridor include the San Bernardino and Saddleback Mountain formations.

Landscape Units

Landscape units represent areas that have similar visual features and visual character (of the natural and built environment). Based on the existing land uses and site reconnaissance, one landscape unit has been identified for the project area; the "Urban Developed Landscape Unit." For the visual impact analysis three key viewpoints were identified to be representative of the "Urban Developed Landscape Unit", of the overall or typical visual conditions of the project area and the proposed Project, and of the viewer groups identified.

Viewers

Motorists (Local Roads)

This viewer type within the Neighbors group consists primarily of area residents and nearby commuters who work locally and use local roads for their trips, but would also include some tourists who may be using local roads to access gas, food, and entertainment. This group comprises a moderately high number of viewers traveling on local roads in the project corridor. These viewers are traveling at slower speeds than highway users, which allows them some opportunity to view the surrounding scenery, although not for a long duration. Area residents and local commuters on local roads would have a high level of familiarity with the SR 57 mainline and the northbound on- and off-ramps and the bridge structures in the project area; they have frequent exposure to the project area and would be aware of changes to the visual environment.

Tourists would have a low level of familiarity with SR 57 in the project area; they have infrequent exposure and would be less aware of changes to visual resources.

Residents

This viewer type within the Neighbors group consists of a relatively small number of area residents that live in the nearby West Side and Camino Real neighborhoods. From their homes, Residents have very limited views of SR 57 and the project area because their residences are separated from the corridor by vacant right of way land, tall landscaping trees, a sound wall, and the neighboring business/office park to the north. Residents would have a high level of familiarity with local views, including the project area, and a stronger sense of ownership than the residents of the surrounding communities.

Recreationists

This viewer type within the Neighbors group consists of area residents and the general public who would be using the parks and trails near the project area, including the Angel Stadium and Honda Center which were considered in this analysis as "public recreation," and the Santa Ana River Trail which is part of a larger trail system that extends from Huntington Beach to the Orange/Riverside county line. Due to the public recreational opportunities, this group comprises a moderate to high quantity of viewers traveling to and through the project area via foot, bicycle, vehicle, bus, and train. Recreationists at the stadiums are more likely focused on the activity at these venues and not the surrounding area and therefore may be less sensitive to changes in the visual environment. Recreationists along the river trail would be more sensitive to scenic quality but not as sensitive when compared to a more pristine, less urban scenic experience.

Highway Users

This viewer group consists of the general public using the SR 57 corridor which includes: motorists traveling within and through the project corridor; commuters traveling through the corridor for work with various Orange County destinations; truck freight drivers transporting goods to the cities of Orange and Anaheim; and tourists traveling to destinations such as Disneyland, Angel Stadium, and popular coastal towns. Because motorists using SR 57 are traveling at higher speeds, they are generally paying more attention to traffic and are less aware of the surrounding visual environment. In addition, their view of the project area and project corridor is for a brief duration. Freight drivers and tourists have infrequent exposure to the project area and would be less aware of changes to visual resources. Local residents and commuters on SR 57 have a higher level of familiarity with the project area.

Visual Character and Quality

Character

The existing visual character of the project corridor is dominated by the SR 57 right of way and its connections to arterials, such as Orangewood Avenue, in the region's transportation network. The visual character of SR 57 is an urban highway; it is a wide linear element of the landscape with a continuity that flows through and beyond the project area.

The SR 57 right of way serves as a defining line or edge to the abutting cities of Anaheim and Orange, as does the Santa Ana River and trail. Land uses adjacent to SR 57 within the project corridor provide a variety of urban visual patterns that range in form and scale from the large expanse of public recreational space at Angel Stadium, to medium-sized light industrial and business commercial park areas, and to smaller scale single-family residential homes. Within the project area the foreground of views (0 to 1/2-mile from the viewer) from SR 57 include the roadway itself and the changing scale and pattern of adjacent land uses. The middle ground (1/2-mile to 5 miles from the viewer) and background (greater than 5 miles from the viewer) of views are more expansive and include the San Bernardino Mountains and Saddleback Mountain to the north and west of the project area.

Within the project corridor there is some existing vegetation, primarily located alongside SR 57 at the Orangewood Avenue interchange. This ornamental landscaping is dominated by non-native plants and species, such as the Peruvian Pepper Tree, Tree of Heaven, Treasure flower, and Mexican fan palm, that are cultivated to serve decorative purposes.

Quality

From the project area, views of the mountains, landmarks, natural landforms and urban fabric combine to provide a moderately vivid and memorable image. Visual quality is measured using three criteria: vividness, intactness, and unity.

For adjacent land uses SR 57 serves as a visual and physical boundary, or edge, to the east-west direction. At the same time, in the north-south direction it unifies elements of the landscape, such as transitions in cities and the land use pattern. The importance of the compositional harmony of SR 57 with the existing landscape is recognized by the City of Anaheim's policy, as stated in the Regulatory Setting section, to ensure that all public facilities fit well in their surroundings.

Scenic Resources

The SR 57 project area is not within a designated scenic highway, which exempts it from the Caltrans' Standard Environmental Reference Scenic Resource Evaluation. The segment of SR 57 located approximately 7 miles north of the project area (north of SR 90 within Orange County) is eligible to be designated as a state scenic highway.

Scenic resources as seen from the project corridor include the background views of the San Bernardino Mountains and Saddleback Mountain, and the foreground views of the Santa Ana River, Angel Stadium, and ARTIC. Views of the mountains are often obscured by local climatic conditions, such as fog and clouds.

Key Views

For the visual impact analysis three key viewpoints were identified to be representative of the "Urban Developed Landscape Unit", of the overall or typical visual conditions of the project area and the proposed Project, and of the viewer groups identified. Key Viewpoint 3 – From SR 57 Loop on-ramp.

Key viewpoint 3 is from the perspective of the highway users on the SR 57 loop on-ramp, looking north. Visible in the skyline is the ARTIC station

Figure 2-9: Project Corridor Key Viewpoints, shows the existing visual conditions at the three Key Viewpoints.

Key Viewpoint 1 - ARTIC Station Platform

Key viewpoint 1 is from the perspective of neighbors and recreationists on the ARTIC station platform, looking northwest at the SR 57 platform. The SCRRA railroad tracks, SR 57 platform, and the sky is visible from this existing viewpoint.

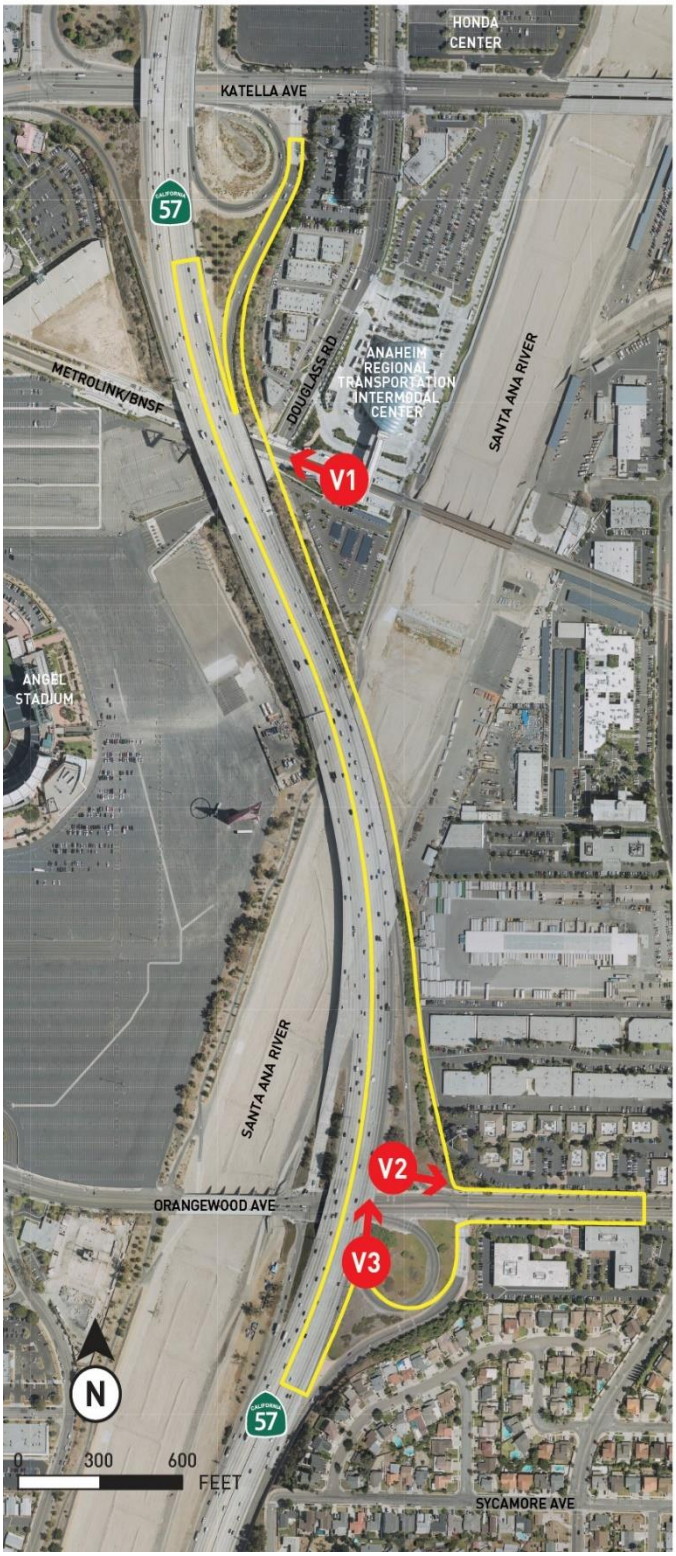
Key Viewpoint 2 – From Northbound SR 57 Auxiliary Lane

Key viewpoint 2 is from the perspective of the highway users, neighbors, and motorists (local roads) on the northbound SR 57 auxiliary lane, looking east. West Orangewood Avenue is the main roadway that is visible, with the northbound SR 57 loop on-ramp for traffic travelling east on Orangewood Avenue and the northbound SR 57 on-ramp for traffic travelling west on Orangewood Avenue also visible.

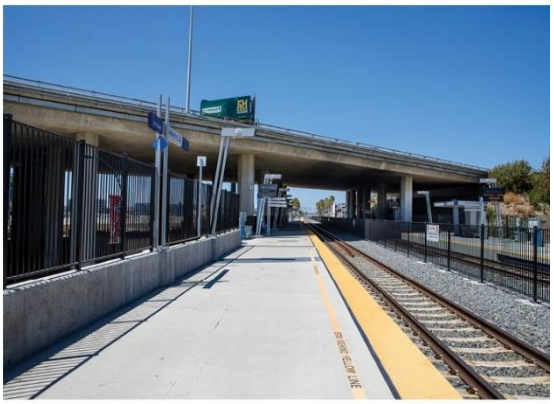
Key Viewpoint 3 – From SR 57 Loop On-Ramp

Key viewpoint 3 is from the perspective of the highway users on the SR 57 loop on-ramp, looking north. Visible in the skyline is the ARTIC station.

Figure 2-9: Project Corridor Key Viewpoints



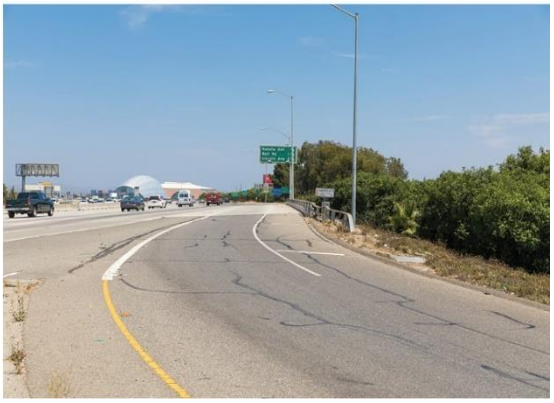
Key Viewpoint 1
ARTIC station platform, looking northwest



Key Viewpoint 2
From northbound SR 57 auxiliary lane, looking east



Key Viewpoint 3
From SR 57 loop on-ramp, looking north



Source: Visual Impact Assessment (VIA) 2018.

2.1.7.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No construction or physical changes are proposed under the No Build Alternative; therefore, no changes to the existing visual environment within the project limits are expected. Maintenance and operation activities, such as weed abatement, removal of dead vegetation, tree trimming, etc., would continue as usual and may have a minimal effect on the visual environment (typically, a positive effect).

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

During construction, the presence of equipment, workers, material stockpiles, debris, lighting and signage would introduce new elements into the visual environment that may detract from the visual quality and character of the area. Demolition activities including vegetation clearing and grading would reduce intactness and visual quality. Dust from demolition activities could affect visibility and views, as could light and glare emanating from construction lighting or reflecting off signage or machinery. Brightly colored, and potentially reflective signs or lighting serve an important safety purpose for construction workers and the public; however, they can also add a visually distracting element to views. The movement of large, typically bright yellow construction vehicles would also add a visually distracting element. Potential traffic congestion associated with work areas could also intrude upon views. These temporary impacts would reduce intactness and unity of existing views, which would have a moderate impact on visual quality; however, these impacts would be temporary. In addition, general construction specifications requiring dust control, litter removal, landscape preservation and replacement would help to maintain good housekeeping on site and minimize construction related impacts to visual quality and character. Once construction is complete, the site would be returned to preconstruction condition including new and replacement plantings.

Permanent Impacts

Alternative 1 – No Build

No construction would occur therefore; the No Build would not alter or impact the current visual or aesthetic.

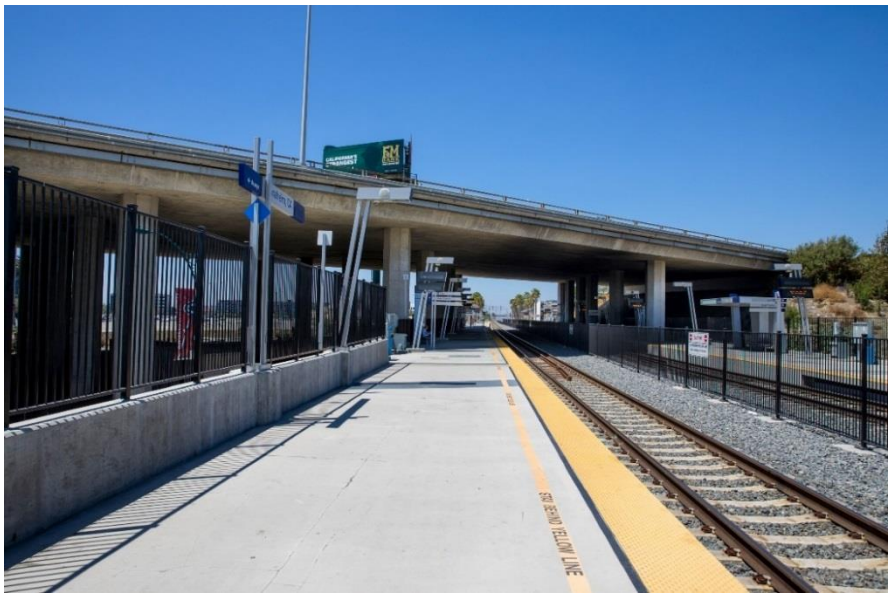
Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Visual changes associated with all Build Alternatives include widening the outside northbound side of the freeway from the Orangewood loop on-ramp to just north of the Katella Avenue northbound off-ramp and realignment of the Orangewood Avenue northbound loop ramp. Under the Preferred Alternative would also realign the Orangewood Avenue northbound ramp. Under Alternatives 2A and 2B the ramp would be removed. Under Alternative 2A a new northbound off-ramp at Katella Avenue would be constructed. The freeway widening, new ramp and changes to the Orangewood Avenue on-ramps would be at the same or similar grade to the existing freeway and ramps. Visual changes at Key Viewpoints are illustrated and described below.

Key Viewpoint 1 - ARTIC Station Platform

As shown in **Figure 2-10: Photo-simulation of Alternatives 2 and 2B for Key Viewpoint 1**, the freeway widening at the Stadium OH bridge proposed for Alternatives 2 (Preferred Alternative) and 2B would have a slightly increased bridge mass and scale as compared to the existing view. From the viewpoint of the Neighbors and Recreationists standing on the ARTIC station platform, there is minimal visual change.

Figure 2-10: Photo-simulation of Alternatives 2 and 2B for Key Viewpoint 1



Existing condition photograph taken from the ARTIC station platform, looking northwest

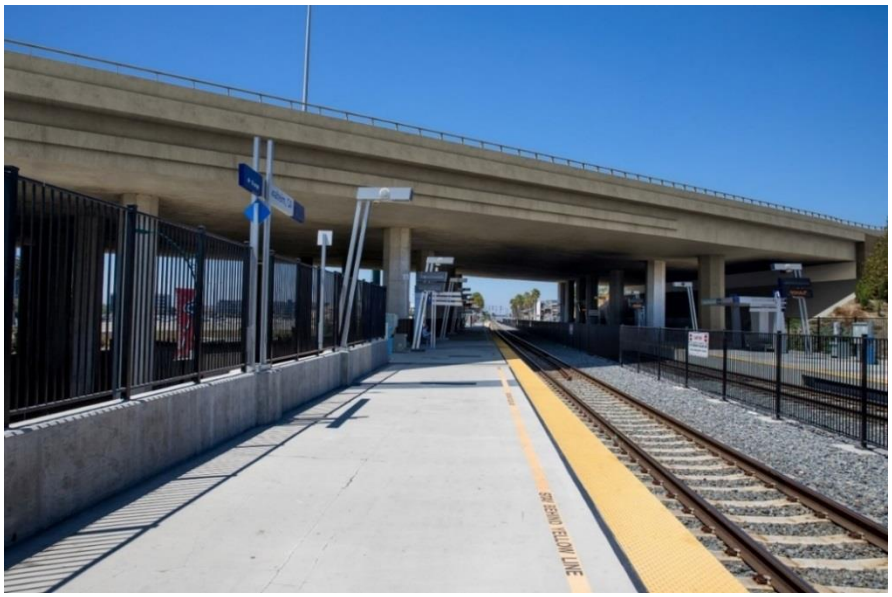


Photo-simulation condition with the proposed widening at the Stadium OH bridge
Source: VIA 2018.

As shown in **Figure 2-11: Photo-simulation of Alternative 2A for Key Viewpoint 1**, the photo simulation of the new bridge structure proposed for Alternative 2A, adds a new structure adjacent to the existing bridge, increases the visual mass, scale and dominance of SR 57 as viewed from the platform. The widened bridge notably expands the area under the bridge that is overcast by shadows as compared to the existing view.

Figure 2-11: Photo-simulation of Alternative 2A for Key Viewpoint 1



Existing condition photograph taken from the ARTIC station platform, looking northwest



Photo-simulation condition with the proposed new bridge structure

Source: VIA 2018.

Both the widened SR 57 bridge structure and new bridge structure would continue to be at the same or similar height as the existing bridge structure and therefore, would not block views of scenic vistas from the ARTIC station platform.

Key Viewpoint 2 – From Northbound SR 57 Auxiliary Lane

Figure 2-12: Photo-simulation of Alternative 2 (Preferred Alternative) for Key Viewpoint 2 shows the reconfiguration of the Orangewood Avenue westbound on-ramp to northbound SR 57 to have a 90-degree angle intersection with Orangewood Avenue proposed under the Preferred Alternative. The ramp is moved east of its current location to reduce the curvature of the on-ramp. Similarly, the westbound loop on-ramp access would be relocated eastward opposite the new location of the access to the on-ramp.

Proposed changes to the SR 57 on-ramps and to Orangewood Avenue are consistent with the existing visual character of both the highway and the local arterial road. No new structures would be added that block or alter existing views.

Figure 2-12: Photo-simulation of Alternative 2 (Preferred Alternative) for Key Viewpoint 2



Existing condition photograph taken from the northbound SR 57 auxiliary lane, looking east



Photo-simulation condition with proposed reconfiguration of Orangewood Avenue westbound on-ramp

Source: VIA 2018.

Figure 2-13: Photo-simulation of Alternatives 2A and 2B for Key Viewpoint 2 shows the Orangewood Avenue westbound on-ramp removed as part of the changes proposed under Alternatives 2A and 2B. Like the Preferred Alternative, the westbound loop on-ramp access would be relocated eastward to have a 90-degree angle intersection with Orangewood Avenue under Alternatives 2A and 2B.

Visually, the comparison of views for this location for all Build Alternatives shows minimal changes other than to the existing roadway geometry.

Figure 2-13: Photo-simulation of Alternatives 2A and 2B for Key Viewpoint 2



Existing condition photograph taken from the northbound SR 57 auxiliary lane, looking east



Photo-simulation condition with the proposed removal of the Orangewood Avenure westbound on-ramp

Source: VIA 2018.

Key Viewpoint 3 – From SR 57 Loop On-Ramp

As shown in **Figure 2-14: Photo-simulation of All Build Alternatives for Key Viewpoint 3**, all of the Build Alternatives would result in modifications to the landscaping adjacent to SR 57 and lane restriping. To maintain the Classified Landscaped Freeway designation the Project would replace landscaping that is disturbed in accordance with the qualifications for classification. There are no major differences for all the Build Alternatives as compared to the existing view in terms of mass or scale.

Figure 2-14: Photo-simulation of All Build Alternatives for Key Viewpoint 3



Existing condition photograph taken from the northbound SR 57 loop on-ramp, looking north



Photo-simulation condition with all proposed Build Alternatives
Source: VIA 2018.

As shown in the photo simulation, the widening of SR 57 would be at the same grade as the existing roadway and would not block or alter views of the surrounding area from SR 57 such as the Santa Ana River, Santa Ana River Trail and bike path, or the San Bernardino and Saddleback Mountains. No new structures are added that block or alter existing views. All of the Build Alternatives are consistent with the existing visual character and would have a low resource change at Key Viewpoint 3.

Overall, the resource change and viewer response of the Build Alternatives would result in moderate-low visual impact for the three key viewpoints assessed.

The Build Alternatives would re-pave and re-stripe the freeway, which would match the portions of SR 57 north and south of the project area and provide integrity in the material and color within the project area; thereby improving the intactness of the freeway. Vegetation removed as part of the Project would be replaced in compliance with the Project's Aesthetic and Landscape Master Plan. Mature trees within State's right of way would be retained as feasible to assist in maintaining visual quality and community character. Notably, the tall, mature trees that screen SR 57 from the views of residential viewers (center right of **Figure 2-10: Photo-simulation of Alternatives 2 and 2B for Key Viewpoint 1** and **Figure 2-11: Photo-simulation of Alternative 2A for Key Viewpoint 1**) would be maintained. Areas disturbed during construction would be revegetated with similar plantings to existing and would be maintained with a permanent irrigation system.

Context Sensitive Solutions

- Context sensitive solutions will be considered to help reflect the unique character of the community, reduce the visual effects of the Project and provide compatibility with existing resources and features. Contextual elements such as retaining walls, bridge abutments, lighting, landscaping and slopes will be considered for application of context sensitive solutions. The following context sensitive solutions are considered a part of the Build Alternatives and include standard construction and design practices that are typically implemented as part of the part of the project design and construction to avoid or minimize visual impacts:
- During construction, lighting would be shielded and/or focused on work areas to minimize ambient spillover into adjacent areas.
- Grading cuts and fills would be contoured to visually blend with the surrounding landscape to the extent practical.
- The color and aesthetic treatment of the highway and associated structures, such as retaining walls, medians, bridge abutments and columns would be applied consistently with other highway structures in the project vicinity.

- The Project would retain as much existing vegetation as possible, particularly mature trees that are located between the highway and adjacent land uses.

2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

In addition to the use of context sensitive solutions to help reduce potential impacts to visual quality and character, OCTA and Caltrans have elected to include the following measures to further reduce the visual effects of the Project:

AV -1: Replace in kind disturbed landscaping within the existing Classified Landscape Freeway segments from PM 11.5 to PM 12.02 and PM 12.11 to PM 12.5 to maintain the designation. New landscape plantings shall be consistent with the existing landscaping within the project area. A permanent irrigation system will be provided for landscape plantings.

AV - 2: In coordination with Caltrans' Landscape Architecture Unit, develop a Project Aesthetics and Landscape Master Plan for the Project. The master plan would discuss measures to preserve existing plants, preserve the freeway status, revegetate disturbed areas, address corridor themes including structure aesthetics, and screen or enhance project elements.

2.1.8 Cultural Resources

2.1.8.1 Regulatory Setting

The term "cultural resources," as used in this document, refers to the "built environment" (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including "historic properties," "historic sites," "historical resources," and "tribal cultural resources." 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 (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration (FHWA), the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department Projects, both state and local, with FHWA involvement. The 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).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties (in Section 4(f) terminology—historic sites). See Appendix A for specific information about Section 4(f).

The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term "tribal cultural resources" to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further 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 State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) between the Department and SHPO, effective January 1, 2015. For most Federal-aid Projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

2.1.8.2 Affected Environment

This section of the environmental document discloses the project's effects, or impacts, on cultural resources listed in or eligible for listing in the NRHP and/or the CRHR, how those impacts were determined, and whether and how impacts can be avoided or lessened. Information in this section is compiled from the *Archeological Survey Report* (ASR) (May 2018), *Historic Property Survey Report* (HPSR) (May 2018), and tribal consultation (see records of correspondence in **Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project** and in the HPSR).

Area of Potential Effects (APE)

In accordance with Section 106 Programmatic Agreement Stipulation VIII.A, the APE was established with Caltrans District 12's archaeologist and project manager. The APE for the project was established on May 21, 2018, in consultation with Cheryl Sinopoli, PQS Prehistoric Archaeology, and Simin Arazbegi, Project Manager.

The Project is composed of both a Direct and Indirect APE. The Direct APE measures 39.35 acres and encompasses all areas that may be directly and physically impacted by the Project. The Direct APE consists of the Project Limits of Disturbance plus a 10-foot buffer. The Indirect APE is a 100-foot buffer around the Direct APE and incorporates whole parcels where the buffer intersects a parcel. However, because only roadway striping would occur at the southern terminus, the direct and indirect APEs are coincident at this location.

The vertical APE is the maximum depth of any project-related ground disturbing work. The maximum depth of ground disturbance is approximately 10 to 12 feet for the construction of pier walls in the Santa Ana River.

Methodology

A search for archaeological and historical records was completed at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Inventory System (CHRIS) located at the State University of California, Fullerton on March 28, 2017. The record search covered a one-mile radius around the APE boundary.

In addition to the SCCIC records search, a records review that included the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), California Historical Resources Inventory System (CHRIS), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI) was conducted. A Sacred Land File search was also requested from the Native American Heritage Commission (NAHC) in March of 2017 and returned with no results of Native American sacred lands or cultural resources within a one-mile radius of the APE.

University of California Davis National Resources Conservation Service California Soils Resource Lab (UCD SoilWeb) soils maps and the United States Department of Agriculture National Resources Conservation Service (USDA-NRCS) soils descriptions, and geologic maps, both available online, were utilized for assessment of potential subsurface site preservation. Archeologists also completed an intensive-level pedestrian survey of the accessible areas of the APE in July of 2017.

Native American Consultation

- The Native American Heritage Commission (NAHC) was contacted initially in March 2017 (updated in August) for a search of the Sacred Lands File. The results were negative. Subsequently, Caltrans contacted the NAHC for a CEQA Tribal Consultation

List (AB52) in September 2017. As a result, 21 Tribes, Groups, or Individuals were sent Tribal Consultation letters by Caltrans District 12 via certified mail on September 29, 2017, to meet the requirements of AB52 and Section 106. Only four responses were received from the initial letter and follow-up attempts by phone or email conducted in October 2017. These responses are summarized below:

- Gabrielino/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson. Letter received on October 23, 2017 with a request that the tribe be retained to conduct Native American monitoring due to the consideration of potential culturally sensitive areas within the project location.
- Juaneno Band of Mission Indians Acjachemen Nation, Joyce Perry, Tribal Manager. Response letter on October 14, 2017 indicated no comments or concerns.
- Gabrielino Tongva Indians of California Tribal Council, Robert Dorame, Chairperson. Requested a digital version of the letter be sent to him on October 23, 2017. No additional response was received following the information being sent.
- Gabrielino Band of Mission Indians-Kizh Nation, Andrew Salas, Chairperson. Consultation was established beginning October 11, 2017 and continued to May 8, 2018. Chairperson Salas provided information regarding the correct placement of the Village of Hutukngna (var. spelling) which is outside the APE, as well as, additional information such as maps and articles regarding the overall project vicinity. Based on the consultation and provided evidence, it was determined that the potential to encounter cultural resources on this Project as proposed would be low given that SR-57 is mostly comprised of artificial fill in this area and the excavation required within the Santa Ana River is unlikely to yield cultural resources given the riverwash is considered too active. As such, Caltrans has sought to address the Tribe's concerns in good faith and after reasonable effort, was unable to come to agreement regarding the project area's sensitivity. Caltrans recognizes that the results will not appease Chairman Salas' concerns, and provided Chairman Salas the opportunity to monitor construction activities, but it would be on a volunteer basis and unpaid given Caltrans' policy is to have Native American monitoring in the following circumstances:
    - During all Caltrans archaeological excavations at prehistoric or historic Native American sites, including Extended Phase I, Phase II and Phase III studies, and:
    - During construction or related activities at known site locations or in areas where there is a high probability that there may be a buried archaeological site based on the geomorphology of the area.
- No further comments were received.

Historic Resources

One historic built environment resource, the former BNSF Railroad (P-30-176663), intersects the APE at the Stadium OH Bridge. Construction will occur within the OCTA right of way (widening of the overhead above the railroad), however, the project will not impact the railroad as a historic resource.

The following four bridge structures are within the APE and are listed as Caltrans Category 5 (Not Eligible for the NRHP) in Caltrans Historic Bridge Inventory:

- Santa Ana River Bridge
- Orangewood Avenue UC
- Stadium OH
- Katella Avenue
- The four bridge structures do not require evaluation or are exempt from evaluation because they meet the criteria set forth in the Section 106 Programmatic Agreement Attachment and were not eligible for inclusion in the National Register of Historic Places or California Historical Landmark.

2.1.8.3 Environmental Consequences

Temporary Impacts

Alternative 1 – No Build

No changes to the existing conditions are associated with the No Build; therefore, no impacts to any known or potential cultural resources are anticipated.

Alternative 2 (Preferred Alternative), 2A, & 2B - Build Alternatives

All proposed improvements under the three Build Alternatives would be accommodated within the existing Caltrans right of way with the exceptions noted below under each alternative discussion. No displacements of existing land uses would occur and no utility relocations are required. For Alternatives 2 (Preferred Alternative), 2A, and 2B, it is assumed that 1,803-square feet (0.04 acre) of TCE (access only) from the city of Anaheim (property owner) and 78,800-square feet (1.8 acre) of TCE from OCFCD (property owner) would be required to gain access to the existing maintenance road and riverbed, respectively. For the Preferred Alternative and Alternative 2B, widening the Stadium OH Bridge would require revising the existing highway easement to expand it by an additional 1,359-square feet (0.03 acre) for work over the existing RR tracks from the OCTA (property owner) to the state (Caltrans, freeway owner). For Alternative 2A, the new bridge structure would require revising the existing highway easement to expand it by an additional 3,290-square feet (0.08 acre) for work over the existing RR tracks.

The revised highway easement for all three Build Alternatives would be permanent with rights to access and maintain the freeway from beneath the widened or new structure.

Although widening existing structures or adding new structures under the Build Alternatives would require excavation, the SR 57 is on artificial fill that is about 20 feet in depth. The potential for encountering cultural resources is low. Maximum depth of excavation for extending the pier walls in the Santa Ana River would be about 10 to 12 feet. The potential for encountering cultural resources in the Santa Ana River is low. Other than the pier walls, less than 5 feet of ground disturbance is planned for the primary purpose of artificial fill and potential pile driving for bridge-work. This includes 3 to 5 feet for freeway embankments and slopes and 1 to 2 feet for roadbeds. No archaeological resources were previously recorded and none were observed during the field survey in the proposed project site.

Given the historic hydrogeologic setting of the Santa Ana River section in the project boundary, the riverwash sediments would be too active to contain buried archaeological deposits. The previous disturbances within the river from construction of the existing freeway and annual ground disturbing activities conducted by the OCFCD as well as the lack of prehistoric archaeological resources in the vicinity of the river result in a low potential for subsurface archaeological deposits within this segment of the Santa Ana River.

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

Pursuant to California Public Resources Code (PRC) 7050.5(b), in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27491 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains. Pursuant to PRC 7050.5(c) if the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendent (MLD). At this time, the person

who discovered the remains would contact the District Environmental Branch Chief so that they may work with the MLD on the respectful treatment and disposition of the remains.

Widening the overhead bridge will consist of crane-placed precast girders over the railroad within the OCTA right of way at the existing pedestrian platforms. This activity will span over the railroad and thus will not impact the railroad's integrity as a historic resource. Furthermore, the bridge retrofit work would occur within the bridge deck. Four Caltrans bridges were identified in the APE and would be affected by the Project, however, none of the bridges are eligible for listing in the NRHP. No historic built environment resources would be impacted by this Project.

Permanent Impacts

Alternative 1 – No Build

No changes to the existing conditions are associated with the No Build; therefore, no impacts to any known or potential cultural resources are anticipated.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

The APE is within an urban environment and has been completely disturbed by construction of SR 57, existing roads, modern commercial and residential development, and urban infrastructure. Four bridge structures are within the APE and all are listed as Category 5 (Not Eligible for the NRHP) in Caltrans Historic Bridge Inventory. However, they are considered to be ineligible for the NRHP listing and excluded from evaluation because they meet the criteria set forth in the Section 106 Programmatic Agreement Attachment. Widening the overhead bridge will consist of crane-placed precast girders over the railroad within the OCTA right of way at the existing pedestrian platforms. This activity will span over the railroad and thus will not impact the railroad's integrity as a historic resource. The finding for this Project, for the purposes of Section 106, is No Historic Properties Affected.

No prehistoric resources were identified in the APE through the record searches, Native American consultation, and the field survey.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

Standardized project measures to reduce potential impacts to cultural resources can be found in Section 1.3.1.1, Other Project Elements.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 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 (FHWA) 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."

2.2.1.2 Affected Environment

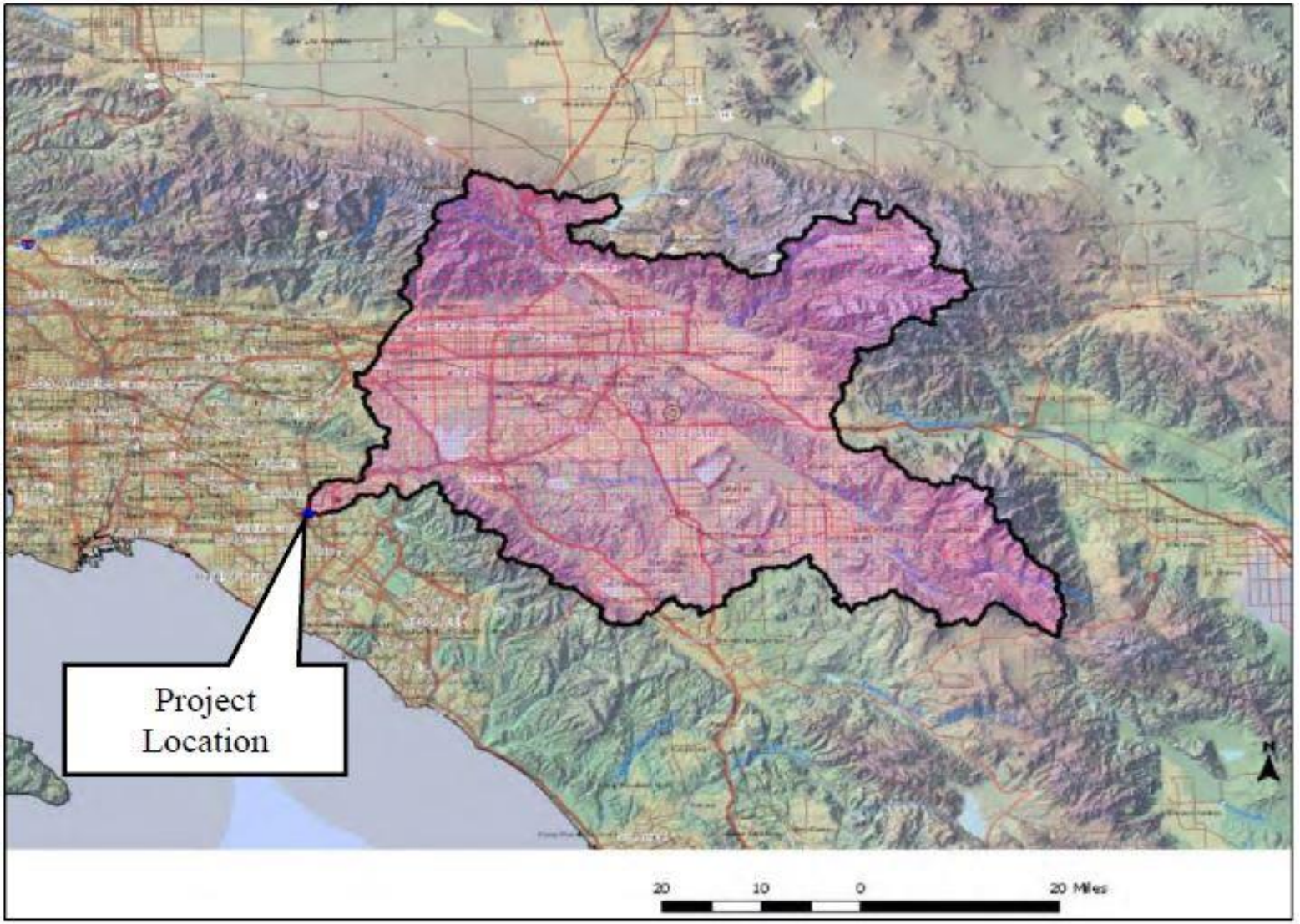
The information presented in this section draws from the Floodplain Evaluation Report (December 2017), the Water Quality Assessment Report (July 2017), the Natural Environment Study (July 2017), the Storm Water Data Report (August 2017), and the Delineation of Waters and Wetlands (Appendix to NES 2018).

Santa Ana River

The project site is an elevated roadway which crosses over the Santa Ana River along a segment of SR 57. The Santa Ana River Floodplain is located in a 2,340 square mile watershed (see **Figure 2-15: Santa Ana River Floodplain Watershed**). The Santa Ana River is a relocated tributary within the watershed, i.e., an excavated flood control facility that conveys storm water and run off from the adjacent land uses and entirety of the watershed.

The river begins in the San Bernardino Mountains, flows southwest past the cities of Anaheim, Orange, and Santa Ana and drains into the Pacific Ocean.

Figure 2-15: Santa Ana River Floodplain Watershed



Source: Santa Ana Watershed Project Authority (SAWPA), Maps 2017. http://www.sawpa.org/collaboration/maps/

The Santa Ana River Bridge, located where the SR 57 crosses over the Santa Ana River, has existing pier wall supports and retaining walls embedded within the unlined channel bed and slopes. Along the sides of the Santa Ana River, the paved Santa Ana River Trail runs along the western slope within the confines of the levees. The area is urbanized with substantial areas of impervious, paved surfaces with little or no vegetation. The River is channelized and has levee slopes grouted with stones to allow water to percolate into underground aquifers.

Precipitation and Flooding

Seasonal rainfall occurs predominantly in the winter months of December through February for this region of Southern California. Precipitation data for the Anaheim region (DWR Weather Station No. 62), located approximately 1 mile east of the Project, reports average annual precipitation within the region is 13.4 inches. As seen in the FIRM map, portions of the Project are located in either Zone A or Zone X of the 100-year floodplain. Zone A is the flood hazard area subject to inundation by the 1 percent annual chance flood event, or the 100-year floodplain. This refers to a 1 percent annual chance of potential flood depth of 1 to 3 feet. The Santa Ana River Bridge is located in Zone A of the Federal Emergency Management Agency (FEMA)'s Flood Insurance Rate Map (FIRM) panel number 06059C0142J (last revised on December 3, 2009). The Stadium OH Bridge is located in Zone X, which is an area of 0.2 percent annual chance of flood, or the 500-year floodplain. This refers to a 1 in 500 annual chance of flooding, which is a relatively low flood hazard.

Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and ground water recharge.

The existing and proposed bridge piers are within the 100-year base floodplain. According to the Santa Ana River Basin Water Quality Control Plan (Santa Ana Regional Water Quality Control Board 2016), the natural and beneficial floodplain values associated with the Santa Ana River segment that includes the Project site are agriculture, groundwater recharge, contact and non-contact recreation, warm freshwater habitat, wild habitat, and rare and endangered species habitat. The natural and beneficial floodplain values are defined for the segment of river that spans from 17th Street in Santa Ana to the Prado Dam. Technical review and survey as part of the preparation of the NES for the project has concluded that no vegetation, agriculture, or wildlife species habitat is present at the site in association with the river within the Project's boundaries. The watershed the Project is located in is highly urbanized with poor ground water recharge potential. The portion of the SAR north of the Project area consist of an unlined channel bottom with permeable sandy and pervious alluvial materials that allow for groundwater recharge; within the Project boundary, the SAR acts as a flood control channel with a lesser role

in groundwater recharge since the SR 57 project area crosses the SAR approximately 1.3 miles downstream from the recharge area.

2.2.1.3 Environmental Consequences

Temporary Impacts

Alternative 1– No Build

Under the No Build Alternative, no changes would be made to the existing environment. Therefore, the No Build would not affect the existing floodplain and hydrology of the area.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Clear water diversion may be necessary during the bridge widening construction so that the water does not interfere with construction. If needed, water diversion would begin upstream of the construction area and be diverted around the construction site and released downstream such that flows exceeding the low flow channel do not affect construction. Dewatering may also occur during construction if cast-in-drilled hole piles were to encounter groundwater. Temporary environmental impacts from construction activities for the proposed Project would be minimized with standard measures such as best management practices, and other activities that meet the requirements of the project's permit conditions. With implementation of these minimization measures, impacts to natural and beneficial floodplains would be minimal.

Permanent Impacts

Alternative 1 – No Build

Under the No Build Alternative, no changes would be made to the existing environment. Therefore, the No Build would not affect the existing floodplain and hydrology of the area.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Encroachment

Significant encroachments is defined by the Federal Highway Administration (FHWA) as any base floodplain development that would involve one or more of the following construction or flood related impacts:

1. Significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route;
2. A significant risk (potential for property loss and hazard to life) and;
3. A significant adverse impact on the natural and beneficial floodplain values would be considered a permanent impact to a flood control channel.

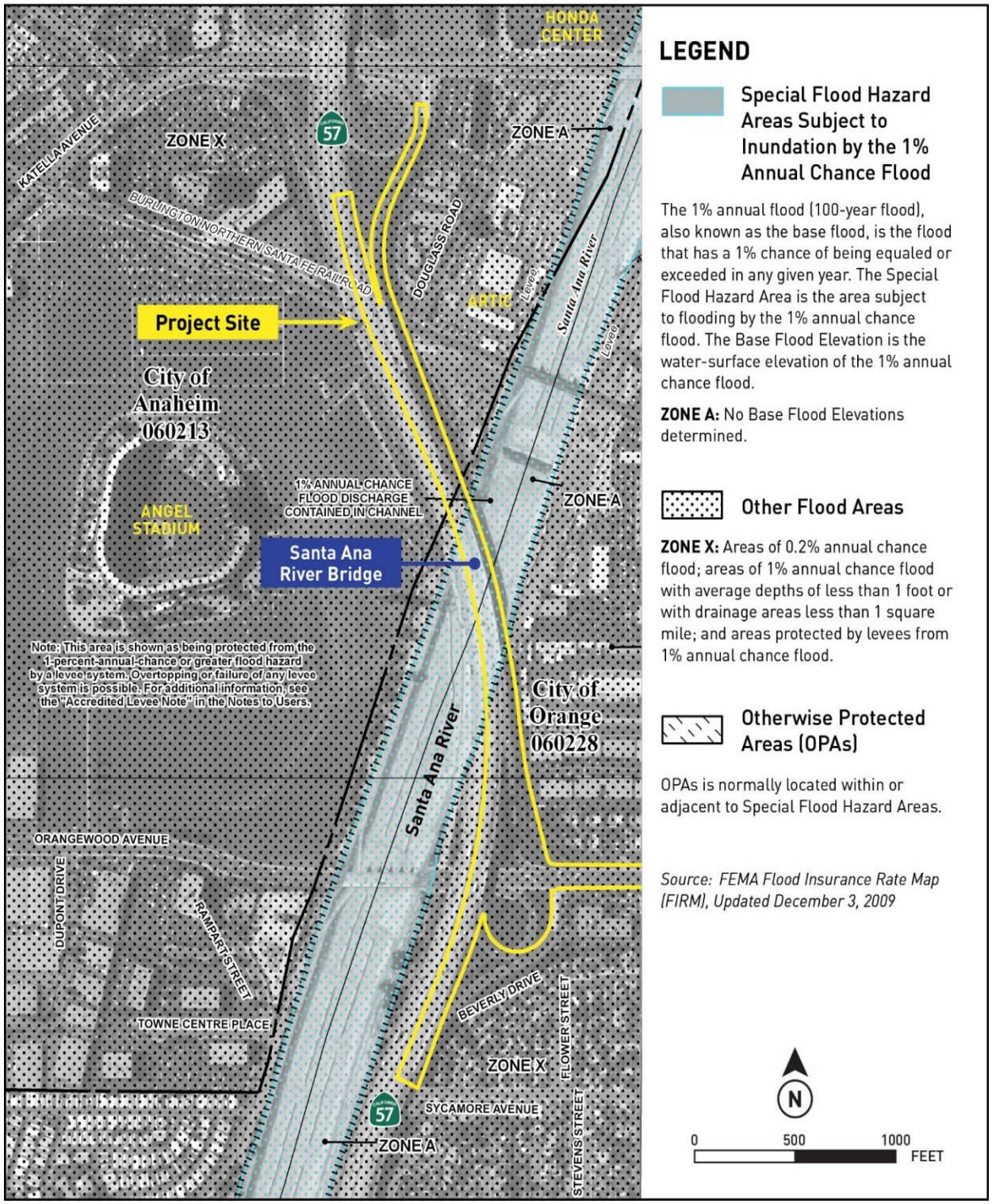
The FIRM (**Figure 2-16: FIRM Map**) shows that the existing bridge and proposed improvements are within the 100-year floodplain. The Project would widen the existing bridge platform to accommodate the proposed improvements. The widening would be along the same alignment as the existing bridge. To support the wider bridge the five existing pier walls beneath the bridge would also have to be widened. The pier walls would have to be extended an additional two feet. Hydraulic modeling was conducted to assess the effect of lengthening the bridge piers on the floodplain.

An existing hydraulic model provided by Orange County Public Works was prepared by the United States Army Corps of Engineers (USACE) for use as the base hydraulic model for the Project. Hydraulic analyses of the existing and proposed conditions used this model to project flow rates for the Santa Ana River portion of the Project for each of the alternatives. Each of the three Build Alternatives are hydraulically identical up to the highest modeled water surface elevation and flow rate. Therefore, modeling was completed for one cumulative scenario. Results showed that the proposed improvements to the Santa Ana River Bridge would raise existing water surface elevation (WSE) less than 0.1ft in. This is not considered a longitudinal encroachment to the base floodplain or an encroachment that is parallel to the direction of the river flow.

The proposed Project would not significantly change the 100-year water surface elevations within the project vicinity; therefore, a Letter of Map Revision (LOMR) is not required. The LOMR is FEMA's modification to an effective FIRM and is based on implementation of physical measures that affect the hydrology of an existing regulatory floodway, received through coordination with FEMA. Regulatory permits and approvals would be required as the Project enters into the final design phase. The Project would not trigger incompatible floodplain development; therefore, the overall risk and adverse impacts with the proposed Project are anticipated to be low.

The increase in WSE is not expected to increase erodibility of the river bed or slopes, increase sediment contribution to the river bed, or pose a risk or interruption of emergency vehicles, life, or property.

Figure 2-16: FIRM Map



Source: FEMA, Flood Insurance Rate Map (FIRM) panel number 06059C0142J 2009.

Natural and Beneficial Floodplain Values

Based on the Project's NES Biological Environmental for all alternatives, there is no vegetation or wildlife species habitat athe the Project site in association with the river. In addition, neither would agricultural value or groundwater recharge potential be impacted by the project due to their absence in the Project boundary.

Environmental impacts that could result from the construction activities could be minimized with standard measures discussed in Section 1.3.1 including but not limited to best management practices, revegetation, establishing a boundary for work around sensitive habitat, implementing erosion control measures, or other requirements that are part of the Project's permit conditions. These standard measures would reduce impacts to floodplain values and aid in the preservation of natural and beneficial floodplain values within the project limits, as well as downstream of the project site.

Therefore, there are no potential adverse effects on any natural and beneficial floodplain values due to the Project's work within the SAR.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

With the implementation of the standard measures described above, the Project will not require additional avoidance, minimization, or mitigation measures.

2.2.2 Water Quality and Storm Water Runoff

2.2.2.1 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[8] 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

[8] A point source is any discrete conveyance such as a pipe or a man-made ditch.

that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request.

- 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 USACE.
- Section 408 permitting is triggered when a project proposes to modify, alter, or occupy any existing USACE-constructed facility. For the USACE to approve any proposed alteration requests, it must meet their standards, and must not be injurious to the public interest or affect the USACE project's ability to meet its authorized purpose.

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 Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines were developed by EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (i.e., waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that 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[9] 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

[9] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

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 Section 2.3.2, Wetlands and Other Waters.

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 and Regional Water Quality Control Boards (SWRCB) and Regional Water Quality Control Boards (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, RWQCBs 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 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. (RWQCBs) 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 (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) 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 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, and effective on July 1, 2010) as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012) 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 Construction General 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 a Storm Water Pollution Prevention Plan~~s~~ (SWPPP~~s~~); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 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 SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (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 U.S. 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.

Regional and Local Requirements

As required by the Porter-Cologne Act, the Santa Ana RWQCB has established water quality objectives (WQOs) for waters within their jurisdiction to protect the beneficial uses of those waters and published them in their Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (Santa Ana RWQCB, 1995). The Basin Plan also identifies implementation programs to achieve these WQOs and requires monitoring to evaluate the effectiveness of these programs. WQOs must comply with the State anti-degradation policy (State Board Resolution No. 68-16), which is designed to maintain high quality waters while allowing some flexibility if beneficial uses are reasonably affected.

The Project lies within the boundary of the Santa Ana RWQCB, which makes water quality decisions for the region. Its responsibilities include setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions.

Basin Plans and Water Quality Objectives

All projects within the Santa Ana region are subject to the requirements of the Santa Ana RWQCB. The Santa Ana RWQCB has prepared the Basin Plan to help preserve and enhance water quality and to protect the beneficial uses of State waters. The Basin Plan designates beneficial uses for surface and ground waters, and it sets qualitative and quantitative objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy. The Basin Plan also describes implementation programs to protect the beneficial uses of all waters in the region, as well as surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan (Santa Ana RWQCB, 1995).

Dewatering Activities

Care is required for the removal of nuisance water because of high turbidity and other pollutants resulting from construction activities such as dewatering. The Santa Ana RWQCB's Dewatering Permit is identified as Order No. R8-2015-0004 (NPDES NO. CAG998001). This permit covers General Waste Discharge Requirements for Discharges to Surface Water which Pose an Insignificant (De Minimus) Threat to Water Quality from dewatering activities.

Municipal Storm Water

Section 402(p) of the CWA requires NPDES permits for storm water discharges from municipal separate storm sewer system (storm drains or MS4s) as well as other designated storm water discharges that are considered significant contributors of pollutants to waters of the United States (waters of the US) (Santa Ana RWQCB 2009). The Santa Ana RWQCB has issued a NPDES permit (Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062) and the City of Orange and the City of Anaheim are listed as permittees. The purpose of this NPDES permit is to prohibit non-storm water discharges and to reduce pollutants in

discharges to the "maximum extent practicable" to maintain and/or attain WQOs that are protective of beneficial uses of receiving waters. Provisions of this permit requires the implementation of management practices to address storm water runoff quality. The management practices represent the best practicable treatment and control of urban runoff discharges. In general the NPDES permit requires structural controls to infiltrate or treat runoff from specified storm events and recommend or require other non-structural BMPs.

As such the City of Orange and the City of Anaheim are bound to comply with all aspects of the permit requirements for any development within their right of way. For development in areas within the Caltrans right of way, the cities of Orange and Anaheim along with OCTA defer to the Caltrans MS4 permit. Therefore, the NPDES requirements for areas outside of Caltrans right of way in the cities of Anaheim or Orange are not applicable to the Project.

2.2.2.2 Affected Environment

This section discusses the existing water quality of the project site. The primary sources used in the preparation of this section are the *Water Quality Assessment Report* (WQAR) (March 2018) prepared for the Project.

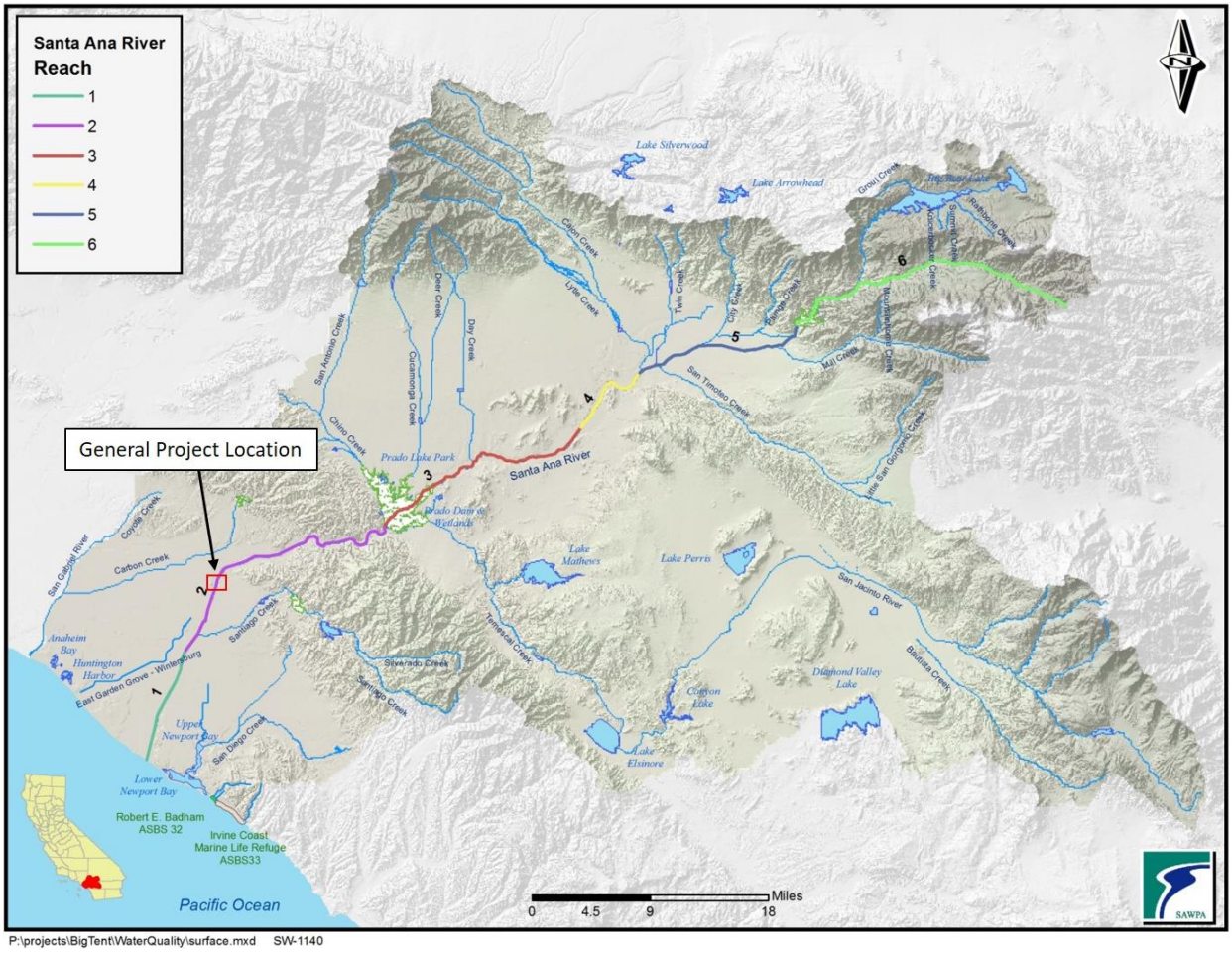
Regional Hydrology

The Project lies entirely within the East Coastal Plain hydrologic sub-area (HSA 801.11) in the Lower Santa Ana River hydrologic area and the Santa Ana River hydrologic unit. The watershed area for the East Coastal Plain HSA is approximately 195,000 acres (Caltrans 2017). Santa Ana River Reach 2 flows southwesterly for approximately 12 miles and empties into the Pacific Ocean near Newport Beach. Flowing over 100 miles from the San Bernardino Mountains to the Pacific Ocean, the Santa Ana River traverses portions of San Bernardino, Riverside and Orange Counties (See **Figure 2-17: Santa Ana River Reaches**). The river drains an area of over 2,700 square miles before flowing into the Pacific Ocean. Hydrology within the Santa Ana River is relatively permanent (i.e., flowing for more than 3 months). Direct and indirect receiving water bodies associated with the Project are identified in **Table 2-36: Direct and Indirect Receiving Water Bodies.**

Table 2-36: Direct and Indirect Receiving Water Bodies

Direct	Santa Ana River Reach 2
Indirect	Santa Ana River Reach 1
	Newport Beach

Figure 2-17: Santa Ana River Reaches



Source: Santa Ana Watershed Project Authority (SAWPA), Maps 2017.
http://www.sawpa.org/collaboration/maps/

Receiving Waters

The project corridor crosses over Reach 2 of the Santa Ana River. At the area where the Project crosses over Santa Ana River Reach 2, the river is conveyed in a trapezoidal channel with a top width of approximately 340 feet and a bottom width of approximately 250 feet. The channel drains and receives storm water flows from seasonal precipitation events as well as from surface water runoff from excess landscape irrigation. Point source discharges associated with commercial and residential developments as well as transportation infrastructure contribute to Reach 2 of the Santa Ana River. The channel is not vegetated or lined. There are no other creeks, streams or river crossings within the project limits. The designated beneficial uses for the Santa Ana River Reach 2 are identified in **Table 2-37: Santa Ana River Reach 2 Beneficial Uses**.

Table 2-37: Santa Ana River Reach 2 Beneficial Uses

Inland Surface Stream	MUN	GWR	AGR	REC1	REC2	WARM	RARE	WILD
Santa Ana River, Reach 2	+	•	•	•	•	•	•	•

• Existing or Potential Beneficial Use
I Intermittent Beneficial Use
+ Excepted from Municipal and Domestic Supply
Beneficial Use Definitions: MUN (Municipal and Domestic Supply); AGR (Agricultural Supply); GWR (Groundwater Recharge); RARE (Rare, Threatened or Endangered Species); REC1 (Water Contact Recreation); REC2 (Non-Contact Water Recreation); WARM (Warm Freshwater Habitat); WILD (Wildlife Habitat).
Source: Water Quality Assesment Report, 2018

Groundwater Resources

The Orange County groundwater basin underlies the northern half of Orange County, covering approximately 310 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminating near the Orange County line to the northwest, where it connects to the Central Basin of Los Angeles. Based on well data from Orange County Water District (OCWD), groundwater levels in the Anaheim area generally range from approximately 20 feet below mean sea level (MSL) at the western limits to approximately 300 feet above MSL along the eastern limits in the Santa Ana River channel area. Based on the SWRCB GeoTracker tool, depth to groundwater at a monitoring well within the project area ranged from 69 feet below ground surface (bgs) to 163 feet bgs; median depth to groundwater was 122 feet for data collected from 1988 – 2016 (SWRCB GeoTracker GAMA 2017).

The Santa Ana River serves as OCWD's main source for groundwater recharge. Approximately 270,000 acre-feet of water is pumped for use each year. Groundwater reserves are maintained by a recharge system, which replaces water pumped from wells. OCGB's facilities have a recharge capacity of about 300,000 acre-feet per year. Approximately two million people depend on this source for more than seventy five percent of their water. Along a six-mile section of the Santa Ana River that belongs to OCWD, a system of diversion structures and recharge basins captures most of the water that would otherwise flow into the Pacific Ocean. The Northbound SR 57 Improvement Project crosses the Santa Ana River approximately 1.3 miles downstream from the OCWD Recharge Basins (Caltrans 2016).

Existing Water Quality

The 2014/2016 Integrated Report includes a combined list of CWA Section 303(d) water bodies that are listed as not meeting water quality standards and Section 305(b) water bodies that identifies water bodies still requiring the development of a TMDL, those that have a completed TMDL approved by the U.S. Environmental Protection Agency, and those that are being addressed by actions other than a TMDL. According to the Final California 2014/2016 Integrated Report, (SWRCB, 2018), Santa Ana River Reach 2, Santa Ana River Reach 1 and Newport

Beach are not listed as impaired and therefore TMDLs have not been established for these indirect receiving water bodies.

As part of runoff and characterization monitoring studies, Caltrans identified pollutants that were discharged from Caltrans facilities with a load or concentration that commonly exceeded allowable standards and were still considered treatable by currently available Caltrans-approved Treatment BMPs. These pollutants, designated as targeted design constituents (TDCs), include sediment; metals (i.e., total and dissolved fractions of zinc, lead, and copper); nitrogen (e.g., ammonia); phosphorus; and general metals.

2.2.2.3 Environmental Consequences

Temporary Impacts

No Build - Alternative 1

No improvements or changes to existing conditions will be made to the project site under the No Build alternative. No impacts to the water quality of Santa Ana River Reach 2 are anticipated under this alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Construction activities common to all Build Alternatives and that also have the greatest potential to impact water quality would be the work over Santa Ana River Reach 2 and in the Santa Ana River channel. Construction activities include demolition, excavation, extending the bridge deck and piers, slope protection and water diversion. These activities have the potential to result in increased erosion and polluted storm water runoff that could enter Santa Ana River Reach 2, affecting water quality. Diversion activities could constrict the waterway, which could obstruct flood flows, causing flooding, washouts or create an insufficient stream flow to support aquatic species. Water diversion may require the removal of vegetation which could impact wildlife habitats.

Construction materials, waste handling, and the use of construction equipment could result in storm water contamination and affect water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. Operation of vehicles during construction could result in tracking of dust and debris. Staging areas can also be sources of pollutants because of the use of paints, solvents, cleaning agents, and metals during construction. Pesticide use, including herbicides, fungicides, and rodenticides, associated with site preparation is another potential source of storm water contamination. Larger pollutants, such as trash, debris, and organic matter, are also associated with construction activities. As such, the discharge of storm water may cause or threaten to cause violations of WQOs. These pollutants would occur in both the storm water discharges and non-storm water discharges and could potentially cause chemical degradation and aquatic toxicity in the receiving waters.

Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport via storm water runoff from the project area (See **Table 2-38: Temporary Disturbed Soil Area (DSA) per Build Alternative**. Potential temporary changes associated with sediment transport to receiving water bodies would be a decrease in water clarity, which would cause a decrease in aquatic plant production and obscure sources of food, habitat, refuges, and nesting sites of fish downstream of the section of the river in the project site. The deposition of sediment or silt in a water body can fill gravel spaces in stream bottoms, smothering fish eggs and juvenile fish. Construction of the Build Alternatives has the potential to cause temporary changes to normal ambient temperature and dissolved oxygen levels of receiving water bodies by contributing pollutants to receiving water bodies. Pollutants include sediment and silt, associated with soil disturbance and chemical pollutants associated with construction materials that are used on the project site with the potential to discharge offsite into the aquatic environment.

Table 2-38: Temporary Disturbed Soil Area (DSA) per Build Alternative

Alternative	2	2A	2B
Area Disturbed (in acres)	9.4	9.6	8.7

Source: Natural Environment Study (NES) 2018

Where removal of groundwater from excavation may be required when working in the channel to widen the bridge abutments or for the driven piles for the separate bridge structure at Katella Avenue, it is possible that dewatering activities could result in the release of high levels of fine sediment if discharged directly to the environment. Water diversion activities would also have the potential to impact water quality, especially during installation and removal of the diversion system. The 2014/2016 Integrated Report includes a combined list of CWA Section 303(d) water bodies that are listed as not meeting water quality standards and Section 305(b) water bodies that identifies water bodies still requiring the development of a TMDL, those that have a completed TMDL approved by the U.S. Environmental Protection Agency, and those that are being addressed by actions other than a TMDL. According to the Final California 2014/2016 Integrated Report, (SWRCB, 2018), Santa Ana River Reach 2, Santa Ana River Reach 1 and Newport Beach are not listed as impaired and therefore TMDLs have not been established for these indirect receiving water bodies.

If dewatering is expected for the preferred alternative, the Project will fully conform to the requirements specified in Order No. R8-2015-0004, NPDES No. CAG998001, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality. This NPDES permit covers construction site dewatering and stream diversions that this Project will potentially implement. Project Feature PF-WQ-4 would minimize any temporary impact due to the discharge of groundwater to surface water.

PF-WQ-4 **Construction Site Dewatering.** If dewatering is expected for the preferred alternative, the Project shall fully conform to the requirements specified in Order No, R8-20015-0004, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality. This NPDES permit is applicable to construction dewatering waste and dewatering waste from subterranean seepage.

During the construction phase, the Northbound SR 57 Improvement Project would be required to comply with the requirements of the NPDES Permit for Construction Activities, Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002, as well as implementation of the BMPs specified in Caltrans' SWMP (Caltrans 2016b). Construction site BMPs would be implemented to treat storm water and non-storm water discharges to the maximum extent practicable and therefore runoff from the construction area would not likely create any surface water quality impacts.

The Project would also be required to prepare and implement an acceptable Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing storm water pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All Construction Site BMPs would follow the latest edition of the Storm Water Quality Handbooks, Construction Site BMPs Manual to control and minimize the impacts of construction-related pollutants. The SWPPP would include BMPs to control pollutants, sediment from erosion, storm water runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific storm water effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards. Project Features PF-WQ-2 and PF-WQ-3 would minimize any temporary impacts to receiving waters.

PF-WQ-2 **Implement Temporary Construction Site BMPs.** The Northbound SR 57 Improvement Project would be required to comply with the requirements of the NPDES Permit for Construction Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002, as well as implementation of the BMPs specified in Caltrans' Storm Water Management Plan (Caltrans 2016b).

PF-WQ-3 **Prepare and Implement a Storm Water Pollution Prevention Plan.** The Project would be required to prepare and implement an acceptable SWPPP. The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing storm water pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All Construction Site BMPs would follow the latest edition of the Storm Water Quality Handbooks, Construction Site BMPs Manual to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, storm water runoff, and other construction-

related impacts. In addition, the SWPPP shall include implementation of specific storm water effluent monitoring requirements based on the Project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards.

Permanent Impacts

Alternative 1 – No Build

No improvements or changes to existing conditions will be made to the project site under the No Build alternative. No impacts to the water quality of Santa Ana River Reach 2 are anticipated under this alternative.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Construction of highway widening projects generally impact existing drainage areas and streams in a watershed by altering the natural flow patterns through the addition of impervious surface area and variations in contributing drainage area. The additional impervious area created by the Project may result in impacts to the existing hydrograph, including increases in low flow and peak flow, velocity, and volume to Santa Ana River Reach 2. Alternative 2A would have the largest increase in new impervious surface area (3.7 acre) as it would retain the westbound on-ramp to northbound SR 57. In addition, alternative 2A will also replace an area of 2.2 acres of existing pavement.

All Build Alternatives would be designed to preserve existing surface drainage at each offsite discharge location. Modifications to existing drainage features and new drainage improvements would be required to collect and convey the runoff generated by the proposed widening for a total of 5.9 acres of impervious surface. Therefore, change associated with circulation or drainage patterns are anticipated to be low.

The increase in impervious surface would not interfere with groundwater recharge given that the Santa Ana River provides approximately 70 percent of the total groundwater recharge for the basin and the increase represents less than 1 percent increase within the HSA. (See **Table 2-39: Impervious Surface Addition to the East Coastal Plain Hydrologic Sub-Area (HSA) within Project Limits**.

Table 2-39: Impervious Surface Addition to the East Coastal Plain Hydrologic Sub-Area (HSA) within Project Limits

Alternatives	Existing Surface (Acres)	Proposed Impervious Surface Increase (Acres)	Proposed % Increase to HSA
Total HSA Existing	194,575	--	--
Alternative 2A	--	3.7	<1

Source: Water Quality Assessment Report, 2018.

Potential pollutants associated with the operation of transportation facilities include: sediment from natural erosion; nutrients, such as phosphorus and nitrogen, associated with replace-in-kind landscaping associated with removal/reconfiguration of on-ramps at Orangewood; mineralized organic matter in soils; nitrite discharges from automobile exhausts and atmospheric fallout; litter; and metals from the combustion of fossil fuels, the wearing of brake pads, and corrosion of galvanized metal. These pollutants would occur in both the storm water discharges and non-storm water discharges and could potentially cause chemical degradation and aquatic toxicity in the receiving waters. Sediment yield from the road would be negligible during operations because disturbed areas after construction would be paved. Some incremental effect on turbidity at the discharge location and in the downstream receiving waters may also occur due to sediment discharges. The implementation of appropriate BMPs to treat TDCs, should adequately address any potential permanent water quality impacts to groundwater and surface water. The proposed Project would not permanently alter the alignment of a stream or the configuration of a water body.

Treatment BMPs are permanent measures that improve storm water quality after construction is complete. The Treatment BMP strategy for the Project would first evaluate the possibility of infiltrating the Net New Impervious (NNI) area by using Design Pollution Prevention (DPP) Infiltration Areas (IA) located within existing state right of way. DPP IAs are used to maximize infiltration of storm water runoff without the need of constructing a traditional Treatment BMP (Infiltration Basin, Biofiltration Swale, Detention Basin, etc.). The Caltrans Infiltration Tool would also be utilized to determine the approximate amount of the water quality volume that could be infiltrated with the use of soil amendments. Treatment BMPs implemented for the Project would comply with the Caltrans NPDES Storm Water Permit (Order No. 2012-0011-DWQ, NPDES No. CAS000003). The implementation of Treatment BMPs and/or natural IAs would be considered a water quality benefit given that there are no existing Treatment BMPs within the Project area. By complying with SWMP requirements, the proposed Project is not anticipated to contribute to violations of water quality standards or objectives. Project Features PF-WQ-1 and PF-WQ-5 would minimize any permanent impacts to water quality.

PF-WQ-1 Implement Storm Water Treatment BMPs. The Northbound SR 57 Improvement Project would be required to conform to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, adopted by the SWRCB on September 19, 2012, and any subsequent permit in effect at the time of construction. The Caltrans Statewide Permit requires the implementation of Treatment BMPs to minimize potential water quality and hydrological impacts associated with operation of the Project.

PF-WQ-5 Implement Design Pollution Prevention BMPs. As specified in Caltrans' Storm Water Management Plan (Caltrans 2016a), the Northbound SR 57 Improvement Project would be required to incorporate Design Pollution Prevention BMPs which prevent erosion and promote infiltration.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The Project will incorporate project features and standardized measures that include temporary and permanent BMPs as outlined above. With the implementation of these project features, no adverse impacts to water quality would occur. No avoidance, minimization, and/or mitigation measures are required.

2.2.3 Geology/Soil/Seismicity/Topography

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under 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. 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. Further, the structures are designed in general accordance with the design guideliens set in the California Amendments (to the AASHTO LRFD Bridge Design Specifications – Fourth Edition). For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.2.3.2 Affected Environment

Sources used in the preparation of this section include the City of Anaheim General Plan (May 2004), Preliminary Geotechnical Design Report for Earth Retaining Systems (June 2017), Preliminary Materials Report (July 2017), the City of Orange General Plan (March 2010), the Paleontological Identification Report (May 2018), the Historic Property Survey Report (May 2018), and the District Preliminary Geotechnical Report (July 2017).

The information provided in this section is also based on review of available regional geologic maps and as-built log of test borings (LOTBs), existing subsurface and groundwater data in the project vicinity, and discussions with the Project Design Team (PDT).

Topography

The project site is located on the Tustin Plain, a broad coastal plain in Orange County, California. It is bounded by the Puente and Coyote Hills, Santa Ana Mountains, San Joaquin Hills, and Pacific Ocean. Orange County is part of the coastal section of the Peninsular Range Geomorphic Province, which is characterized by elongated northwest-trending mountain ridges separated by sediment-floored valleys. Faults branching off from the San Andreas Fault to the east create the local mountains and hills. The Peninsular Ranges Geomorphic Province is located in the southwestern corner of California and is bounded by the Transverse Ranges Geomorphic Province to the north and the Colorado Desert Geomorphic Province to the east. From the project corridor, the San Bernardino Mountains and the Saddleback formation are visible in the background of views under fair local climatic conditions (i.e. lack of haze, clouds, smog). The local topography of the site also characterizes the project site to have a low landslide and rockfall potential.

Geology and Soils

The project site lies on subsurface soils mapped as young alluvial fan deposits, characterized as lenses of mixtures of silt, sand, clay, and gravel associated with the Santa Ana River channel and floodplain deposits. Due to the urbanized nature of the area the project site lies within, artificial fill is also present in most of the areas to be excavated. Soils found in the project site are considered permeable and may potentially fall into the Natural Resources Conservation Service (NRCS) hydrologic soil group (HSG) A. This soil order includes Alfisols, Andisols, and Aridisols, which are known to be clay enriched, poorly sorted, and dry, respectively. Based on corrosion test results, the on-site soils site can be considered to be non-corrosive to structural elements in accordance with the Caltrans corrosion guidelines.

A majority of the subsurface soils encountered are classified as coarse-grained soils and, therefore, are not anticipated to have potential for expansion. Soil sampling and laboratory testing will be required during final design to confirm expansion, swell, and collapse potential.

The embankment slopes near the Santa Ana River appear stable with no evidence of local slope failure or soil erosion during site reconnaissance. However, the slopes fronting the Santa Ana River Bridge Abutments were observed to have evidence of erosion since they are not paved.

The exhumed Mesozoic metamorphic basement rocks near the project site are approximately 12,000 feet below the ground surface (bgs) and are overlain by approximately 5,000 feet of Late Cretaceous and Tertiary marine sedimentary rocks, which are overlain by approximately 7,000 feet of Late Tertiary to Quaternary marine and terrestrial deposits (District Preliminary Geotechnical Report, DPGR, 2017).

According to the Anaheim General Plan's "Green Element" chapter, the City identifies three zones in its jurisdiction with a high potential for significant mineral deposits. These zones do not

fall in or near the project site. The City of Orange General Plan does not identify mineral resources located in the project area, and therefore, they are assumed to be nonexistent.

Surface and Ground Water

The surface water drainage in the project area was controlled by storm drains along the NB SR-57 shoulder. The Santa Ana River serves as the local drainage/flood control channel for the project area and adjacent areas. The Santa Ana River bottom is unlined within the project limit, but the levee slopes are grouted with stones (DPGR, 2017). Historically, the highest groundwater level near the project site has been reported as high was 20 feet below ground surface (bgs), which corresponds to an elevation range of 130 to 140 feet.

Seismic Hazards and Faults

The Project is located in the seismically active region of Southern California; however, it is not located within an Alquist-Priolo Earthquake Fault Zone (APEFZ) (i.e. is not on or near the surface traces of active faults). Therefore, potential for surface rupture is considered low. The project area is not within a designated landslide hazard zone mapped by the California Geological Survey (CGS) which decreases the chances of landslides triggered by an earthquake.

During a seismic event, liquefaction is generally the main cause of damage to buildings and infrastructure. Liquefaction is a seismically induced form of ground failure caused by soils that are loosely compacted and are saturated, such as those soils overlaying shallow groundwater. Groundwater levels have been reported during boring tests by USGS in the project area, and provide insight to potential seismic ground failure based on water table heights and presence. The project site includes areas located within a designated liquefaction hazard zone mapped by CGS. In these areas, loose to medium-dense sands are present below groundwater and could result in liquefaction during a seismic event.

The Puente Hills and Upper Elysian Park are two blind thrust faults underlying the northern Los Angeles Basin that may cause ground shaking in the project vicinity in the event of seismic ground movement. The San Joaquin Hills blind thrust fault is also located on the south end of the Los Angeles Basin. The Elsinore fault to the northeast and Newport-Inglewood fault system located to the southwest are the two-major strike-slip faults in the area that accommodate the northwestward motion of the Pacific Plate relative to the North American Plate. Seismic activity from nearby and distant faults may cause those in the City of Anaheim to experience strong ground motion in the event of an earthquake. Active fault zones lie outside of the City of Anaheim, and the site could be subjected to strong ground motion.

2.2.3.3 Environmental Consequences

Temporary Impacts

Alternative 1- No Build

Under the No Build Alternative, no changes are anticipated to be made to the existing environment in association with the Project. Therefore, no impacts or changes to existing geologic or seismic conditions are anticipated. The area would still be vulnerable to future seismic hazards due to its location in the seismically active region of Southern California.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

All Build Alternatives cover similar geologies, topographies, and soils along the project site. All of the Build Alternatives would be exposed to similar ground disturbing activities along the project corridor, and therefore, environmental consequences would be similar in nature.

A common design feature for all of the Build Alternatives is the widening of the Santa Ana River Bridge, which requires construction on the piers in the riverbed. To minimize potential erosion and safety hazards such as soil and slope instability to workers working in the Santa Ana Riverbed, dewatering (removal of groundwater prior to excavation) may be necessary. Construction activities within the Santa Ana River cannot be restricted to a give season due to on-going water management activities; however, precautions would be in place in case of groundwater fluctuations. Seasonal groundwater recharge from the Santa Ana River may also cause temporary localized perched groundwater near the river channel portion of the project site.

Proposed retaining walls near the Santa Ana River levee would be checked for potential slope instabilities (if any). Ground stability improvement techniques such as deep soil mixing and/or jet grouting can be considered to mitigate foundation settlements resulting from liquefaction and associated ground movements. The Santa Ana River pier foundation caps need to be designed with consideration of the river's hydraulics and the potential settlement resulting from the weight of the bridge, dewatering and liquefaction. Along other portions of the project site outside of the Santa Ana River work, dewatering would most likely not be necessary and therefore, dewatering induced settlement may not be an issue.

Excavation and ground disturbing activities are projected to be at a depth of less than 5 feet for freeway embankments and slopes and approximately 10 to 12 feet for the construction of the pier walls in the Santa Ana River. The stability of soils and geology of the project site are not expected to be impacted significantly by these activities. Construction activities, such as grading and trenching, would temporarily displace soils and increase the potential for erosion. Erosion control measures to manage soil stability can be found in the Water Quality and Storm Water section of this report. The Project will be constructed and designed in accordance with Caltrans Standard Specifications 19 regarding avoidance of damaging groundwater utilities or structures during excavations associated with the project constructions. In areas where compacted fill will

be placed, the soil, dry or saturated soil, and otherwise unsuitable materials, will be removed prior to fill placement. Fill placed on sloping ground will be properly keyed and benched into existing ground and placed as specified in the Caltrans Standard Specifications.

Permanent Impacts

Alternative 1 – No Build

Under the No Build Alternative, no changes are anticipated to be made to the existing environment in association with the Project. Therefore, no impacts or changes to existing geologic or seismic conditions are anticipated. The area would still be vulnerable to future seismic hazards due to its location in the seismically active region of Southern California.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Since the site is not located in the APEFZ, there is a low possibility of surface rupture at the project site in the event of seismic activity. The structures have been designed with the CBC's earthquake design standards for increased safety and ground stability. Impacts associated with landslides or mudslides are not anticipated. There is a potential for coarse grained soils below groundwater to experience liquefaction during a seismic event. Due to seasonal variances in ground water level, the potential for liquefaction in the event of a seismic hazard would be a potential hazard since the site is located in a liquefaction zone. With the implementation of GEO-1, adverse impacts to liquefaction during a seismic event would be minimized.

Due to the sloped embankments for the proposed bridges, improving the northbound SR 57 by widening the ramps will require the construction of retaining walls to avoid erosion of the slopes and decrease the risk of infrastructure loss by ground instability or through a seismic hazard. Design of the proposed bridge structures are based on Caltrans seismic design procedures, which are designed to withstand a high level of seismic ground shaking. Since mineral resources are not identified in the project area by any local general, specific, or land use plan, it is assumed to be nonexistent and the Project will not result in a loss of a known mineral resources that would be of value to the region.

Design of the Project will be based on site specific studies including exploratory borings in the project area to investigate site-specific soils and conditions. Samples of subsurface soils will be collected for laboratory testing. During final design, appropriate foundation types and depths will be designated (including foundation modifications for existing structures) so that ground movements will not adversely affect structural elements of the Project.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

OCTA and Caltrans have voluntarily elected to impose the following measure to evaluate the risk associated with liquefaction during a seismic event:

GEO – 1: Seismic Induced Liquefaction: Subsurface investigations will be performed at the beginning of the PS&E phase to determine the effects of seismically induced liquefaction on the bridge structures, the extent of the risk and whether additional retrofit strategies will be required.

No additional avoidance, minimization, and/or mitigation measures are required.

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

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 Projects.

- 16 United States Code (USC) 431-433 (the "Antiquities Act") prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the Department of Government having jurisdiction over the land. Fossils are considered "objects of antiquity" by the Bureau of Land Management, the National Park Service, the Forest Service, and other federal agencies.
- 16 USC 461-467 established the National Natural Landmarks (NNL) program. Under this program property owners agree to protect biological and geological resources such as paleontological features. Federal agencies and their agents must consider the existence and location of designated NNLs, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under NEPA.
- 16 USC 470aaa (the Paleontological Resources Preservation Act) prohibits the excavation, removal, or damage of any paleontological resources located on federal land under the jurisdiction of the Secretaries of the Interior or Agriculture without first obtaining an appropriate permit. The statute establishes criminal and civil penalties for fossil theft and vandalism on federal lands.
- 23 USC 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.
- 23 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).

2.2.4.2 Affected Environment

The primary source used in the preparation of this section is the *Paleontological Identification Report* (PIR) (May 2018).

Project Study Area

The project site is an elevated highway along an approximately 1-mile long corridor that is bounded by Katella Ave to the north and Sycamore Ave to the South, with intersections with Douglass Road, and Orangewood Avenue.

The project study area is located in sections 24 and 25 of Township 4 South, Range 10 West of the Anaheim United States Geological Service 7.5' topographic map.

Stratigraphy

The Project is mapped as late Holocene (less than 3,000 years old) very young wash deposits and Holocene to late Pleistocene (modern to 126,000-year-old) young alluvial fans. Although not appearing on Morton and Miller's (2006) geological map, modern artificial fill is common in previously developed areas.

Methodology

For paleontological resources, a reconnaissance survey was conducted for the project's environmental assessment phase. The purpose is to confirm that field observations conform to the geological maps of the project area. Sediments are assessed for their potential to contain fossils. Additionally, if there are known paleontological resources the survey will verify the exact location of those resources, the condition or integrity of each resource, and the proximity of the resource to the project area. All undeveloped ground surface areas within the ground disturbance portion of the project area are examined. Existing ground disturbances (e.g., cutbanks, ditches, animal burrows, etc.) are visually inspected. Photographs of the project area, including ground surface visibility and items of interest, are taken with a digital camera. Overall ground visibility ranged from 0% to 100% due to existing hardscaping and plant coverage. As such, much of the study area could not be surveyed. The visible sediments were primarily artificial fill, late Holocene wash sands in the Santa Ana River, and the surficial sediments of the Holocene to late Pleistocene young alluvial fans. No culverts or other cuts extended more than a couple of feet below the surface of the Holocene to late Pleistocene young alluvial fans. No fossils were encountered during the survey. Only two localities were identified in the records search in late Pleistocene alluvium within 5 miles of the Project and both proved to be modern vertebrates (LACM specimens). On this basis, it is considered unlikely that fossils meeting significance criteria will be encountered.

Existing Conditions

The proposed project location lies in a broad coastal plain called the Tustin Plain in Orange County, California, which is bounded by the Puente Hills and Coyote Hills, the Santa Ana Mountains, San Joaquin Hills, and Pacific Ocean. Orange County is part of the coastal section of the Peninsular Range Geomorphic Province, which is characterized by elongated northwest-trending mountain ridges separated by sediment-floored valleys. Faults branching off from the San Andreas Fault to the east create the local mountains and hills. The Peninsular Ranges Geomorphic Province is located in the southwestern corner of California and is bounded by the Transverse Ranges Geomorphic Province to the north and the Colorado Desert Geomorphic Province to the east.

Results of the record search indicate that no previous fossil localities have been recorded within the project boundaries. No records of fossil localities were found from late Pleistocene alluvial sediments from within five miles of the Project.

No fossils were encountered during the field reconnaissance survey. Since most of the overall ground visibility was limited in most of the study area due to hardscaping and plant coverage, the only visible sediments for observation was primarily artificial fill, late Holocene wash sands in the Santa Ana River, and the sediments of Holocene to late Pleistocene young alluvial fans. Alluvial fans were deposited by streams and rivers and are poorly sorted, consolidated, permeable clays and sands.

Based on the PIR, no significant paleontological resources were found in the project area through a records search or through a field survey.

2.2.4.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No construction on behalf of the proposed Project is associated with Alternative 1. Therefore, no impacts to potential paleontological resources would be possible under this Alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

No records of fossil localities were found. Two records of fossils recovered within proximity to the project site were from eight to ten feet deep and proved to be modern. No fossils were encountered during the survey.

Depth of excavations and ground disturbing work for the Project range from less than 5 feet to a maximum of 12 feet. Anticipated depths for excavations are:

- 10 to 12 feet for pier walls in the Santa Ana River,
- 3 to 5 feet for freeway embankments and slopes, and

- 1 to 2 feet for roadbed.
- Based on the maximum planned depth and types of impacts, as well as the results of the records search and survey, it was determined that fossils are unlikely to be encountered during construction.
- Auguring and pile driving activities may rotate up fragmentary fossils but will lack context including depth/elevation, formation identification and other elements that are critical to scientific significance. A fossil with an undetermined source will only be significant if the specimen recovered is a species that is currently not known in the area. On this basis, auguring and pile driving activities are exempt from monitoring.

Permanent Impacts

Alternative 1 – No Build

No construction on behalf of the proposed Project is associated with Alternative 1. Therefore, no impacts to potential paleontological resources would be possible under this Alternative.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

No known resources have been identified and the potential for encountering resources was determined to be very low. Therefore, permanent impacts to paleontological resources are not expected. No records had indicated previous recordings of fossils in the project boundaries and the site reconnaissance did not result in fossil discoveries. Only two locations were identified in the records search in later Pleistocene alluvium within 5 miles of the Project and both proved to be modern vertebrates. Based on that, it is considered unlikely that fossils meeting significance criteria will be encountered on this Project. No Mitigation measures are recommended. However, Caltrans standard specification 14-7.03 requires that work be halted within 60 feet of an unanticipated discovery until a qualified paleontologist has evaluated the find. The qualified paleontologist will investigate the discovery and modify the dimensions of the secured area if needed. If unanticipated paleontological resources are discovered at the job site workers are required to not disturb, move or take the resources, secure the area and notify the resident engineer. Work cannot resume within the radius of the discovery until authorized.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

If there is an unanticipated discovery, Caltrans standard specifications require that work be halted within 60 feet of the unanticipated discovery until a qualified paleontologist has evaluated the find. This potential impact and required standard specification is also discussed in further detail in Permanent Impacts, Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives.

2.2.5 Hazardous Waste and Materials

2.2.5.1 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 (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as "Superfund," is to identify and cleanup 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 cleanup of 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.

2.2.5.2 Affected Environment

This section discusses the investigation, existing conditions, affected environment, and environmental consequences for the SR 57 Project as it relates to hazardous materials. The resource for this section is the *Initial Site Assessment Report* (ISA) (January 2018).

The surrounding properties consisted of various types of land uses including commercial, light industrial, residential, and special event use (Angel Stadium of Anaheim and the Honda Center).

Methodology

To evaluate potential hazardous waste and materials present on the corridor of the Project, specialists conducted reconnaissance, evaluated aerial photographs and historic topographic maps of the corridor, and reviewed a compilation of public records from governmental databases that provided insight to historic uses of nearby facilities. Sites with known or potential contamination were determined through review and interpretation of information contained within the database search. During reconnaissance of the corridor, specialists surveyed the field to look for potential sources of contaminants. Adjacent properties were viewed from public right of way to help identify off-site sources of contamination that could impact the corridor. Aerial photographs from publicly accessible sources were checked for evidence of potential contaminant sources.

The assessment of hazardous wastes and materials for the project site span across the general project boundary to account for the various areas and common areas covered by the three Build Alternatives. The study evaluated properties immediately adjacent or near the project site for potential and existing contaminants. Over 300 facility listings were initially identified in the governmental databases; however, after evaluating and consolidating the duplicative listings and verifying locations during the reconnaissance, the number of facilities was reduced to 80. Using risk ratings, defined below, the facilities were ranked according to the potential contamination risk each posed to the project site. No facilities were deemed to pose a high risk; 11 of the existing facilities were designated by the analysis as medium risks to the project site and are summarized in **Table 2-40: Evaluation of Medium to High Risk Facilities' Contamination Types and Presence of USTs**. The approximate location of each of the medium and nearby low risk facilities are depicted on **Figure 2-18: Sites of Potential Environmental Concern (Northern Portion of Project)** and **Figure 2-19: Sites of Potential Environmental Concern (Southern Portion of Project)**, below and within the ISA (WSP, 2018).

Table 2-40: Evaluation of Medium to High Risk Facilities' Contamination Types and Presence of USTs

Site Name / Assigned Site #	Location	Potential Contaminants	Risk Rating	Reasoning
Anaheim No.6 Transfer/Leo F Douglass/Transfer Station III / (#1)	100 feet north of corridor. Northwest corner of Douglass Rd and Katella Ave.	Gasoline. UST.	Medium.	Although no contamination was directly identified with this facility (currently a parking lot), details about the operation of this former waste transfer station is unknown and a UST system found on site assign this facility a Medium risk. UST systems have a potential for leaking.
Anaheim Arena, City of Anaheim/Anaheim Arena Project / (#2)	100 feet north of corridor. Northwest corner of South Douglass Rd and Katella Ave.	Waste oil. UST.	Medium.	Although no contamination was directly identified with this facility (currently a parking lot), a UST system found on site assigns this facility a Medium risk. UST systems have a potential for leaking. The facility was formerly associated with Anaheim Transfer Station.
Trucparco Charlie Ray Gann / (#3)	470 feet northeast of the corridor. Northeast corner of Douglass Rd and Katella Ave.	Waste oil. Gasoline. UST.	Medium.	Although no contamination was directly identified with this facility (currently a parking lot / Honda Center), a UST system found on site assigns this facility a Medium risk. UST systems have a potential for leaking.
Honda Center, Anaheim Arena, Arrowhead Pond / (#4)	500 feet northeast of the corridor. Northeast corner of the Douglass Road and Katella Avenue.	UST. Unspecified solvent mixture waste.	Medium.	Although no contamination was directly identified with this facility, details about this facility's use/handling/disposal of unspecified solvent mixtures and a UST system found on site assign this facility a Medium risk. UST systems have a potential for leaking. The facility appeared to have been used for commercial/industrial purposes prior to the Honda Center development.
Bleckerts Diesel Repair / (#5)	470 feet northeast of the corridor. Northeast corner of Douglass Rd and Katella Ave.	Diesel. UST. Waste oil.	Medium.	Although no contamination was directly identified with this facility, details about the operation of this facility show it was likely another former facility associated with the property associated currently occupied by the Honda Center. A UST system found on site and appearance of prior commercial/industrial uses assign the facility a Medium risk.

Table 2-40: Evaluation of Medium to High Risk Facilities' Contamination Types and Presence of USTs (continued)

Site Name / Assigned Site #	Location	Potential Contaminants	Risk Rating	Reasoning
GSA/Transportation Shop 2/Katella Yard / (#6)	400 feet northeast or east of the corridor. Douglass Rd.	Several USTs. Diesel. Gasoline.	Medium.	A former GSA/transportation shop facility, the facility is listed with several known USTs containing diesel and gasoline. A release of both fuels from the UST system was discovered in 1993. The LUST investigation received a "completed - case closed" designation in 1998. It is unknown whether residual contamination exists on the property, and therefore was assigned a medium risk.
Malibu Grand Prix / (#8)	220 feet west of the corridor. East Katella Ave.	Leaking UST (LUST). Sewage.	Medium.	A former entertainment facility in the 1970's-80's (including a track and arcade), the site is now occupied by a restaurant, commercial retail strip mall, and part of an adjacent large office building and parking structure. The facility was listed for disposal of an unspecified waste and cleanup of contaminated soil was conducted for a 1986 LUST release. Although the LUST investigation was "closed" 1993, it is unknown whether residual contamination exists on the property, and therefore was assigned a medium risk.
Canyon Carpet Cleaning / (#12)	Immediately east of the corridor. South Douglass Rd.	Dry cleaning chemical solvents.	Medium.	Although no contamination is known at this carpet cleaning facility, previous potential use of dry-cleaning solvents present a potential risk of contamination. It was assigned a Medium risk due to the potential use of dry-cleaning solvents and its close proximity immediately east of the corridor.
Inland Specialty Chemical Corporation / (#18)	1,200 feet east of the corridor. West Collins Ave.	Halogenated, oxygenated, and chlorinated solvents. Unspecified wastes. Several USTs.	Medium.	Currently an OC Public Works Fleet Services Vehicle Maintenance Facility and CNG Fuel Station. In 1990, evidence of soil and groundwater contamination from previous uses of this facility was found to have migrated off-site. It is assigned a medium risk due to its distance from the corridor and the Cleanup Program's 'completed - case closed' status in 2005.

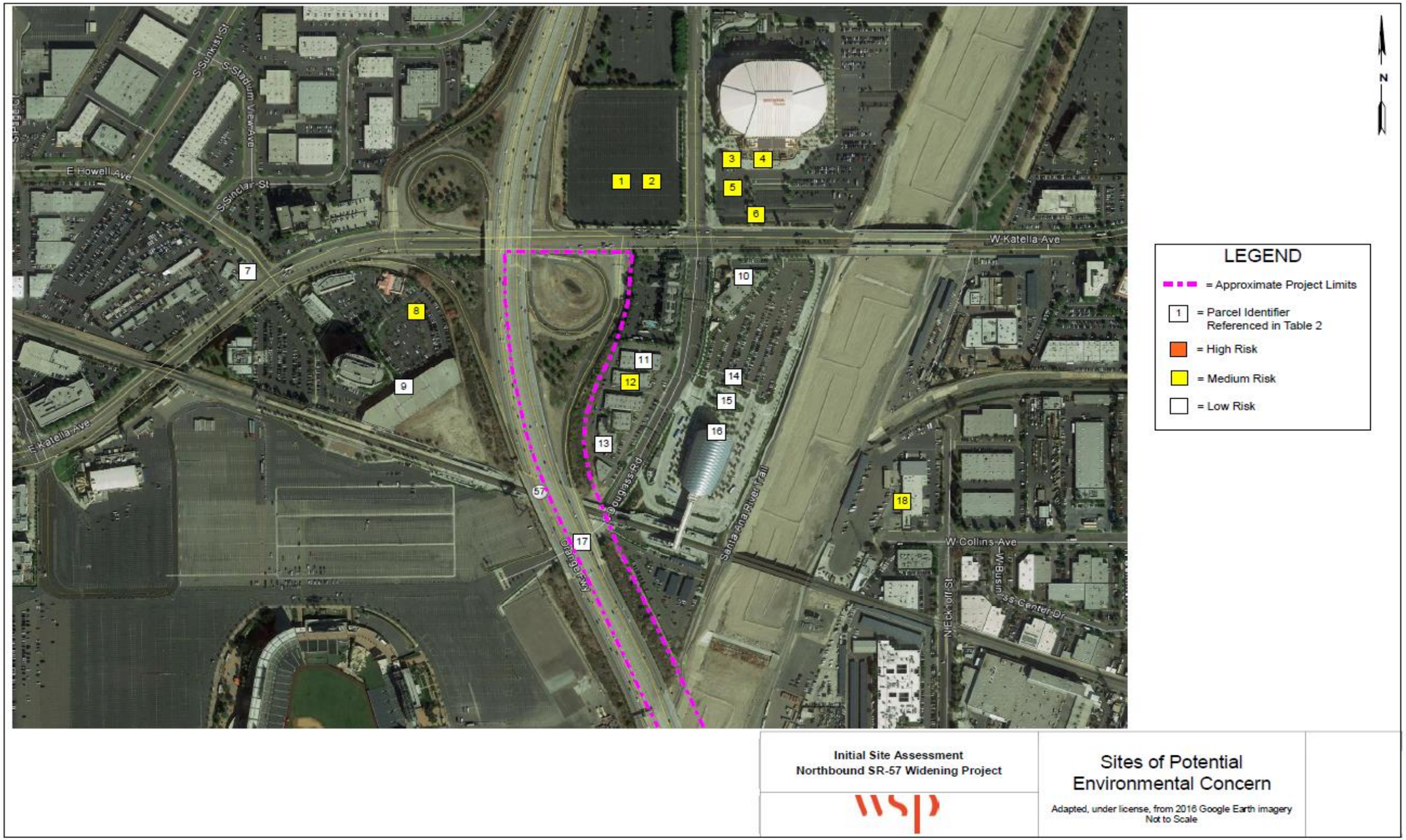
Table 2-40: Evaluation of Medium to High Risk Facilities' Contamination Types and Presence of USTs (continued)

Site Name / Assigned Site #	Location	Potential Contaminants	Risk Rating	Reasoning
Yellow Transportation, Yellow Freight Systems / (#21)	Immediately east of the corridor. N. Eckhoff St.	USTs. Gasoline. Diesel. VOC.	Medium.	The trucking facility received a 'completed-cased closed' designation for three UST removals; however, the closure letter implies that contamination remains on the property. The closure letter suggests that VOC-contaminated groundwater has likely migrated onto the Yellow Transportation site from one or more upgradient sources. Although residual VOC-contaminated groundwater contamination exists in association with the upgradient Inland Specialty Chemical Corporation, no dewatering is planned in this area of the Project, therefore, this site was assigned a medium risk.
Caremark Infant Care / (#29)	120 feet northeast of the corridor. West Orangewood Ave.	UST.	Medium.	Although no contamination was directly identified with this site, a UST system found on site and its close proximity to the corridor, assigns this facility a Medium risk. UST systems have a potential for leaking.

Source: Initial Site Assessment Report (ISA) 2017.

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Figure 2-18: Sites of Potential Environmental Concern (Northern Portion of Project)



Source: ISA 2017.

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Figure 2-19: Sites of Potential Environmental Concern (Southern Portion of Project)



Source: ISA 2017

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Professional judgement was used to assign these ratings; and the following summary of the general guidelines were followed to designate the facility with this rating:

- High Risk: Facilities with known contamination that has likely affected the project corridor and will likely affect construction activities. This includes open LUST sites and other known contamination sites, landfills, and unknown sites that have been identified as former heavy industrial areas, former gasoline stations with potential underground tanks, or areas where chemicals may have been buried. Examples of land uses or conditions of this high-risk rating include maintenance facilities, bulk oil, metal plating, chemical storage, blending, or manufacturing facilities, dry cleaning facilities, junk yards and landfills, railroad yards, and industrial properties with greater than 20 years of use or with apparent poor best management practices.
- Medium Risk: Sites with a reasonable chance that contamination exists and could affect the project corridor and construction activities. These include potential sites that have been identified as former gas stations, processing and manufacturing facilities with little to no information available, or where the limits of known contamination are well defined and are in close proximity to the corridor. Examples of land uses and conditions that are designated as medium risk include ASTs, ADL, agricultural fields/crop dusting operations, debris laden fill, mines/quarries, railroad lines, naturally occurring asbestos, asbestos and lead based paint in building materials, and industrial property with less than 20 years of use or with apparent good best management practices.
- Low Risk: Sites that have been remediated and are officially closed with no use restrictions, facilities that may have had small spills in the past, businesses that handle hazardous waste with no violations, no indications or improper management or disposal, and/or no obvious releases. These facility operations are a *de minimis* condition, which generally does not present a threat to human health or the environment. Low risk sites could also include contaminated facilities too distant from project corridor to pose significant contamination potential.

Limitations

This inquiry was not an exhaustive assessment. Contaminants may be hidden in subsurface materials, having been intentionally covered, or undetectable because they were covered by foliage, concrete, water, asphalt, or other materials. This contamination may not be present in predictable locations, instead, logical assessments were made to reduce future potential contamination discoveries. No facilities were analyzed from the interior of the structure on the field reconnaissance.

Evaluation of Sites

No odors, pools of liquids, or drums or containers (in connection with an identified use, unidentified use, or unidentified substances) were observed within the corridor. No pits, ponds, or lagoons (associated with waste disposal or treatment), stained soil or pavement, stressed

vegetation, or solid waste (e.g. fill soil, significant dumping of debris, trash, etc.) were observed during reconnaissance.

To assess the potential impact of these sites, best professional efforts were used to evaluate the possible contaminants that could be present, the toxicity and mobility of these contaminants, and geological factors that could influence the migration of possible contaminants. The high and medium risk facilities are described below in **Table 2-40: Evaluation of Medium to High Risk Facilities' Contamination Types and Presence of USTs**, as these are the sites that may pose potential contamination for the project corridor due to contaminant history and proximity to the project corridor limits. Several of these facilities have been found to have current or former underground storage tank (UST) systems, which typically contain petroleum and are a potential concern because USTs commonly leak. Previous leaking underground storage tank (LUST) incidents, known and potential soil and groundwater contamination, and history of land uses and remediation were also considered in the analysis. Contamination from these offsite facilities may migrate onto the project corridor through such methods as groundwater movement, storm water runoff and drains, and soil movement.

2.2.5.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No construction is associated with Alternative 1. Therefore, no impacts to potential hazardous sites and material impacts would be possible under this Alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Several general potential environmental concerns exist for the corridor, including yellow thermoplastic pavement marking, aerially deposited lead, polychlorinated biphenyls, and dewatering which are discussed below. These contaminants may be encountered for any of the alternatives during construction and operations. These general potential concerns should be considered and addressed during the Plans, Specifications and Estimate (PS&E) phase. These include the following:

Thermoplastic Pavement Marking

Historically, lead was used as a pigment and drying agent in oil-based paint until 1978, when the federal government banned the consumer use of lead-containing paint. Yellow thermoplastic pavement markings and other types or colors of street or municipal markings may contain lead and chromium.

Aerially Deposited Lead

Aerially deposited lead (ADL) from the historical use of leaded gasoline, exists along roadways throughout California. There is the likely presence of soils with elevated concentrations of lead as a result of ADL on the state highway system right of way within the limits of the project alternatives. Soil determined to contain lead concentrations exceeding stipulated thresholds must be managed under the July 1, 2016, ADL Agreement between Caltrans and the California Department of Toxic Substances Control. This ADL Agreement allows such soils to be safely reused within the project limits as long as all requirements of the ADL Agreement are met.

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs), classified as chlorinated hydrocarbons, were manufactured from 1929 until their production was banned in 1979. PCBs were used in hundreds of industrial and commercial applications due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties. Equipment that might contain PCBs includes electrical transformers and capacitors, motor oil and hydraulic fluid, and thermal insulation material (e.g., fiberglass and felt). The area surrounding the corridor was developed during this period, and electrical equipment in the corridor area may contain PCBs.

Railroad Right of Way

Contaminants common in railway corridors include wood preservatives (e.g., creosote and arsenic) and heavy metals in ballast rock. Asbestos-containing materials might also occur in ballast rock and soils associated with railroad tracks. In addition, soils in and adjacent to these corridors might contain herbicide residues as a result of historical and ongoing weed-abatement practices. Materials and wastes would be handled, transported, and disposed of in accordance with applicable state and federal regulations, such as RCRA, CERCLA, the Hazardous Materials Release Response Plans and Inventory Law, and the Hazardous Waste Control Act.

Groundwater Dewatering

Groundwater dewatering may become necessary for construction of the bridge at Katella Avenue. Dewatering activities could collect contaminated groundwater, or alter the natural groundwater flow of the area and draw contaminated groundwater toward the project area.

Caltrans Standard Specification Section 13, 13-4.03G Dewatering controls dewatering work and discharge activities associated with dewatering. Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities. Dewatering work shall be performed as specified for the work items involved, such as a temporary Active Treatment Systems (ATS) or dewatering and discharge. If dewatering and discharging activities are not specified for a work item and dewatering activities are performed the contractor shall:

1. Conduct dewatering activities under the Department's Field Guide for Construction Site Dewatering.
2. Ensure any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
3. Discharge the water within the project limits. Dispose of the water if it cannot be discharged within project limits due to site constraints or contamination.
4. Do not discharge stormwater or nonstormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Immediately notify the Engineer upon discovering any such condition.

Permanent Impacts

Alternative 1- No Build

No construction is associated with Alternative 1. Therefore, no impacts to potential hazardous sites and material impacts would be possible under this Alternative.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Project operations would not result in creation of hazardous material or hazardous waste and would not increase people's exposure to hazardous material. Transportation of hazardous material is governed by existing rules and regulations for storage and transport of such material. It is not anticipated that the Build Alternatives would result in impacts on people and environmental resources from hazardous material and hazardous waste.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

HAZ-1: **Thermoplastic Pavement Marking:** During Final Design (PS&E) additional investigation to determine whether pavement markings contain lead and chromium shall be conducted and appropriate measures to address these potential contaminants will be included in the final bid package, if needed.

HAZ-2: **Aerially Deposited Lead:** During Final Design (PS&E) surface soils in unpaved areas along the project corridor that will be disturbed during construction shall be tested for ADL according to Caltrans ADL testing guidelines. Methods for handling and disposal, if required, as well as Caltrans Standard Specifications or Special Provisions required to comply with rules and regulations applicable to handling ADL contaminated soils, shall be determined prior to earth moving activities.

HAZ-3: **Polychlorinated Biphenyls:** During Final Design (PS&E) additional environmental investigations to determine the potential for impacts resulting from Polychlorinated Biphenyls (PCBs) shall be conducted to determine proper management, handling and disposal, if needed, as well as to identify Caltrans Standard Specifications

required to comply with rules and regulations applicable to handling any identified hazardous material.

HAZ-4: **Groundwater Dewatering:** Should dewatering be required an NPDES permit under Caltrans jurisdiction for temporary discharge will be required. During dewatering activities, groundwater sampling shall be conducted to evaluate proper management, handling, and disposal of excess groundwater.

2.2.6 Air Quality

2.2.6.1 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 (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), 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 NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA 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" 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 if the project is not federally funded.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$). 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). Travel demand and emission models are used 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.

Project-level conformity is achieved by demonstrating the Project comes from a conforming RTP and TIP; the Project has a design concept and scope[10] that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the Project complies with any control measures in the SIP. Furthermore, additional hot-spot analyses may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.6.2 Affected Environment

The report used in preparation of this section was the *Air Quality Report* (*AQR*) (June 2018).

Regional Climate and Topography

The project area lies in the South Coast Air Basin (SCAB), which includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The distinctive climate of the SCAB is determined by its terrain and geographical location. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

[10] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

The annual average temperature has little fluctuation throughout the SCAB ranging from the low 60's to the high 80's. However, with a less pronounced oceanic influence, the inland portion shows greater variability in the annual minimum and maximum temperatures. The climatological station closest to the project area is the Santa Ana Fire Station (Western Regional Climate Center, https://wrcc.dri.edu). The mean annual high and low temperatures in the project area are 85° and 43° Fahrenheit (°F), respectively. The overall climate is a mild Mediterranean, with temperatures reaching over 88 °F in the summer and dipping to 41 °F in the winter. In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. The total average annual precipitation is 13.69 inches, and the majority of precipitation occurs between December and March.

Although the Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog, especially along the coastline, are frequent; and low stratus clouds, often referred to as "high fog" are a characteristic climatic feature. Annual average humidity ranges from a high of about 72% at the coast to about 58% in the eastern portion of the Basin.

Wind patterns across the south coastal region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season. Typical summer winds in the project area range from 4 to 7 miles per hour (mph) during the day and 2 to 6 mph during the night.

Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the Basin, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally have a duration of a few days before predominant meteorological conditions are reestablished. Within the project area, Santa Ana winds have a decidedly distinct pattern. Santa Ana winds from a northerly direction flow through the Cajon Pass and then follow the Santa Ana River in a southwestward motion direction to the coast. The highest wind speeds typically occur during the afternoon due to daytime thermal convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. While the maximum wind speed during Santa Ana conditions is undefined, sustained winds of 60 mph with higher gusts are not uncommon in the project vicinity.

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion

at any given time is known as the "mixing height." This mixing height can change under conditions when the top of the inversion does not change. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer, and the generally good air quality in the winter in the project area.

Existing Air Quality

Criteria Pollutants and Attainment Status

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources describes pollutants for which there are state and/or federal air quality standards and ambient measurements, the effects and typical sources of pollutants, and the attainment/nonattainment status for criteria pollutants. The Project is located in the Cities of Anaheim and Orange, California, which are in the SCAB portion of the SCAQMD. Under federal standards, the SCAB is classified as a nonattainment area for O_3 and $PM_{2.5}$ and a maintenance area for CO and PM_{10}. The area is a federal attainment area and/or unclassified for all other pollutants. Under state standards, the SCAB is classified as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}. The area is a state attainment area and/or unclassified for all other pollutants. The table also describes visibility-reducing particles, sulfates, and hydrogen sulfide, for which California has established air quality standards.

Table 2-42: Air Quality Concentrations for the Past 3 Years Measured at Monitoring Locations shows the ambient air quality monitor data for two monitoring locations in the Anaheim area for the years 2014-2016. These monitoring locations were chosen due to their proximity to the project area (**Figure 2-18: Sites of Potential Environmental Concern (Northern Portion of Project)** and **Figure 2-19: Sites of Potential Environmental Concern (Southern Portion of Project)**and because they contain monitored data for a majority of the criteria pollutants. The Anaheim-Pampas Lane monitor is approximately six miles from the project location; the Costa Mesa-Mesa Verde Drive monitor is approximately 10.5 miles from the project location.

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[11] Standard	Federal[12] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Ozone (O_3)	1 hour	0.09 ppm[13]	--- [14]	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.	Non-attainment	Non-attainment (Extreme)
	8 hours	0.070 ppm	0.070 ppm (4th highest in 3 years)				
Carbon Monoxide (CO)	1 hour	20 ppm	35 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.	Attainment	Attainment – Unclassified
	8 hours	9.0 ppm [1]	9 ppm				
	8 hours (Lake Tahoe)	6 ppm	---				

[11] State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

[12] Federal standards are "not to exceed more than once a year" or as described above.

[13] ppm = parts per million

[14] 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 San Francisco Bay Area.

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources (continued)

Pollutant	Averaging Time	State[15] Standard	Federal[16] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Respirable Particulate Matter (PM_{10})[17]	24 hours	50 µg/m^3 [18]	150 µg/m^3 (expected number of days above standard < or equal to 1)	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.	Nonattainment	Attainment – Maintenance
	Annual	20 µg/m^3	--- [5]				

[15] State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

[16] Federal standards are "not to exceed more than once a year" or as described above.

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

[18] µg/m^3 = micrograms per cubic meter

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources (continued)

Pollutant	Averaging Time	State[15] Standard	Federal[16] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Fine Particulate Matter ($PM_{2.5}$)[5]	24 hours	---	35 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.	Nonattainment	Nonattainment (Moderate)
	Annual	12 µg/m^3	12.0 µg/m^3				
	24 hours (conformity process[19])	---	65 µg/m^3				
	Secondary Standard (annual; also for conformity process[5])	---	15 µg/m^3 (98th percentile over 3 years)				
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm[20]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of storm water. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Attainment – Unclassified
	Annual	0.030 ppm	0.053 ppm				

[19] The 65 µg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. The 15 µg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 µg/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.

[20] 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 re-designation to nonattainment in some areas after 2016.

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources (continued)

Pollutant	Averaging Time	State[15] Standard	Federal[16] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm[21] (99th percentile over 3 years)	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.	Attainment	Attainment – Unclassified
	3 hours	---	0.5 ppm[22]				
	24 hours	0.04 ppm	0.14 ppm (for certain areas)				
	Annual	---	0.030 ppm (for certain areas)				
Lead (Pb)[23]	Monthly	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.	Attainment	Attainment – Unclassified
	Calendar Quarter	---	1.5 µg/m^3 (for certain areas)				
	Rolling 3-month average	---	0.15 µg/m^3 [24]				

[21] EPA finalized a 1-hour SO_2 standard of 75 ppb (parts per billion [thousand million]) in June 2010. Nonattainment areas have not yet been designated as of 9/2012.

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

[23] 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.

[24] Lead NAAQS are not considered in Transportation Conformity analysis.

Table 2-41: State and Federal Criteria Air Pollutant Standards, Effects, and Sources (continued)

Pollutant	Averaging Time	State[15] Standard	Federal[16] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Sulfate	24 hours	25 µg/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.	Attainment	No Federal Standard
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.	Unclassified	No Federal Standard
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.	Unclassified	No Federal Standard

Source: AQR 2018

Table 2-42: Air Quality Concentrations for the Past 3 Years Measured at Monitoring Locations

			Anaheim-1630 Pampas Lane			Costa Mesa – Costa Mesa Verde Drive		
Pollutant		**Standard**	**2014**	**2015**	**2016**	**2014**	**2015**	**2016**
Ozone								
Max 1-hr concentration (ppm)			0.111	0.100	0.103	0.090	0.099	0.096
No. days exceeded: State		0.09 ppm	2	1	2	1	1	0
Max 8-hr concentration (ppm)			0.082	0.081	0.075	0.080	0.080	0.069
No. days exceeded:	State	0.070 ppm	6	1	4	6	2	0
	Federal	0.070 ppm	6	1	4	6	2	0
Carbon Monoxide								
Max 1-hr concentration (ppm)			3.1	3.1	2.6	2.7	3.0	2.1
No. days exceeded:	State	20 ppm	0	0	0	0	0	0
	Federal	35 ppm	0	0	0	0	0	0
Max 8-hr concentration (ppm)			2.1	2.2	2.1	1.9	2.2	1.7
No. days exceeded:	State	9.0 ppm	0	0	0	0	0	0
	Federal	9 ppm	0	0	0	0	0	0
PM_{10}								
Max 24-hr concentration (µg/m³)			84.0	59.0	NA	NM	NM	NM
No. days exceeded:	State	50 µg/m³	12	12	NA	NM	NM	NM
	Federal	150 µg/m³	0	0	NA	NM	NM	NM
Max annual concentration (µg/m³)			26.1	25.3	NA	NM	NM	NM
$PM_{2.5}$								
Max 24-hr concentration (µg/m³)			46.5	53.8	45.5	NM	NM	NM
No. days exceeded: Federal		35 µg/m³	NA	NA	1	NM	NM	NM
Max annual concentration (µg/m³)			16.4	14.8	9.4	NM	NM	NM
Nitrogen Dioxide								
Max 1-hr concentration (ppb)			70	70	70	70	60	60
No. days exceeded:	State	0.18 ppm	0	0	0	0	0	0
	Federal	100 ppb	0	0	0	0	0	0
Max annual concentration (ppb)			NA	14	14	10	11	10

Notes: 2017 data is not yet available from CARB.
The number of days above the standard is not necessarily the number of violations of the standard for the year.
NA = not available
Source: California Air Resources Board: http://www.arb.ca.gov/adam/welcome.html and EPA Air Data (for CO only): https://www.epa.gove/outdoor-air-quality-data/monitor-values-report

The following is a description of air toxics for which there are no established standards.

Mobile Source Air Toxics (MSAT)

In addition to the criteria pollutants for which there are NAAQS, the EPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human-made sources, including 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). The amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming the vehicle mix does not change.

Naturally Occurring Asbestos (NOA)

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

All types of asbestos are hazardous and may cause lung disease and cancer. The California Geological Survey identifies ultramafic rocks in California to be the source of NOA, and in August of 2000 they published a report titled A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos. According to this guide, the project area does not contain ultramafic rocks and therefore is not a NOA area**.**

Sensitive Receptors

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive populations that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

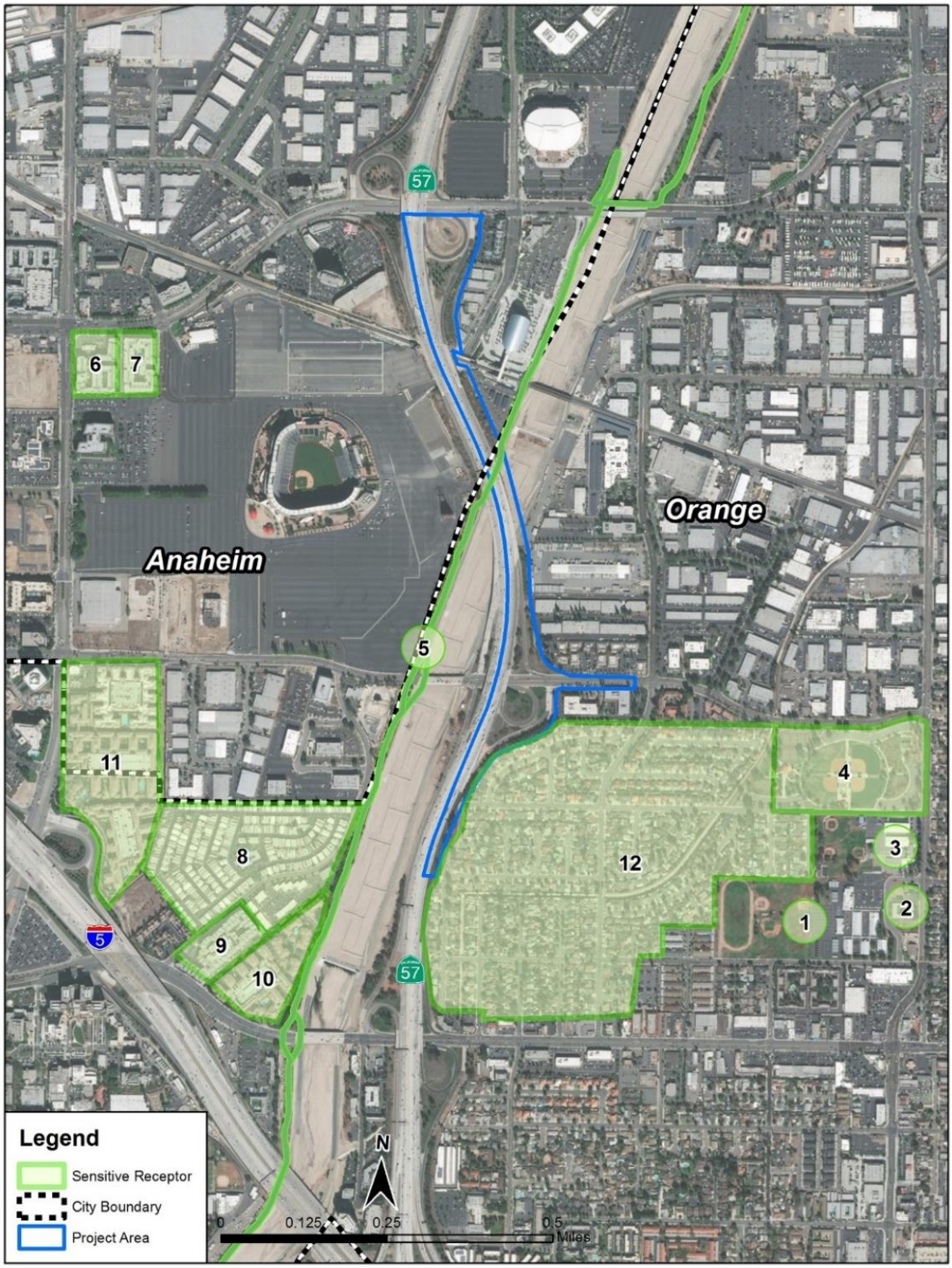
Table 2-43: Sensitive Receptors near the Project Arealists and **Figure 2-20: Sensitive Receptors and Community Facilities Near the Project Area** maps various community facilities in the study area, some of which can be considered sensitive receptors.

Table 2-43: Sensitive Receptors near the Project Area

ID	Schools
1	Portola Middle School
2	Far Horizons Montessori School
3	Sycamore Elementary School
ID	**Parks, Playgrounds, Recreation**
4	El Camino Real Park
5	Santa Ana River Trail
ID	**Residential**
6	1818 Platinum Triangle
7	2100 E. Katella Avenue
8	Park Royale Mobile Home Park
9	Allure Apartments
10	Renaissance Apartments
11	Gateway Apartment Homes
12	Residential Area

Source: Air Quality Report (AQR) 2018.

Figure 2-20: Sensitive Receptors and Community Facilities Near the Project Area



Source: AQR 2018

2.2.6.3 Environmental Consequences

Temporary Impacts

Alternative 1 – No Build

No construction or physical changes are proposed under the No-Build Alternative; therefore, no changes to the existing air quality are anticipated.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Short-Term (Construction) Impacts

Construction Equipment, Traffic Congestion, and Fugitive Dust:

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 construction-related activities. Emissions from construction equipment also are expected and would include CO, NO_X, volatile organic compounds (VOCs), directly-emitted PM10 and PM2.5, 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.

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 from most highway projects 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 site. These activities could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, 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 added source of airborne dust after it dries. PM_{10} emissions would vary from 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 U.S. EPA estimates that fugitive dust from disturbed soil can be reduced by up to 50 percent when water or other soil stabilizers are used to control the dust. The Department's Standard Specifications (Section 14-9.03) on dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM_{10} 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 surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and CARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm sulfur), so SO_2-related issues due to diesel exhaust will be minimal.

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable levels as distance from the site(s) increases.

Construction activities will last for approximately 24 months. As they will not last for more than 5 years at one general location, construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

For disclosure purposes, the construction-related emissions have been estimated using a typical phasing schedule and defaults included in the California Emissions Estimator Model (CalEEMod). CalEEMod was run assuming all the land use type option "Other Asphalt Surfaces" assuming a total disturbed area of 14.29 acres, and all other recommended defaults. The estimated short-term emissions from construction are presented in **Table 2-44: Estimated Short-term Construction Emissions.** Details of the CalEEMod input and output are provided in Appendix E of the Air Quality Report.

Table 2-44: Estimated Short-term Construction Emissions

Year	ROG[1] tons/year	NO_X tons/year	CO tons/year	SO_2 tons/year	Total PM_{10}[2] tons/year	Total $PM_{2.5}$[2] tons/year	CO2e MT/year[3]
2021	0.4310	4.0074	3.4932	0.0094	0.7347	0.3458	861.2501
2022	0.2629	1.3832	1.4680	0.0041	0.2294	0.0942	379.1094
Total	0.6939	5.3906	4.9612	0.0136	0.9641	0.4400	1240.36

[1] CalEEMod Emission results can be found in Appendix E, Table 2.1, Overall Construction (Page E-2) of the AQR.
Sample calculation: Total ROG = 0.4310 ton/year + 0.2629 ton/year = 0.6939 ton/year
[2] Total PM Emissions include fugitive and exhaust emissions
[3] MT/year = metric tons per year

Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control, will reduce air quality impacts resulting from construction activities.

- The construction contractor must comply with the Caltrans' Standard Specifications in Section 14-9 (2018). Section 14-9-02 specifically requires compliance by the contractor

with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.
- The project's contractors will comply with the South Coast Air Quality Management District (SCAQMD) rules and regulations during construction operations. This includes rules:
    - Rule 401 - Visible Emissions. Rule 401 states that no person shall discharge air contaminants of specified opacity for more than 3 minutes in 1 hour.
    - Rule 402 - Nuisance. Under Rule 402, no air contaminant shall be released into the atmosphere that causes a public nuisance. The rule prohibits discharge of air contaminants that could cause injury, detriment, nuisance, or annoyance to the public. An offensive odor can be considered a nuisance or annoyance.
    - Rule 403 – Fugitive Dust. The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.
    - Rule 403.1 – Supplemental Fugitive Dust Control Requirements for Orange County Sources. The purpose of this rule is to reduce or prevent the amount of fine particulate matter (PM10) entrained in the ambient air from anthropogenic (man-made) fugitive dust sources.
    - Rule 404 – Particulate Matter – Concentration. Under Rule 404, a person shall not discharge into the atmosphere from any source, particulate matter in excess of the concentration at standard conditions, as specified in the rule.
    - Rule 405 – Solid Particulate Matter – Weight. Under Rule 405, a person shall not discharge into the atmosphere from any source, solid particulate matter including lead and lead compounds, in excess of the rates specified in the rule.

Permanent Impacts

Alternative 1 – No Build

No construction or physical changes are proposed under the No-Build Alternative; therefore, no changes to the existing air quality are anticipated.

Alternative 2 (Preferred Alternative), 2A, 2B – Build Alternatives

Regional Conformity

The proposed Project is listed in the 2016-2040 RTP/SCS financially constrained Regional Transportation Plan, and FHWA and FTA made a regional conformity determination finding on June 1, 2016. The RTP was last amended in July 2017, and the amendment was determined to conform by FHWA and FTA on August 1, 2017. The Project is also included in the SCAG financially constrained 2019 FTIP. The SCAG 2019 FTIP was determined to conform by FHWA and FTA on December 17, 2018. The design concept and scope of the proposed Project is consistent with the project description in the 2016-2040 RTP, 2019 FTIP, and the "open to traffic" assumptions of the SCAG regional emissions analysis. Adoption and approval dates are summarized in **Table 2-45: Status of Plans Related to Regional Conformity**.

Table 2-45: Status of Plans Related to Regional Conformity

MPO	Plan/TIP	Date of adoption by MPO	Date of Approval by FHWA	Last Amendment	Date of Approval by FHWA of Last Amendment
Southern California Association of Governments	Regional Transportation Plan	April 7, 2016	June 1, 2016	Amendment #2	August 1, 2017
Southern California Association of Governments	Transportation Improvement Program (FTIP approval)	September 1, 2016	December 17, 2018	Not Applicable	Not Applicable

Source: SCAG, Final 2016 RTP/SCS 2016. http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx; SCAG, Adopted 2018 Federal Transportation Improvement Program (FTIP) 2019. http://ftip.scag.ca.gov/Pages/2019/adopted.aspx

Long Term Effects (Operational Emissions)

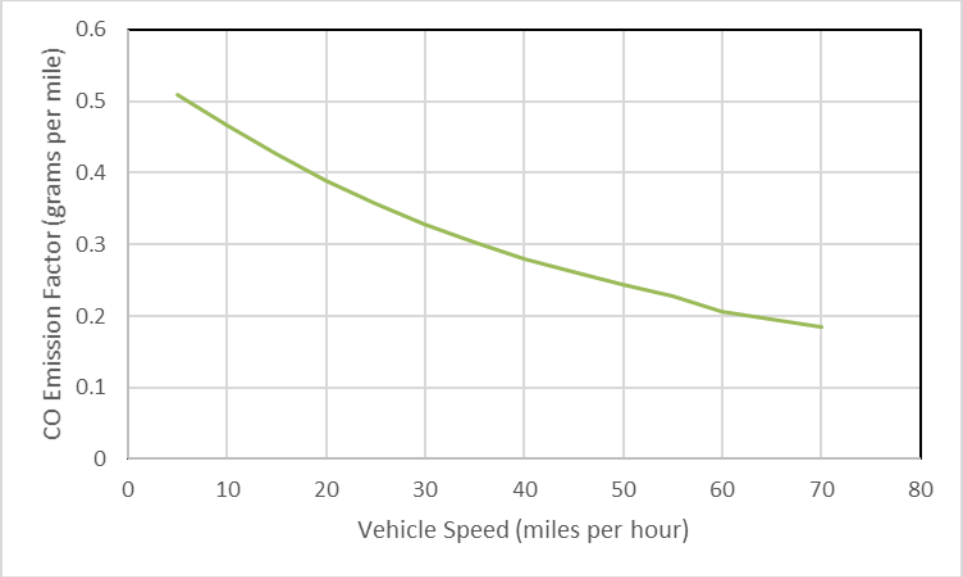
Operational emissions take into account long-term changes in emissions due to the Project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and all Build Alternatives.

The project-area emissions were estimated using Caltrans' CT-EMFAC2014 model. CT-EMFAC is a California-specific project-level analysis tool that models on-road vehicle emissions for criteria pollutants, mobile source air toxics (MSATs), and carbon dioxide (CO_2). CT-EMFAC includes a graphical user interface and an underlying database that contains emissions factors based on the California Air Resources Board (CARB) EMFAC model. With inputs of project-level travel activity data, CT-EMFAC can be used to estimate on-road vehicle emissions for an existing or proposed transportation project.

Two segments were included in the emissions burden: Northbound SR-57 from Chapman Avenue loop on-ramp to Orangewood Avenue loop on-ramp and Northbound SR-57 from Orangewood Avenue loop on-ramp to Katella loop on-ramp. Emissions were estimated for existing conditions, Opening Year build and no build, and design year build and no build. Model inputs included the daily VMT, average speed, and truck percentage presented in Chapter 1 of this document. The model was run with Orange County defaults. Traffic data was not available to differentiate between peak and off-peak periods, so all VMT was entered as peak with no off-peak VMT.

Pollutant emissions vary by vehicle speed as demonstrated in **Figure 2-21: Carbon Monoxide Emission Rate Variation with Speed**. The TOAR provided an aggregated average speed during peak travel, and CT-EMFAC was run assuming all VMT traveled at this average speed.

Figure 2-21: Carbon Monoxide Emission Rate Variation with Speed



Source: AQR 2018

The results of the regional emissions analysis are shown in **Table 2-46: Regional Emission Burden Summary (tons/year)**. The Project slightly increases regional VMT estimates by 1.6 percent, as compared to the No Build Alternative. The estimated change in pollutant burdens under the Build Alternatives vary by pollutant, ranging from an increase of 8.4 percent to a decrease of 4.5 percent. the emissions from the Build scenario are all significantly decreased from existing conditions for all criteria pollutants except PM_{10} and $PM_{2.5}$, ranging from 54 percent to 76 percent lower. PM_{10} emissions increased by 15 percent, and $PM_{2.5}$ emissions increased by 2 percent, as compared to the No Build Alternative. Copies of input and output from CT-EMFAC are provided in Appendix E of the Air Quality Report.

Table 2-46: Regional Emission Burden Summary (tons/year)

Scenario	Daily Vehicle Miles Traveled (VMT)[2]	Emission Burdens (tons/day)					
		CO[5]	TOG	NOx[5]	PM_{10}	$PM_{2.5}$	CO_2
2016 Existing	123,898	0.57	0.0575	0.196	0.0261	0.0120	207
2045 No Build	145,336	0.22	0.0259	0.050	0.0277	0.0113	157
2045 Build[1]	147,655	0.23	0.0262	0.048	0.0300	0.0123	168
% Change from Existing[3]	19%	-60%[2]	-54%	-76%	15%	2.0%	-19%
% Change from No Build[4]	1.6%	4.5%[2]	1.2%	-4.5%	8.4%	8.3%	7%

[1] Alternative represents Build Alternatives 2 (Preferred Alternative), 2A, and 2B
[2] Sum of daily VMT from Table 1-1, Table 1-2, or Table 1-4
Sample calculation: 2016 Existing VMT = 49,126 + 74,772 = 123,896
[3] % Change from Existing = (2045 Build – 2016 Existing) / 2016 Existing * 100
Sample calculation: CO % change from existing = (0.23 ton/day – 0.57 ton/day) / 0.57 ton/day * 100 = -60%
[4] % Change from No Build = (2045 Build – 2045 No Build) / 2045 No Build * 100
Sample calculation: CO % change from no build = (0.23 ton/day – 0.22 ton/day) / 0.22 ton/day * 100 = 4.5%
[5] Project emission burdens can be found in Appendix E, Table E-6 (page E-38), CT-EMFAC Results of the AQR

Project Level Hot-Spot Analysis

The Project is located in the Cities of Anaheim and Orange, California, which are in the SCAB portion of the SCAQMD. This area is in maintenance for CO, maintenance for PM_{10}, and nonattainment for $PM_{2.5}$, thus a project-level hot-spot analysis for CO and PM is required under 40 CFR 93.109.

CO Analysis

In order to determine the CO conformity requirements and the project-level CO impacts of a specific project, the flowcharts on pages 3-2 and 4-10 of the Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21) (CO Protocol) document, as revised in December 1997, are consulted.

The following series of questions and answers can be followed along with the flowcharts (highlighted in yellow in Appendix G of the project's 2018 *Air Quality Report*).

Is this Project exempt from all emissions analyses? NO

According to 1 on page 2-6 of the Transportation Project-Level Carbon Monoxide Protocol, this Project is not exempt from all emissions analyses.

Is this Project exempt from regional emissions analyses? NO

According to Table 2 on page 2-7 of the Project-Level Carbon Monoxide Protocol, this project is not exempt from regional emissions analyses**.**

Is this Project locally defined as regionally significant? YES

According to the FHWA Transportation Conformity Reference Guide:

> "[a] regionally significant project means [a] transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including, at minimum, all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel."

The Project is locally defined as regionally significant because it is included in the RTP modeling.

Is this Project in a federal attainment area? NO

Is there a currently conforming RTP and TIP? YES

Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP? YES

Has project design concept and/or scope changed significantly from that in the regional analysis? NO

Examine local impacts.

Local CO impacts are examined in the section below.

Is the Project in a CO non-attainment area? NO

The Project is in a federal CO maintenance area and a state CO attainment area.

Was the area re-designated as "attainment" after the 1990 Clean Air Act? YES

Orange County was designated a federal CO maintenance area on June 11, 2007[25].

Has "continued attainment" been verified with the local Air District, if appropriate? YES

Based on CARB monitored CO data for the SCAB, from years 2007 through the most recent records, there have been no exceedances of state or federal CO standards since Orange County was re-designated as a maintenance area.

Does the Project worsen air quality? YES

- Project does not significantly increase cold start percentage.
- Project does not significantly increase traffic volumes.
- Project improves traffic flow.

[25] Source: EPA Green Book, http://www3.epa.gov/airquality/greenbook/anayo_ca.html

The project area, which is located within Orange County, is classified as a maintenance area for CO. Therefore, a screening analysis has been performed considering the project's location, nearby receptors, traffic volumes, LOS and air quality conditions for current and future years to determine if microscale CO modeling is necessary.

This Project does not include any parking facilities where vehicles would be cold-started. Therefore, this Project would not affect cold start percentages in the area.

The Project would, however, increase traffic volumes. According to the CO Protocol, increases in traffic volumes in excess of five percent should be considered potentially significant. **Table 2-47: 2045 No Build and 2045 Build Peak Hour Traffic Volumes** displays the peak hour volumes, for both a.m. and p.m. conditions, at the major intersections in the project area. Three of the eleven of the intersections analyzed will experience over a five percent increase in peak hour traffic volumes in the Build scenarios (Alternatives 2 [Preferred Alternative], 2A and 2B), when compared to the No Build scenario. Overall, when comparing the 2045 Build peak-hours with the 2045 No Build peak-hours, the traffic volumes would increase by 3% for p.m. peak-hour in the Preferred Alternative and 2% for p.m. peak-hour in the Alternative 2A and 2B. The traffic volume at SR 57 Northbound On-Off Ramps / Orangewood Avenue would increase by approximately 28%. In the current condition, westbound traffic enters the freeway without entering the intersection. All Build Alternatives include construction of a full intersection at Orangewood Avenue that shifts eastbound traffic using the direct onramp to northbound SR 57 to the reconstructed Orangewood Avenue signalized intersection.

Table 2-47: 2045 No Build and 2045 Build Peak Hour Traffic Volumes

#	Intersection	2045 No Build Peak Hour Volumes		2045 Alternative 2 (Preferred Alternative) Peak Hour Volumes		2045 Alternative 2A & 2B Peak Hour Volumes	
		a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
1	SR 57 Northbound Off-Ramp / Ball Road	2,974	3,201	2,943	3,212	2,943	3,212
2	SR 57 Northbound Off-Ramp / Katella Ave	3,441	3,890	**3,906**	3,859	**3,906**	3,859
3	Douglass Road / Katella Ave	3,765	4,144	3,899	**4,465**	3,899	4,165
4	Main Street / Katella Ave	4,488	3,956	4,467	3,916	4,467	3,914
5	Main Street / Collins Ave	3,071	3,096	3,019	3,065	3,019	3,065
6	SR 57 Northbound On-Off Ramps / Orangewood Ave	2,508	2,787	**3,228**	**3,647**	**3,228**	**3,647**
7	North Eckhoff Street / Orangewood Ave	2,763	2,958	2,788	2,963	2,788	2,963
8	Main Street / Orangewood Avenue	3,342	3,423	3,313	3,402	3,313	3,402
9	SR 57 Northbound Off-Ramp/Chapman Ave	3,342	3,185	3,342	3,155	3,342	3,155
10	North Eckhoff Street / Chapman Ave	2,840	3,274	1,476	3,295	1,476	3,295
11	Main Street / Chapman Ave	4,348	5,382	4,357	5,361	4,357	5,361
	Total:	36,882	39,296	36,738	40,340	36,738	40,038

Bolded values represent an increase from No Build
Source: Air Quality Report, 2018.

A decrease in delay is considered an improvement in traffic flow. Delay values were calculated using the average delay, in seconds, per approaching vehicle over a one-hour time-period. The a.m. traffic commute period represents the highest traffic volume hour between 7 and 9 a.m., and the p.m. traffic commute period represents the highest traffic volume hour between 4 and 6 p.m. As shown in **Table 2-48: 2045 No Build and 2045 Build Delay**, delay will increase, and therefore worsen traffic flow, at six of the ten signalized intersections evaluated. Delay will decrease or remain the same at four intersections, and the two-way stop controlled intersection will continue to experience overflow.

Table 2-48: 2045 No Build and 2045 Build Delay

#	Intersection	2045 No Build Delay (seconds)		2045 Alternative 2 (Preferred Alternative) Delay (seconds)		2045 Alternative 2A & 2B Delay (seconds)	
		a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
1	SR 57 Northbound Off-Ramp/Ball Road	22	24.5	22	24.5	22	24.5
2	SR 57 Northbound Off-Ramp / Katella Avenue	14	9.5	**14.3**	**9.7**	**14.3**	**9.7**
3	Douglass Road / Katella Avenue	30.2	25	**31.3**	24.5	**31.3**	24.5
4	Main Street / Katella Avenue	34	34	**34.1**	32.9	**34.1**	32.9
5	Main Street / Collins Avenue	26	30.3	25.9	29.5	25.9	29.5
6	SR 57 Northbound On-Off Ramps / Orangewood Avenue	25.6	13.9	20[1]	11.9[1]	20.3[1]	**20.9**[1]
7	North Eckhoff Street / Orangewood Avenue	19.4	27	**20.7**	**27.4**	**20.5**	**27.4**
8	Main Street / Orangewood Avenue	37.5	30.2	**38.5**	**30.4**	**38.5**	**30.4**
9	SR 57 Northbound Off-Ramp / Chapman Avenue	9.4	14.7	**9.5**	**15**	**9.5**	**15**
10	North Eckhoff Street / Chapman Avenue[2]	OVF[3]	OVF[3]	OVF[3]	OVF[3]	OVF[3]	OVF[3]
11	Main Street / Chapman Avenue	51.6	39.4	**51.7**	39.2	**51.7**	39.2

Bolded values represent an increase from No Build

[1] The delay at SR 57 Northbound On-Off Ramps/Orangewood Avenue improves despite a 28% increase in volume due to the intersection reconstruction to accommodate westbound traffic turning northbound onto SR 57.

[2] Two-way stop controlled

[3] Over flow

Source: Air Quality Report, (July, 2018)

As shown in **Table 2-49: 2045 No Build and 2045 Build Level of Service**, LOS will improve or remain the same at ten intersections in the a.m. peak period and at all eleven intersections in the p.m. peak period for the Preferred Alternative. LOS will improve or remain the same at ten intersections in the a.m. peak period and p.m. peak period for Alternatives 2A and 2B. LOS will decline at one intersection in the a.m. peak period and at no intersections in the p.m. peak period for the Preferred Alternative. LOS will decline at one intersection in the a.m. and p.m. peak period for Alternatives 2A and 2B.

Table 2-49: 2045 No Build and 2045 Build Level of Service

#	Intersection	2045 No Build LOS		2045 Alternative 2 (Preferred Alternative) LOS		2045 Alternative 2A & 2B LOS	
		a.m.	p.m.	a.m.	p.m.	a.m.	p.m.
1	SR 57 Northbound Off-Ramp / Ball Road	C	C	C	C	C	C
2	SR 57 Northbound Off-Ramp / Katella Avenue	B	A	B	A	B	A
3	Douglass Road / Katella Avenue	C	C	C	C	C	C
4	Main Street / Katella Avenue	C	C	C	C	C	C
5	Main Street / Collins Avenue	C	C	C	C	C	C
6	SR 57 Northbound On-Off Ramps / Orangewood Avenue	C	B	**B**[1]	B	C	**C**
7	North Eckhoff Street / Orangewood Avenue	B	C	**C**	C	**C**	C
8	Main Street / Orangewood Avenue	D	C	D	C	D	C
9	SR 57 Northbound Off-Ramp / Chapman Avenue	A	B	A	B	A	B
10	North Eckhoff Street / Chapman Avenue[2]	F	F	F	F	F	F
11	Main Street / Chapman Avenue	D	D	D	D	D	D

[1] The LOS at SR 57 Northbound On-Off Ramps/Orangewood Avenue improves in the Preferred Alternative despite a 28% increase in volume due to the intersection reconstruction to accommodate westbound traffic turning northbound onto SR 57.
[2] Two-way stop controlled
Source: TOAR, January 2018

In summary, this Project will increase traffic volumes at two intersections and worsen traffic flow at five intersections in the project area under the Preferred Alternative. The Project will increase traffic volumes at two intersections and worsen traffic flow at six intersections in the project area under Alternatives 2A and 2B. The Project therefore has the potential to worsen air quality.

Is project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration? **YES**

Since this Project will be adding a lane to a segment of SR 57 and moving traffic closer to receptors in the project area, it is suspected of resulting in higher CO concentrations.

Does project involve a signalized intersection at LOS E or F? **NO**

Does project affect a signalized intersection worsening its LOS E or F? **NO**

Are there any other reasons to believe the project may have adverse air quality impacts? **NO**

Project satisfactory, no further analysis needed.

PM Analysis

PM emissions were estimated for Baseline, No-Build, and all Build Alternatives for the horizon year (2045). As shown in **Table 2-46: Regional Emission Burden Summary (tons/year)**, estimates of $PM_{2.5}$ and PM_{10} pollutant burdens under the Build Alternatives are predicted to increase in the project area by 8.3% and 8.4% as compared to the No Build Alternative. The $PM_{2.5}$ concentrations from the Build scenario are 2.0% lower than existing conditions, and the PM_{10} concentrations from the Build scenario are 15% lower than existing conditions.

The Transportation Conformity Guidance requires a hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule in 40 CFR 93.123(b)(1) defines a POAQC as:

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

(ii) Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

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

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

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

The proposed project is not considered a POAQC for PM_{10} and/or $PM_{2.5}$ because it does not meet the definition of a POAQC as defined in U.S. EPA's Transportation Conformity Guidance.

The Project is not a new or expanded highway project with a significant number of or significant increase in diesel vehicles (U.S. EPA's Transportation Conformity Guidance defines significant as greater than 125,000 AADT and 8% or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT; significant increase is defined in practice as a 10% increase in heavy duty truck traffic). As shown in **Table 2-50: 2045 AADT and Truck Percentages**, this segment of SR 57 has a forecast total AADT and truck AADT greater than the guidance values. However, the Project does not increase diesel vehicles, as the truck AADT and percentages do not change from No Build to Build Conditions.

Table 2-50: 2045 AADT and Truck Percentages

Segment	No Build			Build Alternative 2 (Preferred Alternative)			Build Alternatives 2A & 2B		
	AADT Total	AADT Trucks	Truck %	AADT Total	AADT Trucks	Truck %	AADT Total	AADT Trucks	Truck %
Northbound State Route 57 (Chapman Ave loop on-ramp to Orangewood Ave loop on-ramp)	142,060	9,944	7.0%	144,190	10,093	7.0%	144,190	10,093	7.0%
Northbound State Route 57 (Orangewood Ave loop on-ramp to Katella Ave loop on-ramp)	146,080	10,226	7.0%	148,500	10,395	7.0%	148,500	10,395	7.0%

Note: Truck Percentage of 7% is consistent with worksheets included in the Draft Operations Analysis Appendices for the Project Approval & Environmental Document
Source: AQR, 2018

The Project does not affect intersections that are at a Level of Service D, E or F with a significant number of diesel vehicles, or that will change to Level of Service D, E or F because of increased traffic volumes from a significant number of diesel vehicles related to the Project. As shown in **Table 2-51: 2045 Level of Service**, the Project does not cause LOS at any signalized intersections in the project area to degrade to D, E or F, when Build conditions are compared to No Build Conditions.

The Project does not involve new or expanded bus and rail terminals and transfer points that have a significant number of or increase in diesel vehicles congregating at a single location.

Furthermore, the Project is not in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan or implementation plan submission, as appropriate, as sites of possible violation.

As such, PM hot-spot analysis is not required. The Project underwent Interagency Consultation and was presented for consideration by the SCAG Transportation Conformity Working Group (TCWG) on January 23, 2018, and it was agreed upon by the TCWG that the Project is not a POAQC.

Following selection of the Preferred Alternative in January 2019, Caltrans submitted a project level conformity analysis to FHWA for concurrence. The conformity request was submitted on January 14, 2019. FHWA concurred with the project-level conformity determination on February 11, 2019. (See Appendix E for FHWA's conformity finding.)

Table 2-51: 2045 Level of Service

Intersection	2045 No Build				2045 Alternative 2 (Preferred Alternative)				2045 Alternative 2A & 2B			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
SR 57 Northbound Off-Ramp / Ball Road	22	C	24.5	C	22	C	24.5	C	22	C	24.5	C
SR 57 Northbound Off-Ramp / Katella Avenue	14	B	9.5	A	14.3	B	9.7	A	14.3	B	9.7	A
Douglass Road / Katella Avenue	30.2	C	25	C	31.3	C	24.5	C	31.3	C	24.5	C
Main Street / Katella Avenue	34	C	34	C	34.1	C	32.9	C	34.1	C	32.9	C
Main Street / Collins Avenue	26	C	30.3	C	25.9	C	29.5	C	25.9	C	29.5	C
SR 57 Northbound On-Off Ramps / Orangewood Avenue	25.6	C	13.9	B	20[1]	B[1]	11.9[1]	B	20.3[1]	C	20.9[1]	C
North Eckhoff Street / Orangewood Avenue	19.4	B	27	C	20.7	C	27.4	C	20.5	C	27.4	C
Main Street / Orangewood Avenue	37.5	D	30.2	C	38.5	D	30.4	C	38.5	D	30.4	C
SR 57 Northbound Off-Ramp / Chapman Avenue	9.4	A	14.7	B	9.5	A	15	B	9.5	A	15	B
North Eckhoff Street / Chapman Avenue[2]	OVF[3]	F	OVF[3]	F	OVF[3]	F	OVF[3]	F	OVF[3]	F	OVF[3]	F
Main Street / Chapman Avenue	51.6	D	39.4	D	51.7	D	39.2	D	51.7	D	39.2	D

[1] The delay at SR 57 Northbound On-Off Ramps/Orangewood Avenue improves despite a 28% increase in volume (see Table 2-20) due to the intersection reconstruction to accommodate westbound traffic turning northbound onto SR 57.
[2] Two-way stop controlled
[3] Over flow
Source: AQR, 2018

NO_2 Analysis

The U.S. EPA modified the NO_2 NAAQS to include a 1-hr standard of 100 ppb in 2010. Currently there is no federal project-level nitrogen dioxide (NO_2) analysis requirement. However, NO_2 is among the near-road pollutants of concern and project analysts will be expected to explain how transportation projects affect near-road NO_2.

For project-level analysis, NO_2 assessment protocol is not available. As shown in **Table 2-46: Regional Emission Burden Summary (tons/year)**, nitrogen oxide (NO_X) emissions in 2045 from the build scenario decrease by 4.5%, as compared to the no build scenario. These emissions decrease by 76% as compared to the existing year because of improvements in vehicle technology and fuel economy regulations. NO_X emissions are a combination of NO and NO_2, and can serve as a useful analysis surrogate for NO_2.

Mobile Source Air Toxics Analysis

FHWA released updated guidance in October 2016 (FHWA, 2016) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA identified three levels of analysis:

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Projects with no impacts generally include those that a) qualify as a categorical exclusion under 23 CFR 771.117, b) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, and c) are not exempt, but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. The large majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

- 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; or
- Create new 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
- Are proposed to be located in proximity to populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Based on the FHWA's recommended tiering approach, this Project falls within the Tier 2 approach (i.e., for projects with a low potential for MSAT effects). The amount of MSATs emitted would be proportional to the VMT, assuming the vehicle mix does not change. As shown in **Table 2-52: Project AADT**, the Build Alternative would cause a 2% increase in AADT in the project area and, as compared to the No Build Alternative and, as such, would not significantly affect VMT or MSATs.

Table 2-52: Project AADT

Segment	2016 Existing	2045 No Build	2045 Build[1]
Northbound State Route 57 (Chapman Ave loop on-ramp to Orangewood Ave loop on-ramp)	121,900	142,060	144,190
Northbound State Route 57 (Orangewood Ave loop on-ramp to Katella Ave loop on-ramp)	124,000	146,080	148,500

[1] Build Alternative represents the Preferred Alternative and Alternative 2A & 2B
Source: Draft Traffic Operations Analysis Report (January 2018)

Because the estimated VMT under each of the alternatives would not significantly change, it is expected there would be no significant difference in overall MSAT emissions among the Build Alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

With implementation of the project features discussed in Section 2.2.6.3 Environmental Consequences, there are no adverse impacts to air quality. Therefore, no additional Avoidance, Minimization, and/or Mitigation Measures are required.

Climate Change - 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 greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change the issue is addressed in the California Environmental Quality Act (CEQA) Chapter of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

2.2.7 Noise

2.2.7.1 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 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 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). **Table 2-53: Noise Abatement Criteria** lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Figure 2-22: Noise Levels of Common Activities 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.

According to the Department's Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011, 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.

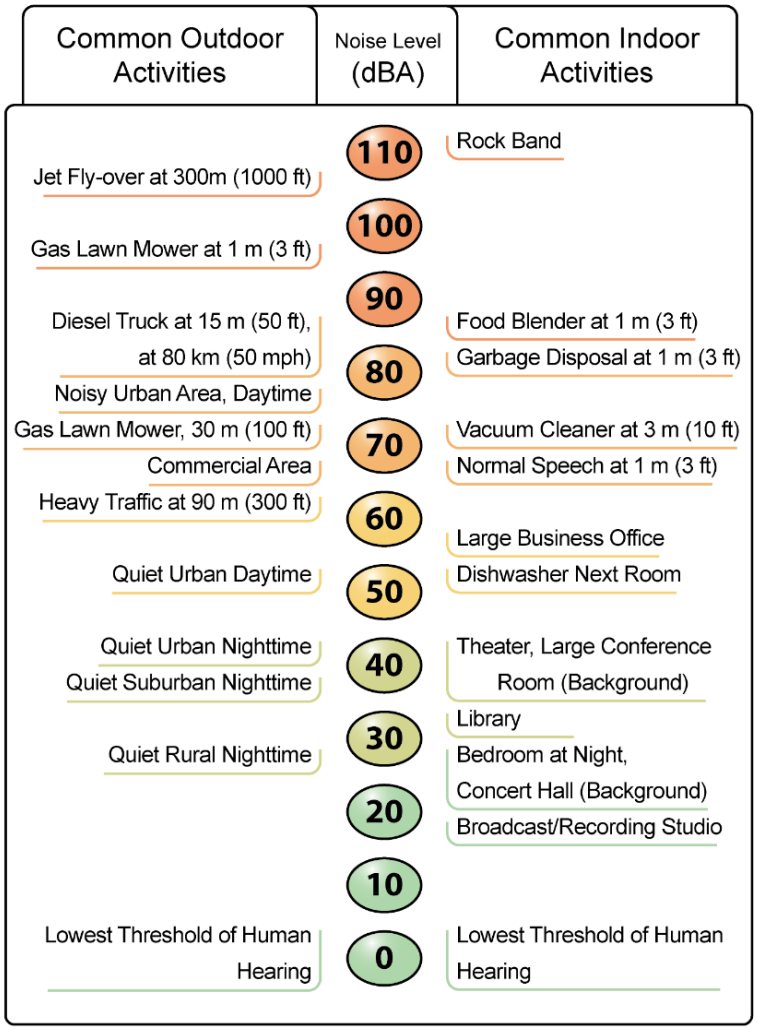
The Department's Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a minimum 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. 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.

Table 2-53: Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 Exterior	Residential.
C[1]	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 nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit 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, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

[1] Includes undeveloped lands permitted for this activity category.
Source: NSR 2018.

Figure 2-22: Noise Levels of Common Activities



Source: Caltrans, SER 2017. http://www.dot.ca.gov/ser/forms.htm

Section 216 of the California Streets and Highways Code

Section 216 of the California Streets and Highways Code relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA-Leq(h) in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. This requirement does not replace the "approach or exceed" NAC criterion for FHWA Activity Category D for classroom interiors, but it is a requirement that must be addressed in addition to the requirements of 23 CFR 772. If a project results in a noise impact under this code, noise abatement must be provided to reduce noise to a level that is at or below 52 dBA-Leq(h). If the noise levels generated from freeway and roadway sources exceed 52 dBA-Leq(h) prior to construction of the proposed freeway project, then noise

abatement must be provided to reduce the noise to the level that existed prior to construction of the project.

2.2.7.2 Affected Environment

The following section was prepared with reference to the *Noise Study Report* (NSR), (January 2018), prepared for this Project. The section describes existing conditions of the corridor, such as land uses that result in noise and sensitive receptors, as well as the consequences of the project alternatives as it relates to noise impacts.

Methodology

A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed Project. A field noise study was conducted in accordance with recommended procedures in Caltrans' Technical Noise Supplement (TeNS) (Caltrans 2013), a technical supplement to the Protocol. Site specific data, such as direction of traffic, vehicle speed, and location of the sound meter was collected along with measurements from a sound meter. This information was used to model existing and projected future noise levels in various alternative scenarios using the Traffic Noise Model Verion 2.5 (TNM 2.5) program.

Existing land uses in the project area were categorized by land use type, acoustically equivalent noise levels, and Activity Categories as defined in **Table 2-54: Summary of Identified Noise Sensitive Receptors Defined by Area**.

Table 2-54: Summary of Identified Noise Sensitive Receptors Defined by Area

Activity Category	Land Use	Corresponding Area
B	Single-family residences and multi-family residences	A
E	Hotel, Restaurant	B C D
F	Commercial retail uses	B C
None	Not Noise Sensitive	E F

Source: Noise Study Report (NSR) 2018.

An acoustically equivalent area is generally defined as an analysis area with the same or equal ambient noise levels for all the receptors due to no other major roadways splitting them and no other major noise source that further divides the area.

- Area A: Area A is located on the east side of SR 57 north of Chapman Avenue and south of Orangewood Avenue. A residential subdivision (Activity Category B) is located in this area.
- Area B: Area B is located on the east side of SR 57 north of Orangewood Avenue and south of the train track. An office building (Activity Category E) and industrial uses (Activity Category F) are located in this area.

- Area C: Area C is located on the east side of SR 57 south of Katella Avenue and north of the train track. The Ayres Hotel (Activity Category E) and industrial buildings (Activity Category F) are located in this area.
- Area D: Area D is located on the west side of SR 57 south of Katella Avenue and north of the train tracks. A retail facility (Hooters Restaurant - Activity Category E) is located in this area.
- Area E: Area E is located on the west side of SR 57 south of the train tracks and north of Orangewood Avenue. The parking lot for Anaheim Stadium and the Santa Ana River (Activity Category F) are located in this area. There are no noise sensitive land uses in Area E, so no noise modeling was done in this area.
- Area F: Area F is located on the west side of SR 57 south of Orangewood Avenue and north of Chapman Avenue. This area includes the Santa Ana River (Activity Category F). There are no noise sensitive land uses in Area E, so no noise modeling was done in this area.

Short-term measurement locations were selected to serve as representative modeling locations. Short-term monitoring was conducted at ten locations in land use Activity Categories B, C, and E between Tuesday, April 11, 2017 and Thursday, April 13, 2017.The purpose of these measurements was to identify variations in sound levels throughout the day.

The long-term sound level data was collected over three consecutive 24-hour periods, beginning Tuesday, April 11, 2017 and ending on Thursday, April 13, 2017. The purpose of these measurements was to identify overall sound characteristics of the area. (See **Figure 2-23: Analysis Areas, Noise Monitoring Positions, and Location of Evaluated Noise Barrier**)

Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). TNM 2.5 is a computer model based on two FHWA reports: FHWA-PD-96-009 and FHWA-PD-96-010 (FHWA 1998a, 1998b). Key inputs to the traffic noise model were the locations of roadways, traffic mix and speed, shielding features (e.g., topography and buildings), noise barriers, ground type, and receptors. Three-dimensional representations of these inputs were developed using CAD drawings, aerials, and topographic contours provided by OCTA. Traffic noise was evaluated under existing conditions, design-year no-project conditions, and design-year with project conditions. To validate the accuracy of the model calculations, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations.

Figure 2-23: Analysis Areas, Noise Monitoring Positions, and Location of Evaluated Noise Barrier



Source: NSR 2018.

2.2.7.3 Environmental Consequences

This impact analysis focuses on locations with defined outdoor activity areas, such as residential backyards and common use areas at multi-family residences. The Project is considered a Type 1 Project under 23 CFR 772. 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 of the highway. Modelling with a Traffic Noise Model 2.5 (TNM 2.5) allowed the study to project predicted noise levels with the Project for each alternative. Construction activities are required to comply with Caltrans Standard Specifications (Section 14-8.02), which restricts the level of noise that can be generated from construction activities at 50 feet from the job site between 9 p.m. and 6 a.m. Local noise ordinances may also apply.

Temporary Impacts

Alternative 1- No Build

The No Build Alternative proposes no changes to existing infrastructure for this project, and therefore no construction related noise impacts would be associated with this alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Table 2-55: Construction Equipment Noise summarizes noise levels anticipated to be produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Construction noise varies greatly depending on the construction process, type, and condition of the equipment used and layout of the construction site.

Table 2-55: Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Highway Administration (FHWA), Construction Noise Handbook 2006.
https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm

Construction noise associated with all Build Alternatives (2, 2A, 2B) would be minimized through compliance with standard noise reduction measures. Caltrans Standard Specifications (Section 14.8-02) require construction noise be monitored and controlled. The specifications prohibit construction noise from exceeding 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m. In addition, the city of Anaheim Municipal Code (6.70.010) prohibits construction noise levels from exceeding 60 dBA at the property line between 7 p.m. and 7 a.m. Likewise, the City of Orange Noise Control Ordinance (2700), sets the not-to-exceed noise levels for residential areas at 55 dBA between 7 a.m. and 10 p.m. and 50 dBA between 10 p.m. and 7 a.m. (construction is exempt from this ordinance between the hours of 7 a.m. and 8 p.m., except on Sunday and federal holidays). Sensitive receptors in Area A (residential units) may experience intermittent increased noise levels during the allowable construction hours depending on their distance from operating construction equipment. However, construction related noise would be short-term and temporary, and primarily overshadowed by local traffic noise.

Permanent Impacts

Alternative 1- No Build

The No Build Alternative proposes no changes to existing infrastructure for this project therefore, existing operational noise impacts would remain the same with this alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels are 12 dB or greater than existing noise levels, or where predicted design-year noise levels approach or exceed the NAC for the applicable activity category. Where traffic noise impacts are identified, noise abatement must be considered for reasonableness and feasibility as required by 23 CFR 772 and the Protocol.

For each Build Alternative (2, 2A, 2B) all measurements for sensitive receptor sites and data can be analyzed consistently due to common design features of each alternative. **Table 2-56: Predicted Future Noise and Abatement Analysis Alternative 1 (No Build)** through **Table 2-59: Predicted Future Noise and Abatement Analysis Alternative 2B** show the slight difference among build alternatives based on the modeling.

Table 2-56: Predicted Future Noise and Abatement Analysis Alternative 1 (No Build)

Area	Existing Noise Level (dBA)- Year 2018	Predicted Noise Level without Project (dBA)- Year 2045	Predicted Noise Level with Project (dBA) - Year 2045	Noise Impact Requiring Abatement Consideration?
A	58.9-65.0	59.3-65.0	N/A*	No**
B	68.1	68.4	N/A*	No**
C	64.7-65.5	64.7-65.8	N/A*	No**
D	66.5	66.5	N/A*	No**

*N/A for No Build's "Predicted Noise Level with Project (dBA)" because no infrastructure, and therefore noise levels, would not change as a result of the Project.
**No abatement consideration is needed because impacts do not reach significance threshold or NAC.
Source: NSR 2018.

Table 2-57: Predicted Future Noise and Abatement Analysis Alternative 2 (Preferred Alternative)

Area	Existing Noise Level (dBA) - Year 2018	Predicted Noise Level without Project (dBA) - Year 2045	Predicted Noise Level with Project (dBA) - Year 2045	Noise Impact Requiring Abatement Consideration?
A	58.9-65.0	59.3-65.0	59.8-65.4	No**
B	68.1	68.4	68.2	No**
C	64.7-65.5	64.7-65.8	64.2-67.6	No**
D	66.5	66.5	67.3	No**
E	N/A*	N/A*	N/A*	No**
F	N/A*	N/A*	N/A*	No**

*N/A for Areas E and F because they are not noise sensitive land uses.
**No abatement consideration is needed because impacts do not reach significance threshold or NAC.
Source: NSR 2018.

Table 2-58: Predicted Future Noise and Abatement Analysis Alternative 2A

Area	Existing Noise Level (dBA) - Year 2018	Predicted Noise Level without Project (dBA) - Year 2045	Predicted Noise Level with Project (dBA) - Year 2045	Noise Impact Requiring Abatement Consideration
A	58.9-65.0	59.3-65.0	59.8-65.4	No**
B	68.1	68.4	68.4	No**
C	64.7-65.5	64.7-65.8	62.9-67.7	No**
D	66.5	66.5	66.6	No**
E	N/A*	N/A*	N/A*	No**
F	N/A*	N/A*	N/A*	No**

*N/A for Areas E and F because they are not noise sensitive land uses.
**No abatement consideration is needed because impacts do not reach significance threshold or NAC.
Source: NSR 2018.

Table 2-59: Predicted Future Noise and Abatement Analysis Alternative 2B

Area	Existing Noise Level (dBA) - Year 2018	Predicted Noise Level without Project (dBA) - Year 2045	Predicted Noise Level with Project (dBA) - Year 2045	Noise Impact Requiring Abatement Consideration
A	58.9-65.0	59.3-65.0	59.8-65,4	No**
B	68.1	68.4	68.3	No**
C	64.7-65.5	64.7-65.8	64.2-67.1	No**
D	66.5	66.5	66.6	No**
E	N/A*	N/A*	N/A*	No**
F	N/A*	N/A*	N/A*	No**

*N/A for Areas E and F because they are not noise sensitive land uses.
**No abatement consideration is needed because impacts do not reach significance threshold or NAC.
Source: NSR 2018.

Based on the modeling, sensitive receptors in Area A (residential units) would experience ≤ 2.3 dBA increase in noise levels between the No Build and Build scenarios. Predicted noise levels would not approach or exceed the noise abatement criteria established for each land use type (e.g. 76dBA for activity category A, 72dBA for activity category E, etc.). Design Year (2045) noise levels would be ≤ 1dBA higher than existing noise levels (Year 2018). No noise impacts at sensitive receptor would occur; therefore, noise abatement need not be considered.

2.2.7.4 Avoidance, Minimization, and/or Mitigation Measures

With the implementation of standard measures for abatement of noise impacts during construction, no other noise abatement measures are required.

2.3 Biological Environment

2.3.1 Natural Communities

2.3.1.1 Regulatory Setting

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. 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.

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 [Section 2.3.5]. Wetlands and other waters are also discussed below [Section 2.3.2].

2.3.1.2 Affected Environment

The primary source used in the preparation of this section is the *Natural Environment Study* (June 2018) prepared for this Project.

The Project is predominately confined to developed lands that have been disturbed by human activities, contain public infrastructure, and contain non-native habitats for plants and wildlife. The project area also includes the Santa Ana River, which is a Water of the United States (WoUS) and Water of the State (WoS). The Santa Ana River is a flood control channel with minimal vegetation along the segment that passes through the project area. For the analysis of biological resources within the project site, a Biological Study Area (BSA) was established. This area includes the Project's proposed ground disturbance footprint and an approximate 500-foot buffer to include nearby areas that are not merely adjacent to the project footprint but that may be impacted directly and indirectly as a result of the Project. The BSA consists of three vegetation communities and land cover types as determined by a qualified biologist through pedestrian field surveys: Developed and Disturbed, Open Water/River, and Ornamental Landscaping (see **Table 2-60**: **Vegetation Communities and Land Cover Types Observed within the BSA**). Included in the BSA is a portion of the Santa Ana River (see **Table 2-61: Permanent and Temporary Site Impacts by Alternative and Vegetation Communities / Land Cover Type**).

None of the vegetation communities and land cover types detected within the Project are characterized as sensitive or unique natural communities. It is worth noting that Natural Communities of Special Concern are those locales that include rare plant and animal species or are habitats with unique biological functions and values.

Table 2-60: Vegetation Communities and Land Cover Types Observed within the BSA

Vegetation Community/ Land Cover Type	Total Acres within the BSA	Percentage of Type within the BSA
Developed and Disturbed	118.1	76%
Open Water/River	16.7	11%
Ornamental	20.0	13%
Total	154.8	100.00%

Source: NES 2018.

Table 2-61: Permanent and Temporary Site Impacts by Alternative and Vegetation Communities / Land Cover Type

Vegetation Community and Land Cover Type	Alternative 2 (Preferred Alternative)		Alternative 2A		Alternative 2B	
	Permanent Loss (acres)	Temporary Disturbance (acres)	Permanent Loss (acres)	Temporary Disturbance (acres)	Permanent Loss (acres)	Temporary Disturbance (acres)
Developed / Disturbed	3.76	1.13	4.33	1.11	4.25	1.13
Open Water/River	0.02	4.87	0.02	4.88	0.02	4.88
Ornamental	4.86	2.06	4.64	2.17	3.79	3.17
Total	8.64	8.06	8.99	8.16	8.06	9.18

Source: NES 2018.

2.3.1.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No impacts to the natural communities would occur under the No Build Alternative because no changes to the existing environment would be made in association with the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Greater than 90% of the Project's ground disturbance will directly affect Developed lands and Ornamental landscaping (i.e., landscaping that is dominated by plants which were cultivated or grown to serve decorative purposes) for the majority of the Project. No natural communities of special concern are located within the BSA. The presence of the Santa Ana River within the BSA suggest that there is a potential, even though very small, for the Project to affect the movement and dispersal of flora and fauna within the regions. The Santa Ana River is known to connect large areas of nature open space that is considered essential for long-term plant and wildlife

viability in Southern California; however the Santa Ana River within the BSA is composed entirely of trapezoidal flood control channel with minimal vegetation. Furthermore, within the BSA there exists some low quality but suitable nesting, roosting, refuge, flyway/movement, and foraging habitats for avian species and small mammals. Potential impacts to these habitats are temporary in nature and this Project will not cause permanent impacts to these habitats. Landscape replacement and other best management standard measures will be applied where resources are identified. It is not anticipated that the Project will result in impacts to natural communities as a result of construction activities.

Permanent Impacts

Alternative 1 - No Build

No impacts to the natural communities would occur under the No Build Alternative because no changes to the existing environment would be made in association with the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

It is anticipated that this Project will not result in the permanent loss of any native habitats, sensitive, or unique natural communities since they do not occur in the BSA.

2.3.1.4 Avoidance, Minimization, and/or Mitigation Measures

Impacts to native habitats, sensitive, or unique natural communities have been avoided and minimized to the greatest extent practicable with the incorporation of standardized measures. No measures are required specifically to mitigate for the loss of natural communities.

2.3.2 Wetlands and Other Waters

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under several 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. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (i.e. 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 that is less damaging to the aquatic environment exists or if the nation's waters would be significantly degraded. The Section 404 permit program is regulated by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional General and Nationwide. Regional General permits (RGP) are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits (NWP) 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 an RGP or NWP may be permitted under one of USACE's Individual permits (IP). There are two types of IPs: Standard permits and Letters of Permission. For IPs, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 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, to allow the discharge of dredged or fill material into the aquatic system (i.e. waters of the U.S.) only if there is no practicable alternative that would have a 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 WoUS, 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 regarding wetlands. Essentially, EO 11990 states that a federal agency, such as 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. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCBs), and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission, the Bay Conservation and Development Commission, or the 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. The 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 (Porter-Cologne 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 WoUS. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section [2.2.2] for more details.

2.3.2.2 Affected Environment

The primary source used in the preparation of this section is the Natural Environment Study (NES) (June 2018) and the Delineation of Waters and Wetlands report which may be found as an appendix to the NES. As a result of early coordination, USACE and OCTA decided that a Programmatic IP would be sought for the overall Program which establishes Letter of Permission (LOP) procedures, thereby streamlining the approval of each individual project, as well as providing approval of the compensatory mitigation types and locations provided at Aliso Creek, Agua Chinon, and Ferber Ranch to offset unavoidable impacts to Waters of the United States (WoUS).

A routine field determination was conducted within the study area for USACE-defined wetland and non-wetland WoUS and Waters of the State (WoS) using methods derived from the USACE and other published guidelines. The study area was surveyed on March 17 and 18, April 11 and 12, and May 2, 2017, to determine the presence/absence and boundaries of potential special aquatic resources (i.e., WoS, WoUS, and sensitive riparian vegetation communities) that were identified in the literature review as well as through field observations. Areas that were determined to have an OHWM and/or defined bed/bank and suspected of being WoS, WoUS or sensitive riparian communities were further analyzed as to whether they met the USACE definition of a jurisdictional wetland by having a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

Wetlands and Other Waters

For the purposes of this document, the "study area" is defined as the project footprint and its surrounding localized watershed. The Project is located within an urban setting, which has been heavily influenced by past and current human activities. Existing conditions include SR 57, ubiquitous residential and commercial developments and infrastructure accessories (e.g. electrical distribution, highway interchanges, flood control facilities, paved roads, etc.).

No wetlands were identified in the BSA, but roughly 16.5-acres of WoUS and WoS have been mapped within the BSA, as shown in **Figure 2-24: Waters of the U.S. and Waters of the State**. This WoUS included relatively permanent waters (RPWs) that flow directly or indirectly into Traditional Navigable Waters (TNWs).

Figure 2-24: Waters of the U.S. and Waters of the State



Table 1. Waters of the U.S. and State

Feature ID	Waters of the U.S. Acres	Waters of the State Acres	Ordinary High Water Mark Average Width	Length	Center Latitude/Longitude
Feature 1 (Santa Ana River)	16.536	20.771	260 ft.	3,775 ft.	33.796965, -117.878645
Total	16.536	20.771			

Table 2. Data Point Location

Number	Latitude/Longitude
1	33.800209, -117.877413

Table 3. Photograph Locations

Number	Direction	Latitude/Longitude
1	NE	33.801287, -117.877587
2	NE	33.795548, -117.879684
3	SE	33.795140, -117.879856
4	SE	33.805727, -117.879821
5	NE	33.806185, -117.879936
6	S	33.800324, -117.877413

Source: NES, 2018

Santa Ana River

The Santa Ana River is a relatively permanent (i.e. flowing for more than three months), riverine water feature that exhibits a clear and well-defined OHWM, and has a significant nexus to the Pacific Ocean, which is a traditional navigable water (TNW). (See **Table 2-62: Summary of Jurisdiction Pursuant to Section 404 and 401 of the CWA and Pursuant to Section 1600 (et seq.) of the CFGC**.) It is a tributary of the Pacific Ocean and drains a vast upstream watershed that extends into Riverside County. The Santa Ana River within the study area is composed entirely of a concrete, trapezoidal flood control channel with little or no vegetation. No characteristic wetland vegetation or wetland indicators were observed within this portion of the Santa Ana River, and therefore, no USACE-defined wetlands were identified.

The Santa Ana River receives storm water flows from seasonal precipitation events as well as from surface water runoff from excess landscape irrigation. Point source discharges associated with commercial and residential developments also contribute flow to this reach of the Santa Ana River. Hydrology within the Santa Ana River is relatively permanent meaning it has continuous flow at least seasonally (i.e., at least 3 months). Primary indicators of water flow include water marks, sediment deposits, and debris deposits. The Santa Ana River drains a vast upstream watershed extending into Riverside County. It carries surface flows (e.g., storm water, water from precipitation events, surface run-off, and irrigation flows) through the study area, and continues approximately 12 miles southwest before draining into the Pacific Ocean near Newport Beach; therefore, the water conveyance feature is considered a WoUS and WoS. Within the BSA, the Santa Ana River has been affected by the construction of the historic bridge and adjacent developments. It is sparsely vegetated, and within the project site, fill material has been introduced where the existing bridge crosses the river.

Table 2-62: Summary of Jurisdiction Pursuant to Section 404 and 401 of the CWA and Pursuant to Section 1600 (et seq.) of the CFGC

Feature ID	Feature Classification	Section 404 of the CWA (acres)	USACE Defined - Wetland (acres)	Section 401 of the CWA (acres)	CFGC 1600 (et seq.) (acres)
Santa Ana River	Relocated tributary or excavated flood control facility within a tributary; Santa Ana River; relatively permanent water with a well-defined OHWM; concrete banks are part of this drainage feature; RPW; unvegetated; drains to Pacific Ocean (a TNW).	16.5	0.00	16.5	16.5
		Dominant Vegetation	Latitude/ Longitude (Decimal Degrees)	Active Channel Width (Linear Feet)	Cowardin Type
		Channel and banks devoid of vegetation	33.796972/ -117.878643	260	Riverine

Source: NES 2018.

2.3.2.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No impacts to the WoUS or WoS would occur under the No Build Alternative because no changes to the existing environment would be made in association with the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

All of the Build Alternatives will widen the Santa Ana River Bridge. Temporary impacts will result from the activities required for widening of piers within the Santa Ana Riverbed which requires excavation and grading of the riverbed and slopes. This impact to WoUS and WoS is unavoidable, but has been minimized in project design. In addition, additional measures will be implemented to minimize and avoid impacts to waters during the project construction. These include best management practices such as trash control, restoration of temporary impacts, and restriction of impacts during rainy seasons.

Impacts to USACE Jurisdiction

Temporary impacts and permanent losses of WoUS subject to USACE jurisdiction per Section 404 of the CWA are provided in **Table 2-63: USACE Temporary Impacts and Permanent Losses**.

Table 2-63: USACE Temporary Impacts and Permanent Losses

Feature name	Temporary impacts to USACE-defined wetland (acres)	Temporary impacts to WoUS (acres)	Permanent losses of USACE-defined wetland (acres)	Permanent losses of WoUS (acres)
Santa Ana River Alternative 2 (Preferred Alternative)	0.0	4.870	0.0	0.020
Santa Ana River Alternative 2A	0.0	4.88	0.0	0.020
Santa Ana River Alternative 2B	0.0	4.88	0.0	0.020

Source: NES 2018.

Impacts to RWQCB Jurisdiction

Temporary impacts and permanent losses subject to RWQCB jurisdiction per Section 401 of the CWA are provided in **Table 2-64: RWQCB Temporary Impacts and Permanent Losses**.

Table 2-64: RWQCB Temporary Impacts and Permanent Losses

Feature Name	Temporary impacts to RWQCB jurisdiction (acres)	Permanent Losses of RWQCB jurisdiction (acres)
Santa Ana River Alternative 2 (Preferred Alternative)	4.87	0.020
Santa Ana River Alternative 2A	4.88	0.020
Santa Ana River Alternative 2B	4.88	0.020

Note (a) Surfaces are in acres.
Source: NES 2018.

Impacts to CDFW Jurisdiction

The Santa Ana River contains a defined bed, bank, and channel, and provides ecological functions and values to local and migrating wildlife. Therefore, it is subject to CDFW jurisdiction pursuant to Section 1600 (et seq.) of the California Fish and Game Code (CFGC) and CWA Sections 404 and 401. Temporary impacts and permanent losses are provided in **Table 2-65: CDFW Temporary Impacts and Permanent Losses**.

Table 2-65: CDFW Temporary Impacts and Permanent Losses

Feature Name	Temporary impacts to CDFW jurisdiction (acres)	Permanent Losses of CDFW jurisdiction (acres)
Santa Ana River Alternative 2 (Preferred Alternative)	4.87	0.020
Santa Ana River Alternative 2A	4.88	0.020
Santa Ana River Alternative 2B	4.88	0.020

Source: NES 2018.

Permanent Impacts

Alternative 1 - No Build

No impacts to the WoUS or WoS would occur under the No Build Alternative because no changes to the existing environment would be made in association with the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

The Project will result in less than 0.1 acres of permanent loss of WoUS and WoS (i.e., Santa Ana River). In addition, the Project would temporally disturb WoUS and WoS. In summary, compliance with applicable codes, ordinances, laws, and other required regulations will safeguard no net loss of WoUS and WoS.

Similar to the OCTA Conservation Plan, OCTA and Caltrans have worked with the USACE to define a Programmatic Individual Permit for the 13 M2 freeway projects which establishes Letter of Permission (LOP) procedures. This Permit (SPL-201200830-VCL) streamlines the individual project level Section 404 permitting for the M2 freeway projects. On a parallel process, the SWRCB has committed to following the same process established for the Section 404 permitting. In order for the USACE to issue the 404 Programmatic Permit, the SWRCB must first issue a General 401 Certification. Advanced mitigation is being provided for the General 401 Certification and is consistent with the compensatory mitigation credits required for the USACE Permit.

Once the project design is approved and concurrence is received regarding the mitigation statement, LOPs and the project-level 401 Certification would then authorize the discharge of dredged or fill material associated with the specific project designs, include any special conditions, and indicate the amount of mitigation acreage to be deducted from the appropriate site. This step is anticipated to be completed during the design phase of this Project. Project level applications will be processed through the SWRCB. The SWRCB will coordinate with the specific Regional Water Quality Control Board as necessary.

The mitigation presented will compensate for project impacts and will result in a net increase in aquatic resource functions. The USACE will determine whether project impacts can be authorized under established LOP procedures; whether additional special conditions will be required; or whether authorization under another USACE permit type will be required. Caltrans and OCTA will obtain the LOP and/or other required USACE permit prior to impacting areas under the jurisdiction of the USACE, the CDFW, and/or the RWQCB (i.e., riparian habitats) and will implement the approved mitigation plan.

The LOP permit included conservative estimated impact numbers for each M2 freeway project. These numbers were based on discussions with Caltrans and OCTA engineers as well as previously permitted freeway projects. Design information was unavailable during the development of this permit. The intent was to capture any and all future potential impacts in order to provide adequate mitigation at the program level. It is anticipated that the LOP impact numbers will be greater than the project level design numbers. This was deliberate to avoid risk and uncertainty for permit coverage. As such, the forecasted permanent impacts for this freeway project (Project G) are well within (below) the LOP permitted impact amount.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

In collaboration with regulatory agency staff, Caltrans, OCTA, and resource specialists, permanent loses to WoUS and WoS have been minimized. The current Project restricts total impacts and temporary disturbances of WoUS and WoS. The OCTA and Caltrans have the following general conservation plan measures to reduce the magnitude of the Project's potential effects on WoUS and WoS.

BIO - 1: **Delineation of Environmentally Sensitive Areas:** Prior to clearing or construction, highly visible barriers (such as orange construction fencing) will be installed around areas adjacent to the project footprint to designate environmentally sensitive areas to be protected. No project activity of any type will be permitted within these environmentally sensitive areas. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the environmentally sensitive areas. All construction equipment will be operated in a manner to prevent accidental damage to environmentally sensitive areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the environmentally sensitive area boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities. (OCTA M2 NCCP/HCP Section 5.6.1)

BIO - 2: **Restoration of Temporary Impacts:** Areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies. (OCTA M2 NCCP/HCP Section 5.6.1)

BIO - 3: **Trash Control:** To avoid attracting predators of Covered Species and other sensitive species, the project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site(s). (OCTA M2 NCCP/HCP Section 5.6.1)

BIO - 4: **Onsite Training:** When in or near natural habitat areas, all personnel involved in the onsite project construction will be required to participate in a preconstruction training program to understand the avoidance and minimization obligations on the Project. (OCTA M2 NCCP/HCP Section 5.6.1)

BIO - 5: **Biological Monitoring:** The Biological Monitor will be present on site during all grubbing and clearing of vegetation near ESAs to ensure that these activities remain within the Project footprint and that the flagging/stakes/fencing is being maintained. The Biological Monitor will send weekly monitoring reports to Caltrans and the OCTA

NCCP Administrator during the grubbing and clearing of vegetation near ESAs. (OCTA M2 NCCP/HCP Section 5.6.1)

BIO – 6: **Jurisdictional Aquatic Resources and Species Policy:** The OCTA Conservation Plan requires that construction activities in aquatic resources, such as the Santa Ana River, be restricted during the rainy season (October 15 through June 1) or be conducted when the resource is dry and/or lacks flowing or standing water. Construction activities in human-made features cannot be restricted to a given season because they are often managed, and, therefore, water may be present regardless of the season. In the event that construction work-window restrictions cannot be followed, or in the case of human-made features, additional avoidance and minimization measures are required. As part of the additional specific avoidance and minimization measures, dewatering and water diversion will be implemented as described below, and additional Best Management aquatic resources will be implemented as determined through consultation with USACE, CDFW's Lake and Streambed Alteration Program, and RWQCB (SWRCB). The additional BMPs may include the placement of additional straw wattles, silt fencing, or protective barriers as necessary.

BIO - 7: **Dewatering/Water Diversion:** Construction activities in special aquatic resources will be restricted to the dry season (June 1 through October 15) when possible. However, open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, CDFW's Lake and Streambed Alteration Program, and RWQCB), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen aquatic resources impacts during construction:

a) The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the Project.

b) The timing of work within all channelized waters is to be coordinated with the regulatory agencies.

c) The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the contractor's work area, where possible, and outlet through a sandbag dam at the downstream end.

d) Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and

sediment-laden water from entering the mainstream flow. Accumulated sediments will be periodically removed from the catch basins.

BIO - 8: **Use of Best Management Practices During Construction:** Caltrans/OCTA will identify structural and non-structural Best Management Practices (BMPs) to control sediment and non-storm water discharges from the project site to protect water quality. Actions to prevent sediment from entering watercourses during and after construction may include, but are not limited to, the following BMPs: silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary, construction-related BMPs may include, but will not be limited to, the following:

a) Silt Fence. A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.

   Fiber Rolls. A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff; reduce its flow velocity; release the runoff as sheet flow; and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

b) Gravel Bag Berms. A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.

c) Preservation of Existing Vegetation. Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion.

d) Stockpile Management. Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, paving materials (e.g., Portland cement concrete rubble, asphalt

concrete, asphalt concrete rubble, aggregate base, aggregate subbase or pre-mixed aggregate), asphalt minder (so called "cold mix" asphalt), and pressure-treated wood.

Vehicle and Equipment Maintenance. Contamination of storm water resulting from vehicle and equipment maintenance can be prevented or reduced by running a "dry and clean site". The best option would be to perform maintenance activities at an off-site facility. If this option is not available, then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures. In addition, runoff from the finished roadway could affect water quality in the Santa Ana River.

BIO - 9: **Best Management Practices Incorporated into Project Design:** Caltrans/OCTA will include permanent treatment BMPs in the project design that will upgrade and install storm drain system facilities and storm drain controls for the Project. Permanent BMPs will be implemented for the protection of water quality using Caltrans-approved techniques and would be designed to meet RWQCB and National Pollutant Discharge Elimination System (NPDES) permit requirements. Permanent treatment BMPs may include, but would not be limited to, infiltration devices (infiltration trenches), biofiltration swales, and biofiltration strips.

a) Infiltration trenches are basins or trenches that store runoff and allow it to infiltrate into the ground, thus preventing pollutants in the captured runoff from reaching surface waters.

b) Biofiltration strips are vegetated land areas, over which storm water flows as sheet flow. Biofiltration swales are vegetated channels, typically configured as trapezoidal or V-shaped channels that receive and convey storm water flows while meeting water quality criteria and other flow criteria. Pollutants are removed by filtration through the vegetation, sedimentation, adsorption to soil particles, and infiltration through the soil. Strips and swales are effective at trapping litter, total suspended sediment, and particulate metals. Biofiltration strips and swales would be considered wherever site conditions and climate allow vegetation to be established and where flow velocities will not cause scour. The intent of the BMPs implemented will be to reduce pollutants in storm water discharge to the maximum extent practicable (MEP).

c) The Project will conform to the Caltrans State Storm Water Management Plan (SWMP) (Caltrans 2003) and will provide guidance for compliance with the NPDES Permit requirement for discharge. As part of the Project Delivery Storm Water Management Program described in the SWMP, selected Construction Site,

Design Pollution Prevention, and Treatment BMPs will be incorporated into the Project. Compliance with the standard requirements of the SWMP for potential short-term (during construction) and long-term (post construction) impacts will avoid or minimize potential impacts on water quality and storm water runoff. Conformance with the SWMP will include the following:

- Covered Projects will comply with the provisions of the Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ, NPDES No. CAS00003) and the NPDES General Permit, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit in effect at the time of construction.
- A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to affect water quality. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include the Construction Site BMPs to control pollutants (e.g., sediment control, catch basin inlet protection, construction materials management) and non-stormwater BMPs. All Construction Site BMPs will follow the latest edition of the Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2007) to control and minimize the impacts of construction and construction-related activities, material, and pollutants on the watershed. These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.
- Caltrans-approved treatment BMPs will be implemented to the MEP consistent with the requirements of the NPDES Permit, Statewide Storm Water Permit, and WDRs for Caltrans Properties, Facilities, and Activities (Order No. 2012-0011-DWQ, NPDES No. CAS000003).
- Treatment BMPs will include, for example, biofiltration strips/swales, infiltration basins, detention devices, dry weather flow diversion, Gross Solids Removal Devices (GSRDs), media filters, and wet basins. Final determination regarding the selection of treatment BMPs will occur during the design phase.
- Design Pollution Prevention BMPs will be implemented, such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems

(e.g., ditches, berms, dikes and swales), oversized drains, flared end sections, and outlet protection/velocity dissipation devices.

- Construction site dewatering must conform to the General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (de minimus) Threat to Water Quality (Order No R8-2009-0003, NPDES No. CAG998001), and any subsequent updates to this permit at the time of construction. Dewatering BMPs must be used to control sediments and pollutants, and the discharges must comply with the WDRs issued by the Santa Ana RWQCB.

In addition, the following compensatory measure will be implemented for impacts on jurisdictional waters:

WET-1 **Compensatory Mitigation.** Unavoidable permanent losses of streambeds and jurisdictional waters (less than 0.1 acre), will be compensated at the pre-approved mitigation sites identified in Table E-1 of Appendix E of the OCTA M2 NCCP/HCP. Additionally, for temporary disturbances to streambeds, the impact areas will be restored to their pre-project conditions, when appropriate, to achieve the no-net-loss standards.

2.3.3 Plant Species

2.3.3.1 Regulatory Setting

The USFWS and 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 the Threatened and Endangered Species section 2.3.5 in this document for detailed information about these species.

This section of the document discusses all 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. Caltrans 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 21000-21177.

2.3.3.2 Affected Environment

The primary sources used in the preparation of this section is the *Natural Environment Study* (June 2018). This section presents a broader discussion of the dominant plant species found in the project area; a more detailed discussion regarding special status species is found in the Threatened and Endangered Species section (Section 2.3.5) of this document.

As discussed in Section 2.3.1 above, the BSA consists of three land cover types as determined by a qualified biologist through pedestrian field surveys: Developed and Disturbed, Open Water/River, and Ornamental Landscaping.

Vegetation Communities and Land Cover Types

Developed and Disturbed

These urbanized lands have ruderal species, also known as plant species first to colonize disturbed lands, dominated by non-native, weedy and invasive species.

Open Water/River

The Santa Ana River portion within the BSA is a flood control channel within minimal vegetation.

Ornamental

The vegetation community observed within the BSA includes landscaping that is dominated by non-native plants and species which are cultivated or grown to serve decorative purposes. Dominant flora detected within this community included Peruvian pepper (*Schinus molle*), tree of Heaven (*Ailanthus altissima*), treasure flower (*Gazania linearis*), and Mexican fan palm (*Washingtonia robusta*).

Plant Species

Plants species potentially occurring or known to occur within project site are listed below in **Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site**. The qualified biologist then used this information on pedestrian surveys to identify if these plants had the potential for occurrence[26] in the project site. Habitat within project site was not considered suitable to support special status species and no special-status species were present in the project area during pedestrian surveys. **Table 2-67: Plant Species Observed in the BSA** shows a list of plant species that were observed within the BSA, of which were mainly comprised of noxious weeds and invasive plant species.

[26] Potential for occurrence definitions utilized within Chapter 3 were derived from the on-line 2017 Caltrans Standard Environmental Reference. The following defines the potential for occurrence definitions within this NES: Absent [A] Species distribution is restricted by substantive habitat requirements which do not occur or are negligible within the project Site; no further survey or study is obligatory to determine likely presence or absence of this species; Habitat Present [HP] – Species distribution is restricted by substantive habitat requirements which occur within the project Site; further survey or study may be necessary to determine likely presence or absence of species; Present [P] – Species or species sign were detected within the project Site; and Critical Habitat [CH] – The project Site is located within a USFWS-designated critical habitat unit.

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site[27]

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[28]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Chaparral sand-verbena	*Abronia villosa var. aurita*	None	None	1B.1	Chaparral sand-verbena is found in chaparral, coastal scrub and desert dunes.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the BSA, and no further survey or study is obligatory to determine likely presence or absence of this species
Aphanisma	*Aphanisma blitoides*	None	None	1B.2	Aphanisma is a beach-dwelling plant native to the coastline of Baja California and southern California, including the Channel Islands. It is a succulent saline-adapted plant found in sand or scrubs at the immediate coastline.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the BSA, and no further survey or study is obligatory to determine likely presence or absence of this species

[27] Table 2-66 is based on available information from the California Natural Diversity Database, U.S. Fish & Wildlife Service, California Native Plant Society, resource management plans, coordination with local resource experts, and relevant documents that were assessed to determine the locations and types of biological resources that have the potential to exist within and adjacent to the project.

[28] The habitat descriptions summarized within Table 2-66 are based on available information from the California Natural Diversity Database, U.S. Fish & Wildlife Service, California Native Plant Society, Holland (1986), Sawyer et al. (2009), Baldwin et al. (2012) and coordination with local resource experts.

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Braunton's milk-vetch	*Astragalus brauntonii*	Endangered	None	1B.1	Braunton's milkvetch is endemic to carbonate or calcareous soils of the foothills of the southern California mountains. It commonly occurs in disturbed chaparral, coastal sage scrub, and closed-cone forests at elevations of 50 to 2,000 feet (15-610 meters). Soil requirements of Braunton's milkvetch contribute to its limited distribution.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Coulter's saltbush	*Atriplex coulteri*	None	None	1B.2	Coulter's saltbush is a perennial herb located on coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grassland, alkaline or clay soil; blooms Mar.-Oct. Elevation less than 1,050 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
South coast saltscale	*Atriplex pacifica*	None	None	1B.2	South coast saltscale is an annual herb found on coastal bluff scrub, coastal dunes, coastal sage scrub, and playas; blooms Mar.-Oct. Elevation less than 500 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Parish's brittlescale	*Atriplex parishii*	None	None	1B.1	Parish's brittlescale is an annual herb found in chenopod scrub, playas and vernal pools; blooms June-Oct. Elevation 100-6,500 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Davidson's saltscale	*Atriplex serenana var. davidsonii*	None	None	1B.2	Davidson's saltscale is an annual herb found in coastal bluff scrub, coastal sage scrub and alkaline soil; blooms April-Oct. Elevation less than 1,000 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Plummer's mariposa-lily	*Calochortus plummerae*	None	None	4.2	Plummer's mariposa-lily is a perennial herb found in chaparral, coastal scrub, cismontane woodland, valley and foothill grassland; with granitic, rocky soil; blooms May-July. Elevation 330-5,600 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Intermediate mariposa-lily	*Calochortus weedii var. intermedius*	None	None	1B.2	Intermediate mariposa-lily is a perennial herb found in chaparral, coastal scrub, valley and foothill grassland with rocky soil; blooms May-July. Elevation 590-2,830 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Southern tarplant	*Centromadia parryi ssp. australis*	None	None	1B.1	Southern tarplant is an annual herb found on the margins of marshes and swamps, valley and foothills and grasslands and vernal pools; blooms May-Nov. Elevation less than 1,400 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Salt marsh bird's-beak	*Chloropyron maritimum ssp. maritimum*	Endangered	Endangered	1B.2	Salt marsh bird's-beak grows in in low clumps in areas of high salt concentrations, including coastal salt marshes and inland salt flats. This species blooms from May to October.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
San Fernando Valley spineflower	*Chorizanthe parryi var. fernandina*	Proposed Threatened	Endangered	1B.1	San Fernando Valley spineflower is found primarily in sandy soils within coastal scrub. Elevation 3 – 3,000 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Long-spined spineflower	*Chorizanthe polygonoides var. longispina*	None	None	1B.2	Long-spined spineflower is found in chaparral, coastal scrub, meadows, valley and foothill grassland within gabbroic clay. Elevation 100 – 3,500 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Many-stemmed dudleya	*Dudleya multicaulis*	None	None	1B.2	Many-stemmed dudleya is often associated with clay soils in barrens, rocky places, and ridgelines as well as thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands on clay soils.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Santa Ana River woollystar	*Eriastrum densifolium ssp. sanctorum*	Endangered	Endangered	1B.1	Restricted to open washes of early-successional alluvial fan scrub environments. Occurs in sandy and gravelly soils, and in rock mounds and boulder fields.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
San Diego button-celery	*Eryngium aristulatum var. parishii*	Endangered	Endangered	1B.1	San Diego button-celery occurs only in vernal pools with clay soils.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Los Angeles sunflower	*Helianthus nuttallii ssp. parishii*	None	None	1A	Found in coastal salt marshes and freshwater swamps below 1,500 feet in elevation. Presumed extinct in California.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Mesa horkelia	*Horkelia cuneata var. puberula*	None	None	1B.1	Mesa horkelia is found in Coastal Strands, Closed-cone Pine Forest, Foothill Woodland, Northern Coastal Scrub, Chaparral, and Coastal Sage Scrub.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coulter's goldfield	*Lasthenia glabrata ssp. coulteri*	None	None	1B.1	Coulter's goldfield is found in valley grassland, alkali sink, northern oak woodland, coastal salt marsh, and wetland-riparian.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	None	None	4.3	An annual herb with dense and pointed hairs on the stems. Plants are generally 1–2 meters tall. This species occurs in dry soils in chaparral and coastal sage scrub below 1,600 feet in elevation. It is considered uncommon within its range.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Intermediate monardella	*Monardella hypoleuca ssp. intermedia*	None	None	1B.3	Intermediate monardella is a perennial herb found in cismontane woodland, and lower montane coniferous forest.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Mud nama	*Nama stenocarpa*	None	None	2B.2	Annual to perennial herb. Occurs in marshes and swamps and along lake margins and riverbanks. From 15 to 1,640 feet in elevation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Prostrate vernal pool navarretia	*Navarretia prostrata*	None	None	1B.1	Prostrate vernal pool navarretia occurs within coastal sage scrub, valley and foothill grassland (alkaline washes) and vernal pools between 45 and 2,100 feet.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Chaparral nolina	*Nolina cismontana*	None	None	1B.2	Chaparral nolina occurs in coastal mountain ranges in dry chaparral and coastal sage scrub habitat on rocky sandstone and gabbro substrates.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California Orcutt grass	*Orcuttia californica*	Endangered	Endangered	1B.1	California Orcutt grass is found within valley grassland, Freshwater Wetlands, wetland-riparian and vernal-pools.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California beardtongue	*Penstemon californicus*	None	None	1B.2	California beardtongue occurs on granitic and sandy soils and stony slopes in chaparral, coniferous forest, and pinyon-juniper woodland habitats.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Allen's pentachaeta	*Pentachaeta aurea ssp. allenii*	None	None	1B.1	Allen's pentachaeta is an annual herb that is found in Valley Grassland and Southern Oak Woodland.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Brand's star phacelia	*Phacelia stellaris*	None	None	1B.1	Brand's phacelia is primarily associated with coastal dunes and/or coastal scrub between 15 and 1,200 feet in elevation. This species typically occurs in sandy openings, sandy benches, dunes, sandy washes, or flood plains of rivers	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
White rabbit-tobacco	*Pseudognaphalium leucocephalum*	None	None	2B.2	White rabbit-tobacco is a Perennial herb. Occurs in chaparral, cismontane woodland, coastal scrub, and riparian woodland on sandy and gravelly soils below 7,000 feet in elevation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Chaparral ragwort	*Senecio aphanactis*	None	None	2B.2	Chaparral ragwort is found within chaparral, cismontane woodland, coastal scrub. Sometimes associated with alkaline soils.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	CNPS List	General Habitat Description[27]	Potential for Occurrence (Habitat Present/ Absent)	Rationale
Salt Spring checkerbloom	*Sidalcea neomexicana*	None	None	2B.2	Salt Spring checkerbloom is found in creosote bush scrub, chaparral, yellow pine forest, coastal sage scrub, alkali Sink, and wetland-riparian.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Estuary seablite	*Suaeda esteroa*	None	None	1B.2	Estuary seablite is found in coastal salt marsh, wetland-riparian and salt-marsh.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
San Bernardino aster	*Symphyotrichum defoliatum*	None	None	1B.2	San Bernardino aster is gound in meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous forest, and grassland.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Source: NES 2018; United States Fish and Wildlife (USFW), Official Species List Consultation Code 08ECAR00-2017-SLI-1171 2017. http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF
California Native Plant Society (CNPS) designations:
List 1A Plants presumed extinct in California.
List 1B Plants rare and endangered in California and throughout their range.
List 2 Plants rare, threatened, or endangered in California but more common elsewhere in their range.
List 3 Plants about which we need more information; a review list.
List 4 Plants of limited distribution; a watch list.

Table 2-67: Plant Species Observed in the BSA

Scientific Name	Common Name
Ailanthus altissima	Tree of Heaven
*Amaranthus albus**	Prostrate pigweed
Avena barbata	Lopsided oat
Baccharis salicifolia	Mulefat
Brachypodium distachyon	Purple false brome
*Bromus diandrus**	Ripgut brome
*Bromus madritensis subsp. Rubens**	Red brome
Camissoniopsis hirtella	Santa Cruz Island suncup
*Carpobrotus edulis**	Hottentot fig
*Centaurea melitensis**	Maltese star-thistle
*Chenopodium album**	Lambsquarters
*Conyza Canadensis**	Horseweed
*Epilobium ciliatum**	American willowherb
*Erodium cicutarium**	Redstem filaree
*Eucalyptus globules**	Eucalyptus
*Euphorbia peplus**	Spurge
*Gazania linearis**	Treasureflower
Galium aparine	Stickywilly
*Gnaphalium luteo-album**	Cudweed
Helminthotheca echioides	Bristly oxtongue
*Heterotheca grandiflora**	Telegraph weed
*Hirschfeldia incana**	Summer mustard
*Lactuca serriola**	Prickly lettuce
*Malva parviflora**	Cheeseweed mallow
*Marrubium vulgare**	Horehound
*Melilotus albus**	Sweet clover
*Melilotus indicus**	Sourclover
*Myoporum laetum**	Myoporum
*Nicotiana glauca**	Tree tobacco
*Pennisetum setaceum**	Fountain grass
*Polypogon monspeliensis**	Rabbitsfoot
*Ricinus communis**	Castorbean
*Salsola trajus**	Russian thistle
*Schismus barbatus**	Mediterranean grass

Table 2-67: Plant Species Observed in the BSAcontinued)

Scientific Name	Common Name
*Schinus molle**	Peruvian pepper
*Schinus terebinthifolius**	Brazillian peppertree
*Sisymbrium irio**	London rocket
*Sonchus asper**	Spiny sowthistle
*Sonchus oleraceus**	Sowthistle
*Sorghum halepense**	Johnsongrass
*Washingtonia robusta**	Mexican fan palm

Note: * denotes noxious weeds and invasive plant species
Source: NSR 2018; United States Fish and Wildlife (USFW), Official Species List Consultation Code 08ECAR00-2017-SLI-1171 2017.
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

2.3.3.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

No impacts to the plant communities in the BSA would be impacted by the project since no construction, changes, or improvements to the highway would be performed.

Alternative 2 (Preferred Alternative), 2A, & 2B - Build Alternatives

Greater than 90 percent of the project's ground disturbance footprint will directly affect developed lands and ornamental landscaping. Landscaping that will be disturbed in the process of the Project's construction would be replaced in kind according to guidelines outlined in the Landscape Master Plan for this Project.

Permanent Impacts

Alternative 1 - No Build

No impacts to the plant communities in the BSA would be impacted by the project since no construction, changes, or improvements to the highway would be performed.

Alternative 2 (Preferred Alternative), 2A, & 2B - Build Alternatives

Surveys did not detect special status plants within the project site. Therefore, it is unlikely that the Project would result in the loss of individuals or that it would negatively affect local or regional populations of special status plants. Therefore, it is anticipated that the Project will have no effect on special status plants.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Because no special status plants or habitat were observed within the project area, no avoidance, minimization, and/or mitigation measures are required.

2.3.4 Animal Species

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The USFWS, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service), and the 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 the Threatened and Endangered Species 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 (NEPA)
- Migratory Bird Treaty Act (MBTA)

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act (CEQA)
- Sections 1600 – 1603 of the California Fish and Game Code
- Sections 3503, 3503.5, 3511, 4700, 5050, 5515 of the California Fish and Game Code

2.3.4.2 Affected Environment

The primary source used in the preparation of this section is the *Natural Environment Study* (June 2018). Special status and common animal species are discussed in this section relative to the BSA. This section presents a broader view of the special status animal species than the discussion found in the Threatened and Endangered section (Section 2.3.5).

The Project is located within an urban setting, which has been heavily influenced in the past and present by human activities. Existing conditions include SR 57, ubiquitous residential and commercial developments, and infrastructure appurtenances (e.g., electrical distribution, highway interchanges, flood control facilities, paved roads). The BSA has been previously disturbed from development and associated land clearing activities, and no natural communities occur. Furthermore, the BSA has had significant disturbances associated with numerous anthropogenic undertakings over the past several decades (e.g., grading, illegal dumping, active homeless encampments, etc.).

Special-Status Species

Wildlife surveys were conducted to assess overall baseline conditions and evaluate the project site's ability to support special-status fauna. The BSA was considered potentially suitable, and capable of supporting nesting birds and bats. Common species of raptors and passerines could nest in the BSA on bridges, light posts, electrical distribution facilities, bare ground, woody and herbaceous plants from February 1 to September 30 (as early as January 1st for some species). In addition, biologists performed habitat assessments and surveys for nesting birds and bats (*Yuma myotis*) including underneath the bridge over the Santa Ana River. Neither nesting birds (i.e., passerines and raptors) nor bats were detected during surveys within the BSA. The data collected suggest that there is no characteristic sign or historic evidence of bird or bat breeding, nesting, or roosting activities within the project's disturbance footprint.

Based on records maintained by the CDFW, one historic observation (2015) of a transient soaring American peregrine falcon (*Falco peregrinus anatum*) was documented within the BSA. However, this species was not detected during the field surveys and there is currently no nesting habitat to support this specific species within the BSA. Although peregrine falcons often utilize cliff-like habitats commonly found near perennial water sources for breeding and nesting, the Santa Ana River Bridge was determined by the surveying biologist to be unsuitable for nesting patterns. No nesting birds or remnant inactive nests where observed within the BSA during pedestrian field surveys in February, March, and April 2017. Furthermore, no bats, no bat roosts, and no characteristic bat sign (i.e., guano and staining) were detected within the BSA.

Special status species are listed in **Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site** below. Common animal species not listed or proposed for listing, but known to occur within multiple miles of the project boundaries and their potential for occurrence within its disturbance footprint are listed in **Table 2-69: Wildlife Species Observed in the BSA** below.

The BSA includes no U.S. Fish and Wildlife Service (USFWS)-critical habitat for wildlife.

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site[29]

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[30]	Potential for Occurrence[31] (Habitat Present/ Absent)	Rationale
San Diego fairy shrimp	*Branchinecta sandiegonensis*	Endangered	None	San Diego fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral (i.e., containing water a short time) basins 2 to 12 inches in depth in coastal southern California and northwestern Baja California, Mexico.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

[29] Table 2-68 is based on available information from the California Natural Diversity Database, U.S. Fish & Wildlife Service, resource management plans, coordination with local resource experts, and relevant documents that were assessed to determine the locations and types of biological resources that have the potential to exist within and adjacent to the project.

[30] The habitat descriptions summarized are based on available information from the California Natural Diversity Database, U.S. Fish & Wildlife Service, Burt and Grossenheider (1980), Halfpenny (2000), Sibley (2000), Elbroch (2003), Stebbins (2003), Small 1994 and coordination with local resource experts.

[31] Potential for occurrence definitions utilized within Chapter 3 were derived from the on-line 2017 Caltrans Standard Environmental Reference. The following defines the potential for occurrence definitions within this NES: Absent [A] – Species distribution is restricted by substantive habitat requirements which do not occur or are negligible within the project Site; no further survey or study is obligatory to determine likely presence or absence of this species; Habitat Present [HP] – Species distribution is restricted by substantive habitat requirements which occur within the project Site; further survey or study may be necessary to determine likely presence or absence of species; Present [P] – Species or species sign were detected within the project Site; and Critical Habitat [CH] – The project Site is located within a USFWS-designated critical habitat unit.

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Swainson's hawk	*Buteo swainsoni*	None	Threatened	Swainson's Hawks favor open habitats for foraging. Although much of their native prairie and grassland habitat has been converted to crop and grazing land, these hawks have adjusted well to agricultural settings. You'll find them searching for prey in hay and alfalfa fields, pastures, grain crops, and row crops, or perched atop adjacent fence posts and overhead sprinkler systems. They rely on scattered stands of trees near agricultural fields and grasslands for nesting sites.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Santa Ana sucker	*Catostomus santaanae*	Threatened	None	Occurs in pools and runs of small to medium-sized, shallow streams with cool, unpolluted water.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

[32] The habitat descriptions summarized within Table 3-3 are based on available information from the California Natural Diversity Database, U.S. Fish & Wildlife Service, Burt and Grossenheider (1980), Halfpenny (2000), Sibley (2000), Elbroch (2003), Stebbins (2003), Small 1994 and coordination with local resource experts.

[33] Potential for occurrence definitions utilized within Chapter 3 were derived from the on-line 2017 Caltrans Standard Environmental Reference. The following defines the potential for occurrence definitions within this NES: Absent [A] – Species distribution is restricted by substantive habitat requirements which do not occur or are negligible within the project Site; no further survey or study is obligatory to determine likely presence or absence of this species; Habitat Present [HP] – Species distribution is restricted by substantive habitat requirements which occur within the project Site; further survey or study may be necessary to determine likely presence or absence of species; Present [P] – Species or species sign were detected within the project Site; and Critical Habitat [CH] – The project Site is located within a USFWS-designated critical habitat unit.

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened	Endangered	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, near slow-moving watercourses, backwaters, or seeps. Willow species are almost always a dominant component of the vegetation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Bald eagle	*Haliaeetus leucocephalus*	Delisted	Endangered	The Bald Eagle has been the national emblem of the United States since 1782 and a spiritual symbol for native people for far longer than that. These regal birds aren't really bald, but their white-feathered heads gleam in contrast to their chocolate-brown body and wings. Look for them soaring in solitude, chasing other birds for their food, or gathering by the hundreds in winter. Once endangered by hunting and pesticides, Bald Eagles have flourished under protection.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California black rail	*Laterallus jamaicensis coturniculus*	None	Threatened	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Belding's savannah sparrow	*Passerculus sandwichensis beldingi*	None	Endangered	On both their summer and winter ranges, Savannah Sparrows live in grasslands with few trees, including meadows, pastures, grassy roadsides, sedge wetlands, and cultivated fields planted with cover crops like alfalfa. Near oceans, they also inhabit tidal saltmarshes and estuaries. In Alaska and northern Canada, they live among the shrubby willows of the tundra.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coastal California gnatcatcher	*Polioptila californica californica*	Threatened	None	Occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes and nests almost exclusively in California sagebrush, below 2,500 feet in elevation in southern California.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Light-footed clapper rail	*Rallus longirostris levipes*	Endangered	Endangered	Found exclusively in salt marshes between Santa Barbara, California and San Quintin Bay, Baja California, and Mexico. Nesting occurs primarily in dense cordgrass, wrack deposits, and in hummocks of high marsh within the low marsh zone.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Bank swallow	*Riparia riparia*	None	Threatened	Bank Swallows live in low areas along rivers, streams, ocean coasts, or reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies of 10 to 2,000 nests. Though in the past Bank Swallows were most commonly found around natural bluffs or eroding streamside banks, more and more often these swallows populate human-made sites, such as sand and gravel quarries or road cuts.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California least tern	*Sternula antillarum browni*	Endangered	Endangered	California Least Terns live along the coast. They nest on open beaches kept free of vegetation by the tide. The typical colony size is 25 pair.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coast Range newt	*Taricha torosa*	None	None	Frequents terrestrial habitats (grassland, woodland and forest) but breeds in ponds, reservoirs, and slow moving streams	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Least Bell's vireo	*Vireo bellii pusillus*	Endangered	Endangered	Summer resident of southern California in low riparian habitat in the vicinity of water or in dry river bottoms; below 2,000 feet in elevation. Nests placed along margins of bushes or on twigs Projecting into pathways, usually willow, baccharis, and mesquite.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Northern leopard frog	*Lithobates pipiens*	None	None	The northern leopard frog requires a mosaic of habitats to meet the requirements of all of its life stages and breeds in a variety of aquatic habitats that include slow-moving or still water along streams and rivers, wetlands, permanent or temporary pools, beaver ponds, and human-constructed habitats such as earthen stock tanks and borrow pits.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Western spadefoot	*Spea hammondii*	None	None	May be found in coastal sage scrub, chaparral, and grasslands habitats, but is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Coast horned lizard	*Phrynosoma blainvillii*	None	None	Occurs in coastal sage scrub, open chaparral, riparian woodland, and annual grassland habitats that support adequate prey species.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coast patch-nosed snake	*Salvadora hexalepis virgultea*	None	None	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coastal whiptail	*Aspidoscelis tigris stejnegeri*	None	None	Found in semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas with firm soil or on sandy or rocky ground.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Orange throat whiptail	*Aspidoscelis hyperythra*	None	None	Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Red-diamond rattlesnake	*Crotalus ruber*	None	None	Inhabits arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, and cultivated areas. On the desert slopes of the mountains, it ranges into rocky desert flats.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Rosy boa	*Charina trivirgata*	None	None	Occurs in semi-arid scrublands, desert foothills, and mountain canyons where it is associated with rocky habitats. Feeds primarily on mammals.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Two-striped gartersnake	*Thamnophis hammondii*	None	None	Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Western pond turtle	*Emys marmorata*	None	None	Inhabits slow moving permanent or intermittent streams, small ponds, small lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and sewage treatment lagoons.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
American peregrine falcon	*Falco peregrinus anatum*	Delisted	Delisted	Found perching or nesting on skyscrapers, water towers, cliffs, power pylons, and other tall structures. Peregrines can be seen all over North America, but they are more common along coasts.	A	Species distribution is restricted by substantive habitat and nesting requirements, which do not occur or are negligible within the project site
Bald eagle	*Haliaeetus leucocephalus*	Delisted	Endangered	The Bald Eagle has been the national emblem of the United States since 1782 and a spiritual symbol for native people for far longer than that. These regal birds aren't really bald, but their white-feathered heads gleam in contrast to their chocolate-brown body and wings. Look for them soaring in solitude, chasing other birds for their food, or gathering by the hundreds in winter. Once endangered by hunting and pesticides, Bald Eagles have flourished under protection	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Burrowing owl	*Athene cunicularia*	None	None	Prefers open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent on small mammal burrows (particularly ground squirrels) for its subterranean nesting.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
California black rail	*Laterallus jamaicensis coturniculus*	None	Threatened	Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California horned lark	*Eremophila alpestris actia*	None	None	Inhabits open barren country with a preference for areas of bare ground or short grasses.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
California least tern	*Sternula antillarum browni*	Endangered	Endangered	California Least Terns live along the coast. They nest on open beaches kept free of vegetation by the tide. The typical colony size is 25 pair.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	None	None	Cactus Wrens live in scrubby areas in the Chihuahuan, Sonoran, and Mojave Deserts as well as in coastal sage scrub in California and thorn-scrub areas in Tamaulipas, Mexico. They inhabit areas with cholla, saguaro, and prickly-pear cacti, catclaw acacia, mesquite, whitethorn, desert willow, yucca, palo verde, and other desert shrubs. Small patches of prickly-pear and cholla cacti mixed with short sagebrush and buckwheat are great spots for Cactus Wrens in coastal California and northwestern Baja California, Mexico.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Coastal California gnatcatcher	*Polioptila californica californica*	Threatened	None	Occurs in coastal sage scrub vegetation on mesas, arid hillsides, and in washes and nests almost exclusively in California sagebrush, below 2,500 feet in elevation in southern California.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Cooper's hawk	*Accipiter cooperii*	None	None	A forest and woodland bird, but also a resident of suburban and city environments. Nesting occurs in oak woodlands, eucalyptus groves, riparian woodlands, and suburban settings.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Ferruginous hawk	*Buteo regalis*	None	None	A raptor of open environments including prairies, plains, and badlands. Nesting occurs on the ground as well as in trees. Hunting is largely restricted to open areas where prey is captured after a direct pursuit.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Golden eagle	*Aquila chrysaetos*	None	None	Golden Eagles live in open and semi-open country featuring native vegetation across most of the Northern Hemisphere. They avoid developed areas and uninterrupted stretches of forest. They are found primarily in mountains up to 12,000 feet in elevation, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Golden Eagles nest on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Grasshopper sparrow	*Ammodramus savannarum*	None	None	Open grasslands and prairies with patches of bare ground.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Great blue heron	*Ardea herodias*	None	None	Great Blue Herons live in both freshwater and saltwater habitats, and also forage in grasslands and agricultural fields, where they stalk frogs and mammals. Most breeding colonies are located within 2 to 4 miles of feeding areas, often in isolated swamps or on islands, and near lakes and ponds bordered by forests.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Least Bell's vireo	*Vireo bellii pusillus*	Endangered	Endangered	Summer resident of southern California in low riparian habitat in the vicinity of water or in dry river bottoms; below 2,000 feet in elevation. Nests placed along margins of bushes or on twigs Projecting into pathways, usually willow, baccharis, and mesquite.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Light-footed clapper rail	*Rallus longirostris levipes*	Endangered	Endangered	Found exclusively in salt marshes between Santa Barbara, California and San Quintin Bay, Baja California, and Mexico. Nesting occurs primarily in dense cordgrass, wrack deposits, and in hummocks of high marsh within the low marsh zone.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Long-eared owl	*Asio otus*	None	None	These nocturnal hunters roost in dense foliage, where their camouflage makes them hard to find, and forage over grasslands for small mammals. Long-eared Owls are nimble flyers, with hearing so acute they can snatch prey in complete darkness. In spring and summer, listen for their low, breathy hoots and strange barking calls in the night.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	None	None	Resident in southern California coastal sage scrub and sparse mixed chaparral. Frequents relatively steep, often rocky hillsides with grass and forb patches.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Swainson's hawk	*Buteo swainsoni*	None	Threatened	Swainson's Hawks favor open habitats for foraging. Although much of their native prairie and grassland habitat has been converted to crop and grazing land, these hawks have adjusted well to agricultural settings. You'll find them searching for prey in hay and alfalfa fields, pastures, grain crops, and row crops, or perched atop adjacent fence posts and overhead sprinkler systems. They rely on scattered stands of trees near agricultural fields and grasslands for nesting sites.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Tricolored blackbird	*Agelaius tricolor*	None	None	Occurs in coastal riparian habitats along the Pacific Coast and is also associated with farm and agricultural lands.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Threatened	Endangered	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, near slow-moving watercourses, backwaters, or seeps. Willow species are almost always a dominant component of the vegetation.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
White-tailed kite	*Elanus leucurus*	None	None	Commonly found in open woodlands, marshes, desert grasslands, savanna, and cultivated fields. This species if often observed hovering while hunting.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Yellow-breasted chat	*Icteria virens*	None	None	Inhabits dense thickets, brush, and secondary growth. Nests in dense shrubs.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Yellow warbler	*Setophaga petechia*	None	None	Occurs in riparian deciduous habitats, especially in cottonwoods (*Populus* spp.), alders (*Alnus* spp.), and willows, and other small trees and shrubs typical of low, open-canopy riparian woodland.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Mexican long-tongued bat	*Choeronycteris mexicana*	None	None	This bat occurs in a variety of habitats, including thorn scrub, palo verde-saguaro desert, semi-desert grassland, oak woodland and tropical deciduous forests. Although most frequently found in desert canyons, they have been observed in oak and ponderosa pine habitat.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Pallid bat	*Antrozous pallidus*	None	None	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitat with rocky areas for roosting. Roost alone or in colonies (small and large) in crevices in rock outcrops and cliffs, caves, mines, and trees. Species is very sensitive to disturbance of roosting sites.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Pocketed free-tailed bat	*Nyctinomops femorosaccus*	None	None	Habitats include pinyon juniper woodlands, desert scrub, desert succulent scrub, washes, alkali deserts, palm oases, and Joshua tree woodlands.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Southern California saltmarsh shrew	*Sorex ornatus salicornicus*	None	None	Found among coastal marshes and palustrine environments. These areas include coastal wetlands, salt marshes, and freshwater swamps.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Western mastiff bat	*Eumops perotis californicus*	None	None	Inhabits many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces, high buildings, hollow trees, and tunnels.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site

Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site (continued)

Common Name	Scientific Name	Federal Status	State Status	General Habitat Description[32]	Potential for Occurrence[33] (Habitat Present/ Absent)	Rationale
Western yellow bat	*Lasiurus xanthinus*	None	None	Western yellow bats are thought to be non-colonial. Individuals usually roost in trees, hanging from the underside of a leaf. They are commonly found in the southwestern U.S. roosting in the skirt of dead fronds in both native and non-native palm trees.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project site
Yuma myotis	*Myotis yumanensis*	None	None	The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees.	HP	Species distribution is restricted by substantive habitat requirements which occur within the project site
Santa Ana sucker	*Catostomus santaanae*	Threatened	None	Occurs in pools and runs of small to medium-sized, shallow streams with cool, unpolluted water.	A	Species distribution is restricted by substantive habitat requirements, which do not occur or are negligible within the project ite

Source: NES 2018; United States Fish and Wildlife (USFW), Official Species List Consultation Code 08ECAR00-2017-SLI-1171 2017.

Table 2-69: Wildlife Species Observed in the BSA

Scientific Name	Common Name
Reptiles	
Sceloperous occidentalis	Western fence lizard
Birds	
Agelaius phoeniceus	Red-winged blackbird
Buteo jamaicensis	Red-tailed hawk
Calypte anna	Anna's hummingbird
Egretta thula	Snowy egret
Larus californicus	California gull
Carpodacus mexicanus	House finch
Columba livia	Rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Falco sparverius	American kestrel
Quiscalus quiscula	Common yellowthroat
Passer domesticus	House sparrow
Psaltriparus minimus	Bushtit
Quiscalus quiscula	Common grackle
Sayornis nigricans	Black phoebe
Sturnus vulgaris	European starling
Zenaida macroura	Mourning dove
Mammals	
Otospermophilus beecheyi	California ground squirrel

Source: NSR 2018; United States Fish and Wildlife (USFW), Official Species List Consultation Code 08ECAR00-2017-SLI-1171 2017.

2.3.4.3 Environmental Consequences

Temporary Impacts

Alternative 1 – No Build

No impacts to animal species or existing conditions are expected from the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Based on field surveys, a review of pertinent literature, and the analysis contained herein, the Project is not expected to result in loss of viability or to substantially modify regional habitat availability for any common or special-status animal species. Lands temporarily affected by the

Project will be restored to pre-project conditions. During construction, the Project would implement measures as part of the M2 NCCP/HCP to reduce the potential for impacts to special status or common animal species. The measures include restoration of disturbed areas, good-housekeeping activities to avoid attracting predators, preconstruction training programs for construction personnel, biological monitoring during vegetation clearing and grubbing, avoidance of construction activities during breeding seasons, and preconstruction surveys.

Permanent Impacts

Alternative 1 – No Build

No impacts to animal species or existing conditions are expected from the Project.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Special status species were not observed within the project area during BSA surveys. Suitable habitat for bird/bat nesting, roosting, foraging, and breeding have been diminished as a result of past development. Therefore, habitat for common species observed within the BSA is unlikely to be impacted. The alignment of the bridge in relation to the river will not change, and therefore, will not result in the permanent loss of any migration corridors or landscape linkages. It is unlikely that the Project would result in the loss of individuals or that it would adversely affect local or regional populations or deter species from using the site.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

OCTA and Caltrans have voluntarily elected to impose the following standard avoidance procedures to reduce the magnitude of the Project's potential effects on nesting birds and bats:

BIRD-1 **Nesting Birds Policy (OCTA Conservation Plan Section 5.6.3)** A Nesting Birds Policy will be implemented to conform to existing regulations and procedures for protection of nesting birds. Migratory native bird species are protected by international treaty under the MBTA of 1918 (50 CFR 10.13). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code make it unlawful to: take, possess, or needlessly destroy the nest or eggs of any bird (3503); take, possess or destroy any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) and the nest and eggs of any such bird (3503.5); and take or possess any migratory nongame bird, or any part thereof, as designated in the MBTA. Under state law, take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86), and includes take of eggs and/or young resulting from disturbances that cause abandonment of active nests.

Proposed Project activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season, which generally runs February 1st to

September 30th (as early as January 1st for some species) to avoid disturbance to breeding birds or destruction of the nest or eggs. Depending on the avian species present, a qualified biologist may determine that a change in the breeding season dates is warranted.

If the Construction Lead determines that avoidance of the avian breeding season is not feasible, at least 2 weeks prior to the initiation of project activities, a qualified biologist with experience in conducting breeding bird surveys will conduct weekly bird surveys to detect presence/absence of native bird species occurring in suitable nesting habitat that is to be directly or indirectly disturbed and (as access to adjacent areas allows) any other such habitat within an appropriate buffer distance of the disturbance area. Generally, the buffer distance should be 300 feet (500 feet for raptors); however, because the covered freeway improvement projects will generally occur along noisy freeways, a buffer distance as low as 100 feet for non-raptors could be appropriate. If a narrow buffer distance is warranted, the Construction Lead will have a qualified biologist identify the appropriate buffer distances for raptors and non-raptors and notify Wildlife Agencies. The surveys should continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of project activities. If a native or nesting bird species is found, the Construction Lead will do one of the following to avoid and minimize impacts on native birds and the nest or eggs of any birds:

a. Implement default 300-foot minimum avoidance buffers for all birds and 500-foot minimum avoidance buffers for all raptor species. The breeding habitat/nest site will be fenced and/or flagged in all directions, and this area will not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the Project.

b. If a narrow buffer distance is warranted, the OCTA will have a qualified biologist develop a project-specific Nesting Bird Management Plan. The site-specific nest protection plan will be developed collaboratively with Wildlife Agencies and submitted to the Wildlife Agencies, although the Wildlife Agencies will not be responsible for approving the narrower buffer distance and the Nesting Bird Management Plan. The Plan should include detailed methodologies and definitions to enable a qualified avian biologist to monitor and implement nest-specific buffers based on topography, vegetation, species, and individual bird behavior. This Nesting Bird Management Plan will be supported by a Nest Log that tracks each nest and its outcome. The Nest Log will be submitted to the Wildlife Agencies at the end of each week. The Construction Lead may

propose an alternative plan for avoidance and nesting birds for Wildlife Agencies' review and approval.

c. Flagging, stakes, and/or construction fencing should be used to demarcate the inside boundary of the buffer between the project activities and the nest. The Construction Lead personnel, including all contractors working on site, should be instructed on the sensitivity of the area. The Construction Lead will document the results of the recommended protective measures described above to demonstrate compliance with applicable state and federal laws pertaining to the protection of native birds.

d. A biological monitor will be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated bird buffer) and that the flagging/stakes/fencing is being maintained, and to minimize the likelihood that active nests are abandoned or fail due to project activities. The biological monitor will send weekly monitoring reports to the OCTA NCCP Administrator during the grubbing and clearing of vegetation and will notify the OCTA NCCP Administrator immediately if project activities take, possess, or needlessly destroy the nest or eggs of any bird as well as birds-of-prey and their nest or eggs. Within 48 hours of damage to an active nest or eggs or observed death or injury of birds protected under state law or the MBTA (which includes, but not is limited to, the birds on the Covered Species list), OCTA will notify the Wildlife Agencies.

BIRD BAT-1 Despite the lack of presence of bats in the project site during initial surveys, all work areas on existing bridges with potential bat roosting habitat will be cleared of all bats during the fall (i.e., September or October) outside of the maternity season (i.e., April 1 to August 24) to avoid trapping flightless young inside during the summer months or hibernating individuals during the winter. Exclusion efforts are to occur prior to the initiation of construction activities under the guidance and observation of a qualified bat biologist. Exclusionary devices should be used to exclude bats from directly affected work areas and avoid potential direct impacts. Such exclusion efforts must be continued to keep the structures free of bats throughout the duration of the construction activities or until construction at the location is deemed complete and bat use is again acceptable. All bat exclusion techniques will be coordinated between the Department and the resource agencies, as applicable.

BIRD BAT-2 If a bat maternity colony is detected, alternate roosting habitat shall be created and/or identified and monitored to ensure habitat is successfully occupied prior to exclusion.

BIRD BAT-3 Prior to any vegetation clearing and bridge construction scheduled during the bat breeding season, a qualified biologist will conduct outflight census activities to determine the presence or absence of bat roosts within 72 hours prior to any clearing of vegetation or bridge construction. If roosting bats are detected, the biologist shall report and consult with resource agencies prior to commencing project activities within 500 feet of the bat detection site(s). The location of any bat roosts will be mapped, and an appropriate activity exclusion area or exclusion devices will be installed to preclude bats from being taken when project work occurs. The exclusion area will be clearly visible and remain in place until bat roosts are deemed inactive by a qualified biologist. If warranted bat exclusion devices, deterrent protocols and procedures shall be pre-approved by resource agencies prior to being implemented by OCTA.

2.3.5 Threatened and Endangered Species

2.3.5.1 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 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 habitats. The 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.

2.3.5.2 Affected Environment

The primary source used in the preparation of this section is the *Natural Environment Study* (June 2018) to detail the threatened and endangered (T & E) species in the project BSA. Threatened or endangered species are species of plants and animals that are formally listed as endangered under FESA or CESA. Caltrans is required to determine if the proposed Project will involve and possibly affect proposed or listed species and/or their critical habitat.

Table 2-66: Listed, Proposed Plant Species Potentially Occurring or Known to Occur within the Project Site and **Table 2-68: Listed and Proposed Wildlife Species Potentially Occurring or Known to Occur in the Project Site** below, list threatened and endangered plant and animal species that are known to occur within multiple miles of the project site. This list was compiled using information from records, lists, and maps from the CDFW, CNPS, USGS, Microsoft, Google Earth, NRCS, USDA, South Coast Wildlands, the CNDDB, USFWS, and URS and field surveys.

2.3.5.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

Existing conditions would remain the same based on the No Build Alternative. There would be no impact to special status species as shown through the detailed analysis performed for this site that has concluded no special status species are present within the boundary.

Alternative 2, 2A, & 2B – Build Alternatives

Since the Project is located within an urban setting that has been heavily influenced by human activities and urban development, the Project has no potential to impact threatened and endangered species during construction due to their lack of presence within the project boundary. No changes to the biological characteristics to cause a direct or indirect change to any endangered or threatened species are anticipated with project construction.

Permanent Impacts

Alternative 1 - No Build

Existing conditions would remain the same based on the No Build Alternative.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

OCTA has also prepared the OCTA Natural Community Conservation Plan/Habitat Conservation Plan (OCTA Conservation Plan) as a mechanism to offset potential project-related effects on Covered Species, including State and federally listed species and their habitats, in a comprehensive manner. It achieves higher-value conservation than what would be expected through project-by-project mitigation in exchange for a streamlined project review and permitting process for the OC Go (formerly M2) freeway program as a whole. The proposed Project is a Covered Project under the OCTA Conservation Plan (i.e., project G). The OCTA M2 Conservation Plan includes Streambed Program Guidelines (Conservation Plan Appendix E), which outline potential conditions and the process for submittal of a project-level Notifications of Lake or Streambed Alterations (NLSA) and the issuance for individual Lake or Streambed Alteration Agreements (LSAA) for this project pursuant to California Fish and Game Code sections 1600–1616. The Streambed Program requires the evaluation of streambed avoidance options and specification of minimization measures prior to compensatory mitigation and ensures adequate mitigation based on habitat and type of aquatic resource to address state regulatory obligations.

On February 7, 2019 an official U.S. Fish and Wildlife Services (USFWS) List of Proposed, Threatened, and Endangered Species, and Critical Habitats was obtained through the USFWS

Information, Planning, and Conservation System. The species list provided was used as the basis upon which analysis of impacts was conducted (See Appendix F for the letter and list). Based on surveys conducted and analysis presented, there is no potential for the presence of endangered or threatened species, and no adequate habitat for these species to be present within the project limits. Therefore, the Project would not result in the loss of individuals or negatively affect local or regional populations of species and has been designated as having no effect on federally or state listed species.

Since this Project has been designated as having no effect after analysis of potential impacts, consultation with USFWS under the federal and state ESA Section 7 is not applicable.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

Although no federal or state threatened and endangered species or habitat were observed within the project area, the standard avoidance measures outlined in the OCTA Conservation Plan and Streambed Program Guidelines would be implemented to avoid any potential impacts that may arise. With implementation of these standards, it is anticipated that no impacts would occur to threatened and endangered species.

2.3.6 Invasive Species

2.3.6.1 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.

2.3.6.2 Affected Environment

The primary source used in the preparation of this section is the Natural Environment Study (June 2018) to present a broad discussion of the invasive species within the BSA.

For the analysis of biological resources in the project site, a Biological Study Area (BSA) was established. This area includes the Project's proposed ground disturbance footprint and a buffer to include nearby areas that are not merely adjacent to the project footprint that may be impacted directly and indirectly. The BSA consists of three vegetation communities and land cover types as determined by a qualified biologist through pedestrian field surveys: Developed and Disturbed, Open Water/River, and Ornamental Landscaping. These urbanized lands have ruderal

species, also known as plant species first to colonize disturbed lands, dominated by non-native, weedy and invasive species.

Invasive Species

Invasive plant species exist within the project site and dominate the land cover types within the Biological Study Area. These species are listed below in Section 2.3.3. **Table 2-67: Plant Species Observed in the BSA** shows a list of plant species that were observed within the BSA, of which were mainly comprised of noxious weeds and invasive plant species.

Invasive species are defined as any non-native plant(s) contained within the designated weed lists of the California Department of Food and Agriculture (CDFA 2017), the U.S. Department of Agriculture (USDA), the California Invasive Plant Council (Cal-IPC 2017), or identified by the OCTA or Caltrans as being of potential management concern. Invasive plants can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often leads to outbreak populations.

2.3.6.3 Environmental Consequences

Temporary Impacts

Alternative 1 - No Build

With the No Build alternative, the Project would not implement any programs to remove existing invasive plants. Invasive plants would grow uncontrolled based on existing conditions.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

In compliance with the Executive Order on Invasive Species, EO 13112, invasive species would be removed from the Project and controlled during construction. The Project includes construction methods and measures to reduce the potential for the spread of invasive species including, removal of invasive species in ground disturbed areas and equipment inspections to reduce the transport of invasive species. In addition, eradication strategies (i.e. weed abatement programs) would be employed should an invasion occur during construction. Section 1.3.3 details the measures to be employed during construction to reduce the spread of noxious weeds.

Permanent Impacts

Alternative 1 - No Build

Left on their own, invasive plant species may aggressively colonize new areas and may become dominant or otherwise damage native plant communities if uncontrolled. Invasive plant species may have a competitive advantage over native species and may form an expansive monoculture. They may alter physical and/or chemical soil conditions, dominate the landscape to the detriment

of native plants and wildlife, deplete ground and surface water resources, compromise agricultural operations, conflict with recreational values, create fire hazards, and compromise aesthetic values of native or urban landscapes. They may be quick to colonize disturbed areas, including construction sites, roadsides, irrigated sites, or any other area with altered hydrology, soil structure, or soil chemistry. With the No Build alternative, the Project would not implement any programs to remove existing invasive plants.

Alternative 2 (Preferred Alternative), 2A, & 2B – Build Alternatives

Lands affected by the Project will be restored to pre-construction conditions and invasive species would be removed. Landscaping disturbed during construction would be replaced in kind according to guidelines outlined in the Landscape Master Plan for the Project. None of the species on the California list of invasive species would be used for erosion control or landscaping.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

The OCTA and Caltrans have elected to impose the following procedures to reduce the magnitude of the Project's potential effects on state and federally listed plant species:

PLANT-1. **Invasive Species Control.** Invasive species will be removed from the project work area and controlled during construction. The use of known invasive plant species (i.e., plant species listed in California Invasive Plant Council's [Cal-IPC's] California Invasive Plant Inventory with a High or Moderate rating) will be prohibited for construction, revegetation, and landscaping activities. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal off site or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of nonnative plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Eradication strategies (i.e., weed abatement programs) will be employed should an invasion occur during construction. (OCTA M2 NCCP/HCP Section 5.6.1)

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the 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 habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the Project, such as changes in community character, traffic patterns, housing availability, and employment.

The 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.

2.4.2 Methodology

This cumulative impact analysis was prepared in accordance with the 2005 guidance developed by Caltrans in conjunction with the FHWA and the United States EPA. Consistent with that guidance, the extent of analysis is based on the size and type of the project proposed, its location, potential for direct and indirect impacts on environmental resources, and the health of any potentially affected resource. The following eight steps summarize the process and approach to this analysis:

1. Identify/define the project-specific resources to consider in a cumulative effect analysis. List each resource area for which the Project could cause direct or indirect impacts. If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on that resource, and need not be further evaluated.
2. Define the geographic boundary or Resource Study Area (RSA) for each resource to be addressed in the cumulative impact analysis.
3. Describe the current health and the historical context of each resource.
4. Identify the direct and indirect impacts of the proposed Project that might contribute to a cumulative impact on the identified resources.

5. Identify the set of other current and reasonably foreseeable future actions or projects and their associated environmental impacts to include in the cumulative impact analysis.
6. Assess the potential cumulative impacts.
7. Report the results of the cumulative impact analysis.
8. Assess the need for mitigation and/or recommendations for actions by other agencies to address a cumulative impact.

As stated in the eight-step process summarized above, if a proposed project would not cause direct or indirect impacts on a resource, the Project would not contribute to a cumulative impact on that resource, and, therefore, that resource would not need to be further evaluated with respect to determining whether the proposed project would result in a potential cumulative impact.

Based on the analysis completed for the resources listed below, it was determined that the proposed Project would not result in direct or indirect impacts to these resources; accordingly, these resources were not included in the cumulative impact analysis for this Project:

- Farmland/Timberlands
- Community Character and Cohesion
- Hydrology/Floodplains
- Geology/Soils

2.4.3 Cumulative Impact Analysis

A list of the reasonably foreseeable projects associated with the cumulative impacts analysis is presented in **Table 2-70: Cumulative Projects List**. The definition of the Resource Study Area (RSA) for each of the respective resources addressed determines which projects are included in the associated analysis.

The following were evaluated for potential cumulative impacts:

- Traffic and Transportation
- Visual/Aesthetics
- Water Quality and Storm Water Runoff
- Cultural Resources
- Paleontological Resources
- Air Quality
- Noise
- Biological Resources

Table 2-70: Cumulative Projects List

Project Name	Location	Project Description	Est. Date of Completion	Source
TRANSIT				
California High Speed Rail Station at ARTIC	ARTIC station, located south of Katella Ave, east of SR 57, and west of the Santa Ana River	The California High Speed rail system, which is currently under construction in other parts of the state, is planned to end at the ARTIC station in Anaheim, CA at the end of phase 1.	2029	California High-Speed Rail Authority, Connecting California 2014 Business Plan (April 2014)
ROADWAY				
I-5 Enhancement Project	SR 57 to SR 55	Proposing to add a second carpool lane on each side of the freeway as well as removing the HOV on and off ramps at I-5 and Main Street.	2019	OCTA Projects and Programs, I-5 (SR 57 to SR 55) (June 2017)
SR 57 Pavement Project	South of Angel Stadium in Anaheim to south of SR 90	Replacement of broken slabs and resurfacing concrete pavement on over 46 lane miles of SR 57 in the cities of Orange, Anaheim, Placentia, and Fullerton. The Project will also add rubberized asphalt, increase the visibility of lane delineation, and extend the service life of the highway.	2018	Caltrans Media Advisory, (October 2017)
Orangewood Avenue Bridge Widening Project	Santa Ana River to SR 57	Widen the Orangewood Avenue bridge over the Santa Ana River and Orangewood Avenue under the SR-57 Freeway bridge. Improvements will add one additional westbound lane, add sidewalks on both sides of the bridge and accommodate the implementation of future bike lanes to improve the multimodal service for this corridor. Will also provide a retaining wall, water quality treatment devices, relocate street lights, and modify traffic signals.	2019	City of Anaheim, City Council Agenda Report (January 2018)

Table 2-70: Cumulative Projects List (continued)

Project Name	Location	Project Description	Est. Date of Completion	Source
Orangewood Avenue Street Widening Project	State College Boulevard to the Santa Ana River	Widen Orangewood Avenue from four to six lanes to accommodate an additional lane in each direction. Work to include modifying traffic signals, relocating utilities, upsizing water and sewer facilities, providing new curb and gutter, asphalt roadway, sidewalk, landscaped parkways, raised landscaped medians, street lights, a changeable message sign, and water quality treatment devices.	2019	City of Anaheim, City Council Agenda Report (January 2018)
Class II bike lane on Cerritos Avenue and Douglas Road	From S Haster Street to Katella Avenue	Proposed Class II bike lane on Cerritos Avenue and Douglas Road, crossing SR 57 at the Union Pacific Railroad and connecting to the Santa Ana River Trail.	Unknown	City of Anaheim, Bicycle Master Plan (May 2017)
LARGE-SCALE REDEVELOPMENT (100,000+ SQFT)				
The Platinum Triangle	920 acres between I-5 and the Santa Ana River, and between Cerritos Ave and Orangewood Ave (including office parks south of Orangewood Ave)	Large scale redevelopment and various sidewalk related projects. Mostly multiple mixed use developments. Various projects include: 1. Stadium lofts 2. Gateway Apartment Homes 3. Stadium Towers shops 4. Park Veridian 5. Jefferson Platinum Triangle 6. 1818 Platinum Triangle 7. Anavia 8. Anaheim Apartment Communities 9. Avalon Angel Stadium 10. A-Town Metro 11. LT Platinum Center 12. Jefferson Stadium Park 13. The George 14. Platinum Vista 15. Katella Grand 16. Gateway Apartment Homes Phase II 17. Trumark Homes	All development scheduled to end no later than 2022	City of Anaheim, Platinum Triangle Project Description (June 2017)
Simply Self Storage industrial building	1600 N. Glassell Street, Orange, CA	A proposal to demolish three existing buildings and construct a 156,654-square foot., three-story industrial building for use as a self-storage facility with related on-site improvements. Approved 6/5/17.	Unknown	City of Orange, Planning Commission Agenda (June 2017)

Table 2-70: Cumulative Projects List (continued)

Project Name	Location	Project Description	Est. Date of Completion	Source
Outlets at Orange redevelopment area	General area around The Outlets at Orange shopping center (1 W. City Blvd, Orange, CA)	Large scale redevelopment project with multiple mid-size apartment complexes being proposed for the area in and around the current Outlets at Orange shopping center. Projects include The Oakmont Senior Living tower, AMLI Residential, Chapman Apartments, Orange Collection developments.	Unknown	City of Orange, News Flash: Economic Development (April 2017)
MEDIUM-SCALE REDEVELOPMENT (50,000 – 100,000 SQFT)				
Town and Country Mixed Use building	999 Town and Country Road, Orange CA	Medium scale redevelopment project aims to build a 98,551-square foot office building/residential complex with 449 surface parking spaces.	Unknown	City of Orange, Current Projects Notices and Related Environmental Documents, (June 2017)
Metrolink Parking Structure at the Orange Transportation Center	Orange Transportation Center, Old Towne, Orange, CA	To provide for current demand and future growth, OCTA and the city of Orange are constructing a new shared use multi-story parking structure. Designed to reflect the community's historic setting, the parking structure will provide over 600 parking spaced, bike lockers, car charging stations and include solar panels on the top level. This joint use parking structure will increase accessibility to and from the Orange Transportation Center and downtown Orange.	Unknown	OCTA, Rail Projects (June 2017)
Park Vue Inn	1570 S Harbor Blvd, Anaheim, CA	To demolish an existing two-story 86-room hotel with restaurant and retail uses and construct a new seven-story, 180-room hotel with a restaurant and retail uses with smaller interior building and landscape setbacks, fewer trees in the surface parking lot, and less parking spaces than required by the Zoning Code.	Unknown, approved December 2015	City of Anaheim, Anaheim Resort, Development Status (December 2017)
Cambria Hotel and Suites	1721 S Manchester Ave	The applicant requests approval of a final site plan to construct a 12-story, 352-room hotel, 15,000 square feet of restaurant space, and one-level of subterranean parking.	2019	City of Anaheim, Anaheim Resort, Development Status (December 2017)

Table 2-70: Cumulative Projects List (continued)

Project Name	Location	Project Description	Est. Date of Completion	Source
Hampton Inn & Suites	100 W Katella Avenue	Construction of a 178-room hotel.	2018	City of Anaheim, Anaheim Resort, Development Status (December 2017)
Anaheim Plaza	1700 S Harbor Blvd, Anaheim, CA	To demolish an existing hotel and reconstruct a 580-room, 8-story luxury hotel with 50,000 square feet of meeting space - 25,600 square feet of restaurant space - 20,188 square feet of concierge lounge space - fewer parking spaces than required by the Code - and, a request to adopt a development agreement between the city of Anaheim and Good Hope International for the proposed hotel project.	2021	City of Anaheim, Anaheim Resort, Development Status (December 2017)
RECREATION				
Union Pacific Railroad bike path	Between Harbor Blvd. and Orange City limit	Proposed bicycle and pedestrian trail that follows the Union Pacific railway into the city of Orange. Path intersects numerous large streets as well as SR 57.	Unknown	City of Anaheim, Bicycle Master Plan (May 2017)

Source: CIA 2018.

2.4.3.1 Traffic & Transportation

The RSA for the traffic and transportation impact analysis includes the project area which encompasses the approximately 1-mile section of SR 57 from PM 11.5 to PM 12.5. The area encompasses ramp terminus intersections, all freeway segments, and the intersections leading to the freeway ramps. Currently, the RSA defined by the cumulative impact analysis shows the LOS of the SR 57 section and intersections adjacent to the Project as LOS D.

All Build Alternatives would result in temporary, short-term construction impacts to access and circulation, including detours and delays. Such impacts include full closures during off-peak times, lane modifications, mainline lane closures, and ramp closures. A TMP was prepared for the Project that includes strategies and measures to avoid and minimize disruption to the local access, roadways, and bike and pedestrian facilities during construction. Operations of the mainline of northbound SR 57 may be impacted across all alternatives positively, with mobility and congestion improvement, or with maintenance of or slightly improved LOS. Intersection LOS and ramp LOS is anticipated to be impacted differently across alternatives due to variations among design features.

Potential contributions to cumulative impacts for traffic and transportation may result from reasonably foreseeable future projects such as the California High Speed Rail, I-5 Enhancement Project, SR 57 Pavement Project, Orangewood Avenue Bridge Widening Project, and Orangewood Avenue Street Widening Project. These transportation projects are anticipated to potentially result in a cumulative impact on traffic and transportation patterns in the region.

This Project, along with other planned transportation projects, is anticipated to improve congestion and mobility within the region. It is not anticipated that the Project would cumulatively contribute to adverse impacts on traffic conditions and transportation facilities in conjunction with past, present, and future transportation projects.

2.4.3.2 Visual / Aesthetics

The RSA for the Visual/Aesthetic impact analysis includes the SR 57 corridor within the project area and the scenic resources that can be seen from the SR 57 freeway mainline, SR 57 on-ramps and ARTIC station platform. The landscape that is included in the impact analysis includes foreground views of urban infrastructure, such as the ARTIC, Honda Stadium, and SR 57 structure as well as the banks of the Santa Ana River. The analysis also includes background views of the San Bernardino and Saddleback Mountain formations.

The Project would not construct any structures that would be dominant or prominent along the scale, quality, and character of the existing environment. All additions to existing structures and newly constructed ramps would only result in temporary construction impacts on visual resources but not in permanent visual impacts to viewers. Due to the design of the Project, the scale, character, and quality of the surrounding views and infrastructure will not change with implementation of the Project. With incorporation of the project measures to offset temporary

visual impacts, such as replacement in- kind of disturbed landscaping within the corridor and plans to preserve existing plants where possible, revegetating disturbed areas and addressing corridor themes such as structure aesthetics, there would be no cumulative impacts on visual resources from the Project.

Any future developments or improvements for the SR 57 corridor would be subject to the same design standards. The corridor is already developed as a highly urbanized facility. It is not anticipated that the proposed Project or future projects would add to cumulative impacts on visual and aesthetic quality, character, or resources.

2.4.3.3 Water Quality & Storm Water Runoff

The RSA for the Water Quality and Storm Water Runoff impact analysis includes the Santa Ana River watershed which encompasses water features such as floodplains, aquifers, and surface waters in vicinity to the Project. The geographic context for the analysis of cumulative impacts associated with groundwater in the area is the watershed underlain by the Orange County Groundwater Management Zone. The RSA for water quality includes the watersheds and receiving waters that are potentially affected by the Project. Located between the San Gabriel Mountains and the San Bernardino Mountains to the north, and the San Jacinto Mountains to the east, the Orange County Groundwater Basin (OCGB) is recharged approximately 1.3 miles north of the project area. A section of the Santa Ana River's Reach 2 is included within the project area. The Santa Ana River that flows through the project site carries surface flows (e.g., storm water, water from precipitation events, surface run-off, and irrigation flows) through the study area, and continues approximately 12 miles southwest before draining into the Pacific Ocean near Newport Beach.

The project site is in a highly urbanized area and has a high amount of impervious, paved surfaces due to development. Storm water runoff is conveyed at the shoulders of the Santa Ana River channel by dikes leading to drainage inlets. The existing Orangewood Avenue ramps drain to the storm-drain line that flows along Orangewood Avenue until it discharges to the Santa Ana River. The existing Katella Avenue ramps drain to the culvert system that follows the right of way south until it discharges to the Santa Ana River. The Project crosses the Santa Ana River approximately 1.3 miles downstream from the OCWD Recharge Basins. The Santa Ana River Reach 2, the receiving waters of the project site, is listed by the Final California 2012 Integrated Report as impaired for the pollutant indicator bacteria which may pose health risks for recreational uses and groundwater recharge into the Orange County Aquifer upstream from the Project.

Work in the Santa Ana River to widen the Santa Ana River bridge may potentially impact the receiving and downstream waters of the Santa Ana River. Construction activities include demolition, paving, excavation, extending the bridge piers, slope protection and water diversion. These activities have the potential to result in increased localized erosion and polluted storm water runoff that could enter Santa Ana River Reach 2, affecting water quality and clarity downstream. Anticipated changes associated with sediment transport to receiving water bodies

would be a decrease in water clarity, which would cause a decrease in aquatic plant production, and obscure sources of food, habitat, refuges, and nesting sites for fish downstream of the section of the river in the project site. It is possible that dewatering activities could result in the release of unsuitable and untreated water if discharged directly to the environment. Water diversion activities would also have the potential to impact water quality, especially during installation and removal of the diversion system.

The result of the Project's wider cross section and increase in impervious surfaces will result in additional runoff being transferred to the storm water conveyance facility which will likely have some incremental effect on turbidity at the discharge location and in the downstream receiving waters. The result of the project's wider cross section and impervious pavement also would not result in the Santa Ana River Reach 2's increase in volume of downstream flow at the discharge location and in the downstream receiving waters.

Compliance with applicable SWRCB and Santa Ana RWQCB regulations would ensure that water quality is maintained to the maximum extent practicable for potential development projects within the RSA. With implementation of the project features there are no adverse impacts to water quality and no Avoidance, Minimization and/or Mitigation Measures are required. Therefore, there would be no water quality impacts associated with implementation of the Northbound SR 57 Improvement Project, and the Project would not have a cumulatively considerable contribution to the cumulative effects related to water quality.

Construction of new development in addition to the Project throughout the RSA could result in the erosion of soil, thereby cumulatively degrading water quality. In addition, the increase in impervious surface area resulting from future development may also adversely affect water quality by increasing the amount of storm water runoff, transportation-related pollutants, and associated TDCs entering the storm drain system. New development, however, would have to comply with existing regulations regarding construction practices that minimize risks of erosion and runoff. This would minimize degradation of water quality at individual project construction sites. Consequently, cumulative water quality impacts would be minimized during the construction and operational phases of the future projects.

2.4.3.4 Cultural Resources

The RSA for the Cultural resources impact analysis includes the Area of Potential Effects (APE), which is subdivided into direct and indirect APEs. The Direct APE measures 34.26 acres and encompasses all areas that may be directly and physically impacted by the Project. Direct APE refers to physical impacts generally limited to proposed and existing right of way (ROW) and include horizontal and vertical APE. Vertical APE is the maximum depth of any project related ground disturbing work. For this Project, a maximum depth of 12 feet of ground disturbance for pier walls and less than 5 feet for other activities is anticipated. The Direct APE consists of the Project Limits of Disturbance plus a 10-foot buffer. The Indirect APE is a 100-foot buffer around the Direct APE and incorporates whole parcels where the buffer intersects a parcel. Indirect APE

incorporates effects such as visual, noise, or other effects and generally include all properties that are adjacent to the proposed ROW unless they are undeveloped. The RSA is within an urban environment and has been completely disturbed by construction of SR 57, existing roads, modern commercial and residential development, and urban infrastructure.

The deepest excavation work would occur within the Santa Ana riverbed for extending the pier walls in support of widening the Santa Ana River Bridge. The segment of the Santa Ana River within the RSA has been found to be historically subject to alluvial deposition and episodic scouring during flooding prior to construction of flood control facilities in the 1940s and 1970s. A review of historic topographic maps shows that this segment of the Santa Ana River has been in the same location through time and has been subject to additions of artificial fill during channelization of the river and prior construction of the bridges. Given the historic hydrogeologic setting of the Santa Ana River section in the RSA, the riverwash sediments would be too active to contain buried archaeological deposits. The previous disturbances within the river from construction of the existing freeway and annual ground disturbing activities conducted by the OCFCD as well as the lack of prehistoric archaeological resources in the vicinity of the river result in a low potential for subsurface archaeological deposits within this segment of the Santa Ana River.

A Sacred Land File search from the Native American Heritage Commission (NAHC) also failed to indicate the presence of Native American sacred lands or cultural resources within one-mile of the APE. Tribes were contacted for due diligence to support this finding. No prehistoric resources were identified through the record searches, Native American consultation, and the field survey.

Four bridge structures are within the APE and are listed as Category 5 (Not Eligible for the NRHP) in Caltrans Historic Bridge Inventory. The Section 106 findings for this Project is No Historic Properties Affected. As the only historic built environment resource, the former BNSF Railroad, will not be impacted, no historic built environment resources will be impacted. Previous ground disturbance within the river, as well as annual ground disturbing activities, and the lack of prehistoric archaeological resources in the vicinity of the river result in a low potential for subsurface archaeological deposits within the project APE. In addition, no prehistoric resources were identified in the APE. The Section 106 findings for the Project is No Historic Properties Affected as the only historic built environment resource, the former BNSF Railroad, would not be impacted. Finally, in the event that undiscovered resources are encountered during project construction, Caltrans Standard Specifications would address these finds and reduce the potential for impacts. Therefore, the Project would not result in impacts to cultural resources and would not result in a cumulative effect on cultural resources.

2.4.3.5 Paleontological Resources

The RSA for Paleontological resources includes 9.2 acres of direct impact within the project area's 1-mile boundary and a 5-mile radius around the boundary. Maximum depth of project excavations is approximately 10 feet to 12 feet for pier walls in the Santa Ana River. Outside of the walls, less than five feet of impacts are planned and will primarily be in artificial fill which has a low potential of disturbing paleontological resources. The surface of the Project is mapped as late Holocene very young wash deposits and Holocene to late Pleistocene young alluvial fans. No records of fossil localities were found from late Pleistocene alluvial sediments within the study area or a 5-mile radius.

During the field survey, only the surface of the late Holocene wash sands in the Santa Ana River and the Holocene to late Pleistocene young alluvial fans could be observed. No fossils were encountered during the survey. Based on the maximum planned depth of excavations and the results of the records search and survey, fossils are unlikely to be encountered during construction activities. Auguring and pile driving activities may rotate up fragmentary fossils but will lack context including depth/elevation, formation identification and other elements that are critical to scientific significance. An unprovenanced fossil will only be significant if the specimen recovered is a species that is currently not known in the area. Therefore, the Project will not contribute to cumulative effects on the paleontological resources of the area.

2.4.3.6 Air Quality

The RSA for the Cultural resources impact analysis includes the South Coast Air Basin (SCAB). The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

The South Coast Air Basin is currently designated as a state and federal nonattainment area for O3 and PM2.5. The South Coast Air Basin is designated as a federal attainment and state nonattainment area for PM10. The South Coast Air Basin is designated as attainment and/or unclassified for all other pollutants.

The SR57 Northbound Improvement Project was included in the regional emissions analysis conducted by the SCAG for the conforming 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy. The Project's design concept and scope have not changed significantly from what was analyzed in the regional emission analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the SIP(s) for attaining and maintaining the NAAQS as provided in Section 176(c) of the Clean Air Act. FHWA determined that the RTP conforms to the SIP on June 4, 2012, that Amendment #1 to the RTP conforms to the SIP on July 15, 2013, and that Amendment #2 to the RTP conforms to the SIP on December 15, 2014.

The SR 57 Northbound Improvement Project is also included in the SCAG 2019 FTIP. The Project's open-to-traffic year is consistent with (within the same regional emission analysis period as) the construction completion date identified in the federal TIP and RTP. The federal TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. FHWA determined that the TIP conforms to the SIP on December 17, 2018.

The Project will result in a 2% increase in VMT and a corresponding 2% increase in CO2 emissions. However, the CO2 emissions will decrease by 25% as compared to existing conditions. As such, the Project is not expected to affect GHG emissions. Construction emissions will produce temporary GHG emissions from the operation of equipment, but there will likely be long-term GHG benefits with the new roadway's smoother pavement surfaces.

Because the Project conforms to regional transportation plan's conformity requirements imposed by the EPA and SCAQMD, the Project is not expected to contribute to cumulative SCAB air quality impacts.

The Project is one in a series of proposed transportation projects planned for the region. These projects were also included in the regional air quality analysis and are subject to conformity standards. Therefore, the proposed future projects are not anticipated to contribute significantly to cumulative impacts on air quality.

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.

2.4.3.7 Noise

The RSA for the Noise impact analysis includes the surrounding land uses of the project site. This includes the residential neighborhoods, hotels, and commercial retail uses adjacent to the project site that may be sensitive towards the noise levels of the SR 57 Project.

Noise analysis focuses on a comparison of the existing noise level from traffic at the time of the NOP's existing conditions of the site and the future build noise level. The noise analysis entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key considerations include the uniqueness of the setting, the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected, and the absolute noise level. Traffic noise impacts are considered to occur at receptor locations where predicted design-year noise levels are 12 dB or greater than existing noise levels, or where predicted design-year noise levels approach or exceed the NAC for the applicable activity category.

Changes in traffic noise levels between existing and future with-project conditions at noise-sensitive receptors would range from a -1.8 decibel (dB) decrease to a 1.9 dB increase. The modeling result of less than 1 dBA increase between existing noise levels and the Build Alternatives would be barely perceptible to the human ear. Therefore, no significant noise impact would occur as a result of the Project and would not contribute significantly to cumulative impacts on the existing noise environment.

It is uncertain that the proposed future developments related to traffic and transportation in addition to the proposed Project would not be anticipated to contribute significantly to cumulative impacts on the noise environment. Future studies for those projects would have to be taken into consideration.

2.4.3.8 Biological Resources

The BSA for the Biological resources impact analysis includes the Project's proposed ground disturbance footprint and an approximately 500-foot buffer to include nearby areas that are not merely adjacent to the project footprint that may be impacted directly and indirectly.

This area includes three land cover types: developed/disturbed land from anthropogenic activities, the Santa Ana River (i.e. WoS/WoUS), and ornamental vegetation. Like most of the surrounding lands, biological resources such as threatened and endangered species and natural communities are minimal due to anthropogenic disturbance. None of the vegetation communities and land cover types detected within the Project are characterized as sensitive or unique natural communities. It is worth noting that Natural Communities of Special Concern are those locales that include rare plant and animal species, or are habitats with unique biological functions and values.

Where potential temporary impacts to biological resources have been identified, the application of specific measures has been recommended to avoid, minimize, and offset adverse effects. These measures include replacing any landscaping in kind post-construction. It is anticipated that this Project will not result in the permanent loss of any native habitats, sensitive, or unique natural communities due to their minimal or lack of occurrence in the BSA. Due to the lack of biological resources and wildlife corridors in the BSA, the Project is not anticipated to contribute significantly to cumulative impacts.

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3. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION

3.1 Determining Significance Under CEQA

The proposed Project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this Project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans. The Department is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (Project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the Project and ways to mitigate each significant effect. If the Project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this Project and CEQA significance.

3.2 CEQA Environmental Checklist

The CEQA Environmental Checklist evaluates physical, biological, social, and economic factors that might be affected by the proposed Project and the significance of those effects as defined under CEQA. In many cases, background studies performed in connection with the Project indicate that there are no impacts to a particular resource. A 'No Impact' answer in the last

column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA only impacts, not NEPA. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the Project and Caltrans Standard Specifications that are applicable to the Project, are considered to be an integral part of the Project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

AESTHETICS

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

a) No Impact

As discussed in the Visual/Aesthetics section 2.1.7, the SR 57 Project is not within a scenic highway designation, is not designated as a view corridor, nor would it obstruct or alter views from or to other scenic vistas in the area. Therefore, the Project would not adversely impact scenic vistas.

b) No Impact

The freeway segment within the SR 57 Project site is not a designated State Scenic Highway, or identified as eligible to be designated as one, and is not part of local jurisdictions designated scenic routes.

c) Less than Significant Impact

The Project would have a less than significant impact on the existing visual character and quality of the site, as analyzed under the Visual/Aesthetics section 2.1.7, This is because the proposed Project would not change the existing character (surrounding land use, vegetation type, visual patterns such as form and scale of the highway, etc.) or the quality (vividness, intactness, and unity) of the site after landscaping is replaced in kind based on a Landscape Master Plan. Temporary changes to the quality and character of the site may occur during construction due to signage, lighting, and machinery presence. The Project would not change the scale or form of the existing highway, and would not obscure views of scenic resources such as the San Bernardino Mountains and Saddleback Mountain formation. Vegetation removed as part of the Project would be replaced in compliance with the Project's landscaping plan.

d) Less than Significant Impact

Temporary sources of light and glare from construction may occur and be visible from adjacent views of the area. New soffit lighting would be provided under the new bridge decking where needed to improve visibility and safety conditions. All lights would be directed towards the streets to minimize effect on nearby areas. Nighttime construction lighting would also be shielded to minimize ambient spillover to surrounding areas. New signage and sign poles would be installed as part of the Project. Metal signs and posts would be compatible with the existing conditions, and would not significantly increase light or glare.

The Project would not create substantial light and glare that would adversely affect day or night views in the area; therefore, it is anticipated that the Project would have less than significant impact due to light and glare. No mitigation measures are required.

AGRICULTURE AND FORESTRY 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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) No Impact

No unique or prime farmlands exist within close proximity to the project site. No conversion of prime farmland, unique or farmland of local importance would result under the Project.

b) No Impact

The proposed Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. There are no parcels under a Williamson Act contract within the project limits.

c) No Impact

There are no forest or timberlands within the project limits.

d) No Impact

There are no forest or timberlands within the project limits.

e) No Impact

There are no other changes anticipated to farmland or forest land.

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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or Projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

a) No Impact

The project area lies in the South Coast Air Basin (SCAB), which includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside and San Bernardino counties. The SR 57 Northbound Improvement Project was included in the regional emissions analysis conducted by the SCAG for the conforming 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy. The SR57 Northbound Improvement Project is also included in the SCAG 2019 FTIP.

FHWA determined that the RTP conforms to the SIP on June 4, 2012, that Amendment #1 to the RTP conforms to the SIP on July 15, 2013, and that Amendment #2 to the RTP conforms to the SIP on December 15, 2014.

b) Less than Significant Impact

The Project's design concept and scope have not changed significantly from what was analyzed in the regional emission analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the SIP(s) for attaining and maintaining the NAAQS as provided in Section 176(c) of the Clean Air Act.

The impact analyses provided in Section 2.2.6 demonstrate that the Project emissions during short-term construction and long-term operations would not violate any air quality standard or contribute substantially to any existing or projected air quality violation.

c) Less than Significant Impact

Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. The Basin is the study area for cumulative effects on air quality. The Basin experiences chronic exceedances of state and federal ambient air quality standards as a consequence of past and present projects, and it is subject to continued nonattainment status by reasonably foreseeable future projects. These nonattainment conditions within the region are considered cumulatively significant. The SCAQMD has prepared and periodically updates the Basin's regional AQMP that sets forth a comprehensive and integrated program that would lead the Basin into compliance with the federal and state air quality standards. A project would be consistent with the AQMP, which is intended to bring the Basin into attainment for all criteria pollutants, if it is included within the AQMP emissions inventory. As discussed in the Air Quality section, the Project is in compliance with the goals of the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy which conforms to the SIP for attaining and maintaining the NAAQS and of which is included in the AQMP.

As discussion in the Air Quality section notes, emissions from construction equipment could temporarily generate enough PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs to be of concern. Most of the construction impacts to air quality are short-term in duration and will comply with standard specifications from Caltrans and SCAQMD, therefore, will not result in long-term adverse conditions.

d) Less than Significant Impact

Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Land uses within the project area include residential, schools, health care facilities, hotel, parks and playgrounds. The residential areas are located directly southeast of the project area.

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 construction-related activities. Standard specifications and other project elements (as outlined in

Section 1.3.1.1) for construction activities would minimize the exposure of these pollutants to nearby sensitive receptors.

e) Less Than Significant Impact

Some phases of construction, particularly asphalt paving, may result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable levels as distance from the site(s) increases. Given mandatory compliance with SCAQMD rules, no construction activities or materials are proposed that would create a meaningful level of objectionable odors that would impact a substantial amount of people.

Biological Resources

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☒	☐	☐
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?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) Less Than Significant Impact

Habitat within project site was not considered suitable to support special status animal species. Nor did surveys detect special status animals within the project site. Therefore, there would be no impacts to special status species, either directly through habitat modification, or indirectly. However, OCTA and Caltrans have voluntarily elected to impose avoidance measures BIRD-1 and BIRD BAT-1 through BIRD BAT-3 to reduce the magnitude of the Project's potential effect on nesting birds and bats. See Chapter 2 Section 2.3.4.4 for the referenced measure.

b) No Impact

None of the vegetation communities and land cover types detected within the Project are characterized as sensitive or unique natural communities. It is worth noting that Natural Communities of Special Concern are those locales that include rare plant and animal species, or are habitats with unique biological functions and values.

c) Less than Significant with Mitigation Incorporated

No wetlands were identified in the BSA. However, excavation and grading from the required widening of the bridge piers below the Santa Ana River Bridge and within the Santa Ana Riverbed would result in unavoidable permanent loss of WoUS and WoS (i.e., Santa Ana River). In addition, the Project would temporally disturb WoUS and WoS. In order to mitigate impacts to WoUS and WoS, WET-1 will be implemented as compensatory mitigation to address permanent loss of streambed and jurisdictional waters (less than 0.1 acre). This measure requires any unavoidable permanent losses of streambeds and jurisdictional water (less than 0.1 acre) to be compensated at the pre-approved mitigation sites identified in Table E-1 of Appendix E of the OCTA M2 NCCP/HCP. Additionally, for temporary disturbances to streambeds, the impact areas will be restored to their pre-project conditions, when appropriate, to achieve the no-net-loss standards. See Chapter 2 Section 2.3.2.4 for the referenced measure.

d) Less Than Significant Impact

A majority of the project area that would be disturbed (over 80%) would be confined to developed land containing public infrastructure and non-native habitat for wildlife. However, the Project includes a portion of the Santa Ana River, which is a well-known wildlife movement and migration corridor within Orange County. Wildlife movement and migration corridors are used by individual species for refuge or dispersal purposes to transfer into other more expansive open-spaces that can facilitate breeding, foraging, or population-level movements. The Santa Ana River links areas of wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Within the project limits the Santa Ana River is primarily used as a flood control channel and supports minimal vegetation. The existing bridge structure that spans the Santa Ana River is very large and open potentially supporting wildlife movement. The Project proposes extending the pier walls within the Santa Ana River to support the widened bridge deck. The alignment of the bridge in relation to the river would not change. Extending the

pier walls would slightly reduce the openness index of the bridge structure; however, it would still be more than sufficient to accommodate wildlife. Therefore, the Project is not expected to reduce the functionality of the crossing. After construction, wildlife would continue to be able to use the bridge undercrossing as a movement/migration corridor. The Project will not result in the permanent loss of any migration corridors or landscape linkages. There are no native wildlife nurseries within the BSA.

e) No Impact

This Project would not conflict with any local policies or ordinances protecting biological resources. Avoidance measure BIRD 1 – Nesting Birds Policy would be implemented to conform to the OCTA Conservation Plan. See Chapter 2 Section 2.3.4.4 for the referenced measure.

f) No Impact

The proposed project is a Covered Activity under the OCTA M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). A Certificate of Inclusion was executed for Caltrans for the proposed project at OCTA's request on July 12, 2018. On July 16, 2018, Caltrans sent a letter to USFWS and CDFW, collectively referred to as the Wildlife Agencies, requesting concurrence that the project is consistent with the NCCP/HCP. Written concurrence from USFWS and CDFW was received by Caltrans on August 21, 2018.

Cultural Resources

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

a) No Impact

The only built historic resource located within the APE is the former BNSF Railroad, now owned by OCTA. Widening the overhead bridge will consist of crane-placed precast girders over the railroad within the OCTA right of way at the existing pedestrian platforms. This activity will span over the railroad and thus will not impact the railroad's integrity as a historic resource. The four bridge structures within the APE are listed as Category 5 (Not Eligible for the NRHP) in Caltrans Historic Bridge Inventory and were not found eligible for listing on the California Register of Historical Resources (CRHR).

b) Less than Significant Impact

The Project would require some excavation ranging from 2 to 3 feet to a maximum depth of 10 to 12 feet. Most of the sediments within the APE are artificial fill extending to a depth of about 20 feet. Excavation within these fill soils would be no deeper than 5 feet and therefore, has no potential for encountering archaeological resources. Excavation required to extend the pier walls within the Santa Ana River would be to a maximum depth of about 12 feet. Soils within the river include native materials known to have medium to high potential for buried resources. However, due to past scouring from flood events, on-going ground disturbance activities related to OCFCD water re-charge management, and deepening of the riverbed as a flood control measure below levels where prehistoric sites are likely to occur, the Project is unlikely to encounter any deeply buried deposits. During pedestrian surveys no archaeological resources were observed and no

archaeological resources have been previously recorded within the APE. Therefore, the potential for subsurface archaeological deposits within the project segment of the river was determined to be low.

It is Caltran's policy to halt work should unidentified cultural materials be unearthed during construction and be redirected until the find can be assessed for significance. Based on the above analysis and with the addition of Caltrans standard measures, the Project is expected to have a less than significant potential for impacts to archaeological resources.

c) Less than Significant Impact

Results of record searches indicate no previous fossil localities recorded within the project APE or within five miles of the Project. Field surveys showed visible sediments were primarily artificial fill and surface sediments were young alluvial fans. However, much of the natural ground surface (soils) within the study area could not be surveyed due to existing hardscape or landscaping. No fossils were found during the survey. The maximum depth for project excavation would be about 12 feet for the pier walls within the Santa Ana River. Excavation for retaining walls and surface paving outside of the river would not exceed five feet in depth and would be within areas covered by artificial fill extending 20 feet in depth. Auguring and pile driving may rotate up fragmentary fossils, but they would lack context, formation identification and other elements that are critical to scientific significance; therefore, auguring and pile driving activities are exempt from monitoring. Based on the records search, field surveys and limited excavation within native soils it is considered unlikely that fossils meeting significance criteria would be encountered during project construction. In addition, Caltrans standard specification requiring work to be halted within 60 feet of an unanticipated discovery until the find can be evaluated by a qualified paleontologist would reduce the potential for impacts to less than significant.

d) Less Than Significant Impact

The Project is not within, adjacent to or within 2,000 feet of a known cemetery or other facility supporting the internment of human remains. Should undiscovered human remains be encountered during project construction, Caltrans standard specifications requires that work be stopped in the area, the area be secured, and the resident engineer notified. Additionally, State Health and Safety Code Section 7050.5 states that further disturbance and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. Pursuant to Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the NAHC, which will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the California Department of Transportation, District 12 Environmental Analysis - Specialist Branch, so that they may work with the MLD on the respectful treatment and deposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. Based on the above analysis and standard measures, the Project is not expected to disturb any human remains, including those interred outside of dedicated cemeteries.

Geology and Soils

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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:	☐	☐	☒	☐
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?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) Less than Significant

i) Less than Significant

The site is located in the seismically active region of Southern California; however, the project site is not located within an APEFZ (i.e. is not on or near the surface traces of active faults). Therefore, potential for surface rupture is considered low.

ii) Less than Significant

Seismic activity from nearby and distant faults may cause those in and around the project site to experience strong ground motion in the event of an earthquake. Active fault zones lie outside of the City of Anaheim, and the site could be subjected to strong ground motion due to these fault zones. The improvements to the project site would not impact this seismic activity's intensity, and the structures to be built and added would be designed or retrofitted to seismic standards.

iii) Less than Significant

The project site includes areas located within a designated liquefaction hazard zone mapped by California Geological Survey (CGS). In these areas, loose to medium-dense sands are present below groundwater and could result in liquefaction during a seismic event. To reduce risks from potential liquefaction, OCTA and Caltrans have voluntarily elected to impose measure GEO-1. During the design phase of the Project, in depth engineering studies will be performed to assess liquefaction potential in greater detail.

iv) Less than Significant

The local topography of the site also characterizes the project site to have a low landslide and rockfall potential. The project area is not within a designated landslide hazard zone mapped by the California Geological Survey which decreases the chances of landslides triggered by an earthquake.

b) Less than Significant

Excavation activities during construction, including in areas of cut and fill, may increase the potential for soil erosion within the project area. According to the Water Quality and Storm Water section of Chapter 2 in this document, temporary effects of construction on soil erosion would be addressed through the implementation of erosion control BMPs. No substantial adverse impacts related to soil erosion or loss of topsoil are expected as a result of the Project. It is anticipated that the Project would have less than significant impacts on erosion or loss of topsoil.

c) Less than Significant Impact

The Project is not located on a geological unit or soil that can become unstable or expansive due to the Project. As mentioned in the response to question a, only in the event of seismic activity would liquefaction and lateral spreading potentially occur due to the Project being located in loose to medium dense sands. According to the preliminary geotechnical screening, these soils

are located beneath the groundwater and thus have potential for liquefaction and lateral spreading during a seismic event. Any fill soils would be reviewed and approved by the Geotechnical Engineer of Record in accordance with Caltrans standards. Further geotechnical study on liquefaction potential in the project area will be conducted during the design phase of the Project.

d) No Impact

The majority of the subsurface soils encountered is classified as coarse-grained soils and, therefore, are not anticipated to have potential for expansion. Soil sampling and laboratory testing will be required during final design to confirm expansion, swell, and collapse potential.

e) No Impact

The Project does not include the construction of septic tanks or alternative waste water systems, nor does it require any wastewater disposal.

Greenhouse Gas Emissions

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this Project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the Project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the Project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

See Chapter 2.2.6 Climate Change for discussion of greenhouse gas (GHG) emissions and climate change.

Hazards and Hazardous Materials

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

a) Less than Significant Impact

The proposed Project would not routinely use, generate, or transport hazardous material or waste. The Project may encounter contaminants such as yellow thermoplastic pavement marking, aerially deposited lead, polychlorinated biphenyls in the corridor, due to its potential to travel to the site through groundwater, soil, or leakage. With the implementation of measures HAZ-1 through HAZ-3 it is anticipated that there would be minimal impacts to the public due to disposal of hazardous material.

b) Less than Significant Impact

Potential sources of hazardous waste/materials that may be encountered during construction include yellow thermoplastic pavement marking, aerially deposited lead, polychlorinated biphenyls that may be contained within the structures and highway paint and any potentially undiscovered sources of contamination. The standard measures described in Section 2.2.5.3, as well as measures HAZ-1 through HAZ-3 would be implemented to avoid and minimize the potential for hazard to workers and the public. The Project would have a less than significant impact to the public or the environment as a result of conditions involving the release of hazardous materials into the environment.

c) No Impact

No schools exist in the project area or within a half mile from the Project. Thus, it is not anticipated that the Project would have an impact on schools due to hazardous material.

d) No Impact

The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

e) No Impact

The Project is not located within an airport land use plan, and is not located within two miles of a public use airport. Therefore, the Project would not result in a safety hazard for people residing or working in the project area.

f) No Impact

The Project is not located within a private airstrip. Therefore, the Project would not result in a safety hazard for people residing or working in the project area.

g) Less than Significant Impact

The Project would improve travel conditions on SR 57 within the project area. Due to partial freeway and partial and full ramp closures for the construction of the Build Alternatives, emergency services providers could experience travel delays to/from emergency scenes during ramps closures and partial freeway closures. All temporary partial freeway, full and partial ramp closures and detour plans would be coordinated with law enforcement, fire protection, and

emergency medical service providers to minimize temporary delays in emergency response times as described in Section 2.1.6, Traffic and Transportation.

Construction impacts are anticipated to be temporary and for short terms occurring during off peak, nighttime and weekends. These impacts would be further reduced with implementation of the project TMP.

h) No Impact

The Project is located in an urbanized area and does not include wildlands. It is not anticipated that the Project would bring traffic any closer to forestland, and would not result in increasing the risk of fire to nearby residences or business. No mitigation measures are required.

Hydrology and Water Quality

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒

a) Less than Significant

Construction and operation of this Project has the potential to discharge pollutants into the receiving waters of the Santa Ana River as identified in Section 2.2.2 Water Quality and Storm Water Runoff. Reduction of impacts would be through implementation of a SWPPP, SWMP, and various BMP's to decrease the likelihood of violating water quality and discharge standards. It is anticipated that the Project would have less than significant impact on water quality and waste discharge requirements.

b) Less than Significant

As discussed in Section 2.2.2 Water Quality and Storm Water Runoff, the nearest recharge basin into the OCGB is 1.3 miles upstream of the project site. The Santa Ana River in the project boundary has an unlined channel bed and slopes and provides an opportunity for water to percolate into the underground aquifers. The Project would increase impervious surfaces, but will not significantly impact the recharge of groundwater within the Santa Ana River or project area due to the size of the Orange County Ground Basin. Nor would the Project result in uses of the groundwater. Dewatering during construction has the potential to lower groundwater levels minimally.

c) Less than Significant

Modifications to existing drainage features and new drainage improvements would be required to collect and convey the additional runoff generated by the proposed widening and increase in impervious surfaces. Drainage facilities such as slotted corrugated steel pipe, storm drain pipelines and inlets would be constructed so that runoff would be intercepted and conveyed while minimizing erosion potential. The goal of the project drainage design would be to maintain existing drainage patterns; however, during construction, temporary drainage facilities may be

required to redirect runoff from work areas. Impact reduction associated with erosion included within the BMPs, SWPPP, and SWMP would reduce erosion impacts to less than significant.

Roughly 6.5-hectares (16.22-acres) of non-wetland WoUS and WoS have been mapped within the BSA. The Project will result in less than 0.04 hectares (0.1 acres) of permanent loss of WoUS and WoS (i.e., Santa Ana River).

Due to the less than 1 acre loss from the extension of the pier walls in the river that support the freeway bridge structure, it is anticipated that no permanent impacts will result to drainage patterns due to the minimal area impacted by the pier wall extensions. This is because the Project will extend the existing pier walls, and not add additional piers that may result in a change to drainage of the site or the alteration of the river.

d) Less than Significant

As described in c) above, additional runoff generated by the proposed widening and increase in impervious surfaces would be intercepted and conveyed by proposed construction of new drainage facilities. The increase in impervious surfaces would not significantly increase the amount of runoff in the area as to result in flooding. Although the Project would increase the impervious area of the project site, all bridges that are proposed to be improved would be elevated above the floodplain and therefore will have no effect on hydraulic conditions, such as runoff.

The drainage pattern of the site will not be impacted by the impacts to WoS/WoUS in the SAR. This then would not result in the alteration of the river's course or increase the amount of runoff that may cause flooding on or off site.

e) Less than Significant

The Project would not create or contribute a significant amount of runoff water that would exceed the capacity of existing or planned storm water drainage facilities. Due to the less than 1 acre loss of WoS/WoUS from the extension of the pier walls in the river that support the freeway bridge structure, it is also anticipated that no permanent will result to runoff due to this improvement. This is because the Project will extend the existing pier walls, and not add additional piers that may result in a change to the runoff patterns or add an extensive amount of impervious surfaces that would impact runoff volumes.

f) Less than Significant

Construction within the river has the potential to temporarily affect water quality, through dredging and filling which could result in a change to the hydrology of the river. This change in the hydrology of the river resulting from construction activities could result in sedimentation and impact water quality. However, BMPs and SWPPPs will minimize the potential for this disturbance.

Impacts would be mitigated via the discretionary permitting processes at the state and federal levels to safeguard no net loss of special aquatic resource quantity, function, or value.

g) No Impact

No housing additions are associated with this Project and therefore would not place housing within a 100-year flood hazard area.

h) No Impact

As shown in Section 2.2.1 Hydrology and Floodplain's **Figure 2-16: FIRM Map**, all 100-year floodplains within the project limits are within the channel of the Santa Ana River. Additions to the Santa Ana River bridge piers would be in line with existing piers, no impediments or redirection of flows would result.

i) No Impact

The implementation of the proposed improvements associated with this Project are not anticipated to impact flood zones of the Santa Ana River and would not result in risk to people or to property as a result of failure of a levee or dam.

j) No Impact

The Project is not located in an area prone to inundation by seiche, tsunami, or mudflow.

Land Use and Planning

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

a) No Impact

The proposed Project's improvements would be constructed primarily within Caltrans right of way. TCEs for access to a maintenance road and for temporary construction-related activities within the Santa Ana River, and a revised highway easement with OCTA for widening and operation of the freeway, would be associated with the Project. The proposed improvements, TCEs and easement would not physically divide an established community.

b) No Impact

The Build Alternative would not conflict with any applicable federal, state, regional, or local programs, plans, or policies. No avoidance, minimization, and/or mitigation measures are required.

c) No Impact

The Project would not conflict with any applicable habitat conservation plan or natural community conservation plan.

Mineral Resources

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a, b) No Impact

There are no mineral resources available in the project area. Fill material for the Project would be acquired from approved borrow sites. The Project would not result in the loss of important local mineral resources recovery sites, or mineral resources of value for the region and the state; therefore, the Project has no impacts on mineral resources.

Noise

Would the Project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

a) Less than Significant Impact

Construction equipment can generate noise levels ranging from 70 to 90 dB at a distance of 50 feet. Noise produced by construction equipment is reduced over distance at a rate of about 6 dB per doubling of distance. Construction noise varies greatly depending on the construction process, type, and condition of the equipment used and layout of the construction site. During construction, noise sensitive receptors (residences) may experience intermittent increases in noise levels associated with the use of construction equipment. These short-term, temporary

effects would be minimized through compliance with standard noise reduction measures. In addition, construction operations may be required to adhere to local noise control ordinances.

Based on the noise modeling conducted for the Project, predicted noise levels over No Build and existing condition would increase ≤ 1.5 and 2.3 dBA respectively. The increase would not be in excess of standards established in local general plans, noise ordinances or applicable standards of other agencies.

b) Less than Significant Impact

During construction, some activities and or equipment (e.g. pile driving, jackhammers) may produce some ground borne noise and vibration. Ground borne noise or vibration would be limited to the construction period and would be short in duration. These effects would be temporary and intermittent. In addition, the effects of vibration decrease rapidly with distance from the source. It is anticipated that existing sources of vibration (heavy truck passages, freeway traffic, etc.) would continue after project construction. The project would not include new sources of ground borne vibration or noise. Compliance with local jurisdiction noise restrictions and Caltrans' Standard Specifications would minimize the effects of ground borne noise and vibration.

c) Less than Significant Impact

Noise analysis focuses on a comparison of existing noise level at the time of the NOP's existing conditions of the site and the future build noise level. The noise analysis entails looking at the setting of the noise impact and then how large or perceptible any noise increase would be in the given area. Key conditions include the uniqueness of the setting the sensitive nature of the noise receptors, the magnitude of the noise increase, the number of residences affected and the absolute nosie level. Based on the noise modeling conducted for the Project, noise levels over No Build and existing conditions are predicted to increase ≤ 1.5 and 2.3 dBA respectively, at noise sensitive receptors. Therefore, the Project would not result in a substantial permanent increase in ambient noise levels above existing.

d) Less than Significant Impact

During construction, noise sensitive receptors (residences) may experience intermittent increases in noise levels associated with the use of construction equipment. These short-term, temporary effects would be minimized through compliance with standard noise reduction measures.

e), f) No Impact

The Project is not located within an airport land use plan, within two miles of a public airport or public use airport or within the vicinity of a private airstrip; therefore, it would not expose people residing or working in the project area to excessive noise levels.

Population and Housing

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a, b, c) No Impact

The Project would not induce population growth, would not displace people or any number of existing housing, and would not necessitate the construction of replacement housing anywhere.

Public Services

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

a) Less than Significant Impact

The Project would not result in the need to increase public services and would not require altering or expanding any of the listed facilities. No new schools, parks, or other public facilities would need to be created, and their current service ratios and performance objectives would not be impacted by the Project.

Partial freeway and partial and full ramp closures for construction of the Build Alternatives, could result in delays for emergency services providers (fire, police) to/from emergency scenes. All temporary partial freeway, full and partial ramp closures and detour plans would be coordinated with law enforcement, fire protection, and emergency medical service providers per the project TMP to minimize temporary delays in emergency response times as described in Section 2.1.6, Traffic and Transportation. Other than these potential impacts to response times, services would not be necessary to expand.

Recreation

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
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?	☐	☐	☐	☒

a) Less than Significant Impact

The proposed Project would not directly increase the use of existing neighborhood parks or regional parks by the community such that substantial physical deterioration of the facility would occur or be accelerated.

The Project will be using the Santa Ana River Trail (SART) /Bicycle Path for construction purposes, which may result in deterioration of the facility. Details of the use of this trail is included in Section 4(f) analysis in Appendix A and detailed in Section 2.1.2 Parks and Recreation. It is anticipated that a de minmis use of the trail will result, which implies that impact to the recreational facility's activities, features, or attributes is minor in nature after taking into account the measures that would be implemented to avoid, reduce, or minimize impacts of the Project's use. Therefore, with this de minimis designation after a Section 4(f) analysis, the Project would have less than significant impacts to the SART/Bicycle Path.

b) No Impact

The proposed Project does not include or require construction or expansion of a recreational facility.

Transportation/Traffic

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

a) Less than Significant Impact

As identified in Section 2.1.1 Land Use, the Project was found to be consistent with regional and local plans in the area that establish measures for acceptable levels of performance for the circulation system. The Project will not permanently impact the service levels of transportation modes such as mass transit and non-motorized travel, but may temporarily impact their accessibility during construction. Temporary delays and detours would be anticipated on bike lanes, the Santa Ana River trail, freeway ramps, and mainline lanes, but do not conflict with applicable plans, ordinances, or policies due to the project TMP as detailed in Section 2.1.6 Traffic and Transportation.

The TMP would be updated as needed during the design and construction phases of the Project. Bicycle and pedestrian access would be maintained during construction except during temporary short-term closures, most or all of which would happen at night. Transit routes would not be impacted.

b) No Impact

The proposed Project is the last of the four-phased Project G improvements contained in the locally adopted Measure 2 (M2) freeway improvement plan. M2, which was rebranded in July 2018 as Orange County Go (OC Go), is a local half-cent sales tax funding program to fund transportation improvements in Orange County. The purpose of OC Go Project G is to relieve congestion and improve operational nonstandard design features on SR 57. The OCTA 2014 *Long Range Transportation Plan* (September 12, 2014) and the locally approved OC Go funding for freeway improvements identify the need to make improvements to SR 57. The *Orange County SR-57 Final Report* (August 2010) comprehensively evaluated transportation issues along a 12-mile segment on SR 57 from the I-5/SR 55 Interchange north to the Los Angeles County Line. The report identified congestion northbound as substantially greater than southbound. The report identified the northbound segment between the I-5/SR 22 and Orangethorpe Avenue, including the Orangewood Avenue to Katella Avenue segment, as a bottleneck condition where traffic demand exceeds the effective carrying capacity of the roadway.

The proposed 1-mile Project would improve congestion and mobility on the northbound SR 57 and its adjacent intersections within the project area. The proposed improvements are listed in the SCAG's 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, and in SCAG 2019 Federal Transportation Improvement Program (FTIP) 19-00 under ID 2M0735A and ORA131303 respectively. The SCAG 2016-2040 RTP/SCS Amendment 2 was found to be conforming by the Federal Highway Administration (FHWA) in March 2018.

c) No Impact

The Project would not have any impact on air traffic patterns or air travel patterns and locations.

d) No impact

The Project proposes to widen the existing freeway, which would substantially improve freeway operations within this segment of the freeway, as well as remedy nonstandard design features. Restriping the HOV lane and GP lanes following widening of the freeway would remedy nonstandard median width and horizontal curve sight distance. The Project also proposes to add a second lane to the Katella Avenue off-ramp. This second lane would increase the storage capacity of the off-ramp and minimize potential back-ups onto the freeway. The Preferred Alternative would move the existing westbound on-ramp at Orangewood Avenue east of its current location to reduce the curvature of the on-ramp and increase the weaving length between the on-ramp and Katella Avenue off-ramp. The weaving distance would improve from 1,310 feet to 1,580 feet, but would remain non-standard (standard length is 2,000 feet). Alternatives 2A and 2B would remove the westbound on-ramp improving the weave length between the Orangewood on-ramp and Katella Avenue off-ramp from 1,310 feet to 2,000 and 2,475 feet, respectively. The Project includes construction of a full, signal-controlled intersection on Orangewood Avenue, which would enhance pedestrian and bicycle safety

e) Less than Significant

The Project would result in less than significant impacts to emergency services. See Hazards and Hazardous Materials question g) for details.

f) Less than Significant

The Project would not conflict with adopted policies, plans or programs for public transit, bicycle, or pedestrian facilities, and would not decrease the performance of these plans. The Project would replace in-kind any affected pedestrian facilities resulting from the project improvements. Therefore, the Project would not decrease the performance or safety of such facilities.

Tribal Cultural Resources

Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

a, b) No Impact

No specific tribal resources were identified within the APE through the tribal consultation effort for the proposed Project, thus the Project would have no impact.

Utilities and Service Systems

Would the Project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider 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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

a) No Impact

The proposed Project would not result in any changes that would affect the waste water treatment requirements. During construction, BMPs would be implemented to treat storm water and non-storm water discharges to the maximum extent practicable and therefore runoff from the construction area would not likely create any surface water quality impacts.

b) No Impact

The proposed Project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities.

c) Less than Significant Impact

All of the Build Alternatives would preserve existing surface drainage at each offsite discharge location. Modifications to existing drainage features and new drainage improvements would be required to collect and convey the additional runoff generated by the proposed widening.

d) No Impact

Project construction would utilize available water supplies. No new resources and entitlements would be expanded or new entitlements are needed to serve the Project.

e) No Impact

The Project would not create additional need for wastewater or sewer services.

f) Less than Significant Impact

The Project has the potential of generating concrete debris. The Project would conform to all local, state and federal requirements on the disposal and recycling of excess construction materials. It is anticipated that the disposal of this Project's generated debris has no potential to exceed the capacity of area landfills.

g) No Impact

According to Hazardous Waste and Material Section 2.2.5, all disposal of solid waste including any potential hazardous material would comply with federal, state, and local statutes and regulations. The Project will have no impact on solid waste.

Mandatory Findings of Significance

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	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?	☐	☒	☐	☐
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) Less than Significant Impact with Mitigation Incorporated

With implementation of standard specifications and mitigation measures, downstream nursery sites for fish in the Santa Ana River would be protected from upstream impacts from the Project. Lands temporarily affected by the Project will be restored to pre-project conditions.

The Project will result in less than 0.1 acres of permanent loss of WoUS and WoS (i.e., Santa Ana River). In addition, the Project would temporally disturb WoUS and WoS. Compliance with applicable codes, ordinances, laws, and other required regulations will safeguard no net loss of WoUS and WoS. No special status species, suitable habitat for special status species, or natural communities were found in the project site. Wildlife found in the site include species adapted to the urban environment which would be anticipated to adapt to conditions created by the Project.

The Project would not eliminate important examples of the major periods of California history or prehistory, and would not cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5.

b) Less than Significant

The Project does not have an adverse impact on the environment when reviewed in connection with the effects of past projects, current projects, and probable future projects.

c) Less than Significant

With implementation of standard design specifications and BMPs, and other measures identified in Chapter 2, it is anticipated that the proposed Project improvements would have a less than significant impact on the environmental such that it would cause substantial adverse effects on human beings, either directly or indirectly.

3.3 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 (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (1,1,1,2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.[34] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[35] The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: "greenhouse gas mitigation" and "adaptation." Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or "mitigate" the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

3.3.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

3.3.1.1 Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the Project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or Project.

[34] https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014

[35] https://www.arb.ca.gov/cc/inventory/data/data.htm

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, Project development and design, and operations and maintenance practices.[36] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability."[37] Program and Project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors 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.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

[36] https://www.fhwa.dot.gov/environment/sustainability/resilience/

[37] https://www.sustainablehighways.dot.gov/overview.aspx

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 GHGs 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 the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[38] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.[39]

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO_2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

3.3.1.2 State

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 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.

[39] http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256 and https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (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 year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 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." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires 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 ARB to set regional emissions reduction targets for 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 how it will achieve the emissions target for its 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.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to

statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

3.3.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. The second updated plan, *California's 2017 Climate Change Scoping Plan,* adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

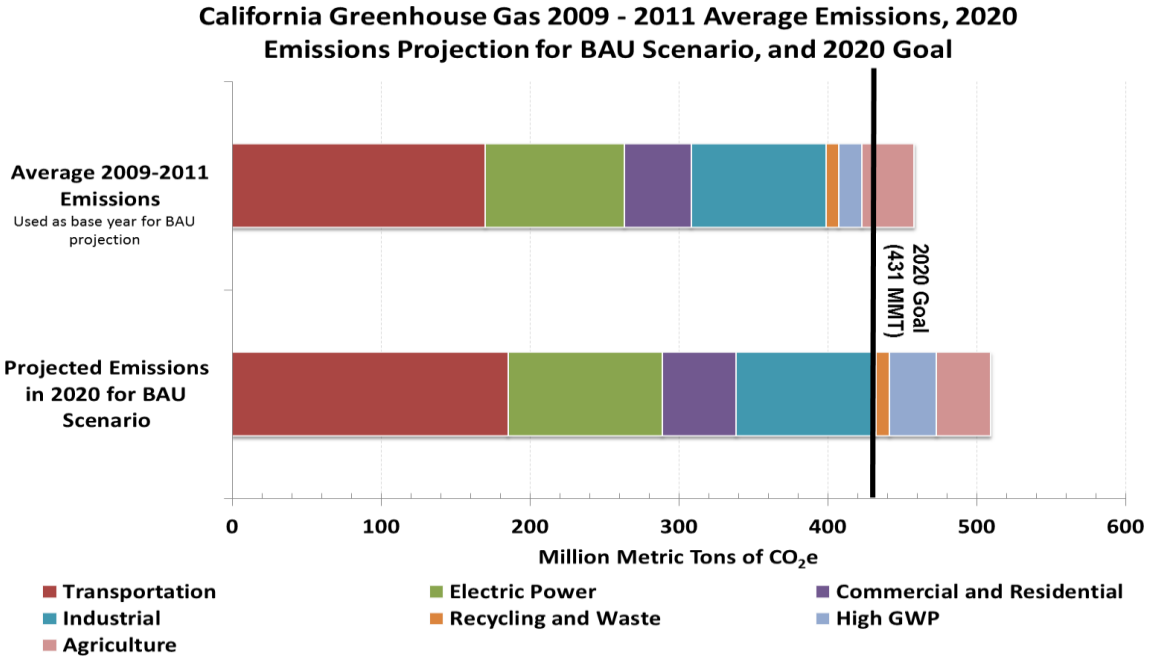
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California.[40] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in **Figure 3-1: 2020 Business as Usual (Bau) Emissions Projection 2014 Edition** represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e[41]. The 2018 edition of the GHG emissions inventory (released July 2018) found total California emissions of 429 $MMTCO_2e$ for2016.

[40] 2016 Edition of the GHG Emission Inventory Released (June 2016): https://www.arb.ca.gov/cc/inventory/data/data.htm

[41] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)

Figure 3-1: 2020 Business as Usual (Bau) Emissions Projection 2014 Edition



Source: ARB, 2020 Business-as-Usual (BAU) Emissions Projection 2014 Edition 2014. https://www.arb.ca.gov/cc/inventory/data/bau.htm

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 $MMTCO_2e$ total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 $MMTCO_2e$.

3.3.3 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.[42] 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

[42] This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in project Level NEPA Analysis, July 13, 2009).

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.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed Project.

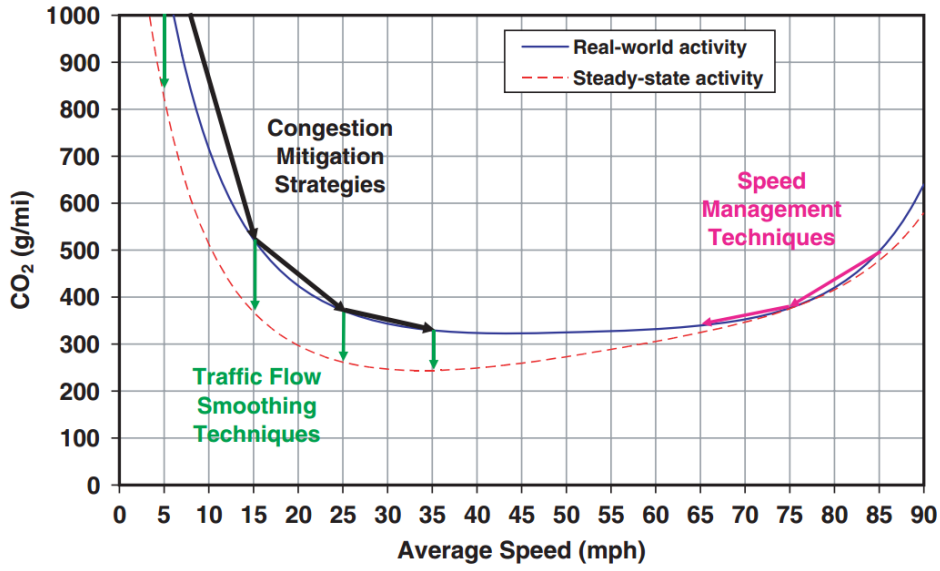
3.3.3.1 Operational Emissions

Four primary strategies can reduce 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 concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 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 3-2: Possible Use of Traffic Operation Strategies In Reducing On-Road CO2 Emissions**). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

Figure 3-2: Possible Use of Traffic Operation Strategies In Reducing On-Road CO2 Emissions



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside, Real World Carbon Dioxide Impacts of Traffic Congestion 2010
https://www.researchgate.net/publication/46438207_May_2010Real-World_Carbon_Dioxide_Impacts_of_Traffic_Congestion

The proposed Project is included in the SCAG 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Pursuant to Senate Bill 375, ARB set per capita greenhouse gas emissions reduction targets from passenger vehicles for each of the state's 18 MPOs. For the SCAG region, the targets are set at eight percent below 2005 per capita emissions levels by 2020 and 13 percent below 2005 per capita emissions levels by 2035. e, the 2016 RTP/SCS achieves per capita greenhouse gas emissions reductions relative to 2005 of eight percent in 2020, 18 percent in 2035, and 21 percent in 2040—exceeding the reductions that ARB currently requires.

The proposed Project contributes to the RTP/SCS goals for region-wide GHG emission reductions by reducing congestion and improving mobility. The proposed Project would close the gap in the fifth lane of SR 57 northbound between Orangewood Avenue and Katella Avenue that causes bottlenecks. Other changes, such as increasing sight distance and merge lengths would substantially improve freeway operations and lessen peak period congestion that contributes to GHG emissions. TSM strategies to improve operations and traffic flow include ramp metering, modifying or expanding on ramps, coordinating signals and ramp meters to control congestion, and creating a continuous auxiliary lane between Orangewood Avenue and Katella Avenue. These proposed Project features also support Orange County's SCS Sustainability Strategy I: *Eliminate bottlenecks and reduce delay on freeways, toll roads, and arterials* (OCTA and Orange County Council of Governments 2011).

Quantitative Analysis

On the project-scale, operational emissions were estimated using Caltrans' CT-EMFAC2014 model. CT-EMFAC is a California-specific project-level analysis tool that models on-road vehicle emissions based on the CARB EMFAC model. With inputs of project-level travel activity data, CT-EMFAC can be used to estimate on-road vehicle emissions of CO_2 for an existing or proposed transportation project.

Two segments were included in the CO_2 emissions calculation: Northbound SR-57 from Chapman Avenue loop on-ramp to Orangewood Avenue loop on-ramp and Northbound SR-57 from Orangewood Avenue loop on-ramp to Katella loop on-ramp. Emissions were estimated for existing conditions and design year build and no build. The model was run with daily VMT, average speed, and truck percentage specific to the two segments, and all other Orange County defaults. The results in **Table 3-1: Project CO2 Emissions** show that CO_2 emissions from the Build scenario are expected to decrease by 19% as compared to existing conditions. CO_2 emissions from the Build scenario are expected to increase by 7% as compared to the No Build scenario.

Table 3-1: Project CO_2 Emissions

Scenario	Daily Vehicle Miles Traveled (VMT)	Daily CO_2 Emissions (tons/day)
2016 Existing	123,898	207
2045 No Build	145,336	157
2045 Build[1]	147,655	168

[1] Alternative represents Build Alternatives 2 (Preferred Alternative), 2A, and 2B
[2] % Change from Existing = (2045 Build – 2016 Existing) / 2016 Existing * 100
Sample calculation: CO % change from existing = (168 ton/day – 207 ton/day) / 207 ton/day * 100 = -19%
[3] % Change from No Build = (2045 Build – 2045 No Build) / 2045 No Build * 100
Sample calculation: CO % change from no build = (168 ton/day – 157 ton/day) / 157 ton/day * 100 = 7%
Source: AQR 2018.

While EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data. The numbers are estimates of CO_2 emissions and not necessarily the actual CO_2 emissions. The model does not account for factors such as the rate of acceleration and the vehicles' aerodynamics, which would influence CO_2 emissions. To account for CO_2 emissions, ARB's GHG Inventory follows the IPCC guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH_4 and N_2O emissions. Though EMFAC is currently the best available tool for use in calculating GHG emissions, it is important to note that the CO_2 numbers provided are only useful for a comparison of alternatives.

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO_2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study[43], brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the CARB have not approved a modal emissions model that is capable of conducting such

[43] Matthew Barth, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system.* Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410

detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of greenhouse gas emissions has limitations. Although a GHG analysis is included for this Project, there are numerous external variables that could change during the design life of the proposed Project and would thus change the projected CO_2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2016,"[44] which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 29% from model year 2004 to 2015, attributed to new technology that improved fuel economy while keeping vehicle weight relatively constant. **Table 3-2: Average Required Fuel Economy (mpg)** shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025, from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

Table 3-2: Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2017	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	39.6-40.1	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.1-29.4	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	35.1-35.4	36.1-36.5	38.3-38.9	48.7-49.7

Sources: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf;
EPA 2012. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle#rule-summary

Second, new lower-emission and zero-emission vehicles will come into the market within the expected design life of this Project. According to the 2013 Annual Energy Outlook (AEO 2013):

> "LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case."[45]

[44] https://www.epa.gov/fueleconomy/light-duty-automotive-technology-carbon-dioxide-emissions-and-fuel-economy-trends-1975-1

[45] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf

The greater percentage of lower-emissions and zero-emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

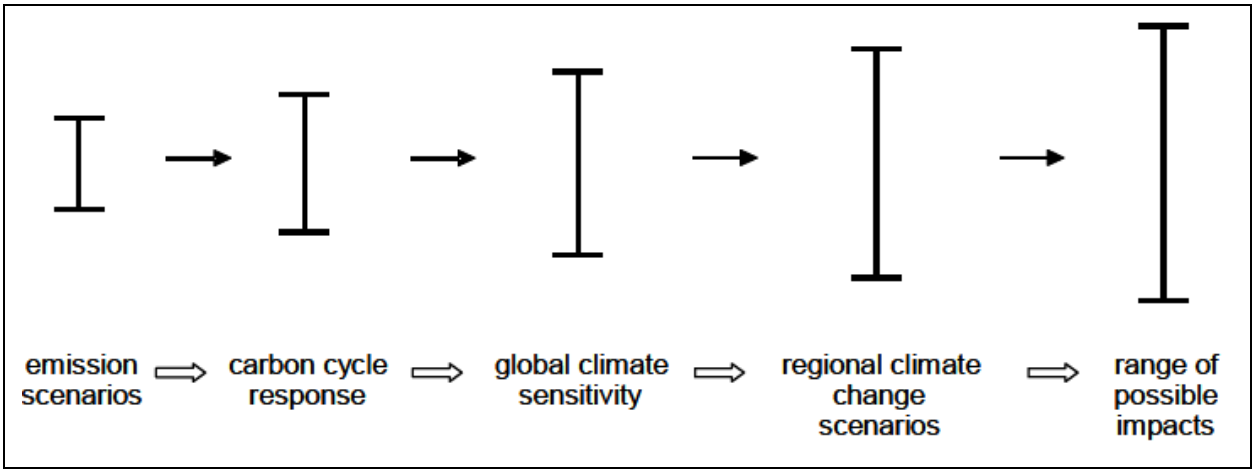
Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in title 17, California Code of Regulations, sections 95480-95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

Limitations and Uncertainties with Impact Assessment

Figure 3-3: Cascade of Uncertainty in Climate Change Simulations illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis, as noted in the *National Highway Traffic Safety Administration Final EIS for MY2017–2025 CAFE Standards* (NHTSA 2012):

"Moss and Schneider (2000) characterize the 'cascade of uncertainty' in climate change simulations (**Figure 3-3: Cascade of Uncertainty in Climate Change Simulations**). As indicated in **Figure 3-3**, the emission estimates … have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources …). Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood."[46]

Figure 3-3: Cascade of Uncertainty in Climate Change Simulations



Source: National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012). Page 5-22.

[46] http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-21

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global greenhouse gas emissions as well as to evaluate potential changes in global temperatfigure

ure, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce greenhouse gas emissions. Non-mitigation IPCC scenarios project an increase in global greenhouse gas emissions by 9.7 up to 36.7 billion metric tons CO_2 from 2000 to 2030, which represents an increase of between 25 and 90%.[47]

The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of GHG emissions, rather than causing "new" GHG emissions. It is difficult to assess the extent to which any project-level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

3.3.3.2 Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and 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 construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction-related emissions were estimated using a typical phasing schedule and defaults included in the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant and greenhouse gas emissions associated with both construction and operations from a variety of land use projects. CalEEMod was run assuming the land use type option "Other Asphalt Surfaces" with a size of 14.29 acres, and all other recommended defaults.

[47] Intergovernmental Panel on Climate Change (IPCC). February 2007. *Climate Change 2007: The Physical Science Basis: Summary for Policy Makers*. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/spm.html

The main sources of GHG emissions during construction are exhaust emissions from vehicles and equipment powered by gasoline and diesel engines. Construction activities will last for approximately 24 months. The estimated GHG emissions for each year of construction are summarized in **Table 3-3: Estimated Short-Term Construction Emissions**. The maximum estimated emissions of carbon dioxide equivalent (CO_2e) are 861 metric tons per year (MT/year), and a total of 1,240 metric tons of CO_2e are expected to be emitted during the construction period.

Table 3-3: Estimated Short-Term Construction Emissions

Year	CO2e in MT/year
2021	861.2501
2022	379.1094
Total	**1240.36**

Source: AQR 2018.
MT/Year: metric tons per year

Caltrans Standard Specification, Section 14-9.02, specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. Regulations such as idling restrictions and requiring construction equipment and vehicles to be properly tuned and maintained help reduce construction GHG emissions.

A TMP will be implemented that includes strategies and measures to avoid and minimize disruption to local access, roadways, and bike and pedestrian facilities during construction.

3.3.4 CEQA Conclusion

As discussed above, both the future with project and future no build show a decrease in CO_2 emissions compared to the existing level; however, the future build CO_2 emissions are higher than the future no-build emissions. In addition, as discussed above, there are also limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, 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 determination regarding significance of the Project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the Project. These measures are outlined in the following section.

3.3.5 Greenhouse Gas Reduction Strategies

3.3.5.1 Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target (see **Figure 3-4: The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals**). These pillars are (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

Figure 3-4: The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals



Source: Caltrans, SER 2017.

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars set the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

3.3.5.2 Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce 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. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391(Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in Caltrans Activities to Address Climate Change (2013).

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 GHG emissions resulting from agency operations.

3.3.5.3 Project-Level GHG Reduction Strategies

The following measures will also be implemented in the Project to reduce GHG emissions and potential climate change impacts from the Project.

- Caltrans Standard Specification, Section 14-9.02, specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. Regulations such as idling restrictions and requiring construction equipment and vehicles to be properly tuned and maintained help reduce construction GHG emissions.
- Project features include a Landscape Master Plan, intended to retain as much existing vegetation as possible, particularly mature trees. Mature trees absorb CO_2.
- Bicycle and pedestrian access will be maintained during construction except during temporary short-term closures, most or all of which would happen at night.
- The arterial road signal would prevent on-ramp backups onto the arterial and would improve pedestrian and bicycle safety, supporting the use of non-motorized modes of transportation.

3.3.6 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their 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; increasing 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. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

3.3.6.1 Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the 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[48], 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 provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."[49]

To further the DOT Policy Statement, in December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[50] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.[51]

3.3.6.2 State Efforts

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 and directed all state agencies planning to construct projects in areas vulnerable to

[48] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience

[49] https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm

[50] https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

[51] https://www.fhwa.dot.gov/environment/sustainability/resilience/

future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, 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, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)[52] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided 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; and a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009), which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 on April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR."

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;

[52] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

and rising sea levels. Caltrans is actively engaged in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed Project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

4. COMMENTS AND COORDINATION

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this Project have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, Project Development Team (PDT) meetings. This chapter summarizes the results of the Department's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

4.1 Consultation and Coordination with Public Agencies:

The following provides a summary of all coordination relevant to the development of the Project during the Project Approval and Environmental Document (PA&ED) phase.

4.1.1 Cultural Resources

4.1.1.1 Historic Properties

Letters were sent on August 21, 2017 to the Anaheim Historical Society, Orange Community Historical Society, and Orange County Historical Society. Follow up emails were sent on December 20, 2017. No responses were received.

4.1.1.2 Native American Consultation

Native American Heritage Commission

The NAHC was contacted initially on March 24, 2017 to request a search of its Sacred Lands Database. The NAHC responded on March 28, 2017 that the search did not yield any information regarding the presence of Native American sacred lands or cultural resources within one-mile of the APE. The same response was provided by the NAHC on August 24, 2017 upon the request to confirm the results.

A Local Government Tribal Consultation List Request was submitted to the NAHC on September 1, 2017 to obtain the CEQA Tribal Consultation list. The NAHC responded on September 7, 2017 requesting that 19 Tribal Contacts be consulted.

Native American Tribes, Groups and Individuals

Caltrans District 12 sent a total of 21 letters to the Native American tribal representatives on September 29, 2017 to meet the requirements of Assembly Bill 52 and Section 106. Follow up attempts were made on October 13, 2017 and October 23, 2017 by phone and email. A total of four responses were received and are summarized below:

- Gabrielino Band of Mission Indians-Kizh Nation, Andrew Salas, Chairperson: Responded on October 11, 2017 and requested consultation.
- Gabrieleno Tongva Indians of California Tribal Council, Robert F. Dorame, Chairperson: Responded on October 23, 2017 and requested a digital version of the Tribal Consultation Letter be sent to a gmail account. A digital version of the letter was sent that day and no additional response from Mr. Dorame was received.
- Gabrielino/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson: Responded on October 23, 2017 and requested due diligence in the form of archaeological and Native American monitoring be conducted because the Project crosses over the Santa Ana River, which the Tribe considers culturally sensitive. Mr Morales also requested that the Tribe be retained for Native American monitoring.
- Juaneno Band of Mission Indians Acjachemen Nation, Joyce Perry, Tribal Manager: Responded on October 14, 2017 that the Tribe has no comments or concerns.

On October 11, 2017 in response to the request for consultation by Mr. Andrew Salas, Chairman for the Gabrielino Band of Mission Indians-Kitz Nation, Caltrans initiated consultation the same day. On October 31, 2017 Caltrans provided project details to assist the Tribe in identifying significant cultural resources within the project area. On December 7, 2017 Ms. Sinopoli (Caltrans Archaeologist), Mr. Baker (Caltrans Environmental Branch Chief) Chairman Andrew Salas (Chairman of the Gabrielino Band of Mission Indians-Kizh Nation) and Mr Teutimez (Natural and Cultural Resources Director of the Gabrielino Band of Mission Indians-Kizh Nation) met in the field to discuss the project APE. During consultations, Caltrans noted that of particular concern to the Tribe was the potential to encounter cultural resources within the Santa Ana River/Angel Stadium area. The Tribe requested more in-depth research regarding the village of Houtkngna, historic and prehistoric flows of the Santa Ana River, more specific information regarding construction activities within the Santa Ana River, and additional information clarifying the use of artificial fill for construction of SR 57.

On January 29, 2018 Caltrans provided the results of the additional research requested by the Tribe. Based on the additional research conducted and evidence provided, Caltrans noted that their conclusion was that the potential to encounter cultural resources on this Project was low. On February 23, 2018 Mr. Teutimez requested additional discussion noting that the Tribe did not agree with Caltrans determination and that they felt the methods used to make the determination missed the reason for tribal consultation. Mr. Teutimez requested another meeting with Caltrans, and Caltrans management in particular, as the Tribe knows the area and would like the Tribes documentation and oral information to be correctly represented. On February 27, 2018, after reviewing Mr Teutimez's response and notes from the December 7, 2017 field visit in great detail, Caltrans responded to each of the Tribe's concerns and requested that the Tribe clarify which aspects of the research they disagreed with so that they could be addressed and resolved.

On March 5, 2018 Mr. Teutimez stated that the specific concerns related to the village location of Houtkngna, the origins of the fill material used for the construction of SR 57 and the potential for ground disturbance within the Santa Ana River to uncover cultural resources were the Tribe's key concerns. Mr Teutimez requested protective mitigation measures be set in place to preserve unknown cultural resources within the fill material unless it could be proven that the fill materials do not contain tribal cultural resources and/or human remains. On March 28, 2018 Caltrans responded to Mr Teutimez's concerns and noted that they welcomed the Tribe's oral information regarding the village location of Houtkngna, based on the information presented to date (including as-built plans) Caltrans views the potential to encounter cultural resources within the fill material as very low, and additional record search information regarding the Santa Ana River showed only three cultural resources (two historic refuse scatters and one prehistoric isolate).

Additional communications via email between Caltrans and the Tribe resulted in the location of the Village of Hutuknga being revised in the study. However, Caltrans concluded that based on their research the potential for encountering cultural resources was extremely low and given the lack of evidence to the contrary, Caltrans would maintain their conclusion. In an email on April 17, 2018 from Mr. Baker to Mr. Salas and Mr. Teutimez, he noted that based on Caltrans conclusions, funding for archaeological or Native American monitoring during construction would not be provided. Caltrans offered to make arrangements for the Tribe to conduct monitoring or spot checking on an unpaid, voluntary basis; however, no further response was received. A summary of the correspondence is provided in **Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project**.

According to Caltrans Policy and practice, Native American monitoring is solicited only in the following cases: during archaeological excavations, during construction activities in areas adjacent to know Native American archaeological or cultural sites, and during construction activities in areas where there is a high probability that there may be buried deposits. The identification efforts summarized in Section 2.1.11 of this document for the Project did not identify either a historic property within or adjacent to the project area, or a high probability of intact, buried cultural deposits.

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
Ralph Goff, Chairperson Campo Band of Mission Indians	September 29, 2017	*Letter from Caltrans	None
	October 13, 2017	*Follow up.	
	October 23, 2017	*Follow up.	
Robert Pinto, Chairperson Ewiiaapaayp Tribal Office	Same information as entry above.		None
Michael Garcia, Vice Chairperson Ewiiaapaayp Tribal Office			
Andrew Salas, Chairperson Gabrielino Band of Mission Indians-Kizh Nation	September 29, 2017	*Letter from Caltrans	Yes
	October 11, 2017	Email. Requested consultation with Caltrans.	
	October 31, 2017	Ms. Sinopoli (Caltrans archaeologist) sent information on project activities.	
	November 1, 2017	Sinopoli emailed additional information. Suggested on site/ in field consultation.	
	December 7, 2017	Sinopoli and Mr. Charles Baker (Environmental Branch Chief) of Caltrans and Chairperson Andrew Salas and Natural & Cultural Resources Director Matthew Teutimez of the Gabrieleno Band of Mission Indians – Kizh Nation met in field. Discussed concerns and provided information about concerns within SAR/Angel Stadium concerning potential resources.	
	December 8, 2017	Sinopoli notified Tribe that field meeting notes would be shared with OCTA's archeology consultant, Cogstone Resource Management, Inc.	

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project (continued)

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
	January 29, 2018	Sinopoli notified tribe that Cogstone completed additional research.	
	February 7/22, 2018	Baker & Sinopoli followed up the Kizh Tribe to capture any responses regarding the Project.	
	February 23, 2018	Teutimez requested to further discussion with Caltrans due to disagreements regarding the assessment of the project's impacts on potential tribal resources.	
	February 27, 2018	Sinopoli reviewed tribe-provided information. Addressed concerns. Teutimez was notified that the Environmental Analysis Deputy was to join the team as a member of Caltrans management, based on his request.	
	March 5, 2018	Teutimez requested to discuss with Caltrans specific topics including the Tribes' knowledge of the triiaballe resources in the project area, Caltrans comments regarding artificial fills according to the as-built plans, and Tribal proposed protective mitigation measures.	
	March 6, March 28, April 16, April 17, April 24, April 25, and April 27 of 2018	Correspondence to evaluate available information on tribal resources and assessment of project impacts.	
	April 27, 2018	Sinopoli, Baker, Salas met in field to review information provided by Salas.	

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project (continued)

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
	May 8, 2018	Baker corresponded with Salas and Teutimez to inform them that the information they provided lead to adjustment in the location of the evaluated resourcesVillage of Hutunkngna (outside the APE); however, Caltrans determined that the evidence still shows that the potential to encounter cultural resources during construction is low.	
Robert F. Dorame, Chairperson Gabrielino Tongva Indians of CA Tribal Council	October 23, 2017	Dorame requested a digital version of the letter sent by Caltrans requesting information. The digital form of the letter was sent on the same day. No other response.	Yes
Sandonne Goad, Chairperson and Sam Dunlap. Gabrielino/Tongva Nation	September 29, 2017	*Letter from Caltrans	None
	October 13, 2017	*Follow up.	
	October 23, 2017	*Follow up.	
Gabrielino/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson	September 29, 2017	*Letter from Caltrans	Yes
	October 13, 2017	*Follow up.	
	October 23, 2017	Morales requested archaeological and Native American monitoring be conducted at SAR.	
Gabrielino-Tongva Tribe, Charles Alvarez, Chairperson: No response.	September 29, 2017	*Letter from Caltrans	None
	October 13, 2017	*Follow up.	
	October 23, 2017	*Follow up.	

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project (continued)

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
Linda Candelaria, Co-Chairperson Gabrielino-Tongva Tribe	Same information as entry above.		None
Erica Pinto, Chairperson Jamul Indian Village			None
Sonia Johnston, Chairperson Juaneno Band of Mission Indians,			None
Joyce Perry, Tribal Manager Juaneno Band of Mission Indians Acjachemen Nation	September 29, 2017	*Letter from Caltrans	Yes
	October 13, 2017	*Follow up.	
	October 23, 2017	*Follow up.	
	October 14, 2018	Responded to indicate no concerns.	
Juaneno Band of Mission Indians Acjachemen Nation, Matias Belardes, Chairperson	September 29, 2017	*Letter from Caltrans	None
	October 13, 2017	*Follow up.	
	October 23, 2017	*Follow up.	

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project (continued)

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
Juaneno Band of Mission Indians Acjachemen Nation, Teresa Romero, Chairperson	Same information as entry above.		None
La Posta Band of Mission Indians, Javaughn Miller, Tribal Administrator			
La Posta Band of Mission Indians, Gwendolyn Parada, Chairperson			
Angela Elliot Santos, Chairperson Manzanita Band of Kumeyaay Nation,			
John Valenzuela, Chairperson San Fernando Band of Mission Indians			
Allen E. Lawson, Chairperson San Pasqual Band of Mission Indians			

Table 4-1: Native American Tribes, Groups, and Individuals Contacted for the Project (continued)

Summary of Coordination			
Notes: *Letter from Caltrans: Caltrans requests information or concerns regarding cultural resources in the project area. *Follow up: by phone and email.			
Name/Affiliation	**Date**	**Activity**	**Response Received?**
Cody J. Martinez, Chairperson Sycuan Band of the Kumeyaay Nation			
Robert J. Welch, Chairperson Viejas Band of Kumeyaay Indians			

Source: Caltrans District 12, Cheryl Sinopoli's Correspondence with Tribal Leaders, 2018.

4.1.2 Interagency Coordination (TCWG)

A PM Conformity Hot Spot Analysis Project Summary Form for Interagency Consultation was prepared for the Project and presented for consideration by the SCAG Transportation Conformity Working Group (TCWG) at their January 23, 2018 meeting. In February 2018, the Project was posted to SCAG website indicating that the working group had determined the project is not a Project of Air Quality Concern (POAQC) and no quantitative PM hotspot analysis would be required for the Project.

4.1.3 Biological Resources

On August 9, 2017, an official USFWS List of Proposed, Threatened, and Endangered Species, and Critical Habitats was obtained through the USFWS Information System. On February 7, 2019 list was updated and is included in Appendix E.

The proposed project is a Covered Activity under the OCTA M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). On March 15, 2019 Caltrans sent a letter to USFWS and CDFW, collectively referred to as the Wildlife Agencies, requesting concurrence that the project is consistent with the NCCP/HCP. On March 26, 2019 a Certificate of Inclusion (COI) was received from the USFWS (**refer to Figure 4-1: Certificate of Inclusion)**. The COI extends to Caltrans coverage under the permit issued to OCTA, which authorizes the take of certain "covered" species within the area covered by the NCCP/HCP.

4.1.4 Section 4(f) Resources

On August 25, 2018, a letter was sent to Stacy Blackwood at OC Parks to notify those with jurisdiction over the Santa Ana River Trail within the project boundary that the Project would cause a de minimis impact to the trail. A de minimis impact was determined by Caltrans for this Project's construction activities and would be presented as so within the draft environmental document for public review. Following public review, a letter of concurrence from OC Parks was requested. OC Parks provided written concurrence on February 7, 2019. A copy of the correspondence letters in this regard are included in Appendix E.

Figure 4-1: Certificate of Inclusion

U.S. FISH AND WILDLIFE SERVICE
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

CALIFORNIA DEPARTMENT OF
FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, California 92123

In Reply Refer To:
FWS/CDFW-OR-19B0110-19CPA0136

March 26, 2019
Sent by Email

Mr. Charles Baker
California Department of Transportation – District 12
1750 East Fourth Street, Suite 100
Santa Ana, California 92705

Subject: OCTA M2 Natural Community Conservation Plan/Habitat Conservation Plan Consistency Review for the State Route 57 Northbound Project G Segment 1a in Orange County, California

Dear Mr. Baker:

This is in response to your March 18, 2019, letter regarding the State Route 57 (SR-57) Northbound Project G Segment 1a. The proposed project is a Covered Activity under the Orange County Transportation Authority (OCTA) M2 Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). Your letter requests concurrence from the U.S. Fish and Wildlife Service (Service) and the California Department of Fish and Wildlife (Department), collectively referred to as the Wildlife Agencies, that the project is consistent with the NCCP/HCP.

The project includes the construction of a 550-foot general purpose lane in the northbound direction of SR-57 through the Katella Avenue interchange, upgrades to the median and sight distances, and reconfiguration of the existing on- and off-ramps between the Orangewood Avenue and Katella Avenue interchanges. The project occurs in the City of Anaheim, Orange County.

On June 19, 2017, the Service and Department issued section 10(a)(1)(B) (TE 32842C-0) and NCCP (2835-2017-001-05) permits under the Federal Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.), and Section 2835 of the California Fish and Game Code, respectively, to OCTA for the NCCP/HCP. The NCCP/HCP established a multiple species conservation program to minimize and mitigate habitat losses and the incidental take of Covered Species in association with implementation of Covered Activities addressed by the permits.

In accordance with 50 CFR § 13.25(d), a permittee may extend its incidental take authorization to certain third parties, provided such third parties are under the permittee's direct control or under contract with permittee for purposes of implementing the requirements of the permit. The NCCP/HCP and Section 7.1 of the Implementing Agreement provide that OCTA may extend take coverage under the State and Federal permits to the California Department of Transportation (Caltrans) by executing a Certificate of Inclusion. A Certificate of Inclusion was executed for Caltrans for the proposed project at OCTA's request on March 15, 2019.

Mr. Charles Baker (FWS/CDFW-OR-19B0110-19CPA0136) 2

Caltrans has determined that the project will have "no effect" on federally listed species. However, the project is a Covered Activity under the NCCP/HCP and has the potential to affect non-listed Covered Species. Therefore, Caltrans has requested concurrence by the Wildlife Agencies that the project is consistent with the NCCP/HCP.

As described in the document entitled "OCTA M2 Natural Community Conservation Plan/Habitat Conservation Plan Project G Review" dated March 12, 2019, Caltrans has determined that the proposed project will be implemented consistent with the NCCP/HCP, and based on the information provided, the Wildlife Agencies agree with this determination.

In addition, it is the Department's understanding that Caltrans will coordinate with the Department to identify and minimize potential project impacts to fish passage as required under California Senate Bill 857, once more detailed project design information is available. We encourage initiating this process as early as possible in order to prevent any potential delays to project implementation.

Thank you for your coordination on this project. If you have any questions regarding this letter, please contact Colleen Draguesku of the Service at 760-431-9440, extension 221, or Simona Altman of the Department at (858) 467-4283.

Sincerely,

JONATHAN SNYDER

Digitally signed by JONATHAN SNYDER
Date: 2019.03.26 14:42:11 -07'00'

Karen A. Goebel
Assistant Field Supervisor
U.S. Fish and Wildlife Service

Gail K. Sevrens
Environmental Program Manager
California Department of Fish and Wildlife

cc:
Simona Altman, Department
Colleen Draguesku, Service
Lesley Hill, OCTA
David Mayer, Department
Kyle Rice, Department
Chris Waterston, Caltrans

4.2 Public Outreach

4.2.1 PDT Meetings

Caltrans, OCTA, and consultants comprise the Project Development Team (PDT), which has held and will continue to hold monthly project meetings with the cities of Anaheim and Orange. These PDT meetings discuss project design, status, and schedule.

The Cities of Orange and Anaheim have participated in the project review process and have not indicated concern regarding the Project and potential impacts for emergency services.

4.2.2 OCTA Outreach Campaign

Since the start of the PSR-PDS phase of the Project, public outreach has included the Project webpage (www.octa.net/57fwy), project alerts over email and social media, and a public information open house. As the Project progresses through alternatives development and project design phases, public outreach will also include elected official briefings, community presentations, social media alerts and updates, a telephone helpline, and constituent services.

4.2.3 Public Information Meeting

As part of the public outreach effort for the Project, an open-house style public information meeting took place on June 22, 2017. To promote awareness of the public information open house, a public notification and engagement campaign was developed to effectively communicate with and involve key decision-makers, stakeholders, commuters, media, and adjacent property owners and business owners near the project area. The stakeholder list included local businesses, school districts, transportation centers, public and safety works, and city chambers of commerce.

At the public meeting project information and exhibits were available to provide the project information. Multilingual project team members who are fluent in Spanish were also present to assist with potential interpretation and/or translation needs. The Caltrans Title VI Brochure was available in English and Spanish.

The public was notified of the meeting by mailing approximately 4,770 postcards to adjacent properties, distributing hundreds of fliers, conducting one-on-one outreach, sending email invitations, and posting on social media. Ads also ran in local newspapers, including the Anaheim Bulletin, Orange City News, the Orange County Register, and Unidos, Orange County's leading Spanish-language newspaper (**see Figure 4-2: Public Notice**).

4.2.4 Public Hearing

A public hearing was held on June 22 from 5 to 8 pm at Portola Middle School in the City of Orange. The three-hour meeting was held in an open house format to allow participates to review exhibits and literature at their leisure. The meeting was held to provide information to the public,

allow the public to ask questions and to solicit feedback on topics relevant to the project. Participants had the opportunity to speak one-on-one with OCTA, Caltrans and the technical team to ask questions and obtain information about the project. The public hearing was advertised in local and regional newspapers, by direct mail postcards, distributed flyers, targeted emails and social media. The newspaper ads were ¼ page ads placed in four different newspapers, including Orange County's leading Spanish-language newspaper, Unidos. The draft environmental document was circulated for public review from October 11, 2018 to November 9, 2018 during which time the public had the opportunity to comment on the project. During public circulation, as well as during the open house, the public provided comments verbally, via comment cards and through mail and email.

Figure 4-2: Public Notice

PUBLIC NOTICE

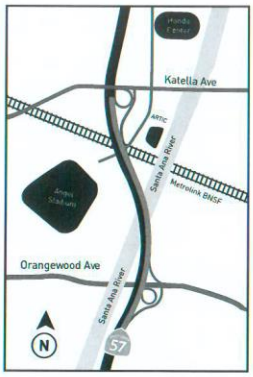
Notice of Opportunity: Public Information Open House State Route 57 Northbound Improvement Project from Orangewood Avenue to Katella Avenue

WHAT'S BEING PLANNED?

The California Department of Transportation, in partnership with the Orange County Transportation Authority, proposes to increase capacity, improve operations and enhance safety on northbound SR-57 in the cities of Anaheim and Orange, between Orangewood Avenue and Katella Avenue.

The purpose of the proposed project is to improve both existing and future mobility along this segment of northbound SR-57 while minimizing environmental and economic impacts.

The proposed project seeks to improve overall efficiency, alleviate congestion, and facilitate regional circulation of goods and services on northbound SR-57 by extending the 5th general-purpose lane to improve lane continuity.



WHY THIS AD?

This notice is to tell you of the start of the environmental process and to inform you of an upcoming public information open house (noted below) to discuss the proposed project that will be studied. An Initial Study (IS) and Environmental Assessment (EA), leading to an anticipated Mitigated Negative Declaration (MND) and Finding of No Significant Impact (FONSI) will be prepared to evaluate potential effects that could result from the proposed project.

WHAT'S AVAILABLE?

The purpose and need for the project, current project schedule and other exhibits will be available for viewing at the open house. In addition, Caltrans, OCTA and project team specialists in engineering, planning, traffic, and environmental will be available to hear your comments.

WHERE YOU COME IN

You will have the opportunity to ask questions and provide comments about the proposed project to OCTA and Caltrans staff.

WHEN AND WHERE?

DATE:	Thursday, June 22, 2017
TIME:	5 p.m. to 8 p.m.
LOCATION:	Portola Middle School Cafeteria 270 North Palm Drive Orange, CA 92868

Individuals who require special accommodation (American Sign Language interpreter, accessible seating, documentation in alternate formats, etc.) are requested to contact Caltrans District 12 Public Affairs Office at (657) 328-6000 at least 7 days prior to the scheduled open house date. TTD users may contact California Relay Service TTY line at (800) 735-2929 or Voice Line at (800) 735-2922.

CONTACT

For more information about this study, please call Andrea Hamman, OCTA Community Relations Specialist, at (714) 560-5573 or visit the project webpage www.octa.net/57fwy.

PUBLIC NOTICE

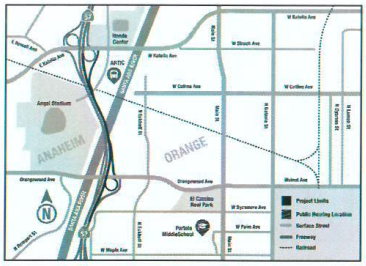
State Route 57 Improvement Project (Northbound)

Notice of Intent to Adopt a Mitigated Negative Declaration

Notice of Availability of an Initial Study/Environmental Assessment

Study Results Available

Announcement of Public Hearing (Open House Format)



WHAT'S BEING PLANNED?

The California Department of Transportation (Caltrans) District 12, in cooperation with Orange County Transportation Authority (OCTA), proposes to widen and make improvements to Northbound (NB) State Route (SR) 57, Post Mile (PM) 11.5 to 12.5, in Orange and Anaheim. This segment of SR-57 crosses the Santa Ana River and OCTA/SCRRA/BNSF Railroad and is near ARTIC, Angel Stadium and the Honda Center. In addition to the No Build Alternative, three Build Alternatives are under consideration. All Build Alternatives consider a fifth NB general purpose (GP) lane lane from Orangewood Avenue to Katella Avenue.

WHY THIS AD?

Caltrans has studied the effects this project may have on the environment. Studies show it will not significantly affect the quality of the environment. The report that explains why is called an Initial Study/Environmental Assessment (IS/EA).This notice is to tell you of the availability of the draft IS/EA with a proposed Mitigated Negative Declaration (MND). A public hearing (open house format) will be held to give you an opportunity to learn about the proposed project and potential impacts before a build alternative is recommended and approved.

WHAT'S AVAILABLE?

The proposed MND & IS/EA and other project information are available for review and copying (for a fee) at the Caltrans District 12 Office at 1750 East 4th Street, Suite 100, Santa Ana, CA 92705, on weekdays from 8:00 am to 5:00 pm. The proposed MND & IS/EA are also available for review at the following locations during normal business hours:

- City of Orange Library, *407 E Chapman Ave, Orange*
- City of Anaheim Library, *500 W Broadway, Anaheim*
- In addition, the documents are available online at: *http://www.dot.ca.gov/d12/DEA/57/0M970*

WHERE YOU COME IN

Do you have any comments about processing the project with a proposed MND and IS/EA? Do you disagree with the findings of our study as set forth in the proposed MND? Would you care to make any other comments on the project?

Please submit your comments in writing no later than 5:00 pm, November 9 to Kathleen Dove, Associate Environmental Planner, Caltrans District 12, Division of Environmental analysis, 1750 East 4th Street, Suite 100, Santa Ana, CA 9275 or via e-mail to *SR57ImprovementProject@dot.ca.gov.* The date we will begin accepting comments is October 11. If there are no major comments, Caltrans will proceed with the project's design.

WHEN AND WHERE?

A public hearing (open house format) will be held:

DATE:	Thursday, October 25, 2018
TIME:	Stop by any time between 5:30 - 7:30 p.m.
LOCATION:	Portola Middle School Cafeteria 270 North Palm Drive Orange, CA 92868

Served by Orange County Transportation Authority public transit:
Route 54: Garden Grove - Orange
Route 53: Orange - Irvine
Route 53X: Orange - Irvine xpress
Route 453: Orange Transportation Center - St. Joseph Hospital

CONTACT

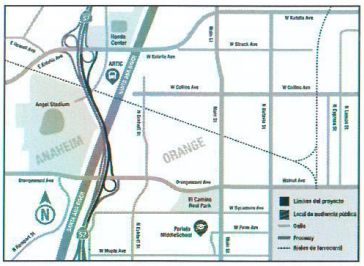
Individuals who require special accommodation (American Sign Language interpreter, accessible seating, documentation in alternate formats, etc.) are requested to contact Van Nguyen at District 12's Public Information Office by phone at (657) 328-6363 or by e-mail at Van.Nguyen@dot.ca.gov at least 21 days prior to the scheduled hearing date, or use California Relay Service, 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (voice).

For more information about this study or any other transportation matter, call Van Nguyen at District 12's Public Information Office at (657) 328-6363 or e-mail her at Van.Nguyen@dot.ca.gov

ANUNCIO PÚBLICO

Proyecto de mejoramiento de la carretera SR-57 (Norte)

- Aviso de Intención para adoptar una declaración/Resultado negativo atenuado sin un efecto importante
- Aviso de disponibilidad de un Estudio inicial/Evaluación ambiental
- Aviso Resultados de estudio disponible
- Anuncio de audiencia pública



¿Qué se está planificando?

El Departamento de Transporte de California (Caltrans), en sociedad con la Autoridad de Transporte del Condado de Orange (OCTA), proponen ensanchar y mejorar las operaciones de la carretera estatal (SR) 57 norte (NB), entre Post Mile (PM) 11.5-12.5 en las ciudades de Anaheim y Orange. **Este segmento de SR-57 pasa por el Río Santa Ana y el Ferrocarril OCTA/SCRRA/BNSF y es cerca de ARTIC, Angel Stadium y el Honda Center.** Además de No construir, se están considerando tres alternativas de construcción. Todas las Alternativas de construcción consideran un quinto carril de propósito general (GP) de Orangewood Avenue a Katella Avenue.

¿Por qué este aviso?

Caltrans han estudiado los efectos que este proyecto podría tener en el medioambiente. Nuestros estudios muestran que este no afectaría considerablemente la calidad del medioambiente. El reporte que explica estos resultados se llama Estudio inicial/ Evaluación ambiental (IS/EA). Este anuncio público tiene como fin informarle sobre la preparación del borrador IS/EA con una propuesta Declaración de alternativa atenuada (MND). Una audiencia pública (formato de casa abierta) se llevará a cabo para darle la oportunidad de aprender sobre el proyecto propuesto y los potenciales impactos antes de recomendar y aprobar una alternativa de construcción.

¿Qué está disponible?

Mapas del propuesto MND e IS/EA y otra información de proyecto están disponibles para revisión y copia (por un cargo) en la Oficina del Departamento del Distrito 12 de Calstrans, 1750 East 4th Street, Suite 100, Santa Ana, CA 92705, en días de la semana de 8 a.m. a 5 p.m. El propuesto MND e IS/EA también está disponible para revisión durante horas laborables en los siguientes lugares:

- Biblioteca de la Ciudad de Orange, *407 E Chapman Ave, Orange*
- Biblioteca de la Ciudad de Anaheim, *500 W Broadway, Anaheim*
- Además los documentos estarán disponibles en línea e:
  http://www.dot.ca.gov/d12/DEA/57/0M970

Dónde participa usted

¿Tiene comentarios sobre procesar el proyecto con un propuesto MND e IS/EA? ¿Está en desacuerdo con los resultados de nuestro estudio como se describen en el MND? ¿Le gustaría hacer otros comentarios al proyecto?

Usted puede enviar sus comentarios por escrito a más tardar a las 5 p.m. el 9 de noviembre 2018 a Kathleen Dove, Planificadora Asociada de Medioambiente, Distrito 12 de Caltrans, División de Análisis Ambiental, 1750 East 4th Street, Suite 100, Santa Ana, CA 92705 o por correo electrónico a *SR57ImprovementProject@dot.ca.gov* Se empezará a aceptar comentarios el 11 de octubre 2018. Si no hay comentarios importantes, Caltrans procederá con el diseño del proyecto.

¿Cuándo y dónde?

Una audiencia pública (formato de casa abierta) se llevará a cabo:

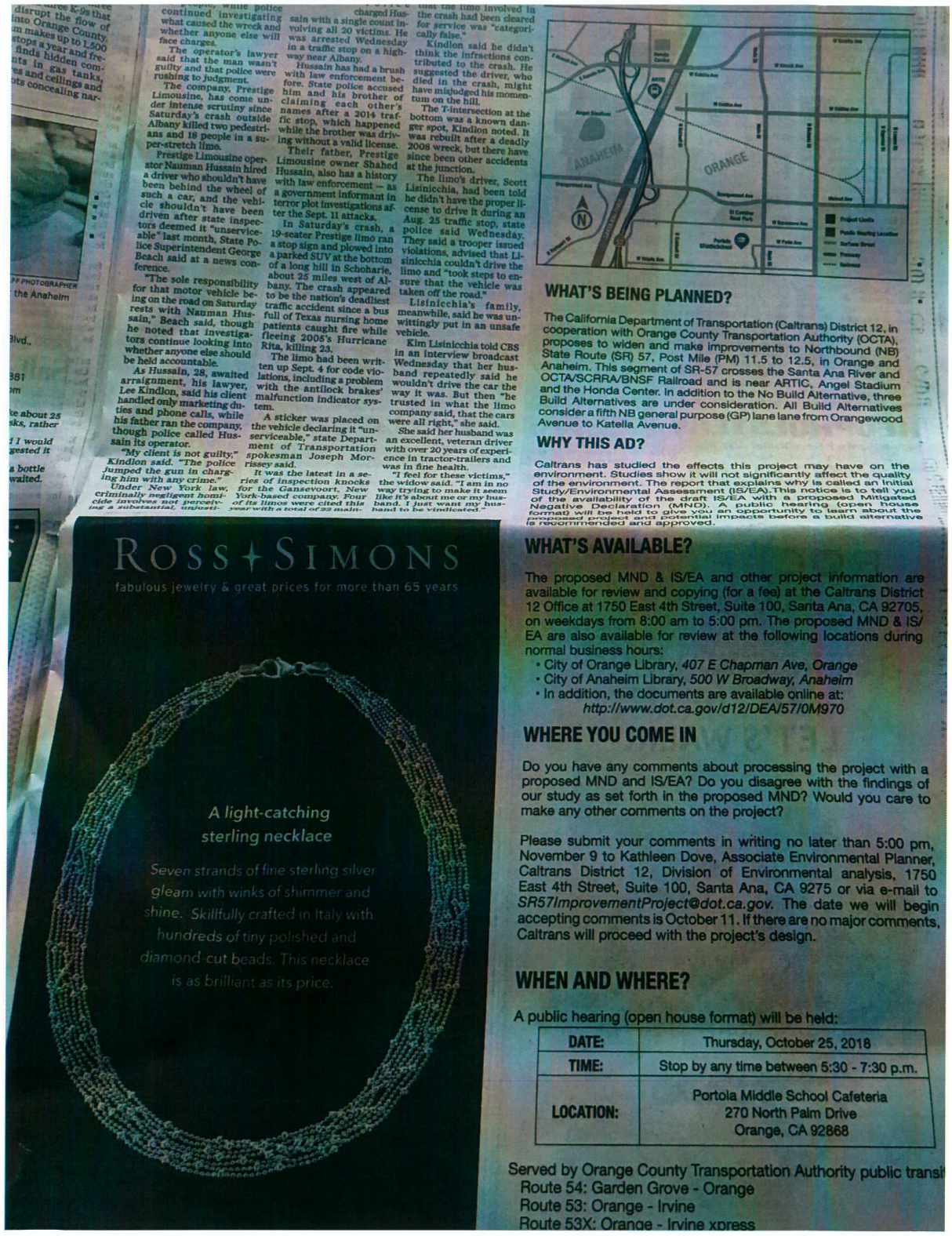
FECHA:	Jueves, 25 de octubre, 2018
HORA:	Entre 5:30-7:30 p.m.
LOCALIDAD:	Cafetería de Portola Middle School 270 North Palm Drive Orange, CA 92868

Rutas de servicio de transporte público de la Autoridad de Transporte del Condado de Orange:
Ruta 54: Garden Grove - Orange
Ruta 53: Orange - Irvine
Ruta 53X: Orange - Irvine xpress
Ruta 453: Orange Transportation Center - St. Joseph Hospital

Contacto

Se pide a las personas que requieran adecuaciones especiales (intérprete de lengua de signos americana, asientos accesibles, documentos en formatos alternos, etc.) que contacten a Van Nguyen, Distrito 12 de Caltrans 12, Oficina de Información Pública al (657) 328-6363 o por correo electrónico a Van.Nguyen@dot.ca.gov al menos 21 días antes de la fecha programada de la casa abierta, o contacte a la línea de California Relay Service al 1(800) 735-2929 (TTY), o a Voice Line al (800) 735-2922.

Para más información sobre este estudio, llame a Van Nguyen, Van Nguyen, Distrito 12 de Caltrans 12, Oficina de Información Pública al (657) 328-6363 o por correo electrónico a Van.Nguyen@dot.ca.gov.



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continued investigating what caused the wreck and whether anyone else will face charges.

The operator's lawyer said that the man wasn't guilty and that police were rushing to judgment.

The company, Prestige Limousine, has come under intense scrutiny since Saturday's crash outside Albany killed two pedestrians and 18 people in a super-stretch limo.

Prestige Limousine operator Nauman Hussain hired a driver who shouldn't have been behind the wheel of such a car, and the vehicle shouldn't have been driven after state inspectors deemed it "unserviceable" last month, State Police Superintendent George Beach said at a news conference.

"The sole responsibility for that motor vehicle being on the road on Saturday rests with Nauman Hussain," Beach said, though he noted that investigators continue looking into whether anyone else should be held accountable.

As Hussain, 28, awaited arraignment, his lawyer, Lee Kindlon, said his client handled only marketing duties and phone calls, while his father ran the company, though police called Hussain its operator.

"My client is not guilty," Kindlon said. "The police jumped the gun in charging him with any crime."

Under New York law, criminally negligent homicide involves not perceiving a substantial, unjusti-

charged Hussain with a single count involving all 20 victims. He was arrested Wednesday in a traffic stop on a highway near Albany.

Hussain has had a brush with law enforcement before. State police accused him and his brother of claiming each other's names after a 2014 traffic stop, which happened while the brother was driving without a valid license.

Their father, Prestige Limousine owner Shahed Hussain, also has a history with law enforcement — as a government informant in terror plot investigations after the Sept. 11 attacks.

In Saturday's crash, a 19-seater Prestige limo ran a stop sign and plowed into a parked SUV at the bottom of a long hill in Schoharie, about 25 miles west of Albany. The crash appeared to be the nation's deadliest traffic accident since a bus full of Texas nursing home patients caught fire while fleeing 2005's Hurricane Rita, killing 23.

The limo had been written up Sept. 4 for code violations, including a problem with the antilock brakes' malfunction indicator system.

A sticker was placed on the vehicle declaring it "unserviceable," state Department of Transportation spokesman Joseph Morrissey said.

It was the latest in a series of inspection knocks for the Ganesvoort, New York-based company. Four of its limos were cited this year with a total of 33 main-

that the limo involved in the crash had been cleared for service was "categorically false."

Kindlon said he didn't think the infractions contributed to the crash. He suggested the driver, who died in the crash, might have misjudged his momentum on the hill.

The T-intersection at the bottom was a known danger spot, Kindlon noted. It was rebuilt after a deadly 2008 wreck, but there have since been other accidents at the junction.

The limo's driver, Scott Lisinicchia, had been told he didn't have the proper license to drive it during an Aug. 25 traffic stop, state police said Wednesday. They said a trooper issued violations, advised that Lisinicchia couldn't drive the limo and "took steps to ensure that the vehicle was taken off the road."

Lisinicchia's family, meanwhile, said he was unwittingly put in an unsafe vehicle.

Kim Lisinicchia told CBS in an interview broadcast Wednesday that her husband repeatedly said he wouldn't drive the car the way it was. But then "he trusted in what the limo company said, that the cars were all right," she said.

She said her husband was an excellent, veteran driver with over 20 years of experience in tractor-trailers and was in fine health.

"I feel for these victims," the widow said. "I am in no way trying to make it seem like it's about me or my husband. I just want my husband to be vindicated."

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A light-catching sterling necklace

Seven strands of fine sterling silver gleam with winks of shimmer and shine. Skillfully crafted in Italy with hundreds of tiny polished and diamond-cut beads. This necklace is as brilliant as its price.

ANAHEIM
ORANGE

WHAT'S BEING PLANNED?

The California Department of Transportation (Caltrans) District 12, in cooperation with Orange County Transportation Authority (OCTA), proposes to widen and make improvements to Northbound (NB) State Route (SR) 57, Post Mile (PM) 11.5 to 12.5, in Orange and Anaheim. This segment of SR-57 crosses the Santa Ana River and OCTA/SCRRA/BNSF Railroad and is near ARTIC, Angel Stadium and the Honda Center. In addition to the No Build Alternative, three Build Alternatives are under consideration. All Build Alternatives consider a fifth NB general purpose (GP) lane lane from Orangewood Avenue to Katella Avenue.

WHY THIS AD?

Caltrans has studied the effects this project may have on the environment. Studies show it will not significantly affect the quality of the environment. The report that explains why is called an Initial Study/Environmental Assessment (IS/EA). This notice is to tell you of the availability of the draft IS/EA with a proposed Mitigated Negative Declaration (MND). A public hearing (open house format) will be held to give you an opportunity to learn about the proposed project and potential impacts before a build alternative is recommended and approved.

WHAT'S AVAILABLE?

The proposed MND & IS/EA and other project information are available for review and copying (for a fee) at the Caltrans District 12 Office at 1750 East 4th Street, Suite 100, Santa Ana, CA 92705, on weekdays from 8:00 am to 5:00 pm. The proposed MND & IS/EA are also available for review at the following locations during normal business hours:

- City of Orange Library, *407 E Chapman Ave, Orange*
- City of Anaheim Library, *500 W Broadway, Anaheim*
- In addition, the documents are available online at: *http://www.dot.ca.gov/d12/DEA/57/0M970*

WHERE YOU COME IN

Do you have any comments about processing the project with a proposed MND and IS/EA? Do you disagree with the findings of our study as set forth in the proposed MND? Would you care to make any other comments on the project?

Please submit your comments in writing no later than 5:00 pm, November 9 to Kathleen Dove, Associate Environmental Planner, Caltrans District 12, Division of Environmental analysis, 1750 East 4th Street, Suite 100, Santa Ana, CA 9275 or via e-mail to *SR57ImprovementProject@dot.ca.gov*. The date we will begin accepting comments is October 11. If there are no major comments, Caltrans will proceed with the project's design.

WHEN AND WHERE?

A public hearing (open house format) will be held:

DATE:	Thursday, October 25, 2018
TIME:	Stop by any time between 5:30 - 7:30 p.m.
LOCATION:	Portola Middle School Cafeteria 270 North Palm Drive Orange, CA 92868

Served by Orange County Transportation Authority public transit
Route 54: Garden Grove - Orange
Route 53: Orange - Irvine
Route 53X: Orange - Irvine xpress

4.3 Public Review

4.3.1 Comments & Responses

After public circulation of the Draft IS/EA, which occurred from October 11, 2018 to November 9, 2018, comment letters were received from state and local agencies, as well as the general public through a variety of means (e.g., email and mail). Comments were also received during the public open house held on October 25, 2018 from 5:30 to 7:30 PM at Portola Middle School in Orange, California.

The following comment letters were received. Comments are organized in categories by sender type – federal, state or local agencies, or the public. In each category, they are then numbered and each comment letter is broken down into individual comments which are represented by a letter (e.g., S-1a, S-1b, etc.).

4.3.1.1 Federal Agencies

No comments were received from federal agencies.

4.3.1.2 State Agencies

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

November 8, 2018

Kathleen Dove
California Department of Transportation District 12
1750 East Fourth Street, Suite 100
Santa Ana, CA 92705
SR57ImprovementProject@dot.ca.gov

Subject: Comments on the Initial Study with Proposed Mitigated Negative Declaration for the State Route 57 Improvement Project from Orangewood Avenue to Katella Avenue, Orange County (SCH# 2018101029)

Dear Ms. Dove:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Initial Study with Proposed Mitigated Negative Declaration (IS/MND) for the State Route 57 (SR-57) Improvement Project from Orangewood Avenue to Katella Avenue (Project) dated October 2018. The following statements and comments have been prepared pursuant to the Department's authority as Trustee Agency with jurisdiction over natural resources affected by the proposed project (California Environmental Quality Act [CEQA], Guidelines § 15386) and pursuant to our authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (CESA; Fish and Game Code [FGC] § 2050 et seq.) and FGC section 1600 et seq. The Department also administers the Natural Community Conservation Planning (NCCP) program. The California Department of Transportation (Caltrans) is a Participating Special Entity in the Orange County Transportation Authority (OCTA) M2 NCCP/Habitat Conservation Plan (HCP). The comments provided herein are based on the information provided in the IS/MND, the Natural Environment Study and Jurisdictional Delineation (NES) dated June 2018, the OCTA M2 NCCP/HCP, and our knowledge of sensitive and declining habitats.

The Project, identified as Project G1a in the NCCP/HCP, proposes to widen the northbound side of the SR-57 freeway from 0.3 mile south of the Orangewood Avenue undercrossing north to the Katella Avenue undercrossing. The Project includes widening the SR-57 Orangewood Avenue undercrossing bridge and the Santa Ana River Bridge. An alternative scenario would also widen the Stadium overhead bridge. The Project would be funded by OCTA as part of the Renewed Measure M (M2) Freeway Program and covered as "Project G1a" under the OCTA M2 NCCP/HCP, signed June 2017.

The Project is located within a heavily developed area within the cities of Orange and Anaheim. The NES indicates that no native plant communities or natural communities of special concern occur within the Biological Study Area (BSA) nor does any riparian habitat exist within the BSA. Additionally, no special status fish or wildlife species were detected during baseline surveys. However, the Project would result in temporary impacts to approximately 4.9 acres and

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permanent impacts to 0.02 acre, of the Santa Ana River. The Santa Ana River is subject to Fish and Game Code section 1600. Additionally, suitable bat roosting habitat exists within the SR-57 Santa Ana River overpass.

The Department evaluated the biological assessment and proposed protection measures in the IS/MND and found them to be generally consistent with those established in the NCCP/HCP. However, the Department provides the following specific comments and recommendations to assist Caltrans in avoiding or minimizing potential impacts to sensitive species and habitats.

1. Avoidance measure BIRD BAT-1 states, "*Despite the lack of presence of bats in the project site during initial surveys, if vegetation clearing and bridge construction is scheduled during the bat breeding season, a qualified biologist will conduct outflight census activities to determine the presence or absence of bat roosts within 72 hours prior to any clearing of vegetation or bridge construction. The location of any bat roosts will be mapped, and an appropriate activity exclusion area or exclusion devices will be installed to preclude bats from being taken when project work occurs. The exclusion area will be clearly visible and remain in place until bat roosts are deemed inactive by a qualified biologist. If warranted bat exclusion devices, and deterrent protocols and procedures shall be pre-approved by resource agencies prior to being implemented by OCTA.*"

   a. While breeding season surveys are appropriate, the Department recommends exclusions be conducted outside the breeding and/or bat maternity season and hibernation seasons, to avoid the risk of entrapping young birds or non-volant bat pups. S-1a

   b. If roosting bats are detected, the Department recommends the biologist report and consult with the Department prior to commencing project activities within 500 feet of the bat detection site(s). S-1b

   c. If a bat maternity colony is detected, the Department recommends alternate roosting habitat be created and/or identified and monitored to ensure habitat is successfully occupied prior to exclusion. S-1c

   d. The Department recommends the bat maternity season be defined. A typical maternity season extends from April 1 through August 24. S-1d

2. IS/MND Section 2.3.6.4 measure PLANT-1 quotes the NCCP/HCP Section 5.6.1 measure prohibiting the use of known invasive species (i.e., plant species listed in California Invasive Plant Council's California Invasive Plant Inventory with a High or Moderate rating) for construction, revegetation, and landscaping activities. However, this measure does not appear to be included in Appendix C Environmental Commitments Record (ECR). To ensure consistency with the NCCP/HCP and that all parties comply with the measure, the Department recommends the IS/MND include PLANT-1 in the ECR. S-1e

The Department appreciates the cooperation of Caltrans in protecting sensitive biological resources. Thank you for the opportunity to comment on the IS/MND. If you have any questions regarding this letter, please contact Simona Altman at (858) 467-4283 or email simona.altman@wildlife.ca.gov.

Sincerely,

Gail K. Sevrens
Environmental Program Manager
South Coast Region

ec: State Clearinghouse, Sacramento

Simona Altman, California Department of Fish & Wildlife
Kyle Rice, California Department of Fish & Wildlife

Jonathan Snyder, Division Chief, US Fish and Wildlife Service
jonathan_d_snyder@fws.gov

Lesley Hill, Project Manager, Environmental Mitigation Program, Orange County Transportation Authority
lhill@octa.net

S-1a. California Department of Fish and Wildlife. November 8, 2018. Letter.

Comment: While breeding season surveys are appropriate, the Department recommends exclusions be conducted outside the breeding and/or bat maternity season and hibernation seasons, to avoid the risk of entrapping young birds or non-volant bat pups.

Response: A new Avoidance, Minimization and/or Mitigation measure was added to the IS/MND to address this comment. The new measure is labeled BIRD BAT-1. The original measure BIRD BAT-1 is now labeled BIRD BAT-3. The Environmental Commitments Record was also updated to add the new measure and re-label the original measure.

S-1b. California Department of Fish and Wildlife. November 8, 2018. Letter.

Comment: If roosting bats are detected, the Department recommends the biologist report and consult with the Department prior to commencing project activities within 500 feet of the bat detection site(s).

Response: Avoidance, Minimization, and/or Mitigation Measure BIRD BAT-3 (originally labeled BIRD BAT-1) was modified to address the Departments recommendation. The following language was added to BIRD BAT-3: *"If roosting bats are detected, the biologist shall report and consult with resource agencies prior to commencing project activities within 500 feet of the bat detection site(s)."*

S-1c. California Department of Fish and Wildlife. November 8, 2018. Letter.

Comment: If a bat maternity colony is detected, the Department recommends alternate roosting habitat be created and/or identified and monitored to ensure habitat is successfully occupied prior to exclusion.

Response: The following Avoidance, Minimization, and/or Mitigation Measure has been added to the IS/MND and Environmental Commitment Record to address this comment: *"BIRD BAT-2. If a bat maternity colony is detected, alternate roosting habitat shall be created or identified and monitored to ensure habitat is successfully occupied prior to exclusion."*

S-1d. California Department of Fish and Wildlife. November 8, 2018. Letter.

Comment: The Department recommends the bat maternity season be defined. A typical maternity season extends from April 1 through August 24.

Response: The new measure BIRD BAT-1 identifies the typical maternity season as April 1 to August 24.

S-1e. California Department of Fish and Wildlife. November 8, 2018. Letter.

Comment: IS/MND Section 2.3.6.4 measure PLANT-1 quotes the NCCP/HCP Section 5.6.1 measure prohibiting the use of known invasive species. (i.e., plant species listed in California Invasive Plant Council's California Invasive Plant Inventory with a High or Moderate rating) for construction, revegetation, and landscaping activities. However, this measure does not appear to be included in Appendix C Environmental Commitments Record (ECR). To ensure consistency

with the NCCP/HCP and that all parties comply with the measure, the Department recommends the IS/MND include PLANT-1 in the ECR.

Response: Thank you for noting this omission. Measure PLANT-1 has been added to Appendix C, Environmental Commitments Record (ECR).

State of California—Transportation Agency EDMUND G. BROWN Jr., Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
Santa Ana Area
2031 E. Santa Clara Avenue
Santa Ana, CA 92705
(714)567-6000
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

late 11/9/18 E

November 27, 2018

File No.: 675.15878.14745

Governor's Office of Planning & Research
NOV 30 2018
STATE CLEARINGHOUSE

State Clearing House
1400 Tenth Street, Room 121
Sacramento, CA 95814

RE: SCH#2018101029

The Santa Ana Area office of the California Highway Patrol (CHP) received the "Notice of Completion" of the Environmental document for the proposed improvement of the northbound State Route 57 (SR-57) from Orangewood Avenue (PM11.5) to Katella Avenue (PM12.5), in the cities of Orange and Anaheim, (SCH) #2018101029. Minor detours and night work is anticipated as a result of this project which is expected to last two to three years. After our review, we have concerns with the potential impact this project could have on traffic congestion.

Our concern relates to the potential impact on departmental operations, with primary emphasis on increased traffic and changes in traffic congestion patterns during the construction stage. The major interchange of Interstate 5, State Route 22, and State Route 57, in the County of Orange, is located approximately one mile south of the proposed project. The proposed project would have a negative impact on our operations due to the increased traffic congestion, which would necessitate the need for additional traffic control measures to mitigate the potential increase in traffic collisions. S-2a S-2b S-2c S-2d

If you have any questions regarding these concerns, please contact Sergeant E. Moran at (714) 567-6000.

Sincerely,

R. SHACKLEFORD, Captain
Commander
Santa Ana Area

cc: Border Division
Special Projects Section

Safety, Service, and Security *An Internationally Accredited Agency*

S-2a. Department of California Highway Patrol. November 11, 2018. Letter.
Comment: Our concern relates to the potential impact on departmental operations, with primary emphasis on increased traffic and changes in traffic congestion patterns during the construction stage.

Response: The Project includes a Traffic Management Plan (TMP) that identifies measures to address changes in traffic patterns resulting from lane and ramp closures. The TMP includes a public awareness and information campaign to assist motorists in choosing alternate routes to avoid congested areas. The TMP also proposes real time traffic information for motorists, changeable message signs, stakeholder outreach, freeway service patrol and a traffic management team (TMT) to help manage construction related traffic issues. TMT-identified measures help to provide advanced warning to motorists of abnormal downstream traffic congestion on the highway. The TMT identifies towing services and Caltrans staff responsible for activating changeable message signs (CMS) and portable CMS, as well as representatives from OCTA, local agencies, local law enforcement, California Highway Patrol (CHP), and Caltrans public affairs. The Project would also be required to implement the Construction Zone Enhanced Enforcement Program (COZEEP). COZEEP specified for this project by the Project's TMP was designated for congestion relief as outlined by DD-60-R2.

S-2b. Department of California Highway Patrol. November 11, 2018. Letter.

Comment: The major interchange of Interstate 5, State Route 22, and State Route 57, in the County of Orange, is located approximately one mile south of the proposed project.

Response: In addition to its proximity to the I-5/SR 22/SR 57 interchange (the Orange Crush) the Project would also be required to consider other major traffic generators, such as Angel Stadium and the Honda Center. The TMP addresses stakeholder coordination and requires the TMP coordinator to prepare Lane Requirement Charts to overlay the construction activities with scheduled events, as well as other incidents that may affect circulation within the project limits.

S-2c. Department of California Highway Patrol. November 11, 2018. Letter.
Comment: The proposed project would have a negative impact on our operations due to the increased traffic congestion

Response: The Project, in and of itself, would not generate additional traffic. The Project is intended to address future projected increases in traffic by providing additional capacity within the northbound segment of the project corridor. Current traffic congestion is a result of a lack in lane continuity on the freeway mainline. The Project proposes to close the existing gap in the fifth general purpose lane, as well as extend the existing auxiliary lane through the Orangewood Avenue interchange to the Katella Avenue off-ramp, to address current congestion and future traffic increases.

S-2d. Department of California Highway Patrol. November 11, 2018. Letter.
Comment: Which would necessitate the need for additional traffic control measures to mitigate the potential increase in traffic collisions.

Response: The Project cost estimates include assumptions for implementing COZEEP, including CHP assistance in incident management.

4.3.1.3 Local Agency

ORANGE COUNTY TRANSIT AUTHORITY

PUBLIC MEETING

Orange, California

Thursday, October 25, 2018

Reported by:
Heidi Hummel-Grant
CSR No. 12556
Pages 1 - 7

Page 1

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800.660.3187

ORANGE COUNTY TRANSIT AUTHORITY
PUBLIC MEETING

Transcript of Public Meeting, taken at 270 North Palm Drive, Orange, California, beginning at 5:30 p.m. and ending at 7:30 p.m., on Thursday, October 25, 2018, before Heidi Hummel-Grant, Certified Shorthand Reporter No. 12556.

SPEAKERS:
DOUGLAS KEYS

Orange, California
Thursday, October 25, 2018, 5:30 p.m. - 7:30 p.m.
***

DOUGLAS KEYS: Good evening. My name is Douglas Kyes. I am a transportation analyst for the City of Orange.

I have been asked by my director to make a statement for the record regarding concerns the City of Orange has regarding the potential alternatives for the State Route 57 improvements between Orangewood Avenue and Katella Avenue. This recorded statement will be followed up with a formal comment letter from the City of Orange prior to the November 9th deadline.

City staff is currently reviewing the environmental document.

Unfortunately, while City of Orange staff has been included in the original project design team, PDT, staff was not allowed to start reviewing the document until it was released for public review. This is of particular concern relative to the traffic operations analysis, TOA. This document was completed in April 2018, but the City, a PDT member, was not allowed to see the document for six months. City representatives on the PTD should be allowed to review

all documents at the same time as the other PDT members.

The City of Orange has a series concerns relative to Alternatives 2-A and 2-B. Both of these alternatives propose to eliminate a northbound direct on ramp at Orangewood Avenue and replace it with a loop on ramp. The TOA states that even with the HOV design exception, quote, the ramp configuration does not meet the storage requirements for the ramp meter, end quote. The City believes that an obvious consequence of inadequate ramp storage length is that vehicles will back up onto Orangewood Avenue.

The TOA goes on to say that, quote, in summary, along with this proposed three general purpose lane configuration to maximize the available storage length, the available storage on the arterial street turn lanes to the Orangewood loop on ramp and the signal timing will need to be addressed in the final design phase of the project, end quote.

This plan to put off the problem of inadequate storage length until the final design is completely unacceptable to the City of Orange. In the opinion of the City of Orange staff, the very large lack of ramp storage space on the proposed loop ramp is a fatal flaw for both alternatives 2-A and 2-B.

Interestingly, a review of Alternative 2 shows

L-1a

L-1b

L-1c

that all ramps meet Caltrans amp meter storage requirements. In fact, the realigned direct on ramp in Alternative 2 would extend the merge point, according the TOA, quote, would allow merging traffic to have a longer distance to gain speed to match the speed of mainline traffic, end quote.

The City of Orange supports, Caltrans' efforts to improve freeway conditions on State Route 57. The addition of the fifth general purpose lane and additional lanes for the Katella off ramp will help improve the operation of the 57. However, changing the direct on ramp at Orangewood Avenue to a loop on ramp will create irreparable problems at this interchange.

The City of Orange will advocate for the recommendation of Alternative 2 as the preferred alternative to be moved forward for implementation.

As mentioned earlier, a formal letter will be submitted to Caltrans prior to the comment deadline of November 9th.

(The proceedings concluded at 7:30 p.m.)

***

L-1c continued.

L-1d

L-1e

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CERTIFICATION
OF
CERTIFIED SHORTHAND REPORTER

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

The foregoing proceedings were taken before me at the time and place herein set forth;

That a verbatim record of the proceedings was made by me using machine shorthand, which was thereafter transcribed under my direction;

Further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any of the parties.

IN WITNESS WHEREOF, I hereby subscribe my name this 8th day of November, 2018.

Heidi Hummel-Grant
Certified Shorthand Reporter No. 12556

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L-1a. City of Orange, Douglas Keys. October 25, 2018. Public Meeting at OCTA.

Comment: Unfortunately, while City of Orange staff has been included in the original project design team, PDT, staff was not allowed to start reviewing the document until it was released for public review. This is of particular concern relative to the traffic operations analysis, TOA. This document was completed in April 2018, but the City, a PDT member, was not allowed to see the document for six months. City representatives on the PTD should be allowed to review all documents at the same time as the other PDT members.

Response: The Project Development Team (PDT) members are an important part of the interdisciplinary approach to project development and decision making. Caltrans appreciates the city's participation in the PDT process, particularly in representing the community of Orange as a potentially affected group. The purpose of the PDT is to help inform project development and environmental analysis by providing specialized input for consideration in developing project alternatives and evaluating environmental effects. Members of the PDT can direct the course of studies by providing specialized knowledge of local conditions and constraints. Members of the PDT can also make recommendations and help accumulate data for evaluation during the environmental process. The environmental analysis then considers information provided by the PDT in evaluating all aspects of the project's effects on the environment and community. Once the environmental analyses have been completed, they are summarized in the environmental document. The environmental document presents information on all aspects of the project and their potential effects on the environment and community. It's during the public review period that members of the public are asked to review and comment on the benefits and impacts of the project. The PDT then considers public input in making a recommendation on a preferred alternative (PA). As a member of the public and as a member of the PDT, the city will have an opportunity to comment on the environmental findings, as well as weigh in on recommending a PA.

L-1b. City of Orange, Douglas Keys. October 25, 2018. Public Meeting at OCTA.

Comment: The City of Orange has a series concerns relative to Alternatives 2-A and 2-B. Both of these alternatives propose to eliminate a northbound direct on ramp at Orangewood Avenue and replace it with a loop on ramp. The TOA states that even with the HOV design exception, quote, the ramp configuration does not meet the storage requirements for the ramp meter, end quote. The City believes that an obvious consequence of inadequate ramp storage length is that vehicles will back up onto Orangewood Avenue.

Response: The ramp meter queuing analysis described in the TOAR states that with a two-lane on-ramp (plus an HOV bypass lane) "a queue storage length of approximately 1,100 feet per lane is required to accommodate general-purpose vehicles; however, the reconstructed loop on-ramp in Alternatives 2A & 2B provides an estimated available queue storage length of only 490 feet per lane." Additional queuing space totaling 1,220 feet (1,100x2 - 490x2 = 1,220) would be necessary in the turn bays for the eastbound right turn and the westbound left turn. Two-thirds of the turning vehicles are coming from the eastbound right turn and one-third is coming from the westbound left turn. Assigning two-thirds of the storage to the eastbound right turn would mean that 813 feet of storage would be required, or 407 feet per lane in the two-lane right turn bay. For the westbound left turn, 407 feet of storage would be required or 204 feet per lane in the two-

lane left turn bay. The concept plans for Alternatives 2A and 2B show that there is approximately 420 feet of storage per lane for the eastbound right turn, and 180 feet of striped storage plus 60 feet of unstriped bay opening per lane for the westbound left turn so all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. If the HOV bypass lane Design Exception is granted, 247 feet of storage per lane would be required for the eastbound right turn and 123 feet of storage per lane would be required for the westbound left turn so that all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue.

Caltrans Ramp Metering Design Manual (April 2016) Section 1.4 states, "Local streets in the vicinity of a metered entrance ramp may be improved to provide more queue storage when the traffic demand exceeds available storage length at the entrance ramp. Local street improvements may include widening or lengthening existing roadways or intersections to provide additional storage capacity for the appropriate movements. Adjusting the signal timing at upstream intersections that direct traffic to the entrance ramp also helps to mitigate arrivals of platoons. These improvements require coordination with local agencies to be consistent with the regional traffic operations strategies. The ideal strategy would be a system-wide adaptive ramp metering system that coordinates with local roadway signal systems."

L-1c. City of Orange, Douglas Keys. October 25, 2018. Public Meeting at OCTA.

Comment: The TOA goes on to say that, quote, in summary, along with this proposed three general purpose lane configuration to maximize the available storage length, the available storage on the arterial street turn lanes to the Orangewood loop on ramp and the signal timing will need to be addressed in the final design phase of the project, end quote. This plan to put off the problem of inadequate storage length until the final design is completely unacceptable to the City of Orange. In the opinion of the City of Orange staff, the very large lack of ramp storage space on the proposed loop ramp is a fatal flaw for both alternatives 2-A and 2-B. Interestingly, a review of Alternative 2 shows that all ramps meet Caltrans amp meter storage requirements. In fact, the realigned direct on ramp in Alternative 2 would extend the merge point, according the TOA, quote, would allow merging traffic to have a longer distance to gain speed to match the speed of mainline traffic, end quote.

Response: The final sentence on page 58 will be revised to read, "…available storage on the arterial street turn lanes to the Orangewood loop on-ramp and the signal timing *will be designed to manage the queued traffic* in the final design phase of the project." Additionally, the ramps in Alternative 2 do not meet the Caltrans ramp meter storage requirement, however, the eastbound and westbound right turn lanes would be sufficient to store the queued vehicles so they would have minimal impact on the through lanes.

L-1d. City of Orange, Douglas Keys. October 25, 2018. Public Meeting at OCTA.

Comment: The City of Orange supports, Caltrans' efforts to improve freeway conditions on State Route 57. The addition of the fifth general purpose lane and additional lanes for the Katella off ramp will help improve the operation of the 57. However, changing the direct on ramp at Orangewood Avenue to a loop on ramp will create irreparable problems at this interchange. The

City of Orange will advocate for the recommendation of Alternative 2 as the preferred alternative to be moved forward for implementation.

Response: Thank you for your support of the proposed improvements to SR 57 northbound operations. The addition of the fifth general purpose lane meets the project's purpose and need to establish lane continuity and improve mobility and the addition of a second lane to the Katella Avenue off-ramp will improve storage capacity on the off-ramp. Analysis of the proposed modifications at Orangewood under all three Build Alternatives were determined to be feasible and no operational issues were identified. Thank you for your input and recommendation concerning the project alternatives.

L-1e. City of Orange, Douglas Keys. October 25, 2018. Public Meeting at OCTA.

Comment: As mentioned earlier, a formal letter will be submitted to Caltrans prior to the comment deadline of November 9th.

Response: This letter has been received and responded to within this Section.

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SINCE 1933

ORANGE COUNTY WATER DISTRICT
ORANGE COUNTY'S GROUNDWATER AUTHORITY

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November 1, 2018

Ms. Kathleen Dove
California Department of Transportation, District 12
Division of Environmental Analysis
1750 4th Street #100
Santa Ana, CA 92075

Dear Ms. Dove:

Subject: Initial Study/Environmental Assessment for State Route 57 Northbound Improvement Project, SCH Number: 2018101029

The Orange County Water District (OCWD) appreciates the opportunity to review and comment on the State Route 57 Northbound Improvement Project. OCWD was established by the State of California in 1933 to manage the Orange County Groundwater Basin. Water produced from the basin is the primary water supply for approximately 2.5 million residents in Orange County.

The proposed project involves improvements to the northbound SR 57 from Orangewood Avenue to Katella Avenue and includes the section of SR 57 that crosses the Santa Ana River. OCWD facilities located within the project limits include OCWD monitoring well SAR-3 (coordinates: 6066892.0, 2238409.3) and the Groundwater Replenishment System Pipeline, located in the Santa Ana River levee. These facilities are shown in the map below. L-2a

Please consider the location of these facilities in any planning and construction activities related to this project. If you have any questions, please contact Greg Woodside, Executive Director of Planning and Natural Resources at 714-378-3275 (gwoodside@ocwd.com).

PO Box 8300
Fountain Valley, CA 92728-8300

18700 Ward Street
Fountain Valley, CA 92708

(714) 378-3200
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Ms. Dove
November 1, 2018
Page 2 of 2



Thank you for the opportunity to submit these comments.

Sincerely,

Michael R. Markus, P.E., D.WRE, BCEE, F.ASCE
General Manager

L-2a. Orange County Water District, Michael R. Markus. November 1, 2018. Letter.

Comment: OCWD facilities located within the project limits include OCWD monitoring well SAR-3 (coordinates: 60668920, 22384093) and the Groundwater Comment Replenishment System Pipeline, located in the Santa Ana River levee. These facilities are shown in the map below. Please consider the location of these facilities in any planning and construction activities related to this project.

Response: Caltrans acknowledges the presence of these two facilities and agrees with the locations shown in the map provided by OCWD. Subsurface construction for the project is expected to be on the northbound side of the freeway, on the north side of the Santa Ana River bridge. No construction activity is anticipated in the area around the SAR-3 monitoring well. The Groundwater Replenishment System Pipeline, located within the Santa Ana River levee has been considered in the development of this project. The approximate horizontal and vertical location of the pipe places it in a way that it is not in conflict with the project and will not require relocation. Location confirmation via potholing will be accomplished during final design. Any changes that occur during final design that could potentially affect the Groundwater Replenishment System Pipeline will be coordinated with OCWD.

ORANGE COUNTY
OC Community Resources
Our Community. Our Commitment.

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OC PARKS

HELEN FRIED
COUNTY LIBRARIAN
OC PUBLIC LIBRARIES

November 8, 2018

Kathleen Dove
Caltrans District 12
Division of Environmental Analysis
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Subject: State Route 57 Improvement Project (Northbound)

Dear Ms. Dove:

OC Parks appreciates the opportunity to comment on the aforementioned project. Because the project impacts access to the Santa Ana River Trail, OC Parks understands that pursuant to Section 2-14 of the IS/MND document, Caltrans proposes:

Equipment crossing(s) the SART/Bicycle Path would be managed by flagmen to ensure trail user safety and continued access. In addition to equipment crossing(s) false work to support the bridge structure during reconstruction would need to be installed (and later dismantled) over the SART/Bicycle Path. To install and tear down the false work, the trail would be temporarily closed for a period of 12 hours at the beginning and end of the 9-month construction period. During construction, the trail would remain open to users during public access hours (7 a.m. – 6 p.m. Nov. 1 to Feb 28 and 7 a.m. – 9 p.m. Mar. 1 to October 31). The temporary closures would occur during non-public access hours.

1. Please clarify how notification of the project and detour information will be conveyed to the trail using public. L-3a
2. Please clarify if afterhours operations are required in terms of construction and/or dismantling of the required scaffolding and falsework. L-3b
3. Will Caltrans be seeking Section 4(f) De Minimis concurrence from OC Parks? L-3c

Sincerely,

Eric E. Hull, AICP
Entitlement Manager, OC Parks

OCparks
13042 OLD MYFORD ROAD
IRVINE, CA 92602
PHONE: 866.OCPARKS
FAX: 714-667-6511

L-3a. OC Parks. November 8, 2018. Letter.

Comment: Please clarify how notification of the project and detour information will be conveyed to the trail using public.

Response: The project's Traffic Management Plan (TMP) requires that the contractor place signs in appropriate locations to notify the public of construction related detours. In addition, the TMP includes a Public Awareness Campaign (PAC) to notify the public of detours. The PAC includes the use of brochures, mailers and press releases to assist in reaching the public and notifying them of closures and detours. The TMP includes development of a community task force that will include key stakeholders that may be impacted by the work zone activities. The community task force will meet on a regular basis to determine project timelines, special events, known public impacts, street and lane closures, detours, and more. The task force will discuss how to best communicate impacts to the public. The most directly affected stakeholders can be identified and sent targeted information during construction on a regular basis through periodic meetings, e-mail, fax notices and social media.

Per the Project's TMP the public will be made aware of potential disruptions to trail access, such as times and frequency of closures. The TMP includes measures to assist the public with their travel plans and options during construction. One of these measures includes the PAC, which uses project brochures and mailers, press releases and media alerts, a project website, telephone help line, community taskforce, construction team workshop and select stakeholder communication to notify the public of detours and route options.

L-3b. OC Parks. November 8, 2018. Letter.

Comment: Please clarify if afterhours operations are required in terms of construction and/or dismantling of the required scaffolding and falsework.

Response: To avoid impacts to the Santa Ana River Trail/Bicycle Path, the project proposes to close the trail/bicycle path afterhours to install (and later dismantle) falsework at the Santa Ana River bridge. The trail would be temporarily closed for a 12-hour period at the beginning of construction and another 12-hour period at the end of construction. No other afterhours operations would be required.

L-3c. OC Parks. November 8, 2018. Letter.

Comment: Will Caltrans be seeking Section 4(f) De Minimis concurrence 4(f) from OC Parks?

Response: Yes, to fulfill the requirements of Section 4(f), Caltrans will be seeking concurrence on the *de minimis* determination for impacts to the Santa Ana River Trail (SART) and co-located bike path. A Preliminary De Minimis Determination coordination letter was sent to OC Parks on August 23, 2018 (see Appendix E), that outlined the Section 4(f) requirements, described the proposed project and explained the associated impacts to the SART and bike path. Following public circulation of the Draft Environmental Document, which occurred from October 11, 2018 to November 9, 2018, Caltrans reviewed comments received from agencies and the public regarding the project. The only comments received regarding Section 4(f) resources were from OC Parks. Caltrans will complete the Section 4(f) process by requesting concurrence from OC Parks, as the official with jurisdiction over the resource, to obtain written concurrence with the *de minimis* determination.

City of Anaheim
DEPARTMENT OF PUBLIC WORKS

November 9, 2018

Kathleen Dove
Division of Environmental Analysis
Caltrans District 12 Office
1750 East 4th Street
Santa Ana, CA 92705

by email to:
SR57ImprovementProject@dot.ca.gov

Subject: Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for the SR-57 Northbound Improvement Project (Orangewood Ave. to Katella Ave.)

Dear Ms. Dove:

Thank you for the opportunity to review and comment on the above-referenced document. The City of Anaheim staff offers the following comments:

Public Works Department: Traffic Engineering Division:

Please contact Rafael Cobian at (714) 765-4991 or rcobian@anaheim.net with questions pertaining to these comments. The City of Anaheim would like to request a meeting to discuss the traffic items in more detail to assist in resolving these comments. L-4-A

- The City of Anaheim supports Alternative 2. L-4-B
- The Design Plans in Appendix G for Orangewood Avenue at the northbound SR-57 ramps show two eastbound right turn lanes for vehicles turning right onto the realigned loop ramp for all build alternatives. Under all analysis scenarios, the right turn volume onto the on-ramp is metered by the southbound ramp intersection. Specifically, there is only one eastbound through lane available for traffic bound for northbound SR-57 at the southbound ramps intersection. As a result, we believe that the second right turn lane is excessive. Additionally, a second right turn lane is not advised at locations with a crosswalk, as vehicles in the outer turn lane have greater difficulty observing pedestrians that may be in the crosswalk. Removal of the additional right turn lane would also improve flexibility in lane widths under the bridge. We recommend a quick analysis of the Orangewood Ave/northbound SR-57 ramps intersection to be analyzed for the build alternatives with one eastbound right turn lane, and if it operates acceptably, the additional right turn lane should be removed. L-4-C
- Page 58 of the Traffic Operations Analysis Report, under the Ramp Metering and Storage section, states that for Alternatives 2A and 2B, the ramp configuration, even without the HOV bypass lane, will not meet the storage requirements for a ramp meter. With the HOV bypass lane design exception, the required queue L-4-D

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storage is 860 feet per lane, while only 490 feet per lane of storage will be provided. That means that approximately 275 feet of storage per turn lane will need to be provided on Orangewood Avenue, assuming equal utilization of all four turning lanes. Given that this demand would be significantly greater for afternoon events at Angel Stadium, any queue spillover onto Orangewood Avenue will significantly impact traffic flows egressing the stadium during peak hours. The City of Anaheim cannot accept an alternative that by design will result in on-ramp spillover queuing onto Orangewood Avenue. This is not a pre-existing condition like the southbound on-ramp from Orangewood Avenue. In comparison, this is not an impact for Alternative 2 with the HOV bypass design exception (per page 55 of the TOAR), since the existing NB slip ramp would remain.

L-4d
continued

Furthermore, the 2025 and 2045 weaving analysis indicates that under Alternatives 2A and 2B, the weaving segment LOS will be slightly worse than under Alternative 2 for both peak hours, even though Alternatives 2A and 2B eliminate the non-standard weaving segment under Alternative 2 and existing conditions. In 2045, the AM peak hour is projected to be LOS D under Alternative 2, but is projected to be LOS E under Alternatives 2A and 2B.

L-4e

While we understand the desire to eliminate the northbound non-standard weaving distance between Orangewood and Katella, the TAOR clearly indicates that Alternative 2 is superior for both the freeway and for Orangewood Avenue.

L-4f

If you have any questions regarding these comments, please do not hesitate to contact Rafael Cobian at (714) 765-4991 or rcobian@anaheim.net.

Sincerely,

Rudy Emami
Director of Public Works

Cc: Rafael Cobian, Principal Traffic Engineer

L-4a. City of Anaheim. November 9, 2018. Letter.

Comment: The City of Anaheim would like to request a meeting to discuss the traffic items in more detail to assist in resolving these comments.

Response: Thank you for being available to discuss your comments. Should there be a need for additional clarification Caltrans will arrange for a meeting.

L-4b. City of Anaheim. November 9, 2018. Letter.

Comment: The City of Anaheim supports Alternative 2.

Response: Thank you for your input and recommendation concerning the project's alternatives.

L-4c. City of Anaheim. November 9, 2018. Letter.

Comment: The Design Plans in Appendix G for Orangewood Avenue at the northbound SR-57 ramps show two eastbound right turn lanes for vehicles turning right onto the realigned loop ramp for all build alternatives. Under all analysis scenarios, the right turn volume onto the on—ramp is metered by the southbound ramp intersection. Specifically, there is only one eastbound through lane available for traffic bound for northbound SR—S7 at the southbound ramps intersection. As a result, we believe that the second right turn lane is excessive. Additionally, a second right turn lane is not advised at locations with a crosswalk, as vehicles in the outer turn lane have greater difficulty observing pedestrians that may be in the crosswalk. Removal of the additional right turn lane would also improve flexibility in lane widths under the bridge. We recommend a quick analysis of the Orangewood Ave/northbound SR—57 ramps intersection to be analyzed for the build alternatives with one eastbound right turn lane, and if it operates acceptably, the additional right turn lane should be removed.

Response: The northbound ramp intersection was evaluated with a single right turn lane for level of service (LOS) and the analysis shows that the intersection is forecast to operate at an acceptable LOS with a single right turn lane. However, the ramp meter queuing analysis described in the TOAR states that with a two-lane on-ramp (plus an HOV bypass lane) "a queue storage length of approximately 1,100 feet per lane is required to accommodate the general-purpose vehicles; however, the reconstructed loop on ramp, in Alternatives 2A and 2B, provides an estimated available queue storage length of only 490 feet per lane." Additional queuing space totaling 1,220 feet (1,100x2 - 490x2 =1,220) would be necessary in the turn bays for the eastbound right turn and the westbound left turn. Two-thirds of the turning vehicles are coming from the eastbound right turn and one-third is coming from the westbound left turn. Assigning two-thirds of the storage to the eastbound right turn would mean that 813 feet of storage would be required, or 407 feet per lane in the two-lane right turn bay. For the westbound left turn, 407 feet of storage would be required or 204 feet per lane in the two-lane left turn bay. The concept plans for Alternatives 2A and 2B show that there is approximately 420 feet of storage per lane for the eastbound right turn and 180 feet of striped storage plus 60 feet of unstriped bay opening per lane for the westbound left turn so all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. If the HOV bypass lane Design Exception is granted, 247 feet of storage per lane would be required for the eastbound right turn and 123 feet of storage per lane would be required for the westbound left turn so that all queued vehicles would be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. As such dual right turn lanes are recommended.

L-4d. City of Anaheim. November 9, 2018. Letter.

Comment: Page 58 of the Traffic Operations Analysis Report, under the Ramp Metering and Storage section, states that for Alternatives 2A and 2B, the ramp configuration, even without the HOV bypass lane, will not meet the storage requirements for a ramp meter. With the HOV bypass lane design exception, the required queue storage is 860 feet per lane, while only 490 feet per lane of storage will be provided. That means that approximately 275 feet of storage per turn lane will need to be provided on Orangewood Avenue, assuming equal utilization of all four turning lanes. Given that this demand would be significantly greater for afternoon events at Angel Stadium, any queue spillover onto Orangewood Avenue will significantly impact traffic flows egressing' the 6-D stadium during peak hours. The City of Anaheim cannot accept an alternative that by design will result in on-ramp spillover queuing onto Orangewood Avenue. This is not a pre-existing condition like the southbound on-ramp from Orangewood Avenue. In comparison, this is not an impact for Alternative 2 with the HOV bypass design exception (per page 55 of the TOAR), since the existing NB slip ramp would remain.

Response: The ramp meter queuing analysis described in the TOAR states that with a two-lane on-ramp (plus an HOV bypass lane) "a queue storage length of approximately 1,100 feet per lane is required to accommodate the general-purpose vehicles, however, the reconstructed loop on-ramp, in Alternatives 2A and 2B, provides an estimated available queue storage length of only 490 feet per lane." Additional queuing space totaling 1,220 feet (1,100x2 - 490x2 =1,220) would be necessary in the turn bays for the eastbound right turn and the westbound left turn. Two-thirds of the turning vehicles are coming from the eastbound right turn and one-third is coming from the westbound left turn. Assigning two-thirds of the storage to the eastbound right turn would mean that 813 feet of storage would be required, or 407 feet per lane in the two-lane right turn bay. For the westbound left turn, 407 feet of storage would be required or 204 feet per lane in the two-lane left turn bay. The concept plans for Alternatives 2A and 2B show that there is approximately 420 feet of storage per lane for the eastbound right turn and 240 feet of storage per lane for the westbound left turn so all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. If the HOV bypass lane Design Exception is granted, 247 feet of storage per lane would be required for the eastbound right turn and 123 feet of storage per lane would be required for the westbound left turn so that all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. Additionally, the ramps in Alternative 2 do not meet the Caltrans ramp meter storage requirement, however, the eastbound and westbound right turn lanes would be sufficient to store the queued vehicles so they would have minimal impact on the through lanes.

It is standard practice to analyze peak hour traffic because it generally represents the worst **recurring** congestion. Event traffic "for afternoon events at Angel Stadium" is typically outside the peak hour, and is considered non-recurring. Of the 80 or so home games at Angel Stadium, nearly all are at times that do not coincide with the peak hour or are on the weekend. In 2018 only one weekday baseball game was scheduled to begin before 7 PM. Non-baseball events also typically begin at or after 6:30 PM while the peak hour is typically between 4 and 6 PM.

L-4e. City of Anaheim. November 9, 2018. Letter.

Comment: Furthermore, the 2025 and 2045 weaving analysis indicates that under Alternatives 2A and 2B, the weaving segment LOS will be slightly worse than under Alternative 2 for both

peak hours, even though Alternatives 2A and 2B eliminate the non-standard weaving segment under Alternative 2 and existing conditions. In 2045, the AM peak hour is projected to be LOS D under Alternative 2, but is projected to be LOS E under Alternatives 2A and 2B.

Response: The weave analysis methodology prescribed by the Highway Capacity Manual (2016) places greater emphasis on the weaving volume than the weaving length. As such, Alternatives 2A and 2B, that aggregate all entering vehicles onto one on-ramp, have a higher weaving volume than Alternative 2 and thus are forecast to operate slightly worse than Alternative 2. It is important to note that the upper limit for LOS D for density is 35.0 passenger cars per mile per lane (pc/mi/ln) and the density for Alternative 2 in 2045 in the AM peak hour is 34.9 pc/mi/ln. While the analysis reports the level of service of Alternative 2 as D and the level of service of Alternatives 2Aand 2B as E (density = 38.2 pc/mi/ln), Alternative 2 is very nearly LOS E.

L-4f. City of Anaheim. November 9, 2018. Letter.

Comment: While we understand the desire to eliminate the northbound non-standard weaving distance between Orangewood and Katella, the TAOR clearly indicates that Alternative 2 is superior for both the freeway and for Orangewood Avenue.

Response: The determination of a "superior" alternative is based on a holistic evaluation of all aspects of each proposed alternative, such as traffic, as well as other differentiators. The PDT will consider each differentiator when making a recommendation for a Preferred Alternative.

CITY OF ORANGE

PUBLIC WORKS DEPARTMENT www.cityoforange.org

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November 9, 2018

Kathleen Dove sent via email: SR57ImprovementsProject@dot.ca.gov
Caltrans
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Subject: State Route 57 Improvement Project (Northbound) Mitigated Negative Declaration/Initial Study/Environmental Assessment

Dear Ms. Dove:
Thank you for providing the City of Orange (City) with the opportunity to review and comment on the Mitigated Negative Declaration/Initial Study/Environmental Assessment for the State Route 57 Improvement Project (Northbound). The project is located within the cities of Anaheim and Orange, and extends one mile from 0.3 mile south of the Orangewood Avenue undercrossing to the Katella Avenue undercrossing. The proposed project would widen the SR-57 freeway and proposed operational improvements would include construction of the missing section of the fifth GP lane, extension of the existing auxiliary lane from the Orangewood Avenue off-ramp to the Katella Avenue off-ramp, adding to the length of the on- and off-ramps, and adding a second lane to the Katella Avenue off-ramp to provide additional storage capacity, and extension of the merge length between the existing freeway on-/off-ramps to improve weaving distance. Four alternatives are evaluated in detail for the proposed project.

Due to the location within the City of Orange, the City has an interest in ensuring that the environmental document addresses potential adverse impacts to Orange residents and infrastructure. As such, we offer the following comments on the Traffic Operations Analysis Report:

- **Page 8**: Table 1-1 indicates that on-street parking spaces are displaced as a part of Alternatives 2A and 2B. A review of the project plans (Sheet L-5) does not show the displaced parking. Please provide information showing the number and location of the on-street parking spaces to be displaced as a part of Alternatives 2A and 2B. L-5a

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- **Page 10**: In the description of Alternative 2A, the report states that the newly constructed signalized intersection at Orangewood would control vehicle access to "loop and slip on-ramps". Alternative 2A removes the northbound slip on-ramp. Please correct the text in this section. L-5b
- **Page 33**: What is the Platinum Triangle Expansion Project growth factor that is used to estimate 2045 intersection turning movements? No numerical value is given in the report. Please clarify in the report. L-5c
- **Page 57**: Although the weave lengths for Alternatives 2A and 2B meet Caltrans standard of 2,000 feet, neither alternative performs as well as Alternative 2 in the Weave Segment Analysis. Alternative 2, which has a nonstandard weave length, has a better Level of Service (LOS) in both 2025 and 2045 when compared to Alternatives 2A and 2B. Please include in the report an explanation why Alternative 2 has the best Weave Segment Analysis of the project alternatives analyzed. L-5d
- **Page 58**: In the section on Ramp Metering and Storage that discusses Alternatives 2A and 2B, the report indicates that the reconfigured loop on-ramp does not have the storage capacity to accommodate the vehicle demand. The report concludes that "No options to provide this storage are feasible nor practical due to the constraints of this site".

  The City of Orange is concerned that this large shortage of sufficient storage space for the reconfigured loop on-ramp (more than 1,000 feet in total) will lead to vehicle back-up on Orangewood Avenue creating congestion at the interchange. The report's conclusion that, "no options to provide this storage are feasible nor practical due to the constraints of the site," leads the City to conclude that the design of Alternatives 2A and 2B is flawed and neither should be recommended as the preferred alternative. L-5e
- **Page 58**: Addressing the insufficient storage length "in the final design phase of the project" is not acceptable to the City of Orange. Based on the conclusions in the report, the storage length issue cannot be resolved, and that Alternatives 2A and 2B will create congestion problems at the Orangewood interchange. L-5f
- **Page 63**: The Summary of Results does not provide a meaningful comparison of the alternatives. The summary at the end of the section should provide facts. Instead, it appears to create confusion. The text says that removing the nonstandard weave distance could "potentially assist in lowering future accident rates". This statement is not supported by any of the analysis in the report. The report does show that Alternative 2, with its nonstandard weave distance, has a better LOS than either 2A or 2B. This is a fact that is downplayed by the summary saying that the change is only about 10%.

  The City requests removing or editing the last sentence on Page 63. The fact that Alternative 2 has a better Weave Segment Analysis LOS than the other two alternatives should not be downplayed. L-5g

- The City of Orange recommends Alternative 2 as the preferred alternative to be moved forward for implementation. L-5h

The City offers the following comments on the Traffic and Transportation/Pedestrian and Bicycle Facilities section of the Initial Study/Mitigated Negative Declaration/Environmental Assessment:

- The analysis does not address potential increase in hazards due to a design feature. As discussed in the City's comments above on the Traffic Operations Analysis Report, the report states on page 58 that the proposed ramp configuration for Alternatives 2A and 2B does not meet the storage requirements for the ramp meter, and no options to provide this storage are feasible or practical. This issue would lead to vehicle back-up on Orangewood Avenue creating congestion at the interchange. There is no discussion in the environmental document of this potentially significant impact and no mitigation proposed in either the report or the environmental document. L-5i
- The analysis does not address potential impacts to emergency access. As discussed in the previous comment, under Alternatives 2A and 2B, there would be a potential vehicle back-up on Orangewood Avenue, which could significantly impact emergency access. There is no discussion or mitigation proposed in the environmental document. Although emergency access is discussed under Utilities and Emergency Services, it does not address the potential impacts to access caused by vehicle back up due to the lack of storage space under Alternatives 2A and 2B. L-5j
- Please include in the analysis under freeway merge and diverse segments a discussion of how the lack of storage requirements for the ramp meter for Alternatives 2A and 2B would impact LOS for both segment and intersections. L-5k
- Please include a clearer summary and table that describes the potential impacts of each Alternatives (i.e., which intersections or segments would be significantly impacted) and concluded what the potential impact differences would be between each alternative. There is a Summary of Results in the Traffic Operations Analysis Report that should be included in the analysis and conclusions of this section. Please refer to above comment on page 63 of the Traffic Operations Analysis Report. L-5l
- **Page 2-63**: The conclusion in the analysis for Freeway Weave Segment does not address that the LOS impact under Alternative 2 is less than the impact of Alternatives 2A and 2B. Please refer to above comment on page 57 of the Traffic Operations Analysis Report. L-5m
- **Page 2-66**: On Table 2-30, the North Katella Avenue direct on-ramp in the AM should be bolded for all three columns. L-5n
- **Page 2-68**: There is no discussion why Alternative 2A and 2B would have a greater impact to LOS compared to Alternative 2 and whether the difference is L-5o

significance. There must be analysis and comparison of the alternatives in order to select the environmentally superior option. L-5o Continued

The City offers the following comments on the Noise section of the Initial Study/Mitigated Negative Declaration/Environmental Assessment: L-5p

- The proposed project site is located near to single-family residential uses. The City requests that the environmental document identifies all feasible mitigation measures to reduce and minimize construction noise impacts and vibrations to Orange.

The City appreciates the opportunity to comment on the environmental document and we look forward to reviewing the final document upon completion. If you have any questions, please contact Douglas Keys, Transportation Analyst with the City of Orange, at (714) 744-5541 or at dkeys@cityoforange.org.

Sincerely,

Christopher S. Cash
Public Works Director

cc: Rick Otto, City Manager, City of Orange
William R. Crouch, Community Development Director
Frank Sun, Assistant Public Works Director/City Engineer
Anna Pehoushek, Assistant Community Development Director, City of Orange
Ashley Brodkin, Associate Planner, City of Orange

L-5a. City of Orange. November 9, 2018. Letter.

Comment: Due to the location within the City of Orange, the City has an interest in ensuring that the environmental document addresses potential adverse impacts to Orange residents and infrastructure. As such, we offer the following comments on the Traffic Operations Analysis Report:

Page 8: Table 1-1 indicates that on-street parking spaces are displaced as a part of Alternatives 2A and 2B. A review of the project plans (Sheet L-5) does not show the displaced parking. Please provide information showing the number and location of the on-street parking spaces to be displaced as a part of Alternatives 2A and 2B.

Response: Table 1-1 is incorrect. No on-street parking will be displaced. The table will be revised.

L-5b. City of Orange. November 9, 2018. Letter.

Comment: Page 10: In the description of Alternative 2A, the report states that the newly constructed signalized intersection at Orangewood would control vehicle access to "loop and slip on-ramps". Alternative 2A removes the northbound slip on-ramp. Please correct the text in this section.

Response: The description for Alternative 2A is incorrect. Alternative 2A removes the slip on-ramp. The text will be revised.

L-5c. City of Orange. November 9, 2018. Letter.

Comment: Page 33: What is the Platinum Triangle Expansion Project growth factor that is used to estimate 2045 intersection turning movements? No numerical value is given in the report. Please clarify in the report.

Response: A compound growth rate of 3.6% was assumed for intersection forecast. This is the local growth assumption used for the Platinum Triangle Project. Since the OCTAM model Buildout condition is Year 2035, this growth factor was applied to the OCTAM 2035 model forecast to derive 2045 intersection volume estimates.

L-5d. City of Orange. November 9, 2018. Letter.

Comment: Page 57: Although the weave lengths for Alternatives 2A and 2B meet Caltrans standard of 2,000 feet, neither alternative performs as well as Alternative 2 in the Weave Segment Analysis. Alternative 2, which has a nonstandard weave length has a better Level of Service (LOS) in both 2025 and 2045 when compared to Alternatives 2A and 2B. Please include in the report an explanation why Alternative 2 has the best Weave Segment Analysis of the project alternatives analyzed.

Response: The weave analysis methodology prescribed by the Highway Capacity Manual (2016) places greater emphasis on the weaving volume than the weaving length. As such, Alternatives 2A and 2B, that aggregate all entering vehicles onto one on-ramp, have a higher weaving volume than Alternative 2 and thus are forecast to operate slightly worse than Alternative 2.

L-5e. City of Orange. November 9, 2018. Letter.

Comment: Page 58: In the section on Ramp Metering and Storage that discusses Alternative 2A and 2B, the report indicates that the reconfigured loop on—ramp does not have the storage capacity to accommodate the vehicle demand. The report concludes that "No options to provide this storage are feasible nor practical due to the constraints of this site".

The City of Orange is concerned that this large shortage of sufficient storage space for the reconfigured loop on—ramp (more than 1,000 feet in total) will lead to vehicle back-up on Orangewood Avenue creating congestion at the interchange. The report's conclusion that, "no options to provide this storage are feasible nor practical due to the constraints of the site," leads the City to conclude that the design of Alternatives 2A and 2B is flawed and neither should be recommended as the preferred alternative.

Response: The ramp meter queuing analysis described in the TOAR states that with a two-lane on-ramp (plus an HOV bypass lane) "a queue storage length of approximately 1,100 feet per lane is required to accommodate the general-purpose vehicles, however, the reconstructed loop on-ramp, in Alternatives 2A and 2B, provides an estimated available queue storage length of only 490 feet per lane." Additional queuing space totaling 1,220 feet (1,100x2 - 490x2 =1,220) would be necessary in the turn bays for the eastbound right turn and the westbound left turn. Two-thirds of the turning vehicles are coming from the eastbound right turn and one-third is coming from the westbound left turn. Assigning two-thirds of the storage to the eastbound right turn would mean that 813 feet of storage would be required, or 407 feet per lane in the two-lane right turn bay. For the westbound left turn, 407 feet of storage would be required or 204 feet per lane in the two-lane left turn bay. The concept plans for Alternatives 2A and 2B show that there is approximately 420 feet of storage per lane for the eastbound right turn and 180 feet of striped storage plus 60 feet of unstriped bay opening per lane for the westbound left turn so all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. If the HOV bypass lane Design Exception is granted, 247 feet of storage per lane would be required for the eastbound right turn and 123 feet of storage per lane would be required for the westbound left turn so that all queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue. The text will be revised to state that, "No options to provide this storage *on the on-ramp* are feasible or practical due to the constraints of the site, *however, queued vehicles are forecast to be stored in the turn lanes and not impact the through lanes on Orangewood Avenue*."

L-5f. City of Orange. November 9, 2018. Letter.

Comment: Page 58: Addressing the insufficient storage length "in the final design phase of the project" is not acceptable to the City of Orange. Based on the conclusions in the report, the storage length issue cannot be resolved, and that Alternatives 2A and 2B will create congestion problems at the Orangewood interchange.

Response: So that the final sentence on page 58 relates to the discussion provided in the response to comment L-5e, it will be revised to read, "…available storage on the arterial street turn lanes to the Orangewood loop on-ramp and the signal timing *will be designed to manage the queued traffic* in the final design phase of the project."

L-5g. City of Orange. November 9, 2018. Letter.

Comment: Page 63: The Summary of Results does not provide a meaningful comparison of the alternatives. The summary at the end of the section should provide facts. Instead, it appears to create confusion. The text says that removing the nonstandard weave distance could "potentially assist in lowering future accident rates". This statement is not supported by any of the analysis in the report. The report does show that Alternative 2, with its nonstandard weave distance, has better LOS than either 2A or 2B. This is a fact that is downplayed by the summary saying that the change is only about 10%.

The City requests removing or editing the last sentence on Page 63. The fact that Alternative 2 has a better Weave Segment Analysis LOS than the other two alternatives should not be downplayed.

Response: The summary paragraph on page 63 will be revised as follows: "In summary, traffic operations for the three build alternatives (2, 2A, & 2B) are similar during both the opening (2025) and design (2045) years, operating at satisfactory levels of service. Both Alternatives 2A and 2B eliminate the nonstandard weave on the northbound SR-57 freeway mainline. The weave segment for Alternative 2 shows a better level of service compared to the weave segment for Alternatives 2A and 2B in the Opening Year (2025) PM peak hour (C compared to D) and in the Design Year (2045) AM peak hour (D compared to E). The density of the weave in Alternative 2 is 34.9 pc/mi/ln, whereas the density of the weave in Alternatives 2A and 2B is 38.2 pc/mi/ln. The density threshold between LOS D and LOS E is 35.0."

L-5h. City of Orange. November 9, 2018. Letter.

Comment: The City of Orange recommends Alternative 2 as the preferred alternative to be moved forward for implementation.

Response: Thank you for your input and recommendation concerning the project's alternatives.

L-5i. City of Orange. November 9, 2018. Letter.

Comment: The City offers the following comments on the Traffic and Transportation/Pedestrian and Bicycle Facilities section of the Initial Study/Mitigated Negative Declaration/Environmental Assessment:

The analysis does not address potential increase in hazards due to a design feature. As discussed in the City's comments above on the Traffic Operations Analysis Report, the report states on page 58 that the proposed ramp configuration for Alternatives 2A and 2B does not meet the storage requirements for the ramp meter, and no options to provide this storage are feasible or practical. This issue would lead to vehicle back-up on Orangewood Avenue creating congestion at the interchange. There is no discussion in the environmental document of this potentially significant impact and no mitigation proposed in either the report or the environmental document.

Response: Per the response to L-5e, queued vehicles will be stored in the turn lanes and will not result in a "potentially significant impact." No additional discussion or mitigation is necessary.

L-5j. City of Orange. November 9, 2018. Letter.

Comment: The analysis does not address potential impacts to emergency access. As discussed in the previous comment, under Alternatives 2A and 2B, there would be a potential vehicle back-up on Orangewood Avenue, which could significantly impact emergency access. There is no discussion or mitigation proposed in the environmental document. Although emergency access is discussed under Utilities and Emergency Services, it does not address the potential impacts to access caused by vehicle back up due to the lack of storage space under Alternatives 2A and 2B.

Response: Per the response to L-5e, queued vehicles will be stored in the turn lanes and will not result in an impact to emergency access.

L-5k. City of Orange. November 9, 2018. Letter.

Comment: Please include in the analysis under freeway merge and diverse segments a discussion of how the lack of storage requirements for the ramp meter for Alternatives 2A and 2B would impact LOS for both segment and intersections.

Response: Per the response to L-5e, the ramp and the intersection operation will be acceptable due to the available storage in the right and left turn lanes of the intersection. In order to prevent the eastbound right turn traffic from filling up the on-ramp, a no-right-turn-on-red sign can be included as part of the intersection operations. This way, space will be available at the on-ramp to accommodate the westbound left turn traffic. This condition was evaluated for the Design Year (2045). The results show that with the no-right-turn-on-red sign, the intersection would also operate at LOS C. The ramp traffic would not impact the weave LOS on the freeway because the analysis is based on the peak hour volumes which remain unchanged.

L-5l. City of Orange. November 9, 2018. Letter.

Comment: Please include a clearer summary and table that describes the potential impacts—of each Alternatives (i.e., which intersections or segments would be significantly impacted) and concluded what the potential impact differences would be between each alternative. There is a Summary of Results in the Traffic Operations Analysis Report that should be included in the analysis and conclusions of this section. Please refer to above comment on page 63 of the Traffic Operations Analysis Report.

Response: Section 2.1.6.3, Environmental Consequences, provides summary tables for each project component (e.g freeway segments, weave segments, merge/diverge areas, intersection LOS and HOV lanes) comparing the impacts of each alternative. In addition, the following summary paragraph will be added at the end of Section 2.1.6.3:

The basic freeway segments for all Build Alternatives would operate at satisfactory levels of service (LOS D or better) for the opening (2025) and design (2045) years except for the segment north of the Katella Avenue on-ramp, which would operate at LOS E in the AM for the design year under all Build Alternatives. This is an improvement compared to Alternative 1, the No Build, where one segment operates at LOS E in the opening year (2025) and three segments operate at LOS E or F in the design year (2045). The HOV lane segments are anticipated to operate below capacity for all Build and No-Build Alternatives for both opening and design years. The study freeway weave segment is anticipated to operate at satisfactory levels of service

(LOS D or better) for the opening and design years with the exception for the Orangewood Avenue to Katella Off-Ramp segment under Alternative 2A and 2B, which would operate at LOS E in the AM for the design year. This is also an improvement compared to Alternative 1, the No Build, where the weave segment would operate at LOS E or F in both the opening (2025) and design (2045) year. Lastly, the study area intersections are anticipated to operate at satisfactory levels of service (LOS D or better) during the AM and PM peak hours for all Build Alternatives, except for North Eckhoff Street and Chapman Avenue during both the AM and PM peak hours for all Build and No Build Alternatives for both opening and design year.

The following will also be added to Section 2.1.6.4:

The main purpose of the project is to complete the missing gap in the fifth general purpose lane to provide lane continuity and add capacity. Closing the gap in the fifth general purpose lane would help relieve existing and future congestion, as well as improve mobility within the corridor. In addition, the project also proposes to improve existing nonstandard features, which result in bottlenecks, traffic slowing and weaving challenges within the project segment of SR 57.

The proposed project would not worsen the existing HOV lane condition nor does it improve it. Therefore, the project would have no effect on the existing HOV lanes. Likewise, the project would not worsen existing conditions for the basic freeway segments, freeway weave segment and study intersections, and in some instances, would improve operations. Therefore, the project would have no effect or a beneficial effect on the basic freeway segments, freeway weave and study intersections.

Finally, a summary table will be included before Chapter 1. The Table compares alternatives and the associated temporary and permanent impacts for all topic areas discussed in the Environmental Document (e.g. traffic, air, biology, etc).

L-5m. City of Orange. November 9, 2018. Letter.

Comment: Page 2-63: The conclusion in the analysis for Freeway Weave Segment does not address that the LOS impact under Alternative 2 is less than the impact of Alternatives 2A and 2B. Please refer to above comment on page 57 of the Traffic Operations Analysis Report.

Response: The following will be added to the conclusion for Freeway Weave Segment analysis: "The LOS and density forecasted for Alternative 2 is better than the forecast for Alternatives 2A and 2B. Since the LOS for all three build alternatives in 2025 are D or better, all build alternatives are considered acceptable in urban areas where the LOS is required to be D or better."

L-5n. City of Orange. November 9, 2018. Letter.

Comment: Page 2-66: On Table 2-30, the North Katella Avenue direct on-ramp in the AM should be bolded for all three columns.

Response: Table 2-30 is incorrect. The Katella Avenue direct on-ramp density and LOS should be bolded in all three columns. The table will be revised.

L-5o. City of Orange. November 9, 2018. Letter.

Comment: Page 2-68: There is no discussion why Alternative 2A and 2B would have a greater impact to LOS compared to Alternative 2 and whether the difference is significance. There must be analysis and comparison of the alternatives in order to select the environmentally superior option.

Response: The weave analysis methodology prescribed by the Highway Capacity Manual (2016) places greater emphasis on the weaving volume than the weaving length. As such, Alternatives 2A and 2B, that aggregate all entering vehicles onto one on-ramp, have a higher weaving volume than Alternative 2 and thus are forecast to operate slightly worse than Alternative 2. The following will be added to the conclusion for Freeway Weave Segment analysis: "The LOS and density forecasted for Alternative 2 is better than the forecast for Alternatives 2A and 2B. Since Alternative 2 is forecast to operate at LOS D, Alternative 2 is considered acceptable in urban areas where the LOS is required to be D or better. Alternatives 2A and 2B operate at LOS E in the AM peak hour which does not meet the threshold of acceptability."

L-5p. City of Orange. November 9, 2018. Letter.

Comment: The City offers the following comments on the Noise section of the Initial Study/Mitigated Negative Declaration/Environmental Assessment:

- The proposed project site is located near to single-family residential uses. The City requests that the environmental document identifies all feasible mitigation measures to reduce and minimize construction noise impacts and vibrations to Orange.

Response: The environmental document identifies noise compliance measures that all Build Alternatives would be required to comply with (refer to Section 2.2.7.3, Environmental Consequences). These measures include Caltrans Standard Specifications (Section 14.8-02), which require construction noise to be monitored and controlled, and sets 'not-to-exceed' limits for construction noise. The City of Orange Noise Control Ordinance (2700) also sets not-to-exceed noise limits for construction near residential areas.

4.3.1.4 General Public

Comment Received at Public Open House on October 25th, 2018.

COMMENT CARD PUBLIC HEARING (OPEN HOUSE FORMAT): OCTOBER 25, 2018 | 5:30 - 7:30 p.m.

NAME: _____

ORGANIZATION: _____

EMAIL: _____

PHONE: _____

ADDRESS: _____

CITY: _____ **ZIP:** _____

HOW DID YOU HEAR ABOUT THIS MEETING? ☐ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Flyer ☐ Word of Mouth

If you have questions, please contact Fernando Chavarria of OCTA at (714) 560-5306 or email at fchavarria@octa.net

COMMENTS

Thank you for the fantastic pedestrian and bicyclist improvements at Orangewood - specifically the perpendicular controlled intersections to Northbound SR-57! While the design team and construction crews are mobilized at the Katella ramps, make the same improvements to the ramp from Eastbound Katella to Northbound SR-57. Perpendicular, signalized ramp to SR-57 at Katella. P-1a

THANK YOU!

RESPONSE TO COMMENTS

Public comments will be recorded and responded to in the Final Environmental Document. It is anticipated that the Final Environmental Document will be available to view in 2019.

☐ **Please keep me informed about the State Route 57 Northbound Improvement Project and add me to your email distribution list.**

P-1a. Anonymous. October 25, 2018. Comment Card.

Comment: Thank you for the fantastic pedestrian and bicyclist improvements at Orangewood-specifically the pedestrian controlled intersections to Northbound SR-57! While the design team and construction crews are mobilized at the Katella ramps, make the same improvements to the ramp from Eastbound Katella to Northbound SR-57. Perpendicular, signalized ramp to SR-57 at Katella.

Response: Thank you for supporting these project improvements. The signalized intersection at Orangewood Avenue will provide improved safety for bicyclists and pedestrians. These improvements were necessitated due to the reconfiguration of the on-ramps at Orangewood under the Build Alternatives. The proposed improvements at the northbound Katella off-ramp would not require modifying the Katella Avenue intersection. The eastbound Katella Avenue on-ramp to northbound SR 57 is outside of the project limits and the scope of the proposed project improvements. Please refer to Section 1.3 of the Draft IS/EA, which provides further clarification on these proposed changes.

Comment Letter Received via Email on November 7th, 2018.

The Pearsons
2315 W. Beverly Drive
Orange, CA 92868
714-978-2492
ppearson@elpollolоco.com

Re: SR-57 Northbound Freeway Improvement Project (the "Project")

Mr. & Mrs. Roger Pearson herein present their concerns regarding information presented at the Oct. 25, 2018 Public Hearing regarding the Project. We have reviewed the alternatives/options presented by the Development Committee in implementing the Project and have strong concerns regarding its implementation. We respectfully submit these comments during the mandatory 30-Day Public Review/Circulation Period as allowed under the Final Environmental Study.

As individuals who will be impacted by the project, our concerns include increased traffic and noise, poor to harmful air quality, water quality, visually and aesthetically displeasing surrounding areas and generally negative residential and community issues which most likely will have the effect of decreasing the surrounding community's property values. Among those matters effecting neighborhood perception and subsequent property values center around the following: P-2a

1. Health & Safety – The harm of living near a freeway is compounded when roads are widened and allow even more vehicles to expose the residents to higher pollution levels without adequate measures to reduce that risk. Traffic will be exacerbated by more individuals attempting to access Angels' stadium and the nearby newly-opened breweries because the Project allows such increased traffic patterns. We oppose the inevitable increase in dust particulates, chemicals, and other unknown pollutants, as well as additional vehicle emissions during and upon completion of project construction. P-2b

2. Traffic – Current traffic on Orangewood is excessive in both directions. Installation of additional traffic signals as a part of the Project will compound the problem. As it stands, motorists approaching Orangewood from the North on Eckhoff will most likely continue Southbound on Eckhoff towards Chapman Avenue when encountering congestion on Orangewood. Notably, Eckhoff is the main thoroughfare used by residents, stadium attendees and commercial vehicles. Also of note is that Eckhoff and Sycamore have been in poor condition for some time and any projects considered for the area should have started with the resurfacing and restriping of those streets. Eckhoff is the main access point for residents living in the impacted area. P-2c

3. Visual/aesthetics/crime – In addition to road and construction debris anticipated by the Project, the residents of the area expect increased transient and panhandling issues at signaled intersections on Orangewood due to the increase in traffic and its desirable location. No accommodation has been made to ameliorate that risk. P-2d

4. Local Involvement - The cities of Anaheim and Orange are part of the Project's development team. We would like to hear more about their input with respect to the Project. Did they have any objections? What matters were considered in allowing the Project to commence? Further, we would like the opportunity to discuss this with a representative from the City of Orange with knowledge of the Project, as Orange did not have any representatives available at the meeting. Please advise who we may contact at the City of Orange to discuss the Project. P-2e

5. Noise – None of the alternative Plans allow for additional height to existing sound walls in nearby residential areas adjacent to the Northbound Orangewood off-ramp, e.g. West Beverly Drive. Increased traffic can only mean increased noise pollution. P-2f

As members of the impacted community, the only acceptable plan is Alternative 2. The others are unacceptable due to the anticipated closure of the current Orangewood Northbound on-ramp. P-2g To local residents, these alternatives seem to only favor the City of Anaheim's Angel Stadium and Honda Center. P-2h A fully signalized intersection on Orangewood Avenue constructed to control both Eastbound and Westbound vehicular access to a modified three lane Orangewood Avenue loop on-ramp would mean additional congestion, and, therefore, makes no sense to a resident of the City of Orange. P-2i

Alternative 2 would sufficiently move and widen the Westbound vehicular access to a signaled Northbound on-ramp to 2 lanes. The Eastbound vehicular access to the Northbound Orangewood Avenue loop on-ramp would also be widened to 2 metered lanes. P-2j

We appreciate the opportunity to voice our comments, and hope that we have adequately described our concerns.

Kind regards,

Pam Pearson

P-2a. Pam and Roger Pearson. November 7, 2018. Email.

Comment: As individuals who will be impacted by the project, our concerns include increased traffic and noise, poor to harmful air quality, water quality, visually and aesthetically displeasing surrounding areas and generally negative residential and community issues which most likely will have the effect of decreasing the surrounding community's property values.

Response: The Project, in and of itself, would not generate additional traffic. The Project is intended to address future projected increases in traffic by providing additional capacity within the northbound segment of the project corridor. Current traffic congestion is a result of a lack in lane continuity on the freeway mainline. The Project proposes to close the existing gap in the fifth general purpose lane, as well as extend the existing auxiliary lane through the Orangewood Avenue interchange to the Katella Avenue off-ramp, to address current congestion and future traffic increases.

During construction, some additional vehicle trips may occur due to construction efforts, thought that would be a temporary circumstance addressed by the Project's Traffic Management Plan (TMP), in addition to potential detours or delays. Once the Project is constructed, the improvements are expected to result in improved traffic flow and freeway operations.

Noise Permanent:

A noise analysis was conducted for the proposed project and as part of the analysis, noise measurements for noise sensitive receptors (i.e. residences, hotels, restaurants, etc.) were taken to evaluate existing and projected noise levels. Based on the analysis, additional heights for existing sound walls were not evaluated because predicted noise levels for receptors located behind the existing sound walls would not approach or exceed the noise abatement criteria and did not substantially exceed the existing noise levels. Therefore, noise impacts would not occur as defined by 23CFR772.5 and Caltrans Traffic Noise Analysis Protocol (policies and procedures).

Noise Temporary:

During construction, residential areas (considered noise sensitive receptors) may experience intermittent increased noise levels depending on their distance from operating construction equipment. Construction activities are required to comply with Caltrans Standard Specifications (Section 14-8.02), which sets 'not-to-exceed' limits for construction-related noise and requires noise to be monitored and controlled. In addition, any construction related noise would be temporary and short-term in nature.

Air Quality Permanent:

The Federal Clean Air Act and California Clean Air Act govern air quality. These laws set standards for air pollutant concentrations. These standards are set at levels that protect public health with a margin of safety. A Project-level air quality analysis was undertaken and determined to conform with prescribed standards. In addition, a parallel 'conformity' requirement based on FCAA Section 176(c) prohibits the U.S. Department of Transportation (USDOT) from funding, authorizing or approving a project or program that does not conform to state implementation plan for air quality attainment. The project-level air quality conformity analysis was conducted and the project was determined to have no permanent impacts to air quality.

Air Quality Temporary:

During construction, short-term degradation of air quality may occur due to the release of particulate emissions. The project is required to implement measures to reduce these short-term effects. A detailed discussion can be found in Section 2.2.6.3.

Water Quality Permanent:

The project is a highway improvement project and as such would not influence water quality overall.

Water Quality Temporary:

During construction, there are increased pollutant sources that during a storm event could result in polluted runoff entering storm drains. To address this issue, all construction activities are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) that would address all construction related activities that have the potential to affect water quality. SWPPPs include Best Management Practices (BMPs) to control pollutants, sediment from erosion, storm water runoff, and other construction-related impacts to water quality (see Section 2.2.2.3)

During construction, the presence of equipment, workers, material stockpiles, debris, lighting and signage would temporarily detract from the visual quality and character of the area. Demolition activities including vegetation clearing and grading could also reduce visual quality. These impacts would be temporary in nature and once construction is complete the area would be returned to preconstruction conditions including new and replacement landscape within Caltrans right-of-way. A three year plant establishment period is required to ensure replacement landscaping efforts are successful and community character and cohesion is restored.

Property Values:

A transportation project's impact on property value can be due to factors that affect the marketability of a business or property. These factors include changes to vehicle and pedestrian access, circulation of local travel patterns, parking, direct or indirect impacts on land use, and displacement of large employers. Other changes that may affect property value is a change in the environment such as traffic congestion, noise, air quality, and visual impacts. As stated in Section 2.1.4., the operation and construction of the project is not anticipated to have an impact on property values since it would not result in the displacement of businesses, affect access to business and parking, nor would it have a direct or indirect impact on land use and the urbanized nature of the project area. In addition, the project is found to have minimal impacts on noise, air quality, and visual resources.

P-2b. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Health & Safety – The harm of living near a freeway is compounded when roads are widened and allow even more vehicles to expose the residents to higher pollution levels without adequate measures to reduce that risk. Traffic will be exacerbated by more individuals attempting to access Angels' stadium and the nearby newly-opened breweries because the Project allows such increased traffic patterns. We oppose the inevitable increase in dust particulates, chemicals, and other unknown pollutants, as well as additional vehicle emissions during and upon completion of project construction.

Response: Health & Safety –

Air Quality:

As discussed in comment P2-a, the Federal Clean Air Act and California Clean Air Act govern air quality and set standards at levels that protect public health with a margin of safety. A project-level air quality analysis was undertaken and was determined to conform with prescribed standards and have no permanent impacts to air quality. During construction, a potential increase of particulate matter and dust may occur due to the release of particulate emissions. Required mitigation measures and the implementation of best management practices will help to avoid and/or minimize these effects. A detailed discussion can be found in Section 2.2.6.3.

Traffic:

The Project will complete the missing segment of the fifth general purpose lane on the northbound SR 57 freeway and does not propose widening of local roads. By closing the missing gap, it would streamline traffic and reduce congestion. Traffic patterns impacted by local attractions are analyzed during the approval process for the attractions themselves when they are proposed as projects. However, the Project itself does not propose new or additional development that would generate traffic. The proposed project is listed in the Southern California Association of Government's (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Amendment 2, and in SCAG 2017 Federal Transportation Improvement Program (FTIP). The Project is a congestion relief project proposing to address existing and projected increases in traffic on the northbound SR 57.

P-2c. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Traffic – Current traffic on Orangewood is excessive in both directions. Installation of as additional traffic signals a part of the Project will compound the problem. As it stands, motorists approaching Orangewood from the North on Eckhoff will most likely continue Southbound on Eckhoff towards Chapman Avenue when encountering congestion on Orangewood. Notably, Eckhoff is the main thoroughfare used by residents, stadium attendees and commercial vehicles. Also of note is that Eckhoff and Sycamore have been in poor condition for some time and any projects considered for the area should have started with the resurfacing and restriping of those streets. Eckhoff is the main access point for residents living in the impacted area.

Response: The project does not include the installation of additional traffic signals. The project would complete the missing segment of the fifth general purpose lane on the northbound SR 57 freeway. This improvement would result in less congestion within this segment of the freeway, which is expected to have a beneficial effect on local circulation. The project is not intended to address local street deficiencies.

P-2d. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Visual/aesthetics/crime – In addition to road and construction debris anticipated by the Project, the residents of the area expect increased transient and panhandling issues at signalized intersections on Orangewood due to the increase in traffic and its desirable location. No accommodation has been made to ameliorate that risk.

Response: Visual/aesthetics/crime –

Road and Construction Debris:

The project would be required to maintain good housekeeping (debris management, street sweeping, dust reduction, etc.) to reduce the potential for environmental impacts and risks to the public.

Increased Traffic:

This transportation project is a congestion relief project proposing to address existing and projected increases in traffic on northbound SR 57. The purpose of the project is to establish lane continuity on the northbound SR 57 to improve mobility (traffic movement) within the project segment of the freeway. In and of itself, the project does not propose new or additional development that would generate traffic and it is not growth inducing.

Transient and Panhandling Issues:

Neither Caltrans nor the cities of Anaheim or Orange have control over activities conducted within public rights-of-way that are not illegal or in violation of local municipal codes. Caltrans is responsible for the maintenance and operation of state facilities within their rights-of-way and does not have jurisdiction over local rights-of-way. City of Orange municipal code (OMC) 12.48.045 prohibits camping in city parks and OMC 12.66.030 prohibits camping and obstructing public rights of way including sidewalks. City of Anaheim municipal code Section 7.28.010 prohibits loitering on sidewalks and crosswalks and Section 7.30.030 prohibits aggressive panhandling. California Penal Code 647(c) prohibits accosting persons to solicit alms.

The Project does not propose new or added signalized intersections. Orangewood Avenue at the SR 57 northbound on- and off-ramps is currently signalized and will remain signalized under the proposed project.

P-2e. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Local Involvement - The cities of Anaheim and Orange are part of the Project's development team. We would like to hear more about their input with respect to the Project. Did they have any objections? What matters were considered in allowing the Project to commence? Further, we would like the opportunity to discuss this with a representative from the City of Orange with knowledge of the Project, as Orange did not have any representatives available at the meeting. Please advise who we may contact at the City of Orange to discuss the Project.

Response: As a part of the Project Development Team (PDT), the cities of Orange and Anaheim provided specialized input for consideration in developing project alternatives and evaluating environmental effects. As members of the PDT the cities had the opportunity to direct the course of studies by providing specialized knowledge of local conditions and constraints. They also had the opportunity to make recommendations and help accumulate data for evaluation during the environmental process. The cities did not voice any objections to the project. As part of the public review process, both cities provided comments on the Draft Environmental Document. The comments included support of the proposed freeway improvements, concerns regarding traffic operations relative to each alternative, and recommendations for moving Alternative 2 forward as the Locally Preferred Alternative. During the public hearing held on October 25,

Doug Keys, a representative of the city of Orange, attended as a member of the public. Mr. Keys can be contacted for additional information regarding the project.

P-2f. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Noise – None of the alternative Plans allow for additional height to existing sound walls in nearby residential areas adjacent to the Northbound Orangewood off-ramp, e.g. West Beverly Drive. Increased traffic can only mean increased noise pollution.

Response: As discussed in P-2a, a noise analysis was conducted for the project and as part of the analysis, noise measurements were taken within nearby residential areas to evaluate existing and projected noise levels. Based on the analysis, additional heights for existing sound walls were not evaluated because predicted noise levels for receptors located behind the existing sound walls would not approach or exceed the noise abatement criteria and did not substantially exceed the existing noise levels. Therefore, noise impacts would not occur as defined by 23CFR772.5 and Caltrans Traffic Noise Analysis Protocol (policies and procedures). The project does not include development that could result in increased traffic.

P-2g. Pam and Roger Pearson. November 7, 2018. Email.

Comment: As members of the impacted community, the only acceptable plan is Alternative 2. The others are unacceptable due to the anticipated closure of the current Orangewood Northbound on-ramp.

Response: Thank you for your input and recommendation concerning the project alternatives. All public comments are considered in the selection of a Preferred Alternative.

P-2h. Pam and Roger Pearson. November 7, 2018. Email.

Comment: To local residents, these alternatives seem to only favor the City of Anaheim's Angel Stadium and Honda Center.

Response: The proposed project is intended to relieve congestion along the northbound segment of SR 57 between Orangewood and Katella due to a discontinuity in the northbound fifth general purpose lane. This discontinuity creates a bottleneck condition where traffic demand exceeds the carry capacity of the roadway. All the proposed Build Alternatives address this deficiency and therefore meet the Project's purpose and need. The Project's purpose and need is to improve existing conditions to alleviate issues for the community and region at large, and not for the benefit of a single entity.

P-2i. Pam and Roger Pearson. November 7, 2018. Email.

Comment: A fully signalized intersection on Orangewood Avenue constructed to control both Eastbound and Westbound vehicular access to a modified three lane Orangewood Avenue loop on-ramp would mean additional congestion, and, therefore, makes no sense to a resident of the City of Orange.

Response: The signalized intersection at the SR 57 NB ramps and Orangewood Avenue is forecast to operate at an acceptable level of service (LOS D or better) in the Opening (2025) and Design (2045) Years in both the AM and PM peak hours. Design Year (2045) storage on the two on-ramps in Alternative 2 and the single on-ramp in Alternatives 2A and 2B would be insufficient. The EB and WB right turn lanes would be sufficient to store the queued vehicles so

they would have minimal impact on the through lanes. Thus, the project is not anticipated to result in congestion.

P-2j. Pam and Roger Pearson. November 7, 2018. Email.

Comment: Alternative 2 would sufficiently move and widen the Westbound vehicular access to a signaled Northbound on-ramp to 2 lanes. The Eastbound vehicular access to the Northbound Orangewood Avenue loop on-ramp would also be widened to 2 metered lanes.

Response: Yes, Alternative 2 proposes to provide two lanes on the eastbound loop on-ramp and two lanes on the westbound on-ramp at Orangewood Avenue. Likewise, Alternatives 2A and 2B would provide three lanes on the eastbound loop on-ramp. The three lanes would accommodate both the eastbound traffic and the newly redirected westbound traffic. All three Build Alternatives have sufficient capacity to handle northbound SR 57 traffic demand from Orangewood Avenue.

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5. LIST OF PREPARERS

The following individuals were involved in the preparation of this IS/EA:

California Department of Transportation (Caltrans), District 12

Arazbegi, Simin, Project Manager, Senior Transportation Engineer, M.S. in Civil Engineering, California State University of Long Beach, Long Beach, 20 years of experience in Project Management.

Aurasteh, Reza, Senior Environmental Engineer. P.E., Ph.D. in Engineering, Utah State University. 28 years of experience in consulting engineering, academics, transportation engineering, and environmental engineering. Contribution: Senior review of the Noise Study Report, Air Quality Report, and Initial Site Assessment.

Baker, Charles, Senior Environmental Planner, B.A. in Anthropology, Cal State University, Fullerton. MA in History, Cal State University, Fullerton. 19 years of experience in environmental planning. Contribution: Senior review for Cultural and Paleontological Resources.

Battaglia, Melody, Associate Right of Way Agent, Right of Way Branch, B.S.- Cal Poly Pomona, 11 years Right of Way experience, Right of Way Local Public Agency Oversight.

Behtash, Arman, Civil and Environmental Engineer, Bachelor of Science (B.S.), University of Wisconsin, Madison. 26 years of experience in consulting firms and Department of Transportation. Contribution: Review of Air Quality Assessment Report.

Caraig, Ricardo, Transportation Engineer. P.E., B.S. in Civil Engineering, California State University Fullerton. 27 years of experience in Design and Environmental Engineering. Contribution: Noise Reviewer.

Chiou, Wayne, Transportation/Environmental Engineer, P.E., M.S, in Civil and Environmental Engineering, Utah State University, 28 years of experience, Contribution: Oversight preparation of the Initial Site Assessment and review of the EA Hazardous Waste section.

Chitgar, Niloufar, Transportation Engineer, Design Branch A, B.S. in Civil Engineering, California Polytechnic University, Pomona, California, 5 years of Civil Engineering Experience, Contribution-Design Oversight of Project Report.

Deshpande, Smita, Senior Environmental Planner. B.A. in Geography, University of Pune, India; M.S. in Regional Planning, Indiana University of Pennsylvania, Indiana, Pennsylvania. 29 years of experience in environmental planning. Contribution: Senior review of the IS/EA.

Dickson, Eric, Senior Landscape Architect. B.S. in Landscape Architecture, California State Polytechnic University, Pomona. 16 years of experience in Visual Impact Assessments (VIAs) and aesthetic master plans. Contribution: Senior review of the VIA.

Dinh, Phi, Senior Transportation Engineer. MSCE, University of California, Los Angeles (UCLA). 20 years of experience in Caltrans Hydraulics, Design and Construction, 3.5 years in Environmental Engineering with the Department of Navy.

Dolan, Edward, Associate Environmental Planner. Masters in Urban/Regional Planning. California Polytechnic University Pomona. 18 years of experience. Contribution: Technical Editor and Peer Review.

Dove, Kathleen, Associate Environmental Planner. B.S, Journalism, Northern Arizona University, M.S., Political Communications, Arizona State University, Ph.D., Candidate, Marine Sciences, University of Alaska Fairbanks. 25 years of experience in environmental planning. Contribution: Environmental Coordinator IS/EA, Review of Community Impact Assessment, and NEPA QC for IS/EA.

Heydari, Bahar, Associate Environmental Planner. B.S. in Geography with emphasis in Environmental Analysis, California State Polytechnic University, Pomona. 10 years of experience with Caltrans in environmental planning. Contribution: Section 4(f) co-reviewer.

Hsu, Jeffrey, Transportation Engineer, Hydraulics Branch. B.S. in Civil Engineering, University of California, Irvine. 20 years of experience in hydraulics engineering. Contribution: Review the Drainage Report, Floodplain Evaluation Report/Location Hydraulic Study and Hydrology & Floodplain section of Environment Document.

Lee, Joseph, Senior Transportation Engineer, Design Branch A, B.S. in Civil Engineering, Oregon State University, Corvallis, Oregon, 24 years of Civil Engineering experience, Contribution-Design Oversight of Project Report.

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Piña-Garrett, Grace, Senior Transportation Engineer, National Pollutant Discharge Elimination System Unit. B.S. in Civil Engineering, California State University, Long Beach. 21 years of experience in engineering and water quality. Contribution: Senior review of the Water Quality Report.

Qamar, Iffat, Associate Environmental Planner, Ph.D. in Environmental Planning and Management, Macquarie University, Sydney, Australia. 23 years of experience in environmental planning and management. Contribution: Reviewer of Technical Reports, Generalist, and NEPA Quality Control for the IS/EA.

Rivera, Bart, PE, Transportation Engineer-Civil, B.S. in Civil Engineering, University of California at Irvine, 16 years of experience in Traffic Operations, Contribution: Reviewer of Traffic Operations Analysis Report.

Salas, Hector, Associate Environmental Planner, National Pollutant Discharge Elimination System Unit. B.A. Environmental Analysis and Design, University of California, Irvine. 19 years of experience. Contribution: Review of Water Quality Analysis Report.

Sato, Lisa, District 12 Biologist, B.S. in Biology, California State University, Fullerton. Six years of experience in Biology. Contribution: review of Biological studies (NES, JD and PIR), provided official USFWS and environmental document sections.

Sinopoli, Cheryl, District 12 Archaeologist, B.A. in Anthropology, California State University, Bakersfield. 25 years of experience in archaeology. Contribution: review of Cultural Resources and Paleontology technical studies (HPSR and PIR) and environmental document sections.

Sun, I-Hong, Landscape Architect. MLA in Landscape Architecture, University of Georgia, Athens. 13 years of experience in Visual Impact Assessments (VIAs) and aesthetic master plans. Contribution: Caltrans reviewer of the VIA.

Orange County Transportation Authority (OCTA)

Barrett, Niall, P.E., Project Manager. B.S. in Civil Engineering, Long Beach State University, California. 10 years of experience with OCTA managing projects and programs. Contribution: Project Oversight.

WSP USA

Afaneh, Maisoon, Senior Environmental Planner. B.A., Psychology/English Literature, Jordan University. M.A., Regional and Community Planning, Kansas State University. 22 years of experience as an Environmental Planner. Contribution: Community Impact Assessment editor, IS/EA QA/QC Manager.

Dickerson, Theresa, ENV SP – Supervising Environmental Planner. B.S. Landscape Architecture, California Polytechnic University at Pamona. 29 years of experience in environmental planning and documentation. Contribution: IS/EA editor and Visual Impact Assessment editor.

Flaherty, Alana, Environmental Planner. B.A. Environmental Business, minor in Spatial Studies, University of Redlands. 2 years of experience in environmental sciences and environmental planning. Contribution: Preparation and editing of IS/EA, QC of Technical Reports, Project management support.

Foell, Stephanie, Senior Supervising Architectural and Landscape Historian. B.S., History/Psychology and a minor in Geography, Towson University. Master of Historic Preservation, University of Georgia, Athens. 24 years of experience. Contribution: Section 106 guidance and review.

Hart, Richard, PE – Interim Project Manager
Contribution: Approved Water Quality Assessment Report

Heft, Adam, CPG, Senior Geologist. B.S., Geology and Earth Science, Michigan State University. M.S., Geology, Michigan State University. 25 years of experience of conducting research in geological and geochemical fields. Contribution: Contributing author to Initial Site Assessment.

Henderson, Sharon, Lead Technical Editor. 35 years of experience in technical formatting and graphic design, ad 14 years' experience with ProjectSolve2 and ProjectSolveSP (SharePoint). Contribution: Technical formatting.

Keller, Kevin ACIO, Supervising Environmental Planner. B.A., Geography, minor in History, California State University at Fullerton. Over 26 years of experience. Contribution: contributing author to Noise Study Report, Noise Section of EIS, TNM Model, and Barrier Analyze.

Lee, Annie, Environmental Planner. B.A. Environmental Policy, minor Urban Studies and Planning, University of California, San Diego. 3 years of experience in planning and environmental policy. Contribution: Preparation and editing of IS/EA, QC of Technical Reports, Project management support.

Lieu, Michael, Senior Environmental Planner. B.S., Applied Ecology, University of California, Irvine. 18 years of experience in Noise, GIS mapping, and air quality. Contribution: Contributing author to Air Quality Assessment Report and Noise Study Report, Graphic support.

Maurer, Lesley, Lead Planner
Contribution: Contributing author to Community Impact Assessment, Graphic support

Reynolds, Ed, Lead Technical Editor. B.A. Journalism, Baylor University. 34 years of experience. Contribution: Technical editor for Community Impact Assessment.

Seyde, Veronica, Water Quality Manager. M.S., Environmental Studies, California State University Fullerton. Over 30 years of experience in water quality and environmental analysis. Contribution: Authored Water Quality Assessment Report.

Schneider, Craig, PE, TE, Traffic Lead. B.S., Civil Engineering General, San Jose State University. M.S., Civil Engineering Transportation, San Jose State University. 25 years of experience. Contribution: Contributing author to Traffic Operations Assessment Report and the Transportation Management Plan (TMP).

Tadross, Edward, Supervising Environmental Planner. B.A., Environmental Studies, Tulane University, B.A., Earth Sciences, Tulane University. 20 years of experience. Contribution: QA/QC for Air Quality Assessment Report.

Tilleman, Kristen, Environmental & Safety/Security Planner. MESM, Bren School of Environmental Science & Management. BS, Oregon State College of Forestry. 5 years of experience working in the transportation sector. Contribution: Community Impact Assessment.

VanGoethem, David, Senior Environmental Engineer. B.S.C.E., Civil and Environmental Engineering, Michigan State University. Master of Business Administration, Walsh College. 26 years of experience. Contribution: Contributing author for Initial Site Assessment

Yoshizumi, Steven, Steven Yoshizumi, Project Manager. B.S. Civil Engineering, University of California at Los Angeles. 30 years of experience working in management of transportation/freeway improvement projects. Contribution: Project Report.

Cogstone

Duke, Holly, PQS, Task Manager. B.A. in Archaeology/History, Simon Fraser University, Canada. 7 years of experience preparing archaeological resources documentation. Contribution: Historic Property Survey Report, Archaeological Survey Report.

Harris, John M. Ph.D., PQS, Practice Leader/Principal Paleontologist. Ph.D. in Geology with Paleontology emphasis, University of Bristol, UK. 40 years of experience in paleontological resources documentation.

Martinez, Desiree, Task Manager. M.A. in Anthropology/Archaeology, Harvard University, Cambridge, Massachusetts. 21 years of experience preparing cultural resources documentation. Contribution: Historic Property Survey Report, Archaeological Survey Report.

Scott, Kim, PQS, Principal Investigator. M.S. in Biology, San Bernardino State University, California. 20 years of experience in paleontological resources documentation. Contribution: Paleontological Identification Report.

Valasik, Molly, Principal Investigator. M.A. in Anthropology, Kent State University, Ohio. 9 years of experience preparing archaeological resources documentation. Contribution: Historic Property Survey Report, Archaeological Survey Report.

Wilson, Megan, PQS, GIS Technician MA. Anthropology, Fullerton State University, California. 7 years in archaeological resources documentation and mapping. Contribution: GIS mapping.

Intueor Consulting, Inc.

Naguib, Farid, T.E., Lead Traffic Engineer. B.S. in Civil Engineering, Cairo University, Egypt. 29 years of experience in conducting traffic operations analyses and preparing traffic impact studies. Contribution: Traffic Operations Analysis Report (TOAR).

Farhat, Wahid, T.E., Project Traffic Engineer. B.S in Civil Engineering, University of Nebraska, Lincoln. 15 years of experience in transportation planning and traffic engineering. Contribution: Level of Service Evaluations and Traffic Operations Analysis Report (TOAR).

NOREAS

Hulse, Lincoln, Natural Resources Division Manager. B.S. Biology Northern Arizona University. 19 years of experience in producing biological survey reports and monitoring efforts. Contribution: Prepared Natural Environment Study and Jurisdictional Delineation.

Malo, Lenny, Vice President of Natural Resources. MS, Environmental Management, University of San Francisco, BS, Biology, University of California, Berkley.18 years of experience as a biologist and project management. Contribution: Prepared Natural Environment Study and Jurisdictional Delineation.

WRECO, Inc.

Abrams, Jennifer, P.E., Hydraulic Engineer. B.S. Civil and Environmental Engineering, Cornell University. 11 years of experience working in hydraulic engineering. Contributions: Preliminary Drainage Report, Floodplain Evaluation Report.

Sanders, Nigel, Staff Engineer. B.S. Civil Engineering, California State University, Chico. 2 years of experience working in the water resources sector. Contributions: Preliminary Drainage Report.

Tsurushita, Kazuya, P.E., Hydraulic Engineer. B.S. Civil and Environmental Engineering, University of California, Davis. 11 years of experience working in hydraulic engineering. Contributions: Floodplain Evaluation Report.

6. DISTRIBUTION LIST

A compact disc copy of the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment (draft IS/EA) and/or a Notice of Availability was distributed to the federal, state, regional, local agencies and elected officials, as well as interested groups, organizations, inidviduals, and utilities and service providers. In addition, 5,000 property owners, residents and occupants within a quarter-mile radius of the project limits were provided a Notice of Availability for the draft IS/EA.

The IS (proposed MND)/EA was distributed to all public agencies and elected official listed in this chapter. Following public circulation of the IS(proposed MND)EA, a letter with responses to comments received during the public circulation period was sent via email to all community members and public agencies that commented on the project.

Agency	Name	Address
Federal Agencies		
U.S. Fish & Wildlife	Division of Ecological Services	2800 Cottage Way Sacramento, CA 95825
Environmental Protection Agency	Field Office	Region 9, 600 Wilshire Boulevard, Suite 940 Los Angeles, CA 90017
U.S. Army Corps of Engineers Regulatory Division	Regulatory Riverside and Orange Counties Section	915 Wilshire Boulevard Los Angeles, CA 90017
State		
California Department of Fish & Wildlife	Ed Pert Regional Manager Region 5 – South Coast	3883 Ruffin Road San Diego, CA 92123
California Department of Fish & Wildlife	Gail K. Sevrens Environmental Program Manager Region 5 – South Coast	3883 Ruffin Road San Diego, CA 92123
State Water Resources Control Board	Stationary Resource Division	P.O. Box 2815 Sacramento, CA 95812
California Highway Patrol	Planning & Analysis Division	P.O. Box 942898 Sacramento, CA 94298-0001

Agency	Name	Address
California Highway Patrol	R. Shackleford, Captain Commander Santa Ana Area	2031 E. Santa Clara Avenue Santa Ana, CA 92705
California Office of Planning and Research, State Clearinghouse	--	P.O. Box 3044 Sacramento, CA 95812-3044
Native American Heritage Commission	--	1550 Harbor Boulevard West Sacramento, CA 95691
California Air Resources Board	Public Records Coordinator Legal Office	P.O. Box 2815 Sacramento, CA 95812
Regional Agencies		
Orange County Council of Governments (OCCOG)	Chair Kris Murray	3972 Barranca Parkway, Suite J127 Irvine, CA 92606
Southern California Association of Governments	Kris Murray	District 19 200 S. Anaheim Boulevard Anaheim, CA 92805
South Coast Air Quality Management District	Debra Ashby	21865 Copley Drive Diamond Bar, CA 91765
Santa Ana Regional Water Quality Control Board	--	3737 Main Street, Suite 500 Riverside, CA 92501-3348
Southern California Regional Rail Authority		One Gateway Plaza, 12th Floor Los Angeles, CA 90012
ARTIC: Anaheim Regional Transportation Intermodal Center		2626 E Katella Ave Anaheim CA 92806
County Agencies		
Orange County Flood Control District	--	300 N. Flower Street Santa Ana, CA 92703-5000
Orange County Water District		P.O. Box 8300 Fountain Valley, CA 92728-8300
Orange County Sherriff's Department Training Bureau		1900 W Katella Ave Orange CA 92867

Agency	Name	Address
Local Agencies		
Anaheim Police Department		425 Harbor Blvd. Anaheim, CA 92805
Anaheim Fire Dept. Station #7		2222 E. Ball Rd. Anaheim, CA 92806
Orange City Fire Dept. Station #5		1345 W Maple Ave. Orange, CA 92868
Orange City Fire Dept. Station #6		345 The City Dr. S. Orange, CA 92868
City of Orange	Rick Otto City Manager	300 E. Chapman Avenue Orange, CA 92866
City of Orange	Christopher Cash Public Works Director	300 E. Chapman Avenue Orange, CA 92866
City of Orange	Doug Keys Transportation Analyst	300 E. Chapman Avenue Orange, CA 92866
City of Santa Ana	Raul Godinez City Manager	20 Civic Center Plaza Santa Ana, CA 92701
City of Anaheim	Rudy Emami Public Works Director	200 S Anaheim Boulevard, Suite 276 Anaheim, CA 92805
City of Santa Ana	Edwin Galvez Public Works Director	20 Civic Center Plaza, M-21 Santa Ana, CA 92701
Orange County Community Resources	Eric E. Hull Entitlement Manager, OC Parks	13042 Old Myford Road Irvine, CA 92602
Orange County Public Works	Shane Silsby Director	300 N Flower Street Santa Ana, CA 92703
Orange County Water District	Gregg Woodside Executive Director of Planning and Natural Resources	12700 Ward Street Fountain Valley, CA 92708
Federal Legislators		
U.S. Senate	U.S. Senator Kamala Harris	312 N. Spring Street, Suite 1748 Los Angeles, CA 90012

Agency	Name	Address
U.S. Senate	U.S. Senator Dianne Feinstein	312 N. Spring Street, Suite 1748 Los Angeles, CA 90012
House of Representatives	Congressman Lou Correa	46th District 2323 N. Broadway, Suite 319 Santa Ana, CA 92706
State Legislators		
California Senate	Senator Janet Nguyen	34th District 10971 Garden Grove Boulevard, Suite D Garden Grove, CA 92843
California Senate	Senator John Moorlach	37th District 940 South Coast Drive, Suite 185 Costa Mesa, CA 92626
Local Elected Officials		
City of Orange	Theresa “Tita” Smith Mayor	300 E. Chapman Ave. Orange, CA 92866
City of Orange	Mark A. Murphy Mayor Pro-Tem	300 E. Chapman Ave. Orange, CA 92866
City of Orange	Fred M Whitaker Councilmember	300 E. Chapman Ave. Orange, CA 92866
City of Orange	Mike Alvarez Councilmember	300 E. Chapman Ave. Orange, CA 92866
City of Orange	Kim Nichols Councilmember	300 E. Chapman Ave. Orange, CA 92866
City of Anaheim	Tom Tait Mayor	200 S. Anaheim Boulevard Anaheim, CA 92805
City of Anaheim	Jose F. Moreno Mayor Pro-Tem	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805
City of Anaheim	James Vanderbilt Councilmember	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805
City of Anaheim	Kris Murray Councilmember	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805

Agency	Name	Address
City of Anaheim	Denise Barnes Councilmember	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805
City of Anaheim	Lucille Kring Councilmember	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805
City of Anaheim	Stephen Faessel Councilmember	200 S. Anaheim Blvd. 7th Floor Anaheim, CA 92805
City of Santa Ana	Miguel Pulido Mayor	20 Civic Center Plaza P.O. Box 1988, M31
City of Santa Ana	Vincente Sarmiento Councilmember	20 Civic Center Plaza P.O. Box 1988, M31
City of Santa Ana	Michele Martinez Mayor Pro-Tem	20 Civic Center Plaza P.O. Box 1988, M31
City of Santa Ana	Jose Solorio Councilmember	20 Civic Center Plaza P.O. Box 1988, M31
City of Santa Ana	David Benavides Councilmember	20 Civic Center Plaza P.O. Box 1988, M31
City of Santa Ana	Sal Tinajero Councilmember	20 Civic Center Plaza P.O. Box 1988, M31
Utilities		
Southern California Edison		1325 S Grand Ave, Santa Ana, CA 92705
Orange County Sanitation District		10844 Ellis Ave, Fountain Valley, CA 92708
Anaheim Public Utilities		201 South Anaheim Blvd Anaheim, CA 92805
Time Warner Cable		6021 Katella Ave #100, Cypress, CA 90630
AT&T		4501 E Chapman Ave, Orange, CA 92869
Districts		
Orange Unified School District		1401 North Handy Street, Orange, CA 92867

Agency	Name	Address
Santa Ana Unified School District		1601 East Chestnut Avenue Santa Ana, CA 92701-6322
Anaheim City School District Transportation		1001 S East St Anaheim, CA 92805
Orange Unified School District Transportation & Dispatch		726 W Collins Ave Orange, CA 92867
Libraries		
Sunkist Branch Library		901 S. Sunkist St. Anaheim, CA 92805
Anaheim Central Library		500 W. Broadway Anaheim, CA 92805
Ponderosa Joint Use Library		240 E. Orangewood Ave. Anaheim, CA 92802
Grunigen Medical Library		101 The City Dr. S. Orange, CA 92868
St. Joseph Library		480 S. Batavia St. Orange, CA 92868
Orange Public Library		407 E. Chapman Ave. Orange, CA 92866
Leatherby Libraries		1 University Dr. Orange, CA 92866
Charles P. Taft Branch Library		740 E. Taft Ave. Orange, CA 92865
Interested Groups, Organizations, and Individuals		
Gabrielino/Tongva San Gabriel Band of Mission Indians	Chairperson Anthony Morales	P.O. Box 693, San Gabriel, CA 91778
Juaneno Band of Mission Indians Acjachemen Nation	Tribal Manager Joyce Perry	4955 Paseo Segovia Irvine, CA 92603

Agency	Name	Address
Gabrielino Band of Mission Indians-Kizh Nation	Chairperson Andrew Salas	P.O. Box 393 Covina, CA 91723
Angel Stadium	--	2000 E Gene Autry Way, Anaheim, CA 92806
Honda Center	--	2695 E. Katella Ave Anaheim, CA 92806

Appendix A. Section 4(f) De Minimis Determination

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Introduction

This section of the document discusses de minimis impact determinations under Section 4(f). Section 6009(a) of SAFETEA-LU amended Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303 to simplify the processing and approval of projects that have only de minimis impacts on lands protected by Section 4(f). This amendment provides that once the U.S. Department of Transportation (USDOT) determines that a transportation use of Section 4(f) property, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, results in a de minimis impact on that property, an analysis of avoidance alternatives is not required and the Section 4(f) evaluation process is complete. FHWA's final rule on Section 4(f) de minimis findings is codified in 23 Code of Federal Regulations (CFR) 774.3 and CFR 774.17.

Responsibility for compliance with Section 4(f) has been assigned to the Department pursuant to 23 USC 326 and 327, including de minimis impact determinations, as well as coordination with those agencies that have jurisdiction over a Section 4(f) resource that may be affected by a project action.

There is one recreational facility, the Santa Ana River Trail (SART) with co-located bicycle path, owned and operated by Orange County Parks that has been determined to trigger the requirements for protection under Section 4(f).

Project Description

Caltrans, in cooperation with Orange County Transportation Authority (OCTA), proposes to widen the northbound side of the SR 57 freeway in Orange County within the cities of Anaheim and Orange. The widening would occur from 0.3 mile south of the Orangewood Avenue undercrossing (post mile [PM] 11.5) north to the Katella Avenue undercrossing (PM 12.5), a distance of about one mile. The proposed work activities include the proposed construction of a 550-foot section of the fifth general purpose (GP) lane in the northbound direction of SR 57 through the Katella Avenue interchange, upgrades to the non-standard median and sight distances, addition of a second lane to the Katella Avenue off-ramp, and reconfiguration of the existing on- and off-ramps to improve operation between the Orangewood Avenue interchange and the Katella Avenue interchange.

Four alternatives were evaluated for the proposed widening. The alternatives included the No-Build (Alternative 1) and three Build Alternatives (Alternatives 2, 2A, and 2B). Alternatives 2A and 2B originated as options to Alternative 2, but were sufficiently different that they were evaluated as full alternatives in the environmental documentation. Alternative 2 was chosen as the locally preferred alternative by the Project Development Team on January 16, 2019. **Table A-1: Features of the Build Alternatives** identifies some of the key features of the Build Alternatives.

Table A-1. Features of the Build Alternatives

Features	Alternative 2 (Preferred Alternative)	Alternative 2A	Alternative 2B
Mainline widened and restriping of HOV and GP lanes to establish continuous fifth GP lane and address nonstandard design issues	Yes	Same as Alt. 2	Same as Alt. 2
Orangewood Avenue eastbound loop on-ramp	Moves access eastward, adds one lane	Moves access eastward, adds two additional lanes	Same as Alt. 2A
Orangewood Avenue westbound on-ramp	Moves access eastward, adds one lane to on-ramp	Eliminates on-ramp	Same as Alt. 2A
Orangewood Avenue intersection	Modified to 90-degree signalized intersection	Modified to 90-degree signalized intersection. Addition of second westbound left-turn lane.	Same as Alt. 2A
Auxiliary lane continuous from Chapman Avenue through the Orangewood Avenue interchange to the Katella Avenue off-ramp	Yes	Same as Alt. 2	Same as Alt. 2
Weaving length between Orangewood Avenue on-ramp(s) and Katella Avenue off-ramp	Increases to 1,580 ft., remains nonstandard	Increases to 2,000 ft., meets standards	Increases to 2,475 ft., exceeds standards
Katella Avenue off-ramp	Widen Stadium OH Bridge, adds second lane to off-ramp	New adjacent bridge structure, longer and adds second lane to off-ramp.	Same as Alt. 2

De Minimis Determination

Figure A-1 shows Section 4(f) resources within the cities of Orange and Anaheim that are 0.5-miles from the Project and that could be affected by the Project. These resources include both historic properties and publicly-owned parkland and recreational facilities that are open to the public. This section describes the Section 4(f) resources shown in **Figure A-1**.

El Camino Real Park

El Camino Real Park is located about a half mile east of the project study area. The park is owned and operated by the city of Orange. Park amenities include four baseball fields, six tennis courts, two basketball courts, two volleyball courts, six handball courts, a tot-lot, a community room and a large picnic pavilion.

Santa Ana River Trail/Bicycle Path

The Santa Ana River Trail (SART) is a National Recreational Trail that extends along the Santa Ana River from Huntington Beach to San Bernardino County. The Orange County segment of the trail begins at the Huntington Beach Bicycle trail and ends at the Orange/Riverside County line. The section of the trail that is affected by the Project is in the city of Orange just east of Angel Stadium between the Anaheim Regional Transportation Intermodal Center (ARTIC) and the Santa Ana River Bridge (i.e. SR 57). Within the project boundary, the trail is located along the top of the river's west levee crossing under SR 57 between Orangewood Avenue and Katella Avenue. The SART is wheelchair accessible and serves pedestrians, bicyclists and equestrians. The SART features an existing Class I bicycle facility within the project area that is 12 feet wide, asphalt paved and marked by two white paint boundaries, with a dashed yellow paint marker separating the southbound and northbound lanes. The trail is part of the regional OC Loop and has a direct connection to ARTIC, which encourages multimodal forms of transportation. There is limited vegetation along the trail (primarily along the SR 57 embankment west of the trail) and the shoulders of the trail are unpaved dirt.

Former Burlington Northern Santa Fe (BNSF) Railroad (P-30-176663)

A segment of the formerly BNSF owned railroad right of way runs through the project boundary as it crosses under the Stadium Overhead Bridge at the ARTIC. This is now owned by OCTA. The railroad corridor is recommended eligible for listing on the NRHP; however, the segment of the railroad that crosses under the Stadium Overhead Bridge has not been previously evaluated for listing on the NRHP as a contributing segment. Based on the preliminary engineering plans it is expected that widening the overhead bridge will consist of crane-placed precast girders over the railroad within the OCTA right of way at the existing pedestrian platforms. This activity will span over the railroad and thus will not impact the railroad's integrity as a historic resource. The Project does not affect historic properties and therefore, no further analysis was conducted to determine the historic eligibility of this segment of the railroad.

Figure A-1: Resources Considered for Section 4(f) Analysis



Source: WSP, 2018.

Use of Section 4(f) Property

Santa Ana River Trail

The proposed Project (all Build Alternatives) includes widening the Santa Ana River Bridge, which would entail modifying the bridge embankments, extending the pier walls beneath the bridge, and widening the bridge deck. Widening the bridge would require erecting temporary support structures (falsework) to hold bridge components in place while it is being constructed. The falsework would need to span the SART/Bicycle Path where the bridge crosses over the trail. In addition to erection of the falsework, construction crews and equipment would need to periodically cross the SART/Bicycle Path to gain access to the riverbed and freeway bridge structure. To gain access to the riverbed and bridge, construction crews would use an existing maintenance road located at the toe of slope along the northbound SR 57 embankment (**Figure A-2: Maintenance Road Access**). The maintenance road is within Caltrans right of way and leads to a gate with access to the SART/Bicycle Path and the west levee of the river (~PM 12.1). The maintenance road provides the closest and most efficient path of access to the river and bridge. Equipment crossing(s) would be managed by flagmen to ensure trail user safety and continued access. Modification of the pier walls is expected to last 9 months (36 weeks) with access to the river across the SART/Bicycle Path needed for the duration of the 36-week construction period. To install and tear down the falsework, the trail would be temporarily closed for a period of 12 hours at the beginning and end of the 9-month construction period. During construction, the trail would remain open to users during public access hours (7 a.m. – 6 p.m. Nov. 1 to Feb 28 and 7 a.m. – 9 p.m. Mar. 1 to Oct 31). The temporary closures would occur during non-public access hours. In the unlikely event of extended closure hours that may include the public access hours, the public will be directed to use a detour route as shown in **Figure A-3: SART/Bicycle Path Detour Plan**.

Figure A-2: Maintenance Road Access



Source: WSP, 2018.

Figure A-3: SART/Bicycle Path Detour Plan



Source: WSP, 2018.

No change in ownership of this portion of the trail would occur. Construction storage and staging would be accommodated within Caltrans right of way. Construction of the entire project is anticipated to begin January 2023 and be completed by December 2025.

Measures to Minimize Harm to Santa Ana River Trail

The Santa Ana River Trail (SART), a Regional Recreational Trail and a protected Section 4(f) Resource is used by Pedestrians, Equestrians and Cyclists. During Design and Construction Phases, a Traffic Management Plan (TMP) be coordinated with the Orange County Flood Control District (OCFCD) and Orange County Parks (OCP) to address safety for trail and bike path users.

To minimize impacts to the trail and ensure trail user safety, the following measures will be incorporated into the construction contract:

PF-LU-1 Caltrans Standard Specification Section 5-1.39, Damage Repair and Restoration: Before Contract acceptance, restore damaged work to the same state of completion as before the damage. Restoration of damaged work includes restoration of erected falsework and formwork.

PF-LU-2 Caltrans Standard Specifications Section 7-1.03 Public Convenience: Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners. Avoid undue delay in construction activities to reduce the public's exposure to construction. Upon completion of rough grading or placing any subsequent layer, bring the surface of the roadbed to a smooth and even condition, free of humps and depressions, and satisfactory for the use of the public. After subgrade preparation for a specified layer of material has been completed, repair any damage to the roadbed or completed subgrade, including damage caused by public use.

PF-LU-3 Caltrans Standard Specifications Section 7-1.04 Public Safety: Do not construct a temporary facility that interferes with the safe passage of traffic. Control dust resulting from the work, inside and outside the right of way. Move workers, equipment, and materials without endangering traffic. Whenever your activities create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public. Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone.

Based on the summary above, the Project's effect on the Santa Ana River Trail (a Section 4(f) resource) and the resulting impacts satisfies the criteria for a *de minimis* impact determination.

Public Notice Process and Consultation with Official(s) with Jurisdiction

Pursuant to Section 4(f) of the Department of Transportation Act of 1966 (Title 49 USC Section 303) and 23 CFR 774.17, the Santa Ana River Trail (SART) is recognized as a Section 4(f) resource. As the Official with Jurisdiction (owner and operator) of the trail, Orange County (OC) Parks was notified by mail (see attached letter) regarding impacts to the SART/Bicycle Path.

During circulation of the draft environmental document from October 11, 2018 to November 9, 2018 the public was afforded an opportunity for public review and comment on the Section 4(f) determination. In addition, Caltrans initiated formal consultation with OC Parks (Official with Jurisdiction). A formal letter informing OC Parks of Caltrans' intent to make a *de minimis* impact determination for the SART was transmitted to Stacy Blackwood at OC Parks on August 25, 2018. The letter provided a summary of Caltrans' evaluation and determination, as well as other relevant information from the report. OC Parks was the only member of the public to provide comments on the *de minimis* determination. Their comments were requesting clarification on how detour information would be conveyed to trail users, whether afterhour operations would be required to construct and/or dismantle falsework and whether Caltrans would be seeking Section 4(f) *de minimis* concurrence. Caltrans responses to these comments can be found in Chapter 4 of the Final ED, Comments and Coordination. Caltrans made a *de minimis* determination for the SART that the project would not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f) and received written concurrence from OC Parks on February 7, 2019. See Appendix E, SART 4(f) Concurrence Letter.

Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or next to the project area that do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, or 4) the Project does not permanently use the property and does not hinder the preservation of the property. The property is a Section 4(f) property, but no "use" will occur.

There is one public park and one historic property eligible for National Register of Historic Places (NRHP) within 0.5 miles of the project study area. Based on the Natural Environment Study/Jurisdictional Delineation (February 2018), there are no wildlife and waterfowl refuges within 0.5 miles of the project study area. Per the Historic Property Survey Report (May 2018),

there are no historic sites within the Area of Potential Effect (APE) that were NRHP eligible historic sites.

El Camino Real Park

El Camino Real Park is located about 1,000 feet east of the intersection of N Eckoff Street and Orangewood Avenue and over 2,000 feet east of the Orangewood Avenue/SR 57 interchange. The Project would primarily be located within the existing freeway right of way which does not intersect the park boundaries. The park would not be affected by proximity to the Project as the proposed improvements would occur west of the intersection of N Eckhoff Street and Orangewood Avenue. There would be no changes to accessibility and no impacts related to visual, noise or air quality. The proposed improvements would not result in a severe impairment of the activities, features, or attributes of the park. The property is a Section 4(f) property, but no "use" will occur.

Former Burlington Northern Santa Fe (BNSF) Railroad

Alternative 2 proposes to widen the existing Stadium Overhead (OH) bridge structure over the former BNSF Railroad (now owned by OCTA and operated by SCRRA) to allow for construction of the fifth GP lane and closure of the existing gap, as well as to carry the Katella Avenue northbound off-ramp traffic. The Preferred Alternative would require a 1,359-square foot revised highway easement with OCTA over the former BNSF Railroad to allow for rights to construct and operate the widened bridge structure. The easement would be similar to the existing easement that Caltrans has with OCTA for operation of the Stadium OH Bridge structure. Widening the overhead bridge will consist of crane-placed precast girders over the railroad within the OCTA right of way at the existing pedestrian platforms. This activity will span over the railroad and thus will not impact the railroad's integrity as a historic resource. The Project does not hinder the preservation of the property. The property is a Section 4(f) property, but no "use" will occur.

Appendix B. Title VI Policy Statement

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
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TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

April 2018

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.

LAURIE BERMAN
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

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Appendix C. Environmental Commitments Record

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Environmental Commitments Record

In order to be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] which follows) would be implemented. During project design, avoidance, minimization, and /or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the Project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. As the following ECR is a draft, some fields have not been completed, and will be filled out as each of the measures is implemented. Note: Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

DISTRICT-COUNTY-ROUTE: 12-ORA-57
PM:11.5-12.05

Date: 3/16/2019
Environmental Coordinator: Kathleen Dove

ENVIRONMENTAL COMMITMENTS RECORD
(ECR)

EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
DESIGN KICK-OFF	Proj Mgmt & Proj Dev	Beginning of Phase 1			Initial	Date		Initial	Date
ENVIRONMENTAL PS&E REVIEW	Proj Mgmt & Env	District PS&E Circ							
PRECONSTRUCTION MEETING	Proj Mgmt	Contract Award							
TRANSFER RESIDENT ENGINEER BOOK	Proj Eng	Preconst Meeting							
PREJOB MEETING	Proj Mgmt & Contractor	Const							
ENVIRONMENTAL COMPLIANCE REVIEW	Proj Mgmt & Contractor	Post Const							
DESIGN FEATURES MEMORANDUM	Proj Mgmt & Contractor	Post Const							
Parks and Recreational Facilities									
During the Design and Construction Phases, a Traffic Management Plan (TMP) will be coordinated with Orange County Parks (OC Parks) and Orange County Flood Control District (OCFCD) for temporary construction-related impacts to the Santa Ana River Trail (SART) and bike path. The TMP will address safety for trail and bike path users, during and throughout construction, and will also be coordinated with the cities of Orange and Anaheim.	OCTA	Design/ Construction							
Community Impacts									
Caltrans Standard Specification 5-1.31: Requires that the job site be neatly maintained in areas visible to the public	Contractor	Construction							
Caltrans Standard Specifications Section 7.1.03: Apply a dust palliative for the prevention or alleviaton of dust nuisance.	Contractor	Construction							

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Caltrans Standard Specifications Section 5-1.39: Before Contract acceptance, restore damaged work to the same state of completion as before the damage.	Contractor	Construction							
Caltrans Standard Specifications Section 7-1.03: Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners.									
Caltrans Standard Specifications Section 7-1.04: Do not construct a temporary facility that interferes with the safe passage of traffic. Control dust resulting from the work, inside and outside the right-of-way. Move workers, equipment, and materials without endangering traffic. Whenever your activities create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public. Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone.									
PF-LU-1: Caltrans Standard Specifications Section 5-1.39: Before Contract acceptance, restore damaged work to the same state of completion as before the damage.	Contractor	Construction							
PF-LU-2: Caltrans Standard Specifications Section 7-1.03: Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners.	Contractor	Construction							
PF-LU-3: Caltrans Standard Specifications Section 7-1.04: Do not construct a temporary facility that interferes with the safe passage of traffic. Control dust resulting from the work, inside and outside the right-	Contractor	Construction							

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EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
of-way. Move workers, equipment, and materials without endangering traffic. Whenever your activities create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury to the public. Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone.									
Utilities and Emergency Services									
A Transportation Management Plan (TMP) identifying temporary closures and detours will be coordinated with law enforcement, fire protection and emergency medical providers.	Proj Mgmt & Contractor	Pre-Construction/ Construction							
Traffic & Transportation									
A TMP was prepared for the Project that includes strategies and measures to avoid and minimize disruption to local access, roadways, and bike and pedestrian facilities during construction.	Proj Mgmt & Contractor	Design/ Construction							
The existing sidewalks along Orangewood Avenue and Katella Avenue that are impacted by this Project will be reconstructed as part of the project. Where required, sidewalks, curbs, and gutters would be reconstructed to meet current Americans with Disabilities Act (ADA) Standards (28 CFR 35. 151).	Contractor	Construction							
Visual/Aesthetics									
AV-1: Replace in kind disturbed landscaping within the existing Classified Landscape Freeway segments from PM 11/5 to PM 12.02 and PM 12.11 to PM 12.5 to maintain the designation. New landscape plantings shall be consistent with the existing landscaping within the project area. A permanent irrigation system will be provided for landscape plantings.	Contractor	Post Construction							

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Date: 3/16/2019
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ENVIRONMENTAL COMMITMENTS RECORD
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EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
AV-2: In coordination with Caltrans' Landscape Architecture Unit, develop a Project Aesthetics and Landscape Master Plan for the project. The master plan would discuss measures to preserve existing plants, preserve the freeway status, revegetate disturbed areas, address corridor themes including structure aesthetics, and screen or enhance project elements.	Proj Mgmt & Contractor	Pre-Construction							
A Landscape Master Plan would be developed for the Project and would discuss measures to preserve existing plants, revegetation of disturbed areas with a three-year Plant Establishment Period, and corridor theming, including structure aesthetics and screening. During construction, every effort will be employed to maintain existing mature trees within the State's Right of Way (ROW). Vegetation removed during construction would be replaced in kind to maintain the Classified Landscaped Freeway designation. New landscaping will be consistent with existing landscaping.	Proj Mgmt & Contractor	Pre-Construction							
Context sensitive solutions will be considered to help reflect the unique character of the community, reduce the visual effects of the Project and provide compatibility with existing resources and features. Contextual elements such as retaining walls, bridge abutments, lighting, landscaping and slopes will be considered for application of the following solutions: • During construction, lighting would be shielded and/or focused on work areas to minimize ambient spillover into adjacent areas. • Grading cuts and fills would be contoured to visually blend with the surrounding landscape to the extent practical. • The color and aesthetic treatment of the highway and associated structures, such as retaining walls, medians, bridge abutments and columns would be	Project Engineer/ Contractor	Design/ Construction							

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SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
applied consistently with other highway structures in the project vicinity. • The Project would retain as much existing vegetation as possible, particularly mature trees that are located between the highway and adjacent land uses.									
Cultural Resources									
Caltrans Standard Specification 14-2.03A: If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	Contractor, Caltrans Resident Engineer & Caltrans Archaeologist	Construction, Post-Construction (if necessary)							
Public Resources Code 7050.5: If human remains are discovered, further disturbance and activities shall cease in any area or nearby area suspected to overlie remains and the County Coroner shall be contacted.	Contractor, Caltrans Resident Engineer & Caltrans Archaeologist	Construction, Post-Construction (if necessary)							
Public Resources Code 5097.98: If discovered human remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which will then notify the Most Likely Descendant (MLD).	Contractor, Caltrans Resident Engineer & Caltrans Archaeologist	Construction, Post-Construction (if necessary)							
Water Quality & Storm Water Runoff									
PF-WQ-1: Implement Storm Water Treatment BMPs. The Northbound SR 57 Improvement Project would be required to conform to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, adopted by the SWRCB on September 19, 2012, and any subsequent permit in effect at the time of construction. The Caltrans Statewide Permit requires the implementation of Treatment BMPs to minimize	Contractor	Pre-Construction							Q-2 :

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Environmental Coordinator: Kathleen Dove

ENVIRONMENTAL COMMITMENTS RECORD
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EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
potenial water quality and hydrological impacts associated with operation of the Project.									
PF-WQ-2 : Implement Temporary Construction Site BMPs. The Northbound SR 57 Improvement Project would be required to comply with the requirements of the NPDES Permit for Construction Activities, Order No. 2009-0009-Dacs of cosntriciotn-related polutiants. Teh SWPPP whall include BMps to contrl pollutants, sedimetn from erosion, sotrm wte rrunoff, and other construciton-related impacts. In addiitona,d the SWPPP shall include implemantioins of specific stoe wate effluent monitrioing requirements base don teh Peojcts issk slevke to ensrue that eth impelented BmPS are aefective in presnting dischanes from WQ, NPDES No. CAS000002, as well as implementation of the BMPs specified in Caltrans' Storm Water Management Plan (Caltrans 2016b).	Contractor	Pre-Construction							
PF-WQ-3: Prepare and Implement a Storm Water Pollution Prevention Plan. The Project would be required to prepare and implement an acceptable SWPPP. The SWPPP shall contain BMPS that have demonstrated effectiveness at reducing storm water pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All Construction Site BMPs would follow the latest edition of the Storm Water Quality Handbooks, Construction Site BMPs Manual to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, storm water runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific storm water effluent monitoring requirements based on the Project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards.	Contractor	Pre-Construction							

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Date: 3/16/2019
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ENVIRONMENTAL COMMITMENTS RECORD
(ECR)

EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
PF-WQ-4: Construction Site Dewatering. If dewatering is expected for the preferred alternative, the Project shall fully conform to the requirements specified in Order No. R8-20015-0004, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality. This NPDES permit is applicable to construction dewatering waste and dewatering waste from subterranean seepage.	Contractor	Pre-Construction							
PF-WQ-5 : Implement Design Pollution Prevention BMPs. As specified in Caltrans' Storm Water Management Plan (Caltrans 2016a), the Northbound SR 57 Improvement Project would be required to incorporate Design Pollution Prevention BMPs which prevent erosion and promote infiltration.									
Geology/Soil/Seismicity/Topography									
GEO – 1: Seismic Induced Liquefaction: Subsurface investigations will be performed at the beginning of the PS&E phase to determine the effects of seismically induced liquefaction on the bridge structures, the extent of the risk and whether additional retrofit strategies will be required.	Proj Mgmt & Proj Engineer	Design							
The Project will be constructed and designed in accordance with Caltrans Standard Specifications 19 regarding avoidance of damaging groundwater utilities or structures during excavations associated with the project constructions. In areas where compacted fill will be placed, the soil, dry or saturated soil, and otherwise unsuitable materials, will be removed prior to fill placement. Fill placed on sloping ground will be properly keyed and benched into existing ground and placed as specified in the Caltrans Standard Specifications.									

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Paleontology									
Caltrans Standard Specification 14-7.03: If unanticipated paleontological resources are discovered all work within 60-feet of the discovery must cease and the construction resident engineer must be notified. Work cannot continue near the discovery until authorized.	Contractor, Caltrans Resident Engineer & Caltrans Archaeologist	Construction, Post-Construction (if necessary)							
Air Quality									
The construction contractor must comply with the Department's Standard Specifications in Section 14-9 (2015) to minimize impacts to Air Quality.	Contractor	Construction							
Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.	Contractor	Construction							
Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18.	Contractor	Construction							
Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by CA Code of Regulations Title 17, Section 93114.	Contractor	Construction							
The project's contractors will comply with the South Coast Air Quality Management District (SCAQMD) rules and regulations during construction operations. This includes rules: • Rule 401 - Visible Emissions. Rule 401 states that no person shall discharge air contaminants of specified opacity for more than 3 minutes in 1 hour. • Rule 402 - Nuisance. Under Rule 402, no air contaminant shall be released into the atmosphere that causes a public nuisance. The rule prohibits discharge of air contaminants that could cause	Contractor	Construction							

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injury, detriment, nuisance, or annoyance to the public. An offensive odor can be considered a nuisance or annoyance. • Rule 403 – Fugitive Dust. The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. • Rule 403.1 – Supplemental Fugitive Dust Control Requirements for Orange County Sources. The purpose of this rule is to reduce or prevent the amount of fine particulate matter (PM10) entrained in the ambient air from anthropogenic (man-made) fugitive dust sources. • Rule 404 – Particulate Matter – Concentration. Under Rule 404, a person shall not discharge into the atmosphere from any source, particulate matter in excess of the concentration at standard conditions, as specified in the rule. • Rule 405 – Solid Particulate Matter – Weight. Under Rule 405, a person shall not discharge into the atmosphere from any source, solid particulate matter including lead and lead compounds, in excess of the rates specified in the rule.									
Noise									
Caltrans Standard Specifications Section 14.8-02: Control and monitor noise resulting from work activities. Do not exceed 86 dBA L_{max} at 50 feet from the job site from 9 p.m. to 6 a.m.	Contractor	Construction							
Biological Resources									
BIO-1: Delineation of Environmentally Sensitive Areas. Prior to clearing or construction, highly visible barriers (such as orange construction fencing) will be installed around areas adjacent to the project footprint to designate environmentally sensitive areas to be	Project Biologist/ Contractor	Pre-Construction							

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protected. No project activity of any type will be permitted within these environmentally sensitive areas. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the environmentally sensitive areas. All construction equipment will be operated in a manner to prevent accidental damage to environmentally sensitive areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the environmentally sensitive area boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities. (OCTA M2 NCCP/HCP Section 5.6.1)									
BIO-2: Restoration of Temporary Impacts. Areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. For freeway construction projects, revegetation plans will be part of the project design following Caltrans' landscape architecture guidelines and requirements. Restoration plans will be reviewed and approved by the Wildlife Agencies. (OCTA M2 NCCP/HCP Section 5.6.1)	Project Biologist/ Contractor	Construction							
BIO-3: Trash Control. To avoid attracting predators of Covered Species and other sensitive species, the project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site(s). (OCTA M2 NCCP/HCP Section 5.6.1)	Contractor	Construction							
BIO-4: Onsite Training. When in or near natural habitat areas, all personnel involved in the onsite project construction will be required to participate in a preconstruction training program to understand the	Contractor	Construction							

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avoidance and minimization obligations on the project. (OCTA M2 NCCP/HCP Section 5.6.1)									
BIO-5: Biological Monitoring. The Biological Monitor will be present on site during all grubbing and clearing of vegetation near ESAs to ensure that these activities remain within the Project footprint and that the flagging/stakes/fencing is being maintained. The Biological Monitor will send weekly monitoring reports to Caltrans and the OCTA NCCP Administrator during the grubbing and clearing of vegetation near ESAs. (OCTA M2 NCCP/HCP Section 5.6.1)	Project Biologist	Construction							

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BIO-6: Jurisdictional Aquatic Resources and Species Policy. The OCTA Conservation Plan requires that construction activities in aquatic resources, such as the Santa Ana River, be restricted during the rainy season (October 15 through June 1) or be conducted when the resource is dry and/or lacks flowing or standing water. Construction activities in human-made features cannot be restricted to a given season because they are often managed, and, therefore, water may be present regardless of the season. In the event that construction work-window restrictions cannot be followed, or in the case of human-made features, additional avoidance and minimization measures are required. As part of the additional specific avoidance and minimization measures, dewatering and water diversion will be implemented as described below, and additional Best Management Practices (BMP) to reduce potential water quality related indirect impacts on special aquatic resources will be implemented as determined through consultation with USACE, CDFW's Lake and Streambed Alteration Program, and RWQCB (SWRCB). The additional BMPs may include the placement of additional straw wattles, silt fencing, or protective barriers as necessary.	Contractor	Construction							

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BIO - 7: Dewatering/Water Diversion. Construction activities in special aquatic resources will be restricted to the dry season (June 1 through October 15) when possible. However, open or flowing water may be present during construction. If construction occurs where there is open or flowing water, a strategy that is approved by the resource agencies (e.g., USACE, CDFW's Lake and Streambed Alteration Program, and RWQCB), such as the creation of cofferdams, will be used to dewater or divert water from the work area. If cofferdams are constructed, implementation of the following cofferdam or water diversion measures is recommended to avoid and lessen aquatic resources impacts during construction: • The cofferdams, filter fabric, and corrugated steel pipe are to be removed from the creek bed after completion of the project. • The timing of work within all channelized waters is to be coordinated with the regulatory agencies. • The cofferdam is to be placed upstream of the work area to direct base flows through an appropriately sized diversion pipe. The diversion pipe will extend through the contractor's work area, where possible, and outlet through a sandbag dam at the downstream end. • Sediment catch basins immediately below the construction site are to be constructed when performing in-channel construction to prevent silt- and sediment-laden water from entering the mainstream flow. Accumulated sediments will be periodically removed from the catch basins.	Contractor	Construction							
BIO - 8: Use of Best Management Practices During Construction: Caltrans/OCTA will identify structural and non-structural Best Management Practices (BMPs) to control sediment and non-storm water discharges from the Project site to protect water quality. Actions to prevent sediment from entering	Contractor	Construction							

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watercourses during and after construction may include, but are not limited to, the following BMPs: silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary, construction-related BMPs may include, but will not be limited to, the following: • Silt Fence. A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence. • Fiber Rolls. A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff; reduce its flow velocity; release the runoff as sheet flow; and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established. • Gravel Bag Berms. A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.									

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• Preservation of Existing Vegetation. Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion. • Stockpile Management. Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, paving materials (e.g., Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate subbase or pre-mixed aggregate), asphalt minder (so called "cold mix" asphalt), and pressure-treated wood. • Vehicle and Equipment Maintenance. Contamination of storm water resulting from vehicle and equipment maintenance can be prevented or reduced by running a "dry and clean site". The best option would be to perform maintenance activities at an off-site facility. If this option is not available, then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.									
BIO - 9: Best Management Practices Incorporated into Project Design: Caltrans/OCTA will include permanent treatment BMPs in the Project design that will upgrade and install storm drain system facilities and storm drain controls for the Project. Permanent BMPs will be implemented for the protection of water quality using Caltrans-approved techniques and would be designed to meet RWQCB and National Pollutant Discharge Elimination System (NPDES) permit requirements. Permanent treatment BMPs may	Caltrans/OCTA /Project Engineer/ Contractor	Design/Pre-Construction/ Construction							

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include, but would not be limited to, infiltration devices (infiltration trenches), biofiltration swales, and biofiltration strips. • Infiltration trenches are basins or trenches that store runoff and allow it to infiltrate into the ground, thus preventing pollutants in the captured runoff from reaching surface waters. • Biofiltration strips are vegetated land areas, over which storm water flows as sheet flow. Biofiltration swales are vegetated channels, typically configured as trapezoidal or V-shaped channels that receive and convey storm water flows while meeting water quality criteria and other flow criteria. Pollutants are removed by filtration through the vegetation, sedimentation, adsorption to soil particles, and infiltration through the soil. Strips and swales are effective at trapping litter, total suspended sediment, and particulate metals. Biofiltration strips and swales would be considered wherever site conditions and climate allow vegetation to be established and where flow velocities will not cause scour. The intent of the BMPs implemented will be to reduce pollutants in storm water discharge to the maximum extent practicable (MEP). • The Project will conform to the Caltrans State Storm Water Management Plan (SWMP) (Caltrans 2003) and will provide guidance for compliance with the NPDES Permit requirement for discharge. As part of the Project Delivery Storm Water Management Program described in the SWMP, selected Construction Site, Design Pollution Prevention, and Treatment BMPs will be incorporated into the Project. Compliance with the standard requirements of the SWMP for potential short-term (during construction) and long-term (post construction) impacts will avoid or minimize potential impacts on water quality and storm water									

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runoff. Conformance with the SWMP will include the following: o Covered Projects will comply with the provisions of the Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ, NPDES No. CAS00003) and the NPDES General Permit, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), and any subsequent permit in effect at the time of construction. o A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented to address all construction-related activities, equipment, and materials that have the potential to affect water quality. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include the Construction Site BMPs to control pollutants (e.g., sediment control, catch basin inlet protection, construction materials management) and non-stormwater BMPs. All Construction Site BMPs will follow the latest edition of the Storm Water Quality Handbooks, Project Planning and Design Guide (Caltrans 2007) to control and minimize the impacts of construction and construction-related activities, material, and pollutants on the watershed. These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs. o Caltrans-approved treatment BMPs will be implemented to the MEP consistent with the requirements of the NPDES Permit, Statewide Storm Water Permit, and WDRs for Caltrans Properties, Facilities, and Activities (Order No. 2012-0011-DWQ, NPDES No. CAS000003).									

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○ Treatment BMPs will include, for example, biofiltration strips/swales, infiltration basins, detention devices, dry weather flow diversion, Gross Solids Removal Devices (GSRDs), media filters, and wet basins. Final determination regarding the selection of treatment BMPs will occur during the design phase. ○ Design Pollution Prevention BMPs will be implemented, such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems (e.g., ditches, berms, dikes and swales), oversized drains, flared end sections, and outlet protection/velocity dissipation devices. ○ Construction site dewatering must conform to the General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (de minimus) Threat to Water Quality (Order No R8-2009-0003, NPDES No. CAG998001), and any subsequent updates to this permit at the time of construction. Dewatering BMPs must be used to control sediments and pollutants, and the discharges must comply with the WDRs issued by the Santa Ana RWQCB.								
WET-1: Unavoidable permanent losses of streambeds and jurisdictional waters, will be compensated at the pre-approved mitigation sites identified in Table E-1 of Appendix E of the OCTA Conservation Plan (ICF 2016b), The Streambed Program and USACE LOP permit safeguards that OCTA will achieve the no-net-loss standards. Additionally, for temporary disturbances to streambeds, the impact areas will be restored to their pre-project conditions, when appropriate, to achieve the no-net-loss standards.	Proj Mgmt & Contractor	Pre-Construction/ Post-Construction							

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BIRD-1: Nesting Birds Policy (OCTA Conservation Plan Section 5.6.3). A Nesting Birds Policy will be implemented to conform to existing regulations and procedures for protection of nesting birds. Migratory native bird species are protected by international treaty under the MBTA of 1918 (50 CFR 10.13). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code make it unlawful to: take, possess, or needlessly destroy the nest or eggs of any bird (3503); take, possess or destroy any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) and the nest and eggs of any such bird (3503.5); and take or possess any migratory nongame bird, or any part thereof, as designated in the MBTA. Under state law, take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (Fish and Game Code Section 86), and includes take of eggs and/or young resulting from disturbances that cause abandonment of active nests. Proposed project activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season, which generally runs from February 1 to September 30 (as early as January 1st, for some birds) to avoid disturbance to breeding birds or destruction of the nest or eggs. Depending on the avian species present, a qualified biologist may determine that a change in the breeding season dates is warranted. If the Construction Lead determines that avoidance of the avian breeding season is not feasible, at least 2 weeks prior to the initiation of project activities, a qualified biologist with experience in conducting breeding bird surveys will conduct weekly bird surveys to detect presence/absence of native bird species occurring in suitable nesting habitat that is to be directly or indirectly disturbed and (as access to	Proj Mgmt/ Project Biologist/ Contractor	Pre-Construction/ Construction							

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adjacent areas allows) any other such habitat within an appropriate buffer distance of the disturbance area. Generally, the buffer distance should be 300 feet (500 feet for raptors); however, because the covered freeway improvement projects will generally occur along noisy freeways, a buffer distance as low as 100 feet for non-raptors could be appropriate. If a narrow buffer distance is warranted, the Construction Lead will have a qualified biologist identify the appropriate buffer distances for raptors and non-raptors and notify Wildlife Agencies. The surveys should continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of project activities. If a native or nesting bird species is found, the Construction Lead will do one of the following to avoid and minimize impacts on native birds and the nest or eggs of any birds: a. Implement default 300-foot minimum avoidance buffers for all birds and 500-foot minimum avoidance buffers for all raptor species. The breeding habitat/nest site will be fenced and/or flagged in all directions, and this area will not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the project. b. If a narrower buffer distance is determined appropriate by the qualified biologist, the Construction Lead will develop a project-specific Nesting Bird Management Plan. The site-specific nest protection plan will be developed collaboratively with Wildlife Agencies and submitted to the Wildlife Agencies, although the Wildlife Agencies will not be responsible for approving the narrower buffer distance and the Nesting Bird Management Plan. The Plan should include detailed methodologies and definitions to								

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enable a qualified avian biologist to monitor and implement nest-specific buffers based on topography, vegetation, species, and individual bird behavior. This Nesting Bird Management Plan will be supported by a Nest Log that tracks each nest and its outcome. The Nest Log will be submitted to the Wildlife Agencies at the end of each week. c. The Construction Lead may propose an alternative plan for avoidance and nesting birds for Wildlife Agencies' review and approval. Flagging, stakes, and/or construction fencing should be used to demarcate the inside boundary of the buffer between the project activities and the nest. The Construction Lead personnel, including all contractors working on site, should be instructed on the sensitivity of the area. The Construction Lead will document the results of the recommended protective measures described above to demonstrate compliance with applicable state and federal laws pertaining to the protection of native birds. The biological monitor will be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated buffer) and that the flagging/stakes/fencing is being maintained, and to minimize the likelihood that active nests are abandoned or fail due to project activities. The biological monitor will send weekly monitoring reports to the OCTA NCCP Administrator during the grubbing and clearing of vegetation and will notify the OCTA NCCP Administrator immediately if project activities take, possess, or needlessly destroy the nest or eggs of any bird as well as birds-of-prey and their nest or eggs. Within 48 hours of damage to an active nest or eggs or observed death or injury of birds protected									

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under state law or the MBTA (which includes, but not is limited to, the birds on the Covered Species list), OCTA will notify the Wildlife Agencies.									
BIRD BAT – 1 : Despite the lack of presence of bats in the project site during initial surveys, all work areas on existing bridges with potential bat roosting habitat will be cleared of all bats during the fall (i.e., September or October) outside of the maternity season (i.e., April 1–August 24) to avoid trapping flightless young inside during the summer months or hibernating individuals during the winter. Exclusion efforts are to occur prior to the initiation of construction activities under the guidance and observation of a qualified bat biologist. Exclusionary devices should be used to exclude bats from directly affected work areas and avoid potential direct impacts. Such exclusion efforts must be continued to keep the structures free of bats throughout the duration of the construction activities or until construction at the location is deemed complete and bat use is again acceptable. All bat exclusion techniques will be coordinated between the Department and the resource agencies, as applicable.	Project Biologist/ Contractor	Pre-Construction/ Construction							
BIRD BAT – 2 : If a bat maternity colony is detected, alternate roosting habitat shall be created and/or identified and monitored to ensure habitat is successfully occupied prior to exclusion.	Project Biologist/ Contractor	Pre-Construction							

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BIRD BAT – 3 : Prior to any vegetation clearing and bridge construction scheduled during the bat breeding season, a qualified biologist will conduct outflight census activities to determine the presence or absence of bat roosts within 72 hours prior to any clearing of vegetation or bridge construction. If roosting bats are detected, the biologist shall report and consult with resource agencies prior to commencing project activities within 500 feet of the bat detection site(s). The location of any bat roosts will be mapped, and an appropriate activity exclusion area or exclusion devices will be installed to preclude bats from being taken when project work occurs. The exclusion area will be clearly visible and remain in place until bat roosts are deemed inactive by a qualified biologist. If warranted bat exclusion devices, deterrent protocols and procedures shall be pre-approved by resource agencies prior to being implemented by OCTA.	Proejct Biologist/ Contractor	Pre-Construction							
In compliance with the Executive Order on Invasive Species, **EO 13112**, invasive species would be removed from the Project and controlled during construction. The Project includes construction methods and measures to reduce the potential for the spread of invasive species including, removal of invasive species in ground disturbed areas and equipment inspections to reduce the transport of invasive species.									
Invasive Species									
PLANT – 1: Invasive Species Control. Invasive species will be removed from the project work area and controlled during construction. The use of known invasive plant species (i.e., plant species listed in California Invasive Plant Council's [Cal-IPC's] California Invasive Plant Inventory with a High or Moderate rating) will be prohibited for construction,	Contractor	Construction							

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revegetation, and landscaping activities. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal off site or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of nonnative plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Eradication strategies (i.e., weed abatement programs) will be employed should an invasion occur during construction. (OCTA M2 NCCP/HCP Section 5.6.1)									
Hazards and Hazardous Materials									
HAZ-1: Thermoplastic Pavement Marking. During Final Design (PS&E) additional investigation to determine whether pavement markings contain lead and chromium shall be conducted and appropriate measures to address these potential contaminants will be included in the final bid package, if needed.									
HAZ-2 : Aerially Deposited Lead. During final Design (PS&E) surface soils in unpaved areas along the project corridor that will be disturbed during construction shall be tested for ADL according to Calteans ADL testing guidelines. Methods for handling and disposal if required, as well as Caltrans Standard Specifications or Special Provisions required to comply with rules and regulations applicable to handling ADL contaminated soils, shall be determined prior to earth moving activities.									
HAZ-3 : Polychlorinated Biphenyls. During Final Design (PS&E) additional environmental investigations to determine the potential for impacts resulting from									

DISTRICT-COUNTY-ROUTE: 12-ORA-57
PM:11.5-12.05

Date: 3/16/2019
Environmental Coordinator: Kathleen Dove

ENVIRONMENTAL COMMITMENTS RECORD
(ECR)

EA and Project No: 0M9700/1213000099
SR 57 Northbound Improvement Project

Task And Brief Description	Responsible Party	Timing / Phase	Nssp Req.	Action Taken To Comply With Task	Task Completed		Remarks	Environmental Compliance	
Polychlorinated Biphenyls (PCBs) shall be conducted to determine proper management, handling and disposal, if needed, as well as to identify Caltrans Standard Specifications required to comply with rules and regulations applicable to handling any identified hazardous material.									
HAZ-4 : Groundwater Dewatering. Should dewatering be required an NPDES permit under Caltrans jurisdiction for temporary discharge will be required. During dewatering activities, groundwater sampling shall be conducted to evaluate proper management, handling, and disposal of excess groundwater.									
Caltrans Standard Specification Section 13-4.03G: Controls dewatering work and discharge activities associated with dewatering.									

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Appendix D. List of Acronyms and Abbreviations

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A

AADT: average annual daily traffic

AB: Assembly Bill

ACHP: Advisory Council on Historic Preservation

ADA: Americans with Disabilities Act

ADL: aerially deposited lead

ADT: average daily traffic

AE: Adverse Effect

AEP: Associate Environmental Planner

AEPNS: Associate Environmental Planner, Natural Science

AHERA: Asbestos Hazard Emergency Response Act

AIRFA: American Indian Religious Freedom Act

APCD: Air Pollution Control District

APE: Area of Potential Effects

APEFZ: Alquist-Priolo Earthquake Fault Zone

AQMD: Air Quality Management District

ARB: Air Resources Board

ARPA: Archaeological Resources Protection Act of 1979

ARTIC: Anaheim Regional Transportation Intermodal Center

ASR: Archaeological Survey Report

ASTM: American Society for Testing Materials

ATCM: Airborne Toxic Control Measure

AVO: Average Vehicle Occupancy

B

BA: Biological Assessment

Bgs: below ground surface

BFE: Base Flood Elevation

BIA: Bureau of Indian Affairs

BLM: Bureau of Land Management

BMP: Best Management Practice

BNSF: Burlington Northern Santa Fe

BO: Biological Opinion

BTU: British thermal unit

C

CAA: Clean Air Act

Cal/EPA: California Environmental Protection Agency

Cal/OSHA: California Division of Occupational Safety and Health Administration

CalRecycle: California Department of Resources Recycling and Recovery

Caltrans: California Department of Transportation

CCAA: California Clean Air Act

CCC: California Conservation Corps

CCO: Contract Change Order

CCR: California Code of Regulations

CDC: Centers for Disease Control and Prevention

CDFW: California Department of Fish and Wildlife

CDP: Coastal Development Permit

CE: Categorical Exclusion (NEPA) or Categorical Exemption (CEQA)

CEQ: Council on Environmental Quality

CEQA: California Environmental Quality Act

CERES: California Environmental Resources Evaluation System

CERLA: Comprehensive Environmental Response, Compensation, and Liability Act

CERFA: Community Environmental Response Facilitation Act of 1992

CESA: California Endangered Species Act

CFR: Code of Federal Regulations

CGS: California Geological Survey

CHL: California Historical Landmarks

CHP: California Highway Patrol

CHRIS: California Historical Resources Information System

CIA: Community Impact Assessment

CL: center line

CMP: Conceptual Mitigation Plan

CNDDB: California Natural Diversity Database

CNEL: community noise equivalent level

CNPS: California Native Plant Society

COG: Council of Governments

COZEEP: Construction Zone Enhanced Enforcement Program

CPHI: California Points of Historical Interest

CPD: Construction Procedures Directives

CPRA: California Public Records Act

CRHR: California Register of Historical Resources

CRM: Cultural Resources Management

CSO: Cultural Studies Office

CT: California Department of Transportation

CTC: California Transportation Commission

CTP: California Transportation Plan

CUPA: Certified Unified Program Agencies

CWA: Clean Water Act

D

DA: Department of the Army (U.S.)

dBA: A-weighted decibel

dBA Leq: A-weighted noise level

DBH: Diameter at breast height

DEA: Division of Environmental Analysis

DED: draft environmental document

DEIR: Draft Environmental Impact Report (CEQA)

DEIS: Draft Environmental Impact Statement (NEPA)

DES-OE: Division of Engineering Services-Office Engineer

the Department: California Department of Transportation

DLAE: District Local Assistance Engineer

DNAC: District Native American Coordinator

DOC: California Department of Conservation

DOD: Department of Defense [U.S.]

DOI: Department of the Interior [U.S.]

DOT: Department of Transportation [general]

DRID: Draft Relocation Impact Document

DRIM: Draft Relocation Impact Memorandum

DPR: Draft Project Report

DPR: California Department of Parks and Recreation

DRP: Data Recovery Plan

DSA: Disturbed Soil Area

DSI: Detailed Site Investigation

DTSC: California Department of Toxic Substances Control

DWR: California Department of Water Resources

E

EA: Environmental Assessment [NEPA}

EA: Expenditure Authorization

EBC: Environmental Branch Chief

ECL: Environmental Construction Liaison/Coordinator

ECR: Environmental Commitments Record

ED: environmental document

EFH: Essential Fish Habitat

EH: Environmental Handbook

EIR: Environmental Impact Report [CEQA]

EIS: Environmental Impact Statement [NEPA]

EJ: Environmental Justice

ELAP: Environmental Laboratory Accreditation Program

EMO: Environmental Management Office

EO: Executive Order

EOC: Environmental Office Chief

EP: Environmental Planner

EPA: Environmental Protection Agency

EPNS: Environmental Planner (Natural Science)

ESA: Environmentally Sensitive Area

ESA: Endangered Species Act

ESR: Environmental Study Request

ESU: Environmentally Significant Unit (relates to salmonids)

F

FAE: Finding of Adverse Effect

FAC: Facultative

FACW: Facultative Wetland

FACU: Facultative Upland

FBFM: Flood Boundary and Floodway Map

FCAA: Federal Clean Air Act

FED: final environmental document

FEIR: Final Environmental Impact Report (CEQA)

FEIS: Final Environmental Impact Statement (NEPA)

FEMA: Federal Emergency Management Agency

FESA: Federal Endangered Species Act

FHWA: Federal Highway Administration

FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act

FIRM: Flood Insurance Rate Map

FIS: Flood Insurance Study

FLPMA: Federal Land Policy and Management Act of 1976

FNAE: Finding of No Adverse Effect

FOE: Finding of Effect

FOIA: Freedom of Information Act

FONSI: Finding of No Significant Impact [NEPA]

FPPA: Farmland Protection Policy Act

FR: Federal Register

FRA: Federal Railroad Administration

FRID: Final Relocation Impact Document

FRIS: Final Relocation Impact Statement

FTA: Federal Transit Authority

FSTIP: Federal State Transportation Improvement Program

FTIP: Federal Transportation Improvement Program

FY: Fiscal Year

G

GHG: greenhouse gas

GIS: Geographic Information Systems

GP: General Purpose

GPR: Ground Penetrating Radar

GPS: Global Positioning System

H

HA: Highway Agency

HABS: Historic American Building Survey

HAER: Historic American Engineering Record

HASR: Historic Architectural Survey Report

HCM: Highway Capacity Manual

HCP: Habitat Conservation Plan

HDM: Highway Design Manual

HMDD-A: Hazardous Materials Disclosure Document-Acquisition

HMDD-D: Hazardous Materials Disclosure Document-Disposal

HOV: High-Occupancy Vehicle

HPSR: Historic Property Survey Report

HRC: Heritage Resources Coordinator

HRCR: Historical Resources Compliance Report

HRER: Historical Resources Evaluation Report

HSG: Hydrologic Soil Group

HSWA: Hazardous and Solid Waste Amendments

I

I: Interstate

IAC: Interagency Consultation

IGR: Intergovernmental Review

IIP: Interregional Improvement Program

IP: Individual Permit

IPCC: Intergovernmental Panel on Climate Change

IS/EA: Initial Study / Environmental Assessment [CEQA]

ISA: Initial Site Assessment

ISTEA: Intermodal Surface Transportation

Efficiency Act of 1991

ITE: Institute of Transportation Engineers

ITIP: Interregional Transportation Improvement Program

ITP: Incidental Take Permit

ITSP: Interregional Transportation Strategic Plan

ITTE: Institute of Transportation and Traffic Engineering

J

JD: Jurisdictional Determination

K

KP: kilometer post

L

LAPM: Local Assistance Procedures Manual

LEDPA: Least Environmentally Damaging Practicable Alternative

LESA: Land Evaluation and Site Assessment

LOMR: Letter of Map Revision

LOP: Letter of Permission

LOS: Level of Service

LUPIN: Land Use Planning Information Network

LUST: leaking underground storage tank

LWCFA: Land and Water Conservation Fund Act of 1965

M

MAP-21: Moving Ahead for Progress in the 21st Century Act

MBTA: Migratory Bird Treaty Act

MCCE: Mitigation and Compliance Cost Estimate

MCE: Maximum Credible Earthquake

MEP: Maximum Extent Practicable

MLD: Most Likely Descendant

MND: Mitigated Negative Declaration [CEQA]

MOA: Memorandum of Agreement

MOU: Memorandum of Understanding

MPH: Miles per Hour

MPO: Metropolitan Planning Organization

MS4: Municipal Separate Storm Sewer System

MSAT: Mobile Source Air Toxics

MSL: Mean Sea Level

MTP: Metropolitan Transportation Plan

MTIP: Metropolitan Transportation Improvement Program

N

NAAQS: National Ambient Air Quality Standards

NAC: Noise Abatement Criteria

NADR: Noise Abatement Decision Report

NAE: No Adverse Effect

NAGPRA: Native American Graves Protection and Repatriation Act of 1990

NAHC: Native American Heritage Commission

NCCP: Natural Community Conservation Planning

NCHRP: National Cooperative Highway Research Program

NCSE: National Council for Science and the Environment

ND: Negative Declaration [CEQA]

NEPA: National Environmental Policy Act

NES: Natural Environment Study

NES-MI: Natural Environmental Study (Minimal Impact)

NESHAP: National Emissions Standards for Hazardous Air Pollutants

NFIP: National Flood Insurance Program

NFSAM: National Flood Security Act Manual

NHL: National Historic Landmark

NHPA: National Historic Preservation Act

NHS: National Highway System

NI: No Indicator

NMFS: National Marine Fisheries Service

NNL: National Natural Landmark

NOA: naturally occurring asbestos

NOA: Notice of Availability

NOA: Naturally Occurring Asbestos

NOAA: National Oceanic and Atmospheric Administration

NOC: Notice of Completion

NOD: Notice of Determination

NOE: Notice of Exemption

NOI: Notice of Intent

NOP: Notice of Preparation

NPDES: National Pollutant Discharge Elimination System

NPL: National Priorities List

NPRM: Notice of Proposed Rule Making

NPS: National Park Service

NR: National Register [of Historic Places]

NRCS: National Resources Conservation Service

NRHP: National Register of Historic Places

NSSP: Nonstandard Special Provision

NWP: Nationwide Permit

O

OBL: Obligate Wetland

OBU: Obligate Upland

O.C.: Overcrossing

OCGB: Orange County Groundwater Basin

OHWM: Ordinary High Water Mark

OPR: Office of Planning and Research

OSHA: Occupational Safety Hazard Administration

OCTA: Orange County Transportation Authority

P

PA: Programmatic Agreement

PA&ED: Project Approval and Environmental Document

PAM: Permits, Agreements, and Mitigation

PCB: Polychlorinated biphenyls

PDPM: [Caltrans] Project Development Procedures Manual

PDT: Project Development Team

PE: Project Engineer

PEP: Plant Establishment Period

PEAR: Preliminary Environmental Assessment Report

PEER: Permit Engineering Evaluation Report

PER: Paleontological Evaluation Report

PG: Professional Geologist

PID: Project Initiation Document

PILOT PROGRAM: Surface Transportation Project Delivery Pilot Program

PIR: Paleontological Identification Report

PLAC: Permits, Licenses, Agreements, and Certifications

PM: particulate matter

PM: post mile

PM_{10}: particulate matter less than 10 microns in diameter

$PM_{2.5}$: particulate matter less than 2.5 microns in diameter

PMP: Paleontological Mitigation Plan

PMR: Paleontological Mitigation Report

POAQC: Project of Air Quality Concern

ppb: parts per billion

ppm: parts per million

PR: Project Report

PRC: [California] Public Resources Code

PS&E: Plans, Specifications, and Estimates

PSI: Preliminary Site Investigation

PSI: pounds per square inch

PSR: Project Study Report

PSR-PDS: Project Study Report-Project Development Support

PUC: Public Utilities Commission [California]

Q

R

RAP: Relocation Assistance Program

RCR: Route Concept Report

RCRA: Resource Conservation and Recovery Act of 1976

RE: Resident Engineer

RIP: Regional Improvement Program

ROD: Record of Decision [NEPA]

ROW: right of way

RR: Railroad

RTIP: Regional Transportation Improvement Program

RTP: Regional Transportation Plan

RTPA: Regional Transportation Planning Agency

RWQCB: Regional Water Quality Control Board

S

SACOG: Sacramento Area of Council of Governments

SAFETEA-LU: Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SANDAG: San Diego Association of Governments

SAR: Santa Ana River

SART: Santa Ana River Trail

SARA: Superfund Amendments and Reauthorization Act

SB: Senate Bill

SCAB: South Coast Air Basin

SCAG: Southern California Association of Governments

SCCIC: South Central Coastal Information Center

SCH: [California] State Clearinghouse

SCRRA: Southern California Regional Rail Authority

SDC: Seismic Design Criteria

SDWA: Safe Drinking Water Act

SEE: social, economic, and environmental

SEP: Senior Environmental Planner

SER: Standard Environmental Reference

SFHA: Special Flood Hazard Area

SHA: State Highway Agency

SHBSB: State Historical Building Safety Board

SHL: State Historical Landmark

SHOPP: State Highway Operation and Protection Program

SHPO: State Historic Preservation Officer

SHS: State Highway System

SI: Safety Index

SIP: State Implementation Plan

SLC: [California] State Lands Commission

SMARA: Surface Mining and Reclamation Act of 1975

SOC: Statement of Overriding Considerations [CEQA]

SOL: Statute of Limitations

SR: State Route

SSP: Standard Special Provision

STIP: Statewide Transportation Improvement Program

SWMP: Storm Water Management Plan

SWPPP: Storm Water Pollution Prevention Plan

SWRCB: State Water Resources Control Board

T

T&E: Threatened and Endangered

TAC: Technical Advisory Committee

TASAS: Traffic Accident Surveillance and Analysis System

TCE: Temporary Construction Easement

TCM: Transportation Control Measure

TCP: Traditional Cultural Property or Place

TCR: Transportation Concept Report

TDM: Transportation Demand Management

TEA-21: Transportation Equity Act for the 21st Century

TeNS: Technical Noise Supplement

THPO: Tribal Historic Preservation Officer

TIP: Transportation Improvement Program

TMDL: Total Maximum Daily Load

TMP: Traffic Management Plan

TOAR: Traffic Operations Analysis Report

TSCA: Toxic Substances Control Act

TSM: Transportation Systems Management

TP: Transportation Planner

TRB: Transportation Research Board

U

U.C.: Undercrossing

U.S.: United States

U.S. EPA: United States Environmental Protection Agency

USACE: United States Army Corps of Engineers

USC: United States Code

USCG: United States Coast Guard

USDA: United States Department of Agriculture

USDOT: United States Department of Transportation

USFS: United States Forest Service

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

UST: underground storage tanks

V

V/C: Volume/Capacity

VMT: Vehicle Miles of Travel

VOC: volatile organic compounds

W

WDR: Waste Discharge Requirements

WPCP: Water Pollution Control Plan

WSE: Water Surface Elevation

X

Y

Z

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Appendix E. Required Consultation/Concurrence Documentation

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: February 07, 2019
Consultation Code: 08ECAR00-2017-SLI-1171
Event Code: 08ECAR00-2019-E-00997
Project Name: The Northbound State Route 57 (SR-57) Improvement Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2017-SLI-1171

Event Code: 08ECAR00-2019-E-00997

Project Name: The Northbound State Route 57 (SR-57) Improvement Project

Project Type: TRANSPORTATION

Project Description: The Northbound State Route 57 (SR-57) Improvement Project (Project) from Orangewood Avenue to Katella Avenue in the cities of Anaheim and Orange. The total length of the Project is about 1 mile between the Orangewood Avenue and Katella Avenue interchanges (Postmile [PM] 11.5 to 12.5). The Project as proposed improves operational deficiencies and relieves congestion in the northbound direction of SR 57. The improvements include the construction of a small missing section of the fifth general purpose lane in the northbound direction of SR 57.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/33.79864769619013N117.87759760227533W



Counties: Orange, CA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae* Population: 3 CA river basins There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3785	Threatened

Flowering Plants

NAME	STATUS
Ventura Marsh Milk-vetch *Astragalus pycnostachyus var. lanosissimus*	Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1160

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 12
DIVISION OF ENVIRONMENTAL PLANNING
1750 E 4th STREET #100
SANTA ANA, CA 92705
PHONE (657) 328-6000
www.dot.ca.gov

Make Conservation
A California Way of Life

August 23, 2018

Ms. Stacy Blackwood
Director
Orange County Parks
13042 Old Myford Road
Irvine, CA 92692

Dear Ms. Blackwood:

Re: State Route 57 Northbound Improvement Project - Coordination Letter for the Section 4(f) De Minimis Preliminary Determination for the Santa Ana River Trail

The California Department of Transportation (Caltrans) District 12, as the lead agency under the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), in coordination with the Orange County Transportation Authority (OCTA) as the funding agency, proposes to widen the northbound side of the State Route (SR) 57 freeway from 0.3 mile south of the Orangewood Avenue undercrossing (post mile [PM] 11.5) north to the Katella Avenue undercrossing (PM 12.5), about one mile. Caltrans is preparing an Initial Study (IS) with Proposed Mitigated Negative Declaration (MND)/Environmental Assessment (EA).

The Federal Highway Administration (FHWA) assigned, and Caltrans assumed effective July 1, 2007 under the NEPA Pilot Program, all the Secretary of the United States Department of Transportation responsibilities under NEPA for environmental coordination and consultation under federal environmental laws pertaining to the review or approval of projects. Under a Memorandum of Understanding (MOU), effective October 1, 2012, and pursuant to MAP-21, Caltrans has continued to assume FHWA's responsibilities under NEPA and other federal environmental laws for projects on California's State Highway System (SHS) and for federal-aid local streets and roads projects. Caltrans is authorized to be acting as the FHWA with respect to the environmental review, consultation, and other actions required under those responsibilities.

Effective March 30, 2017, FHWA lifted the suspension on NEPA Assignment and authorized Caltrans to resume participation in NEPA Assignment under the 23 USC 326 and 23 USC 327 MOUs. Caltrans' participation in the NEPA Assignment Program was suspended on January 1, 2017 when Section 820.1 of the California Streets and Highways Code was repealed and California's waiver of sovereign immunity expired. The waiver of immunity was reinstated on March 29, 2017, when California Governor Brown signed into law Assembly Bill (AB) 28, which added back Section 820.1 to the Streets

Section 4f Coordination Letter

and Highways Code. Under Section 820.1, California consents to the jurisdiction of federal courts for actions and decisions made by Caltrans under the 23 USC 326 and 23 USC 327 MOUs.

The proposed project will receive federal funding and/or discretionary approvals through the U.S. Department of Transportation (i.e. FHWA); therefore, documentation of compliance with Section 4(f) is required. The purpose of this letter is to provide you with a brief project description, familiarize you with the Section 4f Transportation Act, inform you that Caltrans has made a Preliminary De minimis Determination and share with you the project schedule pertaining to this 4f concurrence process.

Section 4(f) of the federal Department of Transportation Act of 1966 (49 U.S.C. 303) declares that "[i]t is the policy of the United States government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Pursuant to Section 4(f) of the Department of Transportation Act of 1966 (Title 49 USC Section 303) and 23 CFR 774.17, the Santa Ana River Trail (SART) with co-located bicycle path is recognized as a Section 4(f) resource. As the owner and operator of the trail you are receiving this letter as part of Caltrans requirements for coordination and documentation of agreement from the official(s) with jurisdiction over the Section 4(f) resource, regarding the conditions citied in this letter.

De minimis impacts on publicly owned parks are defined as impacts that do not adversely affect the activities, features, and attributes that qualify the property for protection under the requirements of Section 4(f). Accordingly, a Preliminary Section 4(f) De minimis Determination is being proposed. The Resource Evaluation currently under preparation that will be available for review during public circulation of the environmental document (anticipated Fall 2018) identifies the Section 4(f) resources in the Project area, describes the nature and extent of the potential effects on the resources and describes measures to minimize harm to the affected resources.

The following paragraphs discuss the purpose and need and project alternatives being evaluated as part of the Draft Environmental Document.

Purpose

The purpose of the proposed project is to:

- Relieve existing and future northbound SR 57 congestion and improve mobility on the regional transportation system by adding capacity.
- Extend the northbound SR 57 fifth GP lane between Orangewood Avenue and Katella Avenue to establish lane continuity.
- Improve northbound SR 57 freeway operations by eliminating and reducing existing nonstandard design deficiencies and improving weave length between interchanges.

Need

The project is intended to address the following needs:

- SR 57 is currently congested during peak periods, and the future northbound SR 57 mainline between the Orangewood Avenue and Katella Avenue interchanges is forecast to lack sufficient capacity, which will result in poor mobility.

Section 4f Coordination Letter

- The existing northbound SR 57 mainline lacks continuity in the fifth general purpose lane from the Orangewood Avenue northbound on-ramp to 550 feet immediately north of the Katella Avenue northbound off-ramp.
- Several existing nonstandard design deficiencies, including weaving and merging issues, adversely affect freeway operations.

Four alternatives are being evaluated for the proposed Project. These alternatives include the No-Build Alternative (Alternative 1) and three Build Alternatives referred to as Alternatives 2, 2A, and 2B. A brief description of the three build alternatives is provided below:

- **Alternative 2** would widen the Stadium OH Bridge over Douglass Road. Widening the Stadium OH Bridge would improve the weaving length between the westbound Orangewood Avenue on-ramp and the Katella Avenue off-ramp from 1,310 feet to 1,361 feet. The weave length however, would remain nonstandard. Alternative 2 would maintain the westbound Orangewood slip on-ramp to northbound SR 57, but would move the on-ramp east of its current location. The ramp would be reconfigured to a 90-degree angle signalized intersection with Orangewood Avenue. The eastbound Orangewood loop on-ramp to northbound SR 57 would be relocated eastward opposite the newly located slip on-ramp. Both eastbound and westbound traffic that currently access the freeway from the uncontrolled loop- and slip-ramps would be controlled by a new signalized intersection.
- **Alternative 2A** would construct a new northbound Katella Avenue off-ramp bridge instead of widening the existing Stadium OH Bridge. Constructing a new bridge structure would improve the weaving length between the eastbound Orangewood Avenue on-ramp to Katella Avenue off-ramp from 1,310 feet to 2,000 feet meeting current design standard requirements. The new off-ramp bridge would have two lanes transitioning to three lanes at the Katella Avenue intersection and would be longer to increase ramp storage capacity. Like Alternative 2, the eastbound Orangewood loop on-ramp to northbound SR 57 would be relocated eastward opposite the newly located slip on-ramp. Both eastbound and westbound traffic that currently access the freeway from the uncontrolled loop- and slip-ramps would be controlled by a new signalized intersection. Alternative 2A would also remove the westbound Orangewood Avenue slip on-ramp redirecting westbound traffic to a dual left-turn movement onto the eastbound Orangewood loop on-ramp. A third lane would be constructed for the loop on-ramp to accommodate the increased traffic volumes. A fully signalized intersection on Orangewood Avenue would be constructed to control both eastbound and westbound vehicular access to the modified Orangewood Avenue loop on-ramp.
- **Alternative 2B** would widen the Stadium OH Bridge over Douglass Road like Alternative 2. Alternative 2B would also remove the westbound Orangewood Avenue slip on-ramp like Alternative 2A. The weaving length between the eastbound Orangewood Avenue on-ramp to Katella Avenue off-ramp would be increased from 1,310 feet to 2,475 feet exceeding the current design standard requirements. Modifications to the Orangewood Avenue intersection, as well as the eastbound and westbound on-ramps to northbound SR 57 would be the same as those described under Alternative 2A.

Section 4f Coordination Letter

The proposed Project would result in a direct use of the SART and co-located bicycle path through periodic access and temporary closures; however, Caltrans anticipates this use would not diminish the functions of the trail and bike path and would not adversely affect the activities, features, and attributes that qualify the project for protection under the requirements of Section 4(f). Further consultation is necessary to confirm the de minimis impact findings of this direct use under Section 4(f). As discussed earlier, the Draft Environmental Document is currently scheduled for public circulation during Fall 2018 for a 30-day period. The Section 4(f) Resource Evaluation will be included in an Appendix to the Draft Environmental Document for your review and comment. After close of the public review period, Caltrans will respond to any 4(f) concerns and submit a Concurrence Letter to Orange County Parks. As per FHWA and Caltrans guidelines, Caltrans will need Orange County Parks to concur with Caltrans' De minimis Determination prior to finalizing the IS/EA leading to a Mitigated Negative Declaration/Finding of No Significant Impact.

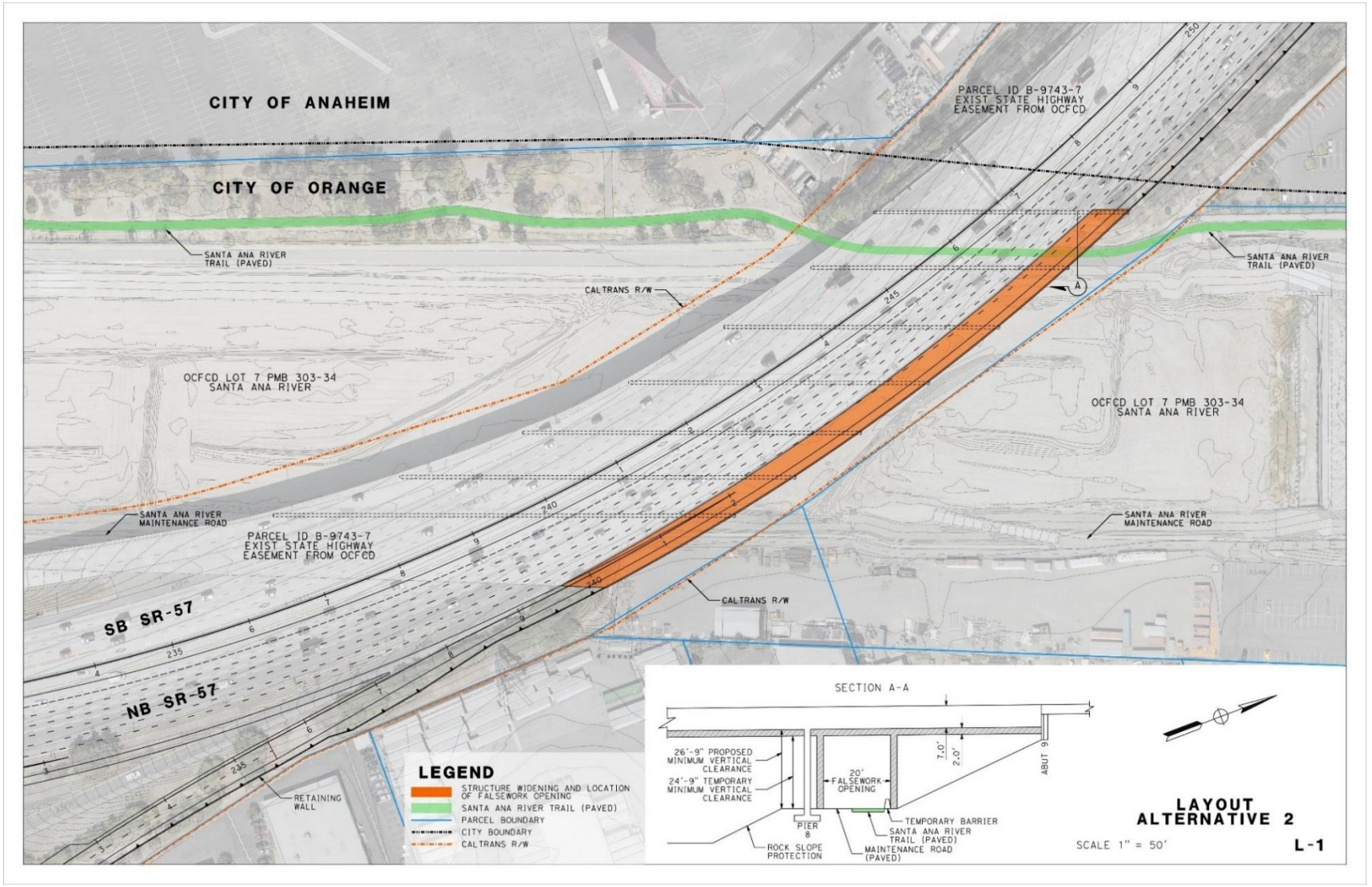
Should you have any questions about the project or Section 4(f) process, please do not hesitate to contact me at (657) 328-6151.

Sincerely,

Smita Deshpande
Caltrans District 12
Division of Environmental Analysis
Chief, Generalist Branch

4 of 4

ATTACHMENT A



SART/Bicycle Path Detour Plan



ORANGE COUNTY
OC Community Resources
Our Community. Our Commitment.

DYLAN WRIGHT
DIRECTOR
OC COMMUNITY RESOURCES

CYMANTHA ATKINSON
DEPUTY DIRECTOR
OC COMMUNITY RESOURCES

JENNIFER HAWKINS, DVM
DIRECTOR
OC ANIMAL CARE

RENEE RAMIREZ
DIRECTOR
OC COMMUNITY SERVICES

JULIA BIDWELL
DIRECTOR
HOUSING & COMMUNITY DEVELOPMENT & HOMELESS PREVENTION

STACY BLACKWOOD
DIRECTOR
OC PARKS

HELEN FRIED
COUNTY LIBRARIAN
OC PUBLIC LIBRARIES

Sent via email to smita.deshpande@dot.ca.gov

February 7, 2019

Smita Deshpande
Branch Chief, Division of Environmental Analysis
Department of Transportation, District 12
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Re: SR-57 Northbound Improvement Project – Concurrence Letter for the Section 4(f) De Minimis Determination Documentation for the Santa Ana River Trail

Dear Ms. Deshpande:

OC Parks is in receipt of Caltrans' letter dated January 15, 2019 requesting OC Parks' approval of a *De Minimis* finding for the above-referenced project.

OC Parks does not object to the requested finding, subject to the following conditions as provided in Caltrans' Response to Comments to OC Parks' letter dated November 8, 2018:

(1) The project's Traffic Management Plan (TMP) requires that the contractor place signs in appropriate locations to notify the public of construction related detours. In addition, the TMP includes a Public Awareness Campaign (PAC) to notify the public of detours. The PAC includes the use of brochures, mailers and press releases to assist in reaching the public and notifying them of closures and detours. The TMP includes development of a community task force that will include key stakeholders that may be impacted by the work zone activities. The community task force will meet on a regular basis to determine project timelines, special events, known public impacts, street and lane closures, detours, and more. The task force will discuss how to best communicate impacts to the public. The most directly affected stakeholders can be identified and sent targeted information during construction on a regular basis through periodic meetings, e-mail, fax notices and social media.

Per the Project's TMP the public will be made aware of potential disruptions to trail access, such as times and frequency of closures. The TMP includes measures to assist the public with their travel plans and options during construction. One of these measures includes the PAC, which uses project brochures and mailers, press

OCparks

13042 OLD MYFORD ROAD
IRVINE, CA 92602
PHONE: 866.OCPARKS
FAX: 714-667-6511

releases and media alerts, a project website, telephone help line, community taskforce, construction team workshop and select stakeholder communication to notify the public of detours and route options. OC Parks requires that in the area of the proposed trail closure(s), detours be signed in accordance with MUTCD practices.

(2) To avoid impacts to the Santa Ana River Trail/Bicycle Path, the project proposes to close the trail/bicycle path afterhours to install (and later dismantle) falsework at the Santa Ana River bridge. The trail would be temporarily closed for a 12-hour period at the beginning of construction and another 12-hour period at the end of construction. No other afterhours operations would be required.

Thank you for the opportunity to comment on this request, and please contact me at 949/585-6446 if you have questions or would like to discuss further.

Best regards,

Eric E. Hull, AICP
Entitlement Manager

cc: James Wooten, Regional Trails
Scott Thomas, Planning & Design

U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration
California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (fax)

February 11, 2019

In Reply Refer To:
HDA-CA

Gerardo De Santos, Acting District Director
California Department of Transportation
District 12
1750 E., 4th St., Suite 100
Santa Ana, CA 92705

Attention: Arman Behtash

Dear Mr. Santos:

SUBJECT: Project Level Conformity Determination for the SR-57 Northbound Improvement Project (FTIP ID ORA131303)

On January 14, 2019, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the SR-57 Northbound Improvement Project The project is in an area that is designated Non-Attainment or Maintenance for Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Ozone and Particulate Matter (PM_{10}, $PM_{2.5}$).

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Southern California Association of Governments' (SCAG) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

As required by 40 CFR 93.116 and 93.123, the localized $PM_{2.5}$ and PM_{10} analyses are included in the documentation. The analyses demonstrate that the project will not create any new violations of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the SR-57 Northbound Improvement Project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn at (916) 498-5346 or by email at Joseph.Vaughn@dot.gov.

Sincerely,

Tashia J. Clemons
Director, Planning and Environment

Air Quality Conformity Documents

Regional Emissions Analysis Conducted for Conforming RTP

The SR57 NB Orangewood to Katella Project was included in the regional emissions analysis conducted by the Southern California Association of Governments (SCAG) for the conforming 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy. The project's design concept and scope have not changed significantly from what was analyzed in the regional emission analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the state implementation plan(s) (SIP(s)) for attaining and maintaining the National Ambient Air Quality Standards (NAAQS) as provided in Section 176(c) of the Clean Air Act. FHWA determined that the RTP conforms to the SIP on June 4, 2012, that Amendment #1 to the RTP conforms to the SIP on July 15, 2013, and that Amendment #2 to the RTP conforms to the SIP on December 15, 2014.

The regional impacts of the proposed project have been found to conform to the MPO's air quality plan. Using Orange County default options, modeled emissions output for Orange County were scaled based on the ratio of project-area VMT to county total VMT for the years 2016 and 2045. The traffic report provided daily VMT for segments of SR 57, and it did not provide any estimated change in speed due to the project (Intueor Consulting, 2017). EMFAC2014 calculations used the default aggregated vehicle speeds for Orange County.

Public and Interagency Consultation Process for TIP

The federal TIP was developed in accordance with SCAG policies for community input and interagency consultation procedures. These procedures ensure that the public has adequate opportunity to be informed of the federal TIP development process and encourages public participation and comment.

In the SCAG region, interagency consultation and public participation are facilitated by the Southern California Transportation Conformity Working Group, which is a collaborative group of federal, state, regional, and local transportation and air quality stakeholders. The group meets on a monthly basis to facilitate an inclusive air quality planning process and to fulfill the interagency consultation requirements of the Federal Transportation Conformity Rule. The group helps resolve regional issues pertaining to transportation conformity and coordinates with and supports the quarterly meetings of the Statewide Transportation Conformity Working Group.

On April 3, 2014, SCAG's Regional Council adopted SCAG's 2014 Public Participation Plan. The adopted plan describes SCAG's responsibilities, goals and strategies for engaging the broadest and most diverse audiences possible and outlines opportunities for SCAG to increase public awareness and diversity in participation, while expanding the range of voices and views in developing regional plans. The public involvement process provides for:

- Early and continuing public involvement opportunities throughout the transportation planning and programming process;
- Timely information about transportation issues and processes to citizens, affected public agencies, representatives of transportation agency employees, private providers of transportation, other interested parties and segments of the community affected by the transportation improvement program's projects;
- Reasonable public access to technical and policy information used in the development of the transportation improvement program;
- Adequate public notice of public involvement activities and time for public review and comment at key decision points including, but not limited to, action on the transportation improvement program;
- A process for demonstrating explicit consideration and response to public input during the transportation improvement program development process;
- A process for seeking out and considering the needs of those traditionally under-served by existing transportation systems, such as low-income and minority households which may face challenges accessing employment and other amenities; and,
- A comment period of at least thirty days and two formal public hearings prior to adoption of the transportation improvement program.

RTP and FTIP Listings

The following pages contain the RTP and FTIP listings for the project.

SCAG
INNOVATING FOR A BETTER TOMORROW

Final 2019 Federal Transportation Improvement Program

Orange County Project Listing
State Highway
(in $000`s)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA100511	Orange	SCAB		2M0733	CAN69	55	6.29	10.32			S	TCM	0
Description:							PTC	327,363			Agency	ORANGE COUNTY TRANS AUTHORITY (OCTA)	

SR-55 WIDENING BETWEEN I-405 AND I-5 - ADD 1 MF AND 1 HOV LANE EACH DIRECTION AND FIX CHOKEPOINTS FROM I-405 TO I-5; ADD 1 AUX LANE EA DIR BTWN SELECT ON/OFF RAMP AND NON-CAPACITY OPERATIONAL IMPROVEMENTS THROUGH PROJECT LIMITS (PS&E and PAED). Toll Credit for RSTP and CMAQ.

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
CMAQ		20,000	3,355	23,355	20,000			3,355				23,355
STP LOCAL - REGIONAL	17,000	63,450		80,450	80,450							80,450
AGENCY			75,000	75,000				75,000				75,000
ORANGE CO. MEASURE M2 - REGIONAL CAPACITY	7,027	14,731		21,758	21,758							21,758
SHOPP - ADVANCE CONSTRUCTION	3,700	27,200	15,900	46,800	30,900			15,900				46,800
STIP ADVANCE CON-RIP			80,000	80,000				80,000				80,000
ORA100511 Total	27,727	125,381	174,255	327,363	153,108			174,255				327,363

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA131301	Orange	SCAB		2121002	PLN40	55	10.4	17.9			S	EXEMPT/MODELED	0
Description:							PTC	227,350			Agency	ORANGE COUNTY TRANS AUTHORITY (OCTA)	

SR-55 (I-5 to SR-91) – Add 1 MF lane each direction and fix chokepoints from I-5 to SR-22; and other operational improvements throughout project limits (Utilize toll credit match for RSTP) (Study Only)

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
STP LOCAL - REGIONAL	5,000			5,000	5,000							5,000
AGENCY	50			50							50	50
ORA131301 Total	5,050			5,050	5,000						50	5,050

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA131303	Orange	SCAB		2M0735A	PLN40	57	11.5	12.5			S	EXEMPT - 93.126	0
Description:							PTC	6,500			Agency	ORANGE COUNTY TRANS AUTHORITY (OCTA)	

SR-57 Orangewood to Katella-Add 1 MF lane northbound between Orangewood and Katella (Utilize toll match for RSTP)ENG Only.

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
STP LOCAL - REGIONAL	2,500			2,500	2,500							2,500
AGENCY	50			50							50	50
ORA131303 Total	2,550			2,550	2,500						50	2,550

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA000820	Orange	SCAB		2TK01116	PLN40	57	21.2	.68			S	EXEMPT/MODELED	0
Description:							PTC	124,600			Agency	CALTRANS	

SR-57 TRUCK CLIMBING AUX LANE FROM LAMBERT TO LA CO. LINE (PE ONLY)(PPNO 3847A)

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
ORANGE CO. MEASURE M2 - REGIONAL CAPACITY	250			250						250		250
STIP ADVANCE CON-RIP	4,050			4,050						4,050		4,050
ORA000820 Total	4,300			4,300						4,300		4,300

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TABLE 1 FTIP Projects - Continued

County	System	FTIP ID	Route #	Description	Project Cost ($1,000's)
ORANGE	STATE HIGHWAY	ORA111801	5	I-5 (ALICIA PARKWAY TO EL TORO ROAD) SEGMENT 3 - THE PROJECT WILL ADD ONE GENERAL PURPOSE LANE ON THE I-5 IN EACH DIRECTION BETWEEN ALICIA PARKWAY AND EL TORO ROAD (APPROXIMATELY 1.7 MILES), EXTEND THE 2ND HOV LANE IN BOTH DIRECTIONS AND ADD AUXILIARY LANES WHERE NEEDED.	$122,642
ORANGE	STATE HIGHWAY	ORA131105	5	I-5 / LOS ALISOS. ADD RAMPS AT LOS ALISOS OR EL TORO (UTILIZE TOLL CREDIT MATCH FOR RSTP) PA&ED.	$57,954
ORANGE	STATE HIGHWAY	ORA130302	5	I-5 (I-405 TO SR-55) - IN THE CITIES OF IRVINE AND TUSTIN. ADD 1 MF LANE NB FROM TRUCK BYPASS ON RAMP TO SR-55, ADD 1 MF LANE SB FROM SR-55 TO ALTON AND 1 AUX LANE FROM ALTON TO TRUCK BYPASS. (PA&ED AND PS&E PHASE) PROJECT WILL UTILIZE $917,600 TOLL CREDIT MATCH	$452,000
ORANGE	STATE HIGHWAY	ORA111210	5	I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION (PPNO 2883A)	$37,058
ORANGE	STATE HIGHWAY	ORA130060	5	INTERSTATE 5 CONTINUOUS ACCESS HIGH OCCUPANCY VEHICLE LANE STRIPING FROM STATE ROUTE 57 INTERCHANGE TO STATE ROUTE 91/BEACH BOULEVARD INTERCHANGE	$4,790
ORANGE	STATE HIGHWAY	ORA150401	5	THREE HOV OVERHEAD SIGNS WITHIN THE MEDIAN OF THE I-5 SOUTH OF AVENDIA PICO IN THE CITY OF SAN CLEMENTE. THESE IMPROVEMENTS ARE SUPPLEMENTS TO THE I-5 HOV WIDENING PROJECT AND PROVIDE NORTHBOUND I-5 TRAFFIC ADVANCE NOTIFICATION OF A HOV LANE THAT IS ADDED TO THE GP LANES. (RELATED TO ORA990929)	$1,250
ORANGE	STATE HIGHWAY	ORA000193	22	HOV CONNECTORS FROM SR-22 TO I-405, BETWEEN SEAL BEACH BLVD. (I-405 PM 022.558) AND VALLEY VIEW ST. (SR-22 PM R000.917), WITH A SECOND HOV LANE IN EACH DIRECTION ON I-405 BETWEEN THE TWO DIRECT CONNECTORS. TOLL CREDIT MATCH FOR CMAQ.	$119,295
ORANGE	STATE HIGHWAY	ORA131301	55	SR-55 (I-5 TO SR-91) – ADD CAPACITY FROM I-5 TO SR-22 AND IMPROVE OPERATIONS FROM I-5 TO SR-91 (UTILIZE TOLL CREDIT MATCH FOR RSTP) (STUDY ONLY)	$148,490
ORANGE	STATE HIGHWAY	ORA015	55	BAKER STREET AND SR-55; N/B & S/B FRONTAGE ROAD IMPROVEMENTS. S/B FREE RIGHT TURN, N/B LEFT-TURN AND 2ND E/B LEFT.	$900
ORANGE	STATE HIGHWAY	ORA016	55	PAULARINO AVE (SR-55 NB FRONTAGE ROAD @ PAULARINO AVE) IN COSTA MESA INTERSECTION IMPROVEMENT. ADDING A N/B RAMP AND W/B RIGHT-TURN-LANE.	$505
ORANGE	STATE HIGHWAY	ORA017	55	PAULARINO AVE IN SR-55 SB FRONTAGE ROAD COSTA MESA. INTERSECTION IMPROVEMENT ADD S/B RIGHT-TURN LANE.	$270
ORANGE	STATE HIGHWAY	ORA100511	55	SR-55 WIDENING BETWEEN I-405 AND I-5 - ADD 1 MF LANE EACH DIRECTION AND FIX CHOKEPOINTS FROM I-405 TO I-5; ADD 1 AUX LANE EA DIR BTWN SELECT ON/OFF RAMP AND NON-CAPACITY OPERATIONAL IMPROVEMENTS THROUGH PROJECT LIMITS (PS&E AND PAED). CONSISTENT WITH THE 2012 RTP. TOLL CREDIT FOR RSTP.	$274,900
ORANGE	STATE HIGHWAY	ORA000146	55	CONSTRUCT NEW INTERCHANGE ON SR 55 @ MEATS AVENUE. CONSTRUCT ON-RAMP/OFF-RAMPS. CONSTRUCTION OF AUXILIARY LANES BETWEEN KATELLA AVENUE AND LINCOLN AVENUE/NOEL RANCH ROAD BOTH NORTHBOUND AND SOUTHBOUND ON SR-55. WIDEN TAFT AVENUE UNDERCROSSING ON NORTHBOUND SIDE OF SR-55. WIDEN MEATS AVENUE FROM PARK LANE TO BRECKENRIDGE STREET. REALIGN 1820' OF THE SR 55 MEDIAN BARRIER. WIDEN SANTIAGO AVENUE AT MEATS AVENUE FOR TURNING LANES	$50,000
ORANGE	STATE HIGHWAY	ORA110302	57	IN PLACENTIA AND FULLERTON, N/B SR-57 FROM 0.4 MI N/O SR-91 TO 0.1 MI N/O LAMBERT RD (5.1 MILES). REPLACEMENT PLANTING AS THE RESULT OF THE SR-57 NORTHBOUND WIDENING. REPLACEMENT PLANTING RELATED TO ORA081901 AND ORA120332	$2,688
ORANGE	STATE HIGHWAY	ORA131303	57	SR-57 ORANGEWOOD TO KATELLA-ADD 1 MF LANE NORTHBOUND BETWEEN ORANGEWOOD AND KATELLA (UTILIZE TOLL MATCH FOR RSTP)ENG ONLY.	$6,500
ORANGE	STATE HIGHWAY	ORA120320	57	SR-57/LAMBERT RD INTERCHANGE IMPROVEMENTS - RECONFIG EXISTING DIAMOND INTERCHANGE TO LOOP RAMP, ADD SB LN ON OFFRAMP (PPNO 3834)	$59,300
ORANGE	STATE HIGHWAY	ORA000820	57	SR-57 TRUCK CLIMBING AUX LANE FROM LAMBERT TO LA CO. LINE PPNO 3847A EA 0C120 (PE ONLY)	$124,600
ORANGE	STATE HIGHWAY	10254	73	SAN JOAQUIN HILLS TRANSPORTATION CORRIDOR (SJHTC – SR 73). 15 MI TOLL RD BETWEEN I-5 IN SAN JUAN CAPISTRANO & RTE 73 IN IRVINE, CONSISTENT WITH SCAG/TCA MOU 4/5/01. EXISTING 3 M/F EA DIR. 1 ADDITIONAL M/F EA DIR, PLUS CLIMBING & AUX LANES BY 2020.	$351,188
ORANGE	STATE HIGHWAY	ORA020808	90	IN ORANGE COUNTY, ON RTE 90 IMPERIAL HIGHWAY, IN THE CITIES OF YORBA LINDA AND ANAHEIM ON ROUTE 90 FROM EAST OF KELLOGG DRIVE UNDERCROSSING TO LA PALMA AVENUE. THE PROJECT IS TO PROVIDE ENHANCEMENT AND MITIGATION PLANTING. PPNO 4434B EA 12-056221	$1,669
ORANGE	STATE HIGHWAY	ORA000822	91	CONNECT EXISTING AUXILIARY LANE THROUGH INTERCHANGES ON WB SR-91 BETWEEN SR-57 AND I-5 WITH ITS ELEMENTS PPNO 4516A EA 0C5700	$65,677
ORANGE	STATE HIGHWAY	ORA130301	91	SR-91 (SR-57 TO SR-55) - ADD 1 MF LANE EASTBOUND; IMPROVE INTERCHANGE AT SR-91/SR-55 AND LAKEVIEW AVE; OPERATIONAL, NO INCREASE IN CAPACITY	$425,000

http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_ProjectList.pdf

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Appendix F. List of Technical Studies

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List of Technical Studies

Air Quality Assessment Report, June 2018

Air Quality Conformity Analysis, March 2018

Community Impact Assessment, August 2018

District Preliminary Geotechnical Report, July 2017

Historic Property Survey Report, May 2018

Initial Site Assessment Report, January 2018

Location Hydraulics Study, December 2017

Natural Environment Study / Jurisdictional Delineation, February 2018

Noise Study Report, January 2018

OCTA M2 Natural Community Conservation Plan/Habitat Conservation Plan Consistency Review, March 2019

Paleontological Identification Report, May 2018

Preliminary Geotechnical Design Report for Earth Retaining Systems, June 2017

Preliminary Materials Report, July 2017

Streamlined Biological Assessment/Certificate of Inclusion, March 2019

Traffic Operations Analysis Report, April 2018

Traffic Study Report, June 2017

Traffic Volumes Report Technical Memorandum, August 2017

Visual Impact Assessment, May 2018

Water Quality Assessment Report, February 2018

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Appendix G. Design Plans

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Appendix G Design Project Plans

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