State Route 133 Operational Improvements

ORANGE COUNTY, CALIFORNIA
DISTRICT 12 – ORA – 133 (PM 8.3/ M9.3)
EA 0N890 / 1214000130

Initial Study with [Proposed] Mitigated Negative Declaration

Prepared by the
State of California, Department of Transportation

January 2020

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General Information About this Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Orange County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives we have 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.

What you should do:

- Please read this document.
- Additional copies of the document, as well as the technical studies we relied on to prepare it, are available for review at the district office and at the public library listed below:
    - OC Library-Heritage Park Regional Branch,

      14361 Yale, Irvine, CA. 92604
    - Department of Transportation, Environmental Analysis,

      1750 E. Fourth Street, Suite 100, Santa Ana, CA 92705
- Project information is available at: **https://www.dot.ca.gov/caltrans-near-me/district-12/district-12-programs/district-12-environmental/sr-133-operational-improvements**
- We'd like to hear what you think. If you have any comments about the proposed project, please send your written comments to Caltrans by the deadline.
    - Send comments via postal mail to:

      Caltrans District 12, Division of Environmental Analysis
      1750 East 4th Street, Suite 100
      Santa Ana, California 92705
      Attn: Bahar Heydari
    - Send comments via email to: **D12.SR133OperationsProject@dot.ca.gov**
- Be sure to send comments by the deadline: February 6h, 2020

What happens next:

After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans District 12, Division of Environmental Analysis, 1750 East 4th Street, Suite 100, Santa Ana, California 92705, Attn: Bahar Heydari; (657) 328-6155 (voice), or use the California Relay Service, 1 (800) 735-2929 (TTY), 1 (800) 735-2922 (voice), or 711.

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SCH#_____
12-ORA-133, PM 8.3 / M9.3
0N890 (EFIS 1214000130)

Construct new auxiliary lane on SB SR-133 from SB I-5 connector to NB I-405 connector to SB I-5 and extend number three lane on SB SR-133 approximately 300 feet south of the San Diego Creek, in the City of Irvine.

INITIAL STUDY WITH [PROPOSED] MITIGATED NEGATIVE DECLARATION

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agency:

California Transportation Commission

Date January 2, 2020

Chris Flynn
Deputy District Director
California Department of Transportation
CEQA Lead Agency

The following person may be contacted for more information about this document:

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SCH #_____

PROPOSED MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to add auxiliary lane on Southbound (SB) State Route 133 from Northbound (NB) Interstate 405 (I-405) Connector to SB Interstate 5 (I-5) Connector.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is Caltrans's intent to adopt an MND for this project. This does not mean that Caltrans's decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

Caltrans has prepared an Initial Study for this project; and pending public review, expects to determine 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 impact** on:

Aesthetics, Agricultural Resources, Mineral Resources, Population/ Housing, Utilities and Service Systems, Land Use/Planning,

In addition, the proposed project would have **less than significant impact** on:

Air Quality, , Hazards and Hazardous Materials, Hydrology and Water Quality, Energy, Noise, Greenhouse Gas Emissions, Transportation, Cultural Resources, Tribal Cultural Resources, Public Services, Recreation and Biological Resources

The Proposed project would have a **less than significant impact with mitigation** on:

Geology/soils because the project will implement avoidance, minimization and mitigation measures as discussed in sections 2.7.1

_____ _____

Chris Flynn
Deputy District Director
District 12
California Department of Transportation

Date

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Chapter 1 – Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes an operational improvements project on State Route 133 (SR-133) from 0.2 miles north of Route 133/405 separation (PM 8.3) to Irvine Center Drive Overcrossing (PM M9.3) in the City of Irvine, in the County of Orange. The project proposes to construct new auxiliary lane on southbound (SB) SR-133 from NB I-405 connector to SB I-5 connector. This new aux lane will become the 2nd lane on NB I-405 Connector. The number 3 lane on SB SR-133 will be extended approximately 300 feet south of San Diego Creek to match existing roadway pavement. Caltrans is the Lead Agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). An Initial Study (IS) with proposed Mitigated Negative Declaration (MND) has been prepared pursuant to CEQA and a Categorical Exclusion will be prepared pursuant to NEPA. Figure 1-1 shows the project location map.

This proposed project is included in the Southern California Association of Governments (SCAG) 2016/2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the 2019 Federal Transportation Improvement Program (FTIP) (RTIP/FTIP ID # ORA001105) listed as Grouped Project for Safety Improvements. (see Appendix E). The FTIP is included by reference in the Certified Federal Statewide Transportation Improvement Program (FSTIP). This project is to be funded from SHOPP under program code 20.10.201.310 Operational Improvements Program, for funding in 2021/2022 fiscal year.

SR-133 is a north-south route located completely within Orange County. It provides access between the south coast of Orange County and the Irvine area. The total length of SR-133 is 13.73 miles. This includes 4.21 miles of the east leg of the Eastern Transportation Corridor which is a tolled facility. SR-133 passes through the cities of Laguna Beach, Irvine, and unincorporated Orange County. While the route lies completely within the urban boundary of Orange County, much of the land surrounding the route is designated as a wilderness preserve, with the exception of the downtown Laguna Beach and Irvine Spectrum areas. SR-133 operates as a conventional highway, an expressway, controlled access freeway, and toll road.

Within the project limits, SR-133 is mainly a four-lane freeway with various widths and unpaved medians. SB SR-133, north of I-5, has two lanes which become four lanes when it joins with the SB I-5 connector. The fourth lane of SB SR-133 ends at the Barranca Parkway on-ramp and the single lane on-ramp from Barranca Parkway merges with the third lane of SB SR-133, eventually exiting at the NB I-405 connector.

A concrete channel runs along the SB SR-133 roadbed, and San Diego Creek crosses under the freeway north of the I-405 connector.

1.1.1 Purpose and Need

Purpose: The purpose of this project is to enhance traffic operations and flow and shorten queue length of vehicles on SR-133 between SB I-5 and NB I-405 connectors by providing a new auxiliary lane and extend the number 3 lane on SB SR-133.

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Figure 1-1 Project Location Map

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Need: This segment of SB SR-133 is operating under severe congestion during morning peak hours. The number three lane of SB SR-133 experiences long traffic queues which back up all the way to the SB I-5 connector and the SB SR-133 mainline (north of the SB I-5 connector), and restrict traffic flow

1.2 Project Description

This section describes the proposed action and the project alternatives that were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts.

This operational improvement project is on State Route 133 (SR-133) from 133/405 Separation (PM 8.3) to Irvine Center Drive Overcrossing (PM M.9.3) in the city of Irvine, Orange County. Project proposes to construct new auxiliary lane on southbound (SB) SR-133 from NB I-405 connector to SB I-5 connector. This new aux lane will become the 2nd lane on NB I-405 Connector. The number 3 lane on SB SR-133 will be extended approximately 300 feet south of San Diego Creek to match existing roadway pavement. There are 2 alternatives, Build and No Build.

This alternative proposes to improve operations of this facility by constructing a new auxiliary lane on SB SR-133 from the SB I-5 connector to the NB I-405 connector. This proposed auxiliary lane will become the second lane on the NB I-405 connector. This alternative also proposes to extend the number three lane on SB SR-133 approximately 300 feet south of San Diego Creek to match the existing roadway pavement. Project work activities improvements include the following:

1. Construct additional asphalt concrete pavement to provide a twelve-foot auxiliary lane from the SB I-5 connector to NB I-405 connector and twelve-foot lane from the gore area to 300 feet south of San Diego Creek.

2. Construct additional asphalt concrete pavement to provide a second twelve-foot lane on the SB SR-133/NB I-405 connector.

3. Realign the Barranca Parkway (Pkwy) loop on-ramp and reconstruct the ramp entrance. Convert High Occupancy Vehicle (HOV) lane to General Purpose (GP) lane, install a connector ramp meter system, reconstruct loop detectors, and modify the Midwest Guardrail system (MGS) along the on-ramp left shoulder if needed.

4. Reconstruct maintenance vehicle pullouts.

5. Construct tie back walls at Barranca Pkwy Overcrossing (OC) and Alton Pkwy OC.

6. Construct approximately 471 feet long retaining wall (retaining wall No.55) from the end of San Diego Creek off-ramp bridge (55-0290F) towards South.

7. Construct approximately 202 feet long retaining wall and (retaining wall No.62) from the beginning of San Diego Creek off-ramp bridge (55-0290F) towards North.

8. Construct approximately 501 feet long retaining wall (retaining wall No. #46) along the off-ramp from SB SR-133 to I-405.

9. Replace approximately 520 ft of the existing Reinforced Concrete Channel (RCC) with a Reinforced Concrete Box (RCB) between Barranca Pkwy and Alton Pkwy.

10. Relocate and modify two existing overhead signs to accommodate pavement widening.

11. Remove and replace light poles along shoulder of SB SR-133 and Barranca Pkwy on-ramp.

12. Install ramp metering system at SB SR-133/NB I-405 connector.

13. Remove and replace signing as needed.

14. Construct approximately 500 feet long of MGS between wall #29 and the tie back wall at Alton Pkwy OC.

15. Remove existing metal beam guard railing and end treatments at the gore area of SB SR-133 and SB SR-133/NB I-405 connector.

16. Construct approximately 1200 square feet of additional bridge pavement, construct bridge rail with 20:1 taper and install REACT 350 to shield the end of bridge railings beyond the gore area of SB 133 and SB 133/NB I-405 connector.

17. Relocate 3 drainage inlets along right shoulder of SB 133 and 2 drainage inlets along right shoulder of SB 133/NB I-405 connector.

18. Refresh all striping and markers.

19. San Diego Creek Left Bridge (55-0290L) will be widened to cover the gore area. Bridge Super-Structure will be constructed to accommodate the new lane configuration.

20. San Diego Creek off-ramp bridge (55-0290F) will be widened by 14.5 feet. New Sub-Structure and Super-Structure will be constructed to accommodate the new lane configuration.

21. Approach and departure slabs, paving notch and joint seals will be added at the left bridge (55-0290L) and the off-ramp bridge (55-0290F).

22. Existing Barriers, Type 25 at the Left Bridge (55-0290L) and the Off-Ramp Bridge (55-0290F) will be replaced with Concrete Barrier Type 836.

23. Rock Slope Protection (RSP) will be replaced 6 feet below the Top of Pile Cap between the Piers/Abutment footings and flush with the footings and adjacent ground. The RSP used should be ½ ton (24 inches in diameter) installed in a pre-excavated 6-foot hole and extend 5 feet from each side of the pier wall and extend 40 feet upstream from the face of the right bridge and 10 feet from the downstream face of the New Widening of the Off-Ramp Bridge (55-0290F).

24. Slurry will be placed underneath the existing piers/abutments pile caps to fill the voids due to erosion prior to the excavation for RSP placement. The approximate area of the existing piers where slurry will be place is 0.15 acres (6540 SQFT).

25. Temporary construction easement (TCEs) are needed for constructing Reinforced Concrete Box (RCB), bridge widening, and rock slope protection.

26. Clearing and grubbing

27. Highway planting

28. Replace damaged landscape irrigation in kind where needed between Irvine Boulevard Over-Crossing to Barranca Parkway on-ramp.

Other Project Elements (Standardized Project Measures)

The Build Alternative contains several standardized project measures that are employed on most, if not all, Caltrans projects. The use of these measures with the Build Alternative is described in more detail in Chapter 2 of this Initial Study as Project Features (PF) are numbered. For example, a Project Feature applicable to water quality would be titled and listed as PF-WQ-1.

Air Quality

- **Caltrans Standard Specifications in Section 14-9 Air Quality**

  PF-AQ-1: The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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 ordinances.

Biology

- **Caltrans Standard Specification 14-6.03B Bird Protection**

  PF-BIO-1 Nesting Bird Season: To avoid impacts to any nesting birds, ground disturbance that occurs during the nesting bird season (February 1 – September 30) will require nesting bird surveys by a Caltrans Biologist within 72 hours prior to the start of work. The Caltrans Biologist will be contacted at least one week ahead of time to schedule a survey

  PF-BIO-2: To avoid the spread of invasive plant species, all vegetation being removed should be disposed of properly. If vegetation is planted on site, the Caltrans Biologist and Landscape Architect will coordinate and approve the proposed vegetation to be planted.

Cultural

- **Caltrans Standard Specification 14-2.03A: Discovery of Cultural Materials.**

  PF-CUL-1: If cultural materials are discovered during construction activities, the construction Contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, coordination will be maintained with the California Department of Transportation District 12 Environmental Branch Chief or the District 12 Native American Coordinator to determine an appropriate course of action

- **Caltrans Standard Specification 14-2.03A: Discovery of Human Remains.**

PF-CUL-2 If human remains are discovered during construction activities, California State Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the Orange County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), who pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

Geology/Soil/Seismicity/Topography

- **Caltrans Standard Specifications 48-2.02. B and Section 19 Earthwork General:**

  PF-GEO-1: The project will comply with the most current Caltrans procedures and design criteria regarding seismic design to mitigate any adverse effects related to seismic ground shaking. Earthwork will be performed in accordance with Caltrans Standard Specifications, Section 19, which require standardized measures related to compacted fill, over-excavation, and re-compaction, among other requirements. Moreover, Caltrans Highway Design Manual (HDM) Topic 113, requires the project engineer to review a Geotechnical Design Report, if any, to ascertain the scope of geotechnical involvement for a project.

Paleontology

- **Caltrans Standard Specification 14-7.03:**

  PF-PAL-1: 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 Materials

- **Caltrans Standard Specification 14-10:**

  PF-HAZ-1: Solid Waste Disposal and Recycling Section 14.10 of CT 2018 SSPs. to reduce GHG emissions and potential climate change impacts.

- **Caltrans Standard Specification 14-11.12:**

  PF-HAZ-2: Should construction activities result in the disturbance of traffic striping and pavement marking materials, the generated wastes would be disposed of at an appropriate permitted disposal facility as determined by a lead specialist

- **Caltrans Standard Specification 13-4.03E(2) and Unknown Hazards Procedures in Caltrans Construction Manual (July 2017):**

  PF-HAZ-3: During construction, the construction contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and

materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 of the Caltrans' Construction Manual

Water Quality and Storm Water Runoff

- **Caltrans Standard Specification 13-1.01D (2)-Regulatory Requirements:**

  PF-WQ-1: The project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS000003 and any subsequent permits in effect at the time of construction.

- **Caltrans Standard Specification 13-3.01D (2)-Regulatory Requirements:**

  PF-WQ-2: The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002 and any subsequent permits in effect at the time of construction.

- **Caltrans Standard Specification 13-3 Storm Water Pollution Prevention Plan:**

  PF-WQ-3: The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of Storm water and include BMPs to control the pollutants, such as: sediment control, catch basin inlet protection, construction materials management, and non-storm water BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual 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

  PF-WQ-4: Design Pollution Prevention BMPs will be implemented such as preservation of existing vegetation, slow/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protect/velocity dissipation devices.

  PF-WQ-5: Caltrans approved treatment BMPs will be implemented consistent with the requirements of NPDES permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-001-DWQ, NPDES No. CA200003 and any subsequent permits in effect at the time of construction.

  PF-WQ-6: Any discharges of groundwater to surface waters during construction will be subject to the General Waste Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/ Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals, and/ or Salts (Order No. R8-2007-0042, NPDES NO. CAG918002) and any subsequent updates to the permit at the time of construction.

Noise

- **Caltrans Standard Specifications Section 14.8-02 Noise Control**

  PF-N-1: During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by 2018 Caltrans Standard Specification Section 14-8.02,"Noise Control," which states the following: Control and monitor noise resulting from work activities. Do not exceed 86 dBA Lmax at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Recreation

PF-REC-1: The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted

Traffic

- **Caltrans Standard Specifications Section 12-4 Maintaining Traffic**

  PF-TRA-1: A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall be provided at all times to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

No Build Alternative

The No Build alternative retains the existing roadway condition. This Alternative will not address congestion during morning peak hours within the project limits. This is not the preferred alternative.

Table 1-1 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Agency	PLAC	Status
Santa Ana Regional Water Quality Control Board (RWQCB)	Clean Water Act Section 401 Water Quality Certification	Coordination with the agency will occur during PS&E
U.S. Army Corps of Engineers (USACOE)	Clean Water Act Section 404 Nationwide Permit	Coordination with the agency will occur during PS&E
California Department of Fish and Wildlife (CDFW)	CA. Fish and Game Code Section 1602 Incidental Take*	Coordination with the agency will occur during PS&E
City of Irvine	Section 4(f) De Minimis Concurrence	Will obtain prior to approval of CE

Chapter 2 – CEQA Checklist

The environmental factors checked below would be potentially affected by this project. Please see the checklist beginning on page 3 for additional information.

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Energy
☒	Geology/Soils	☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation	☐	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	☒	Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature:		**Date:**	1/2/20
Printed Name:	Charles Baker	**For:**	

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a 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, not NEPA, impacts. 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 standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below.

2.1 Aesthetics

Except as provided in Public Resources Code Section 21099, 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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

2.1.1 Discussion of Environmental Evaluation Questions

a) **No Impact.** The project will not have a significant adverse effect on scenic vistas because there are no scenic vistas within the project limits.

b) **No Impact.** The proposed project will not substantially damage scenic resources because there are minimal scenic resources within the project limits and no work is anticipated that would cause substantial damage to these resources.

c) **No Impact.** The proposed project will not substantially degrade the existing visual character or quality of public views of the state and its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. This is because the project area is flat and lacks substantial visual character and quality views.

d) **No Impact.** The proposed project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area because there will be minimal changes to the existing landscape and driving views within the project limits.

2.1.2 Avoidance, Minimization and/or Mitigation:

None Required

2.2 Agriculture and Forest 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?	☐	☐	☐	☒

2.2.1 Discussion of Environmental Evaluation Questions

a) **No Impact.** According to the Department of Conservation California Important Farmland Finder database, there is no Prime Farmland, Unique Farmland, or

Farmland of Statewide Importance within the project area. It is classified as Urban and Built-Up Land.

b) **No Impact.** The project area does not conflict with existing zoning for agricultural use, or a Williamson Act Contract. Per the City of Irvine General Plan Land Use Element, the project area's surrounding land is designated as Business/Industrial.

c) **No Impact.** There is no land within the project area zoned as forest land or timberland.

d) **No Impact.** See response to c)

e) **No Impact:** The project would not involve other changes in the existing environment resulting in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

2.2.2 Avoidance, Minimization, and/or Mitigation Measures

None Required

2.3 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) 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?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

2.3.1 Discussion of Environmental Evaluation Questions

a) **Less Than Significant Impact.** The project limits are located in the South Coast Air Basin and is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The SCAQMD is the primary agency responsible for writing the Air Quality Management Plan (AQMP) in cooperation with the Southern California Association of Governments (SCAG), local governments, and the private sector. The AQMP provides the blueprint for meeting State and Federal ambient air quality standards. The Build Alternative would improve vehicular traffic operations on these segments of the SB SR-133. The Build Alternative is included in SCAG's 2016–2040 Regional Transportation Plan (RTP) and the 2019 Federal Transportation Improvement

Program (FTIP), both of which were found to be conforming (see section 3.2.3 and 3.4.1, Air Quality). Therefore, the Build Alternative would not conflict with the AQMP, violate any air quality standard, result in a net increase of any criteria pollutant, or expose sensitive receptors to substantial pollutant concentrations.

b) **Less than Significant Impact.** The Build Alternative would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Co_2e in the Build Year 2044 (2,891 MT/Year) is less than in the Existing Year 2018 (2,905 MT/Year) and in No Build Year 2044 (2,998 MT/Year) (See Table 3.1.4). Thus, impacts for the Build Alternative would be less than significant (Caltrans, 2019); Interim Guidance: Determining CEQA Significance for Greenhouse Gas Emissions for Projects on the State Highway system). No mitigation is required.

c) **Less than Significant Impact.** The Build Alternative would not expose sensitive receptors to substantial pollutant concentrations. Any impacts associated with the Build Alternative would be less than significant. No mitigation is required.

d) **Less than Significant Impact.** Temporary construction activities including clearing, cut-and-fill activities, grading, and paving could generate fugitive dust from soil disturbance and other emissions from the operation of construction equipment. The Build Alternative would comply with construction standards adopted by the South Coast Air Quality Management District (SCAQMD) as well as Caltrans standardized procedures for minimizing air pollutants during construction. See Section 3.1.3.4. of this report for a list of standardized Project Features (PF-AQ-1) that would avoid and/or minimize air quality impacts resulting from construction activities. Objectionable odors are not currently present within the project limits and construction activities, including the use of diesel equipment, would be temporary in nature and are not anticipated to emit significant odors. Similarly, impacts from the Build Alternative would be less than significant with the Project Features listed above. No mitigation is required.

2.3.2 Avoidance, Minimization and/or Mitigation Measures:

PF-AQ-1 The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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 ordinances.

2.4 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 Wildlife or U.S. Fish and Wildlife Service, or NOAA Fisheries?	☐	☐	☐	☒
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 Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (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?	☐	☐	☒	☐

2.4.1 CEQA Significance Determinations for Biological Resources

The potential for the Build Alternative to result in adverse impacts to biological resources was assessed in the *Natural Environment Study* (NES) (December 2019) in this Initial Study. The following discussions are based on these analyses.

a) **No impact.** A total of 15 special status plant species were considered for their potential to occur within the BSA. Due to the lack of suitable habitats within the BSA and none observed within the BSA, the project is not anticipated to impact special status plant species. 26 special status wildlife species listed as Species of Special Concern under the California Department of Fish and Wildlife are considered to occur within the BSA. Due to the lack of suitable habitat and modifications to San Diego Creek, most of the species aren't expected to inhabit the BSA. Based on literature reviews 19 Federal and State plant and wildlife species are expected to

occur within the BSA. None of the species are expected to occur within the BSA due to the lack of suitable habitat in the BSA. The project will result in no direct and indirect impacts to listed plant or wildlife species. Caltrans is making a no effect determination for all federally listed species obtained for this project. Therefore, no section 7 consultations or coordination with the California Department of Fish and Wildlife under the Endangered Species Act (ESA) or California Endangered Species Act (CESA) are required for this project. No impacts are anticipated, and no mitigation is required.

b) **Less Than Significant Impact.** The Biological Study Area (BSA) is located within a developed area surrounded by buildings and ornamental vegetation. San Diego Creek is the only natural community considered sensitive by the CDFW, US Army Corps of Engineers and Regional Water Quality Control Board. The project will result in 0.096 acres of permanent and 1.67 acres of temporary impacts to non-wetland Waters of the US and unvegetated streambed. The project may require a Letter of Permission (LOP) from the US Army Corps of Engineers. A Streambed Alteration Agreement from the California Department of Fish and Wildlife and a Section 401 certification from the Regional Water Quality Board are also required for this project.

c) **No Impact.** The project will not impact federally protected wetlands as no federally protected wetland found within the BSA. Based on the results of the jurisdictional delineation report prepared for this project, San Diego Creek is the only drain that is subject to USACE under Section 404 of the CWA. This creek is a naturally occurring drainage feature that conveys ephemeral flows from adjacent drains and natural flood water during rain fall. The creek is also a flood control channel and is mainly maintained by the County of Orange throughout the watershed. To protect bridge structures and improve the flow within the creek, the creek within the watershed has been altered from the original condition. As a result, the creek within the BSA was altered from its natural condition due to the installation of Rock Slope Protection (RSP), check dam, concrete line embankments on both sides of the channel, and routine sediment removal activities. Portion of San Diego Creek within this BSA support no riparian vegetation. However, the creek within the BSA is subject to Corps jurisdiction as non-wetland WO US and CDFW as an unvegetated streambed. The project will result in no impacts to federally protected wetlands. No mitigation is required.

d) **Less Than Significant Impact.** Although the project is located within a developed area, wildlife movement is expected to occur within the BSA. Existing drainages, mainly San Diego Creek, provide habitat for wildlife corridors for large and small animals. During construction period, implementation of the project is expected to result in temporary impacts to wildlife movement or decrease the functionality of the wildlife crossing within the creek during day light. The project will result in no permanent impacts to wildlife movement and no project specific mitigation required.

Caltrans is required by Senate Bill (SB) 857 to assess and remediate barriers to fish passage at stream crossings along the State Highway System that currently or historically supported anadromous fish. Literature reviews and a reconnaissance-level fish passage assessment were conducted for this project. A fish passage assessment was done within San Diego Creek, the only natural creek found within the BSA. Due to extensive modification and the lack of historic evidence of

anadromous fish passages within the creek, this project isn't expected to affect fish passage within the BSA

e) **Less Than Significant Impact.** Native and non-native plants are scattered throughout the BSA. Several migratory and game birds were observed during the field survey. Mud swallow nests were observed under the SR-133 bridge over San Diego Creek. Suitable nesting habitat for Cooper's hawks observed within the BSA. The project will require vegetation clearing and trimming during the construction period. Furthermore, the San Diego Creek bridge will be widened to accommodate the additional auxiliary lane. The project may impact nesting birds and their nests during nesting season. With the implementation of avoidance and minimization measures, the project will avoid and minimize impacts to nesting birds/raptors and their nests.

A bat habitat assessment was conducted for this project. No sign of bats was observed within the BSA. Due to the presence of suitable habitat within the BSA, one year prior to construction, bat assessment survey will be conducted to determine the presence of bats within the bridge. Based on the finding of the future assessment, additional appropriate measures will be included during the project design phase.

f) **Less Than Significant Impact.** The project is located within a Special Area Management Plan (SAMP) area designated by the US Army Corps of Engineers. The US Army Corps of Engineer has an alternative permitting process to facilitate reasonable economic development and infrastructure while also providing for aquatic resource protection. Therefore, the project is subject to the abbreviated alterative permitting process associated with the SAMP. The project is located within a Special Area Management Plan (SAMP) area designated by the US Army Corps of Engineers. Therefore, permits will be required. Obtainment and implementation of the permits would result in less than significant impacts and no mitigation is required.

2.4.2 Avoidance, Minimization and/or Mitigation Measures:

No mitigation is required, however the following project features and minimization/avoidance measures will be implemented

- **PF-BIO-1 Caltrans Standard Specification 14-6.03B Bird Protection. Nesting Bird Season:** To avoid impacts to any nesting birds, ground disturbance and vegetation removal that occurs during the nesting bird season (February 1 – September 30) will require nesting bird surveys by The Caltrans Biologist; the Caltrans biologist will be contacted at least one week prior to any construction activities to schedule a survey. If nesting birds are found, the biologist will create a buffer zone and Environmentally Sensitive Area (ESA) fence will be placed around the buffer zone. No construction work shall occur within the buffer zone until the nest is no longer active and all young birds have fledged.
- **PF-BIO-2 Comply with Executive Order Number 13112: Invasive Species.** Vegetation species known to be invasive in the state of California will not be installed (e.g. Mexican fan palm, pampas grass, tree of heaven, etc.). An invasive plant species list can be found at the California Invasive Plant Inventory Council (Cal-IPC) website http://www.cal-ipc.org/paf/. The Landscape Architect will coordinate with the Caltrans Biologist to ensure an appropriate plant palette is created for this project. -During construction, the contractor shall inspect and clean construction equipment at the

beginning of each day and prior to transporting equipment into the creek. During construction, soil and vegetation disturbance will be minimized to the greater extent feasible. Contractor shall use weed-free straw and fiber rolls to use for erosion control During construction, the contractor shall ensure that all material stockpiled within the creek is sufficiently watered and covered to prevent growth of invasive plants. During construction, gravel and rock will be obtained from weed free source.

- **BIO-1** Prior to any construction, highly visible barriers (ESA fence) will be installed around the project disturbance limits to designate Environmentally Sensitive Areas within San Diego creek. The ESA fence shall be installed under the direction of a qualified Biologist. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas.
- **BIO-2** Prior to the beginning of construction adjacent to the ESAs, a qualified biologist will survey areas adjacent to the ESA boundaries to flush any wildlife species present prior to construction and ensure all avoidance measures are properly implemented
- **BIO-3** A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented to comply with the National Pollutant Discharge Elimination System (NPDES) Statewide Construction General Permit (CGP). The SWPPP will identify and implement temporary Best Management Practices (BMPs) during construction to address the temporary impacts to water quality.
- **BIO-4** Equipment including but not limited to excavators, motor vehicles and trucks shall not be allowed to operate in the ESAs. No equipment and material storage will be allowed within or adjacent to ESAs. All equipment maintenance, staging dispensing of fuel oil or any other such activities shall occur in developed or designated non-sensitive areas. This area shall be reviewed and approved by the District Biologist. Upon completion of construction, the ESA fence shall be removed.
- **BIO-5** In the event that suitable trees for Cooper's hawk nests are required to be removed during nesting season, a qualified biologist will conduct pre-construction nesting bird surveys. If nesting Cooper's hawk are found, the biologist will create a buffer zone and an ESA fence will be placed around the buffer zone. No construction work shall occur within the buffer zone until the nest is no longer active and all young birds fledged.
- **BIO-6** Although suitable roosting habitats are present within the BSA and no evidence of bats was observed this year, it is possible that the hinges within the San Diego Creek bridge or palm trees may be used at other times of the year or during the construction period. Therefore, one year prior to the beginning of construction, a bat assessment survey and day/nighttime emergence surveys will be conducted during maternity season. The survey includes a combination of suitable habitat assessment, exit counting, and acoustic surveys. If maternity roosting bats are found, additional avoidance and minimization measures will be included at the time of the survey.
- **BIO-7** A bat survey will be conducted two weeks prior to beginning of construction work within San Diego creek bridges. If the bridges are determined to be occupied outside maternity roosting period, bat exclusion devise (one-way doors) will be installed. A qualified bat biologist will monitor the installation and exclusion of bats during construction period. If maternity roost is present, no work under the bridge will occur during maternity season (April-August) and exclusion devise will be installed after September 1 or after all young leave the structure.

- **BIO-8** Appropriate permits from the US Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board will be obtained prior to construction.

2.5 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 pursuant to in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

2.5.1 CEQA Significance Determination for Cultural Resources

The potential for the Build Alternative to result in significant impacts related to cultural resources was assessed in the Historic Property Survey Report (HPSR; January 2020).

a) **Less Than Significant impact.** CEQA defines a "historical resource" as a resource that meets one or more of the following criteria: (1) listed in, or determined eligible for listing in, the California Register of Historical Places (California Register); (2) listed in a local register of historical resources as defined in the California Public Resources Code (PRC) §5020.1(k); (3) identified as significant in a historical resource survey meeting the requirements of PRC §5024.1(g); or (4) determined to be a historical resource by a project's Lead Agency (PRC §21084.1 and State CEQA Guidelines §15064.5(a)). A record search of the Area of Potential Effects (APE) and a 1-mile radius around the APE was conducted on July 24, 2019, at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Fullerton. On July 26, 2019, an archaeological field survey was conducted. No cultural resources have been previously recorded in the APE. No cultural resources were identified during the field survey. As such, no known historical resources exist in the APE. The proposed project would not cause a substantial change in the significance of a historical resource as defined in §15064.5. No mitigation is required.

b) **Less Than Significant Impact.** Based on the results of background research and the archaeological field survey, no archaeological resources are within the APE. No cultural resources were identified as a result of the HPSR preparation, and the field survey showed that the area in the APE exhibited high levels of disturbance from previous road and drainage construction, from shoulder and slope maintenance, and from recent grading. While 31 cultural resources have been recorded within 1.0 mile of the APE, no cultural resources have been previously recorded within the APE. Previously recorded resources include prehistoric (17), historic (13), and combination prehistoric/historic (1). Many of prehistoric sites in the record search area are located on knolls and areas of higher elevation. Some of these knolls have been graded and

levelled as a result of construction, resulting in destruction of the knolls and the sites atop them. This is true of the prehistoric archaeological site closest to the APE (CA-ORA-391). The APE is located at a lower elevation than the knoll recorded as containing CA-ORA-391, and previous excavation to a depth of 3 ft at the site resulted in the recovery of no artifacts. Given that the original location of site CA-ORA-391 was atop a knoll that has been since levelled and that trenching monitored by an archaeologist in 1984 on the eastern side of the knoll containing the site produced no subsurface artifacts, CA-ORA-391 is considered to no longer exist.

As such, although excavation for retaining walls will extend approximately 3 ft deep into native soil near San Diego Creek, it is unlikely that archaeological resources will be encountered during project construction activities.

While not anticipated, if cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area would be diverted until a qualified archaeologist can assess the nature of the find. **Project Feature PF-CUL-1** addresses the possibility of discovery of cultural materials during construction.

PF-CUL-1 **Discovery of Cultural Materials.** If cultural materials are discovered during site preparation, grading, or excavation, the construction Contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, coordination will be maintained with the California Department of Transportation (Caltrans) District 12 Environmental Branch Chief or the District 12 Native American Coordinator to determine an appropriate course of action. If the discovery of cultural materials occurs outside the Caltrans right-of-way, then coordination with the appropriate local agency will be conducted as well.

c) **Less Than Significant Impact.** No human remains or burial sites were identified during the field survey. A search of the Sacred Lands File by the Native American Heritage Commission failed to indicate the presence of Native American cultural resources (including burials) in the project site. According to the record search results, no human burials have been previously recorded within 1.0 mile of the project site.

While not anticipated, if human remains are discovered during construction, all earthmoving activity within and around the immediate discovery area would be diverted until the Orange County Coroner can assess the nature of the find. **Project Feature PF-CUL-2** addresses the possibility of discovery of human remains during construction.

PF-CUL-2 **Discovery of Human Remains.** If human remains are discovered during site preparation, grading, or excavation, California State Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the Orange County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission

(NAHC), who pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

2.5.2 Avoidance, Minimization and/or Mitigation Measures:

None required, the following project features will be implemented; PF-CUL-1 and PF-CUL-2.

2.6 Energy

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

2.6.1 Discussion of Environmental Evaluation Questions

a) **Less Than Significant Impact.** The construction of the proposed project will primarily consume diesel and gasoline through operation of heavy-duty construction equipment, material deliveries, and debris hauling. Energy use associated with proposed project construction is estimated to increase the short-term energy demand through related construction activities. This short-term energy demand would cease once the construction of the project is complete. Regarding long-term and permanent energy consumption, operational activities would primarily require energy for transportation fuel, electricity for lighting and maintenance activities; the dominant energy use being consumption of transportation fuel. However, this project will improve traffic flow by reducing congestion and operational deficiencies in this segment of the SR-133 corridor, thereby reducing idling and improving the flow the traffic. Therefore, the project will not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation. The impact would be less than significant and no mitigation is required.

b) **No impact.** The project would be consistent with regional and State energy conservation plans. The Southern California Association of Governments' (SCAG) 2016/2035 Regional Transportation Plan / Sustainable Communities Strategy[1], or Plan, includes information about efforts to encourage energy efficiency and

[1] 2016/2030 RTP/SCS, Southern California Association of Governments. Accessed July 15, 2019. Website http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf

renewable energy use. Regional plans for renewable energy and energy efficiency would not be impacted from the construction and operation of the project. Energy efficient building development is not applicable to this project and renewable energy policies are encouraged for all Caltrans projects where applicable and feasible. The result of this project will not conflict with or obstruct regional plans for renewable energy or energy efficiency. The project would be consistent with regional and State energy conservation plans. Planning documents with relevant energy assessments include the 2016–2040 RTP/SCS published by SCAG and the 2018 IERP (CEC 2018). The 2016–2040 RTP/SCS includes a comprehensive assessment of regional energy consumption primarily focused on residential and commercial electricity, natural gas, and water use. The 2016–2040 RTP/SCS Draft EIR (Sapphos 2015b) includes a brief analysis of transportation fuel consumption. SCAG concluded in the Draft EIR that the 2016-2040 RTP/SCS would have a less than significant impact on increasing petroleum and non-renewable fuel usage because fuel consumption is expected to result in a 26.7 percent net reduction in the SCAG region from the 9.3 billion gallons consumed in 2012 to the projected 6.8 billion gallons consumed in 2040. Transportation fuel use would be less in the project opening and design years than existing/baseline condition. Furthermore, transportation fuel use in 2035 would be less with the project than without the project. A slight increase would occur in 2055 due to increased VMT, although the additional transportation fuel use would represent less than 1 percent increase in fuel use from the No Build Alternative. The project would be consistent with the energy findings in the 2016-2040 RTP/SCS and would not interfere with implementation of the 2016-2040 RTP/SCS. The 2018 IERP includes key goals to guide the State's energy policy, including reducing petroleum use in cars and trucks by up to 50 percent. The discussion related to this goal broadly focuses on increasing the number of zero- or near-zero emission vehicles operating on the roadway network. It is also noteworthy that improving driving conditions reduces petroleum use. concluding that AM and PM peak-period vehicle delays would decrease by 19 percent and 6 percent, respectively, in 2035. The AM and PM peak-period vehicle delays would decrease by 14 percent and 4 percent, respectively, in 2055. The congestion improvement would reduce vehicle idling and associated fuel consumption. This would be consistent with the goal of reducing petroleum use in cars and trucks by up to 50 percent, and the project would not interfere with implementation of the 2018 IERP. Accordingly, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. No impact and no mitigation is required.

2.6.2 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required.

2.7 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause 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?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The potential for the Build Alternative to result in adverse impacts related to paleontological resources was assessed in the Paleontological Identification Report/Paleontological Evaluation Report (PIR/PER, September 2019) and the Supplemental PIR/PER memorandum (January 2020).

2.7.1 Discussion of Environmental Evaluation Questions

a) i) **No Impact.** The project site is not located within an Alquist-Prilo Earthquake Fault Zone (EFZ) as defined by the California Geologic Survey, nor is it within 1000 feet of an un-zoned fault that is Holocene (11,000 years) or younger in age and have surface rupture potential. Therefore, there is no risk of surface fault rupture hazard for this project. No mitigation is required.

a) ii) **No Impact.** The location of the project site is an area that could experience moderate seismic ground shakings from possible earthquakes. The Peak Ground Acceleration (PGA) for this site is about 0.6 to 0.7g. However, the project would not cause strong seismic ground shaking and all structures would be designed with special design considerations for seismic features. Therefore, there is no impact and no mitigation is required.

a) iii) **Less Than Significant Impact.** Due to the location of the project site, there could be moderate seismic ground shakings from possible earthquakes. The construction of the project would be implemented with consideration of seismic influences to minimize any effects of liquefaction in the event of seismic activity in the project area. Therefore, the impacts would be less than significant, and no mitigation is required.

a) iv) **No Impact.** The project is not located in an area with high steep slopes that would be potentially vulnerable to deep-seated landslides. No mitigation is required.

b) **Less Than Significant Impact.** Within the San Diego Creek area under the bridge, scouring issues have been observed and reported. During Design, remedial treatments will be recommended by Structure Hydraulics for the existing scour. Slopes will be designed according to Caltrans Requirements for erosion control.

c) **No Impact.** The potential for landslides, lateral spreading, collapse and subsidence is minimal at the project site, as well as potential for liquefaction. Foundations will be designed with special considerations.

d) **Less Than Significant Impact.** Geotechnical investigatory boring results have shown that much of the project site has non-expansive soil. Any effects of expansive soil would be minimized or eliminated by incorporation of appropriate foundation types and subsurface soil preparations. For pavements, measures such as pre-wetting, moisture control with proper surface and subsurface drainage facilities will be implemented.

e) **No Impact.** There are no soils incapable of supporting the use of septic tanks or alternative waste water disposal systems within the project limits. No mitigation is required.

f) **Less Than Significant Impact with Mitigation Incorporated.** Geologic mapping indicates that the project area contains Young Alluvial Fan Deposits and the Vaqueros Formation. Artificial Fill is also likely present from the surface to varying depths throughout much of the project area where it was placed during the construction of SR-133. The Young Alluvial Fan Deposits have low sensitivity for paleontological resources from the surface to a depth of 10 ft and high sensitivity below that mark. The Vaqueros Formation has high paleontological sensitivity. Artificial Fill has no paleontological sensitivity.

Construction of the Build Alternative would not result in temporary impacts to paleontological resources because any impacts to those types of resources during construction would be considered permanent. Excavation depths for the various components of the Build Alternative range from 2 inches for replacement of the loop detectors at Barranca Parkway on-ramp to 30-50 ft for driving 18-inch diameter piles to support the new San Diego Creek on-ramp bridge. The pile caps for these supports would be 8 ft in diameter and extend to a depth of 3 ft. Excavation for replacing and installing sign structures would extend to a depth

of 25 ft. Replacing light poles would require excavation to a depth of 5 ft. Constructing additional asphalt/concrete pavement and bridge pavement would extend to depths of 3-5 ft. Realigning/reconstructing the Barranca Parkway loop on-ramp and ramp entrance, as well as maintenance vehicle pullouts, would extend to a depth of 3.10 ft. Excavation for tieback walls at Barranca Parkway OC and Alton Parkway OC would reach a depth of 3.5 ft, and excavation for the retaining walls would reach 5.5 ft. Excavation to a depth of 6 ft would be required for installing the ramp metering system and the Rock Slope Protection/Partially Grouted Rock Slope Protection. Installation of the Midwest Guardrail System and replacement of barriers would involve excavation to a depth of 7 ft. Relocating drainage inlets would extend to 10 ft. Clearing and grubbing would extend to less than 1 ft, while planting and landscaping would extend to 1.5 ft.

Some of these excavation activities would occur in deposits that are sensitive for paleontological resources. As such, excavation for some of these construction activities may have the potential to significantly impact paleontological resources. However, with implementation of Measure PAL-1, which would require the preparation and implementation of a Paleontological Mitigation Plan (PMP), potentially significant impacts to paleontological resources would be reduced to a less than significant level.

2.7.2 Mitigation Measures

With the incorporation of **PAL-1**, impacts to paleontological resources will be reduced to less than significant

PAL-1 A Paleontological Mitigation Plan (PMP) shall be prepared during the Plans, Specifications, and Estimates (PS&E) phase. The PMP shall be developed concurrently with the final design plans and shall follow the Caltrans guidelines in the *SER, Environmental Handbook, Volume 1, Chapter 8 – Paleontology* (Caltrans, 2017), as well as guidelines from the Society of Vertebrate Paleontology (SVP). Following these guidelines, the PMP shall include sections describing project activities, the geologic units within the project area and their paleontological sensitivities, the work plan for mitigating project impacts to paleontological resources, estimates of monitoring schedules and costs, decision thresholds for monitoring levels and fossil collections, a recommended repository for recovered fossils, any necessary permits, and the appropriate documentation at the end of the monitoring program. Once the PMP has been prepared, the paleontological resource protocols and procedures within it shall be incorporated into the project plans, specifications, and estimates.

2.8 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?	☐	☐	☒	☐

b) Conflict with an applicable plan, policy or regulation adopted for reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 codified the 2020 GHG emissions reduction goals as outlined in State Executive Order 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.

CEQA Guidelines Section 15064.4 states that when assessing the significance of impacts from Greenhouse Gas (GHG) emissions on the environment, the lead agency should consider, among other factors, the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting. While comparing future build to future no-build conditions may be useful in determining significant and in establishing the extent of project-level measures to reduce GHG emissions from the project, CEQA and the CEQA Guidelines remain in focused on the comparison of future conditions with the project compared to existing conditions.

2.8.1 Discussion of Environmental Evaluation Questions

a) **Less Than Significant Impact.** The purpose of the project is to improve traffic flow and reduce the heavy congestion that occurs in this segment of SR-133. This will improve the existing and future regional mobility and traffic flow on SB Route 133 and the connectors. Reduction in delays and congestions will help to reduce GHG emissions by decreasing amount of idling. By improving traffic flow, the project will help reduce the level of operational emissions and less traffic idling equals less GHG emissions produced. Travel Demand Management (TDM) and Transportation System Management (TSM) strategies are designed to influence an individual's travel behavior by reducing the demand for signal occupant vehicle travel, especially during peak commute periods. The project scope includes TSM/TDM elements including ramp metering on Barranca Parkway loop on-ramp which would provide air quality improvements by helping to reduce emissions from transportation sources.

   CO_2 emissions were calculated for the Base Year (2018), Opening Year (2024), and Design Year (2044). The results of the modeling were used to calculate the CO_2e emissions listed in Table 3.2. This table shows that the Build Alternative would result in a net decrease in CO_2e emissions in the opening year 2024 and in the design year 2044, compared to the base year 2018. The Build Alternative in both opening and design years would result in lower CO2e emissions in the region when compared to the No Build Alternative, even as VMT increases over time due to anticipated growth (Table 3.2). Improved operations and smoother traffic flow, along with use of cleaner fuels and cleaner vehicle technology in the future, contribute to reducing the GHG emissions in the future years compared to the Existing Year 2018.

Table 3.2: Modeled Annual CO_2e Emissions and Vehicle Miles Traveled, by Alternative

Alternative	CO_2e Emissions (metric tons/year)	Annual Vehicle Miles Traveled[a]
Existing/Baseline 2018	2,905	7,647,880
Open to Traffic 2024		
No Build	2,703	8,487,620
Build Alternative 1	2,644	8,487,620
20-Year Horizon/Design-Year 2044		
No Build	2,998	12,179,700
Build Alternative 1	2,891	12,179,700

Source: CT-EMFAC (2017), OCTAM 4.0 (2012 base year network and 2040 MPAH network)
CO_2 = carbon dioxide
CO_2e = carbon dioxide, nitrous oxide, and methane.
[an] Annual vehicle miles traveled (VMT) values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008: I-19).

The Build Alternative shows decrease in long-term regional vehicle GHG emissions compared to the Existing Condition. The Build Alternative in both opening and design years would result in decrease in CO2 emissions in the region when compared to the No Build Alternative in each year. VMT would be the same under the No Build Alternative and Build Alternative. Operation with this project in this area would not increase the CO2e. Therefore, impacts to generating GHG emissions both directly and indirectly to the environment would be less than significant. No mitigation is required.

b) **No Impact.** The project limits are within the South Coast Air Basin, within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The project is included in Southern California Association of Governments (SCAG) 2016-2040 Regional Transportation Plan (RTP) and the 2019 Federal Transportation Improvement Program (FTIP), both of which are conforming to State and Federal ambient air quality standards provided in the Air Quality Management Plan (AQMP). Therefore, the project would not conflict with the AQMP or violate any air quality standards and have no impacts. No mitigation is required.

2.8.2 Avoidance, Minimization and/or Mitigation Measures:

No mitigation is required however the following project feature will be implemented to reduce GHG emissions and potential climate change impacts

PF-AQ-1 The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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 ordinances.

2.9 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 or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

2.9.1 Discussion of Environmental Evaluation Questions

a) **Less Than Significant Impact.** Although the project will require transportation and/or disposal of hazardous materials, the Contractor will be required to comply with Caltrans Standards and Special Provisions for Hazardous Waste Management. An Aerially Deposited Lead Investigation (ADL) will be conducted at areas of excavation during which soil samples of unpaved areas next to the traffic lanes or shoulders will be collected, tested and analyzed for lead contamination. If lead contamination is found, appropriate Caltrans Standard Specifications will be implemented and followed with by Contractor accordingly. Additionally, investigations for pavement marking material removal, treated wood disposal and possible asbestos will be conducted and addressed prior to construction. The removal of yellow traffic striping and pavement marking material will be removed during construction in accordance with Caltrans Construction Manual. The impacts will be less than significant, and no mitigation required.

b) **Less Than Significant Impact.** The project would not 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. The Contractor will comply with the requirements for unanticipated asbestos and hazardous substances discovery. Impacts will be less than significant, and no mitigation is required.

c) **No Impact.** Although the project is within a quarter mile of the Western State University College of Law, Cal State Fullerton Irvine Center, Webster University, and Brentwood University, any hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste will be temporary in nature and last only for duration of construction of the project. The contractor will comply with the Caltrans Construction Manual and Caltrans standards for Hazardous Waste and Contamination which includes discovery of unanticipated asbestos and hazardous substances, dust control, stockpiling, contractor generated hazardous waste, storage of hazardous waste, the transport and disposal of hazardous waste. There are no impacts and no mitigation required.

d) **No Impact.** The project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the project would not create any significant hazard to the public or environment. There are no impacts and no mitigation required.

e) **No Impact.** The project is not located within an airport land use plan or, where such a plan has not within two miles of a public airport or public use airport. The project would not result in a safety hazard or excessive noise for people residing or working in the project area. No impacts are anticipated, and no mitigation is required.

f) **No Impact.** The project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Safety Plans. Access for Emergency Response must always be maintained throughout construction of the project, and a Traffic Management Plan (TMP) will be prepared and implemented to keep traffic moving efficiently through the project area. No impacts are anticipated to occur, and no mitigation is required.

g) **No Impact.** The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires. The project will comply with Caltrans standards for Fire Protection. No impacts are anticipated, and no mitigation is required.

2.9.2 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is required. However, the following project features will be implemented:

PF-TRA-1 A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall always be provided to

adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

PF-HAZ-1 Solid Waste Disposal and Recycling Section 14.10 of CT 2018 SSPs. to reduce GHG emissions and potential climate change impacts

PF-HAZ-2 Should construction activities result in the disturbance of traffic striping and pavement marking materials, the generated wastes would be disposed of at an appropriate permitted disposal facility as determined by a lead specialist

PF-HAZ-3 During construction, the construction contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 of the Caltrans' Construction Manual

2.10 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 or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
(iii) 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; or	☐	☐	☒	☐

(iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

2.10.1 Discussion of Environmental Evaluation Questions

The proposed project is located within the Santa Ana Regional Water Quality Control Board in Orange County, discharges to San Diego Creek (Reach 2). A Water Quality Technical Memo was completed on December 20th, 2019

a) **Less Than Significant Impact.**

Construction. The project proposes to improve operations of the facility by constructing a new auxiliary lane on SB route 133 from the SB I-5 connector to the NB I-405 connector with an anticipated Disturbed Soil Area (DSA) of 6.0 acres.

Potential temporary impacts to water quality anticipated during construction include possible sediment transport caused by disturbed soil areas created by construction activities such as clearing, grubbing and excavation and grading to construct the auxiliary lanes, retaining walls and bridge construction. The project can also have temporary water quality impacts from concrete demolition waste, trash from workers and construction waste, petroleum products from construction equipment and/or vehicles, sanitary wastes from portable toilets and any other chemicals used for construction such as coolants used for equipment and/or concrete curing compounds. The construction for the bridge widening will require construction equipment to access San Diego Creek and extend the bridge foundations to accommodate the widening of the bridge. The bridge construction may require stream diversions to allow construction when flows are present in the creek. In addition, if the construction of pier foundations for the bridge construction encounter groundwater, discharges will be subject to the RWQCB Waste Discharge Requirements for groundwater discharges to surface waters.

With the anticipated DSA for the project to be over 1.0 acres, the project will be required to comply with the NPDES Construction General Permit (CGP) issued by the State Water Resources Control Board (SWRCB). To comply with the CGP, the project will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and determine a Risk Level based on potential erosion and transport to receiving waters. The SWPPP will identify temporary Best Management Practices (BMPs) to address the potential temporary impacts to water quality. The BMPs identified in the project SWPPP will include measures such as temporary soil stabilization measures, linear sediment barriers (i.e. silt fence, gravel bag berms, fiber rolls), and construction site waste management (i.e. concrete washout, construction materials storage, litter/ waste management/ stream diversions). In addition, with the project working in San Diego Creek, a 401 Water Quality Certification (401 Certification) from the Santa Ana Regional Water Quality Control Board will be required prior to construction. Any discharges of groundwater to

surface waters during construction will be subject to the General *Waste Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/ Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals, and/ or Salts. (Order No. R8-2007-0042, NPDES No. CAG918002)* and any subsequent updates to the permit at the time of construction.

Operation. The proposed project will construct an auxiliary lane on SB route 133 from the SB I-5 connector to the NB I-405 connector. This proposed auxiliary lane will become the second lane on the NB I-405 connector. The construction will include grading, construction of retaining walls, modifying the drainage system, and widening the roadway to construct the auxiliary lane. The increase of new impervious surface is approximately 2.54 acres that is comprised of a new impervious surface of 1.0 acres and 1.54 acres of replaced impervious surface. With the construction of an auxiliary lane, there is the possibility that the pollutants typically generated during the operation of a transportation facility will increase with the operating traffic traveling on a new lane. These pollutants may include sediment/ turbidity, nutrients, trash and debris, bacteria and viruses, oxygen demanding substances, organic compounds, oil and grease, pesticides and metals. Per the Caltrans NPDES permit, post-construction storm water treatment control requirements are required for projects that create 1.0 acre or more of new impervious surface. With the new impervious surface estimated to be 2.54 acres, this project is required to implement Caltrans approved post construction treatment controls. In addition to treating the roadway runoff, the project will stabilize with permanent vegetation all DSA's created by the minor grading and/ or excavation.

With the implementation of the Caltrans NPDES Permit, the General NPDES Permit for Construction Activities, a Storm Water Pollution Prevention Plan (SWPPP) and temporary and permanent BMPs, the project will not substantially degrade water quality (PF-WQ1, PF-WQ-2, PF-WQ-3, PF-WQ-4, PF-WQ-5, PF-WQ-6).

b) **Less than Significant Impact.** The project will not 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. Minor groundwater extraction that may be needed during construction from construction of bridge foundations. Any discharges of groundwater to surface waters will be subject to the local RWQCB dewatering permit. (PF-WQ-6).

c) **Less than Significant Impact.** The project will not substantially alter the drainage pattern of the site or area but there may be a temporary alteration of a stream or river or stream diversion to allow for the construction of bridge pier foundations and placement of scour protection (Rock Slope Protection).

(i) Less than Significant Impact. Potential temporary impacts to water quality anticipated during construction for the Build Alternative include possible sediment transport caused by disturbed soil areas created by construction activities such as excavation and trenching, soil compaction, cut and fill activities, grading, demolition, and bridge construction. Any erosion and siltation that can occur during construction will be from Disturbed Soil Areas (DSA) created by the project's excavation/grading. The potential erosion/siltation will be addressed by the installation and

implementation of temporary Best Management Practices (BMPs) identified in the project's Storm Water Pollution Prevention Plan (SWPPP) (PF-WQ-3). Post construction erosion/siltation is addressed by the installation of permanent soil stabilization BMPs (PF-WQ-4).

(ii) Less than Significant Impact. The project proposes to increase the impervious surface 2.54 acres. The project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

(iii) Less than Significant Impact. The proposed project will not exceed the capacity of the existing or planned storm water drainage systems. As indicated previously, the project may contribute additional sources of pollutants during construction. Potential temporary impacts to water quality that can be anticipated during construction include sediments from grading and excavation operations, trash from workers and construction waste, petroleum products from construction equipment and/or vehicles, concrete waste, sanitary wastes from portable toilets and any other chemicals used for construction such as coolants used for equipment and/or concrete curing compounds.

The project may contribute additional sources of pollutants upon completion of construction. Pollutants typically generated during the operation of a transportation facility include sediment/ turbidity, nutrients, trash and debris, bacteria and viruses, oxygen demanding substances, organic compounds, oil and grease, pesticides and metals. The project will incorporate Design Pollution Prevention (source control) BMPs and post construction treatment BMPs as required by the Caltrans NPDES permit to ensure that adequate measures are included to minimize any potential long-term impacts.

With the implementation of a SWPPP and selected temporary BMPs during construction (PF-WQ-3) as well as evaluating and implementing post construction BMP strategies (PF-WQ-4 and WQ-PF-5), the project will not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff.

(iv) No Impact: The project will not impede or redirect flood flows.

d) **No Impact.** The project is not in a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation

e) **No Impact.** The project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The project will comply with the Statewide Construction General Permit for temporary impacts to water quality (PF-WQ-2) and the Caltrans Statewide NPDES Storm Water Permit (PF-WQ-1)

2.10.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project features will be implemented as part of the project.

PF-WQ-1 The project will comply with the provisions of the National *Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for*

the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No.CAS00003 and the and any subsequent permits in effect at the time of construction an construction.

PF-WQ-2 The project will comply with the provisions of the NPDES *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)* Order No.2009-0009-DWQ, NPDES No. CAS000002 and the and any subsequent permits in effect at the time of construction.

PF-WQ-3 The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management and non-storm water BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* 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.

PF-WQ-4 Design Pollution Prevention Best Management Practices (BMPs) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protection/ velocity dissipation devices.

PF-WQ-5 Caltrans approved treatment Best Management Practices (BMPs) will be implemented consistent with the requirements of *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS00003* and any subsequent permits in effect at the time of construction.

PF-WQ-6 Any discharges of groundwater to surface waters during construction will be subject to the General Waste Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/ Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals, and/ or Salts (Order No. R8-2007-0042, NPDES NO. CAG918002) and any subsequent updates to the permit at the time of construction.

2.11 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) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for avoiding or mitigating an environmental effect?	☐	☐	☐	☒

2.11.1 Discussion of Environmental Evaluation Questions

a) **No Impact.** The project limits are within existing freeway with interchanges/ramps, retaining walls, noise barriers (i.e. berms), and other structural features. Existing land uses around the project study area include a mix of commercial and services, industrial, urban and built out, vacant spaces and mixed commercial and industrial uses. Construction of the Build Alternative would require a Temporary Construction Easements (TCEs) and Because the temporary easement, and detours will be provided for any temporary impacts to access of the San Diego Creek Trail on existing public right of way., the temporary use of such land for construction activities would not adversely affect community character, divide existing land uses or existing communities, or create barriers between existing communities. No mitigation is required.

b) **No Impact.** The project does not conflict with any land use plan, policy, or regulation adopted for the purposes of avoiding or mitigating an environmental effect, nor will the project cause any significant environmental impact pertaining to any land use plan, policy or regulation. No mitigation is required.

2.11.2 Avoidance, Minimization, and/or Mitigation Measures

No mitigation required; however, the following project feature will be implemented as part of the project.

PF-REC-1 The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted

PF-TRA-1 A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall always be provided to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not

interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

2.12 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?	☐	☐	☐	☒

The potential for the Build Alternative to result in adverse impacts related to mineral resources was assessed based on information from the Orange County General Plan (2005)

2.12.1 Discussion of Environmental Evaluation Questions

a) and b) No Impact. The Resources Element of the Orange County General Plan[1] identified significant construction aggregate resources are available in undisclosed portions of San Juan Creek, Trabuco Canyon, and the Santa Ana River. A review of the Surface Mining and Reclamation Act of 1975 maps[2] indicates that there are no aggregate production areas in the project study area. In addition, Figure VI-3 in the Resources Element of the Orange County General Plan does not display any mineral resource areas near the project limits. Therefore, there will be no impact to mineral resources from the Build Alternative. No mitigation required.

2.12.2 Avoidance, Minimization, and/or Mitigation Measures

None Required:

1 County of Orange General Plan. 2013. Chapter VI. Resources Element. Website: https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=40235 (accessed January 25, 2019).

2 California Geological Survey. 2012. Aggregate Sustainability in California. Website: http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS_52_2012.pdf (accessed July 12, 2019).

2.13 Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels near the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or 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?	☐	☐	☐	☒

2.13.1 Discussion of Environmental Evaluation Questions

This discussion is based on the Noise Study Report (September 2019) and the Noise Abatement Decision Report (September 2019**)**

a) **Less Than Significant Impact.** Based on the NSR, the project will generate temporary and permanent increase in ambient noise levels in excess of standards established in Caltrans Traffic Analysis Protocol (Protocol) but are considered less than significant. Certain receptors (42 of 59 in total evaluated) with human-frequent use areas within the project limits currently experiences traffic noise impacts during the freeway's noisiest traffic hour and with the future-build project will continue to be exposed to traffic noise levels approaching or exceeding Caltrans' noise abatement criteria (NAC). These receptors composed of outside sitting areas of offices and apartment balconies are predicted to experience an increase in noise levels ranging from 0.2 dBA to 1.0 dBA after the project is built. In the Protocol, a substantial noise increase is considered to occur when the project's worst-hour design-year noise level exceeds the existing worst-hour level by 12 dBA or more. Since the increase in noise levels at the impacted receptors are below 12 dBA, the proposed project will not result to a substantial increase in traffic noise in the area. In addition, short-term construction-related noise impacts would occur during the construction of the build alternative. However, construction noise will be controlled by Caltrans' standard specifications section 14-8.02 and therefore temporary noise impacts are also considered less than significant.

b) **Less Than Significant Impact.** Construction activities such as pile driving, and the use of vibratory rollers are anticipated to generate the most groundborne vibrations. The closest sensitive receptors (Westview apartments) that may be affected by pile driving activities are approximately 370 feet away. Based on Caltrans Transportation and Construction Vibration Guidance manual, the predicted vibration amplitude (peak particle velocity – PPV) of 0.03 in/sec will be experienced by the building and its occupants. This predicted vibration amplitude is way below 0.5 in/sec which is the suggested appropriate damage potential threshold for new residential structures

when the source is continuous (from Table 19 of the guidance manual). This indicates low potential for structural damage to the building. With respect to human perception and annoyance from pile driving activities, the same predicted vibration amplitude of 0.03 in/sec would be categorized in Table 20 of the manual as barely to distinctly perceptible annoyance levels and would indicate that the activity will result to low level of annoyance to building occupants. Vibration amplitude produced by vibratory rollers near sensitive receivers at 103 feet away also resulted with similar PPV and would have low potential for structural damage to buildings and low level of annoyance to building occupants. Groundborne vibration from vehicles driving on the project facilities would not result in any measurable changes in vibration levels compared to existing conditions. Therefore, ground-borne vibration and groundborne noise generated by the project and its construction would be less than significant. No mitigation measures are required.

c) **No Impact.** The project is located within the vicinity of a private airstrip. The airstrip, Marine Corps Air Station El Toro, has been decommissioned since 1999. No other airport or airport land use plan is located within 2 miles from the proposed project. Therefore, implementation of the project would not expose people residing or working in the project area to excessive noise levels. No impact and no mitigation measures are required.

2.13.2 Avoidance, Minimization and/or Mitigation

None required; however, the following project feature will be implemented as part of the project

PF-N-1 During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by 2018 Caltrans Standard Specification Section 14-8.02,“Noise Control,” which states the following: Control and monitor noise resulting from work activities. Do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m. No mitigation required.

2.14 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 unplanned 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 people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

2.14.1 Discussion of Environmental Evaluation Questions

a) and b) No Impact. The proposed project is not a capacity increasing project; rather it proposes to improve the operation of the highway facility. The project proposes to construct a new auxiliary lane to address the severe congesting during peak hours. The project will not induce substantial unplanned population growth directly by proposing new homes or businesses nor indirectly through extension of roads or infrastructure. The new auxiliary lane on SB SR-133 from SB I-5 connector to the NB I-405 connector will connect to existing highway facilities and will not increase the capacity of highway facilities. The proposed project will require three (3) Temporary Construction Easements (TCEs) from three (3) different Grantors:from the City of Irvine (21,520 square feet for Accessor Parcel No. 466-102-02), The Irvine Company (2,762 square feet Accessor Parcel No. 585-051-04 and Toyota Motor Sales USA (8445 square feet Accessor Parcel No 466-101-13) However, the TCEs will be temporary in nature and will not displace or relocate numbers of people or houses necessitating the construction of replacement housing elsewhere. Therefore, there will be no impacts to populations and housing. No mitigation required.

2.14.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project feature will be implemented as part of the project.

PF-REC 1 The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted.

2.15 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
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

2.15.1 Discussion of Environmental Evaluation Questions

a) i) **Fire Protection—Less than significant impact.** The proposed project will not permanently impact acceptable service ratios, response times or other performance objectives for fire protection. Due to the nature of construction activities certain lanes of the highway facility may be temporarily closed for construction. Thus, fire protection services may be temporarily impacted. However, a Transportation Management Plan (TMP) will be prepared to minimize construction activity-related delays by the effective application of traditional traffic handling practices. As part of the TMP, Caltrans District 12 Orange County office would coordinate with emergency response providers to ensure the project does not interfere with emergency response times. Therefore, no mitigation is required.

ii) **Police Protection—Less than significant impact.** The proposed project will not permanently impact acceptable service ratios, response times or other performance objectives for police protection. Due to the nature of construction activities certain lanes of the highway facility may be temporarily losed for construction. Thus, fire protection services may be temporarily impacted. However, a Transportation Management Plan (TMP) will be prepared to minimize construction activity-related delays by the effective application of traditional traffic handling practices. As part of the TMP, Caltrans District 12 Orange County office would coordinate with emergency response providers to ensure the project does not interfere with emergency response times. Therefore, no mitigation is required.

iii) **Schools—No Impact.** There are no schools in the project area. Therefore, no schools will be impacted. No mitigation is required.

iv) **Parks—No impact.** There are no parks in the project area. Therefore, no parks will be impacted. No mitigation is required.

v) **Other Public Facilities—No impact.** There are no other public facilities in the project. Therefore, no parks will be impacted. No mitigation is required.

2.15.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project feature will be implemented:

PF-TRA-1 A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall be provided at all times to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

2.16 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?	☐	☐	☐	☒

2.16.1 Discussion of Environmental Evaluation Questions

a) **Less than significant impact.** The Build alternative will require three (3) Temporary Construction Easements (TCEs) from three (3) different Grantors from the City of Irvine (21,520 square feet for Accessor Parcel No. 466-102-02), The Irvine Company (2,762 square feet Accessor Parcel No. 585-051-04 and Toyota Motor Sales USA (8445 square feet Accessor Parcel No 466-101-13) to access to the San Diego Creek Trail. Therefore, this temporarily limits the public's access to the trails during construction at the project location. This temporary restriction will not increase the use of existing neighborhood and regional parks but may temporarily increase use on nearby bicycle facilities by means of bicycle detours. However, the temporary use of other bicycle facilities for detours will not cause substantial physical deterioration of the facility to occur or be accelerated. Once the project is completed, the San Diego Creek Trail will re-open with no changes to the recreational facility. Implementation of **PF-REC-1** will minimize impacts (if any) to the San Diego Creek Bike Trail facility. Therefore, no mitigation is required.

b) **No Impact**. The Build alternative does not include the construction or expansion of recreational facilities.

2.16.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project feature will be implemented

PF-REC-1 The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted.

2.17 Transportation/Traffic

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? NOTE: While public agencies may immediately apply Section 15064.3 of the updated Guidelines, statewide application is not required until July 1, 2020. In addition, uniform statewide guidance for Caltrans projects is still under development. The PDT may determine the appropriate metric to use to analyze traffic impacts pursuant to section 15064.3(b). Projects for which an NOP will be issued any time after December 28th, 2018 should consider including an analysis of VMT/induced demand if the project has the potential to increase VMT (see page 20 of OPR's updated SB 743 Technical Advisory), particularly if the project will be approved after July 2020.	☐	☐	☐	☒
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

2.17.1 Discussion of Environmental Evaluation Question

a) **Less than Significant Impact.** The project complies with Objective B-1 of the City of Irvine's General Plan Circulation element: Plan, provide and maintain an integrated vehicular circulation system to accommodate projected local and regional needs. The project is included in the 2019 Federal Transportation Improvement Plan and the District 12 District System Management Plan.

A section of the San Diego Creek Bikeway/Trail will be temporarily closed during construction, however, a detour around the construction area will be provided allowing the public to continue to use the facility.

b) **No Impact.** The intent of the project is to improve the operations the facility. The improvements are not considered capacity increasing. The project will have no impact on Vehicle Miles Travelled (VMT).

c) **No Impact.** The addition of an auxiliary lane will not introduce any new or substantial hazards due to geometric design features or incompatible uses. All components of

the project will meet Caltrans design standards. Therefore, no impact and no mitigation is required.

d) **Less than Significant Impact.** The project will not result in inadequate emergency access. Transportation Management Plan (TMP) will be prepared and implemented so that traffic (e.g. emergency vehicles) will be able to pass through the project area during construction, at all times.

2.17.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project feature will be implemented to minimize potential impacts:

PF-TRA-1 A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall be provided at all times to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

2.18 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.	☐	☐	☐	☒

2.18.1 CEQA Significance Determinations for Tribal Cultural Resources

The potential for the Build Alternative to result in significant impacts related to tribal cultural resources was assessed as part of Native American consultation conducted during preparation of the Historic Property Survey Report (HPSR; January 2020).

a) **No impact.** A record search of the Area of Potential Effects (APE) and a 1-mile radius around the APE was conducted on July 24, 2019, at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Fullerton. On July 26, 2019, an archaeological field survey was conducted. No cultural resources have been previously recorded in the APE. No cultural resources were identified during the field survey. As such, there are no cultural resources or tribal cultural resources within the APE that are listed or eligible for listing in the California Register or in a local register that will be impacted by the project. No mitigation is required.

b) **No Impact.** Native American consultation per Assembly Bill 52 was conducted for this project. . The Native American Heritage Commission (NAHC) was contacted on July 1, 2019, with a follow-up on July 18, 2019, to conduct a Sacred Lands File (SLF) search and provide a Native American Tribal Consultation List for the Project site. The NAHC responded on July 19, 2019, stating that an SLF search was completed for the APE with negative results. The NAHC also recommended that 17 Native American individuals representing the Cahuilla, Gabrielino, Juaneño, Cupeño, and Luiseño groups be contacted for information regarding cultural resources that could be affected by the proposed project.

The following Native American tribes, groups, and individuals were contacted via letter sent on August 1, 2019:

- Agua Caliente Band of Cahuilla Indians, Jeff Grubbe, Chairperson
- Gabrieleno Band of Mission Indians – Kizh Nation, Andrew Salas, Chairperson
- Gabrieleno/Tongva San Gabriel Band of Mission Indians, Anthony Morales, Chairperson
- Gabrielino/Tongva Nation, Sandonne Goad, Chairperson
- Gabrielino Tongva Indians of California Tribal Council, Robert Dorame, Chairperson
- Gabrielino-Tongva Tribe, Charles Alvarez
- Juaneño Band of Mission Indians, Sonia Johnston, Chairperson
- Juaneño Band of Mission Indians Acjachemen Nation, Matias Belardes, Chairperson
- Juaneño Band of Mission Indians Acjachemen Nation – Romero, Teresa Romero, Chairperson
- La Jolla Band of Luiseño Indians, Fred Nelson, Chairperson
- Pala Band of Mission Indians, Robert Smith, Chairperson
- Pauma Band of Luiseño Indians, Temet Aguilar, Chairperson
- Pechanga Band of Luiseño Indians, Mark Macarro, Chairperson
- Rincon Band of Luiseño Indians, Jim McPherson, Tribal Historic Preservation Officer
- Rincon Band of Luiseño Indians, Bo Mazzetti, Chairperson
- San Luis Rey Band of Mission Indians, San Luis Rey Tribal Council
- Soboba Band of Luiseño Indians, Scott Cozart, Chairperson

Three responses were received as a result of the initial project notification letters. These responses were from the Gabrieleno Band of Mission Indians – Kizh Nation, the Rincon Band of Luiseño Indians, and the Agua Caliente Band of Cahuilla Indians. The Gabrieleno Band of Mission Indians – Kizh Nation requested consultation on August 12, 2019, but did not respond to follow-up communications from the California Department of Transportation (Caltrans) attempting to set up consultation appointments and/or meetings.

On August 14, 2019, a letter response was received from the Rincon Band of Luiseño Indians. The letter stated that the project is not within Luiseño Aboriginal Territory and the tribe recommends locating a tribe within the project area.

On August 26, 2019, an email response was received from the Agua Caliente Band of Cahuilla Indians. The email stated that the project is not located within the Tribe's Traditional Use Area and they defer to other tribes in the area.

Two responses were received as a result of follow-up communications. On September 4, 2019, the Pala Band of Mission Indians responded via email and stated that the project is outside the boundaries of Pala's Traditional Use Area and they defer to closer Tribes. The tribe also stated that the project is near known archaeological sites and recommended that Native American monitoring be considered as a requirement for the project.

On September 5, 2019, the Juaneño Band of Mission Indians Acjachemen Nation, replied via email and stated that the only area of the project the tribe was concerned with is the creek area, and requested to be kept updated on the project. On September 9, 2019, Caltrans replied via email with a message that included an image depicting the project area and a project vicinity map, and described work within the creek area. Caltrans then asked if the tribe needed any additional information. No further communication has been received from the tribe.

No additional responses were received as a result of the initial letter or follow-up communications.

The Sacred Lands File failed to identify any sacred lands or tribal resources in or near the APE, and no sacred lands or tribal cultural resources were identified as a result of the Native American consultation process. As such, there will be no impact to tribal cultural resources as a result of the project. No mitigation is required.

2.19 Utilities and Service Systems

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) (originally (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?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) (originally (g)) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

2.19.1 Discussion of Environmental Evaluation Questions

a) **No Impact.** The project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. There is no impact and no mitigation required.

b) **No Impact.** The project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. No mitigation is required.

c) **No Impact.** The project would not 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. No mitigation is required.

d) **No Impact.** The project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. No mitigation is required.

e) **No Impact.** The project construction crew would be responsible for controlling and disposing of solid waste in accordance with federal, state and local statutes and regulations. No mitigation is required.

2.19.2 Avoidance, Minimization, and/or Mitigation Measures

None required.

2.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

2.20.1 Discussion of Environmental Evaluation Questions

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the "CEQA Checklist" for the inclusion of questions related to fire hazard impacts for projects located on lands classified as very high fire hazard severity zones. The project occurs in a highly flammable area due to large quantities of combustible vegetation, poor access to fire hazard areas, and lack of water supply for fire protection in fire hazard areas. The City of Irvine has a contract with the Orange County Fire Authority for fire-fighting services within the City.

a) **No Impact.** Although the City of Irvine is at risk for wildfires, the project limits are not part/rated as a high fire severity rating and open space with fire potential area (Figure J-2 of the City of Irvine General Plan). The project is adjacent to a Conditional Exclusion Developed Area per the General Plan. This area of the city is more urbanized; high hazard areas are predominantly in the hilly portions of the City with volatile chaparral as the fuel source. Access through the project area will be maintained at all times during construction. Emergency response Plans or Emergency evacuation plans will not be impeded. Access through the project area will be maintained at all times during construction. Emergency response Plans or Emergency evacuation plans will not be impeded. Therefore, no impacts are anticipated, and no mitigation is required.

b) **No Impact.** Although the City of Irvine is at risk for wildfires, the project limits are not part/rated as a high fire severity rating and open space with fire potential area (Figure J-2 of the City of Irvine General Plan). The project is adjacent to a Conditional Exclusion Developed Area per the General Plan. This area of the city is more urbanized; high hazard areas are predominantly in the hilly portions of the City with volatile chaparral as the fuel source. Depending on what season the project

goes into construction, there is an increased risk in the prevailing Santa Ana winds which create hot and dry conditions in the winter and have the potential to help exacerbate the risk for wildfire. Therefore, there is a potential that in the event of a wildfire, project occupants could be exposed to pollutant concentrations of wildfire and/or be exposed to the spread of wildfire. However, this area is relatively flat compared with the rest of the city; the project location lacks suitable habitat for most vegetation as the area is sparse in any vegetation that could increase chances of fire spreading.

c) **Less Than Significant Impact.** Although the project will require the installation of additional roadway and bridge pavement; this will increase the width of the road as a firebreak, reduce vegetation adjacent to the roadside, and provide additional areas for emergency response vehicle staging. Any damaged irrigation will be replaced in kind where necessary and where there is vegetation removal and replacement, replacement planting will be native grasses and drought tolerant plants. Therefore, impacts will be less than significant, and no mitigation is required.

d) **No Impact.** The project will not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. No impacts are anticipated, no mitigation is required.

2.20.2 Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following project features **PF-BIO-2** and **PF-WQ-1 through PF-WQ-6** will be implemented.

2.21 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?	☐	☐	☐	☒

2.21.1 Discussion of Environmental Evaluation Questions

The California Environmental Quality Act (CEQA) requires the analysis of a project's mandatory findings of significance. The analysis of the mandatory findings of significance of the project is based on the findings of the project's impacts on all the required issue areas.

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

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

California Environmental Quality Act (CEQA) Guidelines, Section 15130, describes when a cumulative impact analysis is warranted 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) **Less Than Significant with Mitigation.** Although the project is located within the natural community (San Diego Creek) considered sensitive by CDFW, USACOE and RWQCB, the creek does not support riparian or sensitive habitat identified in local or regional plans, policies or regulations by CDFW and USFWS due to past alterations of the creek to support bridge structures. Due to lack of suitable habitat within the BSA, the project is not anticipated to impact special status plant species. Due to the extensive modifications of the bridge in the past, and the lack of historic evidence of anadromous fish passages within the creek, the project is not anticipated to affect fish passage within the biological study area. No bats were observed during the bat habitat assessment, however one year prior to construction, bat assessment surveys will be conducted to determine the presence of bats within the bridge and additional appropriate measures will be included during Design. Impacts to wildlife and wildlife movement are temporary in nature and with implementation of PF-BIO-1 and 2, plus BIO-1 through BIO-8 avoidance and or minimization measures, the impacts to wildlife will be less than significant. The project does have the potential to impact geologic units that high paleontological sensitivity (e.g. the Young Alluvial Fan Deposits below a depth of 10 ft and the Vaqueros Formation). This would result in scientifically significant, non-renewable paleontological resources. However, with the

implementation of **Mitigation Measure PAL-1** all potential degradation impacts to paleontological resources will be reduced to the level of less than significant impact.

b) **Less Than Significant Impact.** Although the project may have impacts that are individually limited, these impacts will not be cumulatively considerable, and impacts will be less than significant. There are currently no capacity increasing or operational improvement projects currently in construction in this portion SR-133. There are a few scattered bridge maintenance projects near or around the project location and vicinity. However, these project work activities are for maintenance purposes minimal in scale, impact and duration of construction would be temporary and short in nature; thus having a less than significant impact relative to projects of the past, present in future in the project area.

c) **No Impact.** This project will not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. Refer to the discussion in the other sections for additional information that supports this finding.

2.21.2 Avoidance, Minimization, and/or Mitigation Measures

With the implementation of the Avoidance, Minimization and/or Mitigation measures as stated in the previous sections, impacts would be reduced to Less Than Significant.

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Chapter 3 – Climate Change

3.1 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 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 (SF6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2.

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). This analysis will include a discussion of both.

3.2 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

3.2.1 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.

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 (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values— "the triple bottom line of sustainability" (FHWA n.d.). 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.

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 most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Economy (CAFE) 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 CAFE program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

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) the establishment of the Office of Indian Energy Policy and Programs within the Department of 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.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting GHG emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

3.2.2 State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

AB 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (CARB) 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 [H&SC] Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

EO 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. CARB 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.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires CARB 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.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.

EO B-16-12 (March 2012) orders State entities under the direction of the Governor, including CARB, 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.

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 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 CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$).[1] 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.

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.

SB 1386, Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

AB 134, Chapter 254, 2017, allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

Senate Bill 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles travelled, to promote the state's goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

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[1] GHGs differ in how much heat each trap in the atmosphere (global warming potential, or GWP). CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called "carbon dioxide equivalent" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2.

Senate Bill 150, Chapter 150 2017, Regional Transportation Plans: This bill requires CARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18, (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

EO N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs ARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

3.3 Environmental Setting

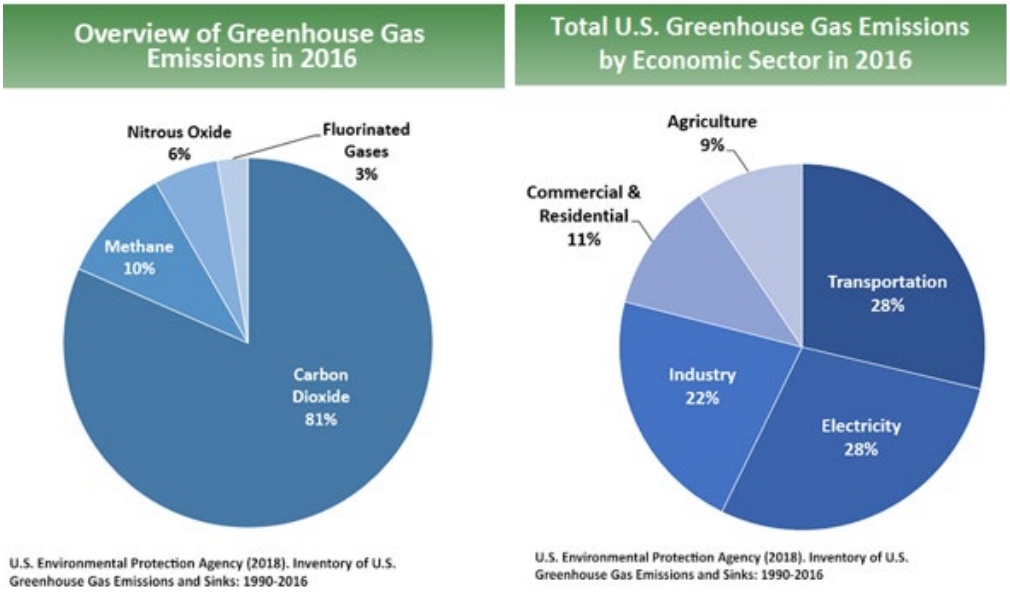
The proposed project is in an urban area of Orange County with a well-developed road and street network. The California Department of Transportation (Caltrans) is proposing to improve the South Bound (SB) State Route (Rte) 133 in between Post Mile (PM) 8.3 and PM M9.3 in the city of Irvine. During the AM peak hours, this segment of the route experiences a long queue of vehicles. This long queue is a result of heavy congestion on the NB I-405 mainline that is not permitting the traffic to flow through the connector at its design rate. Trucks represents 4.5% of total vehicle volume. Land uses near this segment of the route are primarily urban, commercial and residential. The Southern California Association of Governments' (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) guides transportation development in the project area.

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time, such as a calendar year. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the CARB does so for the state, as required by H&SC Section 39607.4.

3.3.1 National GHG Inventory

The U.S. EPA prepares a national GHG inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of GHGs in the United States, reporting emissions of CO_2, CH_4, N_2O, HFCs, perfluorocarbons, SF6, and nitrogen trifluoride. It also accounts for emissions of CO_2 that are removed from the atmosphere by "sinks" such as forests, vegetation, and soils that uptake and store CO_2 (carbon sequestration). The 1990–2016 inventory found that of 6,511 $MMTCO_2e$ GHG emissions in 2016, 81% consist of CO_2, 10% are CH_4, and 6% are N_2O; the balance consists of fluorinated gases (EPA 2018a). In 2016, GHG emissions from the transportation sector accounted for nearly 28.5% of U.S. GHG emissions (See Figure 3.1).

Figure 3-1 U.S. 2016 Greenhouse Gas Emissions



3.3.2 State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 $MMTCO_2e$ for 2017, with the transportation sector responsible for 41% of total GHGs (See Figure 3.2). It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (ARB 2019a).

Figure 3-2 California 2017 Greenhouse Gas Emissions

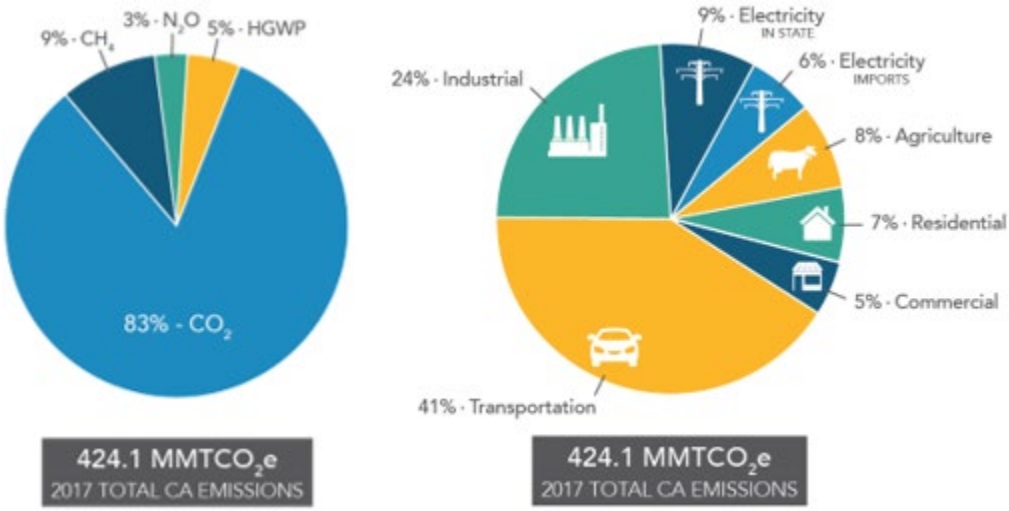
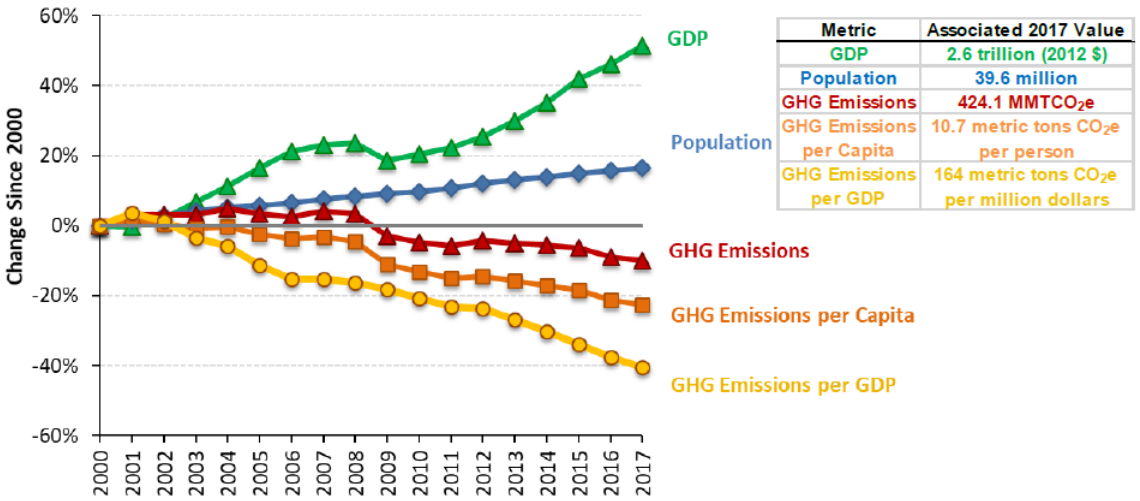


Figure 3-3 Change in California GDP, Population, and GHG Emissions since 2000



(Source: ARB, 2019a)

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, and to update it every 5 years. ARB adopted the first scoping plan in 2008. 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.

3.3.3 Regional Plans

CARB sets regional targets for California's 18 MPOs to use in their RTP/SCSs to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The Metropolitan Planning Organization (MPO) for this project is Southern California Association of Governments (SCAG). GHG reduction targets the SCAG region are 8% by 2020 and 19% by 2035 (ARB 2019c). Table 3.1 shows the regional and local greenhouse gas reduction plans.

The Orange County Transportation Authority and Orange County Council of Governments published the *Orange County Sustainable Communities Strategy* in 2011, developed to be integrated with the SCAG SCS. The Orange County SCS offers sustainability strategies to reduce GHG emissions from land use and transportation. In addition, the City of Irvine is in the process of developing a climate action plan.

Table 3-1 Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
Southern California Association of Governments (SCAG) *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*, Adopted April 2016	• Preserve the region's multi-modal system • Transportation system management (TSM) • Encourage use of clean technology trucks • Strategic capacity and technology enhancements to existing highways
Orange County Sustainable Communities Strategy (2011)	• Eliminate bottlenecks and reduce delay on freeways, toll roads, and arterials. • Managing the transportation system (TSM) through measures that maximize the efficiency of the transportation network.

3.4 Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the SHS and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH_4 and N_2O are emitted during fuel combustion. In addition, a small amount of HFC emissions are included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, § 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) 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. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

3.4.1 Operational Emissions

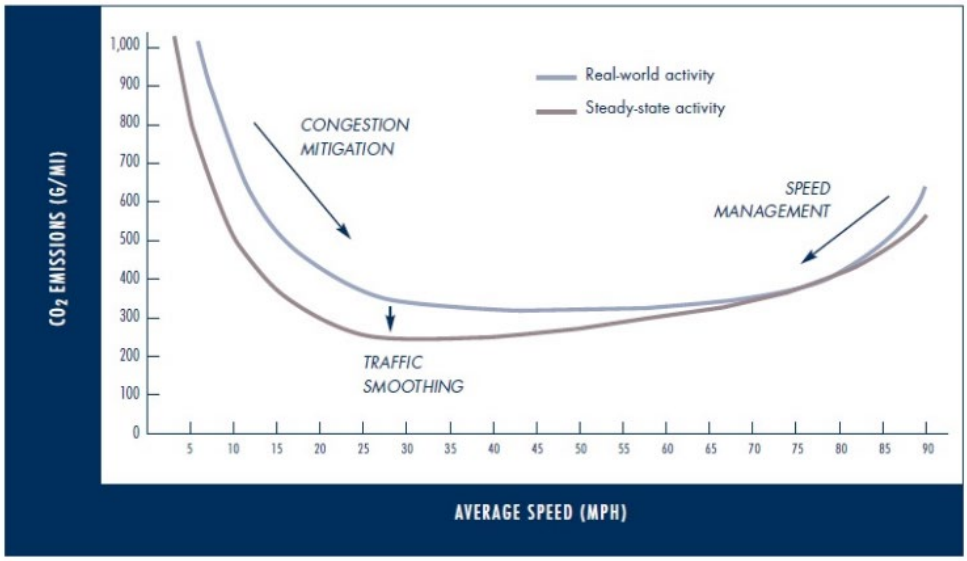
CO_2 accounts for 95 percent of transportation GHG emissions in the U.S. The largest sources of transportation-related GHG emissions are passenger cars and light-duty trucks, including sport utility vehicles, pickup trucks, and minivans. These sources account for over half of the emissions from the sector. The remainder of GHG emissions comes from other modes of transportation, including freight trucks, commercial aircraft, ships, boats, and trains, as well as pipelines and lubricants. Because CO_2 emissions represent the greatest percentage of GHG emissions it has been selected as a proxy within the following analysis for potential climate change impacts generally expected to occur.

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 3.4). 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.

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.

Figure 3-4 Possible Use of Traffic Operation Strategies in Reducing On-road CO2 Emissions



Source: Barth and Boriboonsomsin 2010

The project is located in the city of Irvine, Orange County, for which SCAG is the metropolitan planning organization. The proposed project is listed in the SCAG 2016 RTP/SCS (project ID: REG0701), SCAG's 2016 RTP/SCS complies with the emission reduction targets established by the California Air Resources Board (ARB) and meets the requirements of SB 375 as codified in Government Code §65080(b) et seq. by achieving per capita GHG emission reductions relative to 2005 of 8 percent by 2020 and 18 percent by 2035, which meets or exceeds targets set by ARB at the time the RTP/SCS was prepared. The project will assist the region with its overall goals to reduce vehicle-related GHGs by relieving congestion and improving traffic flow, thereby reducing emissions. This is consistent with the RTP/SCS's identified strategies to manage congestion by maximizing the current system and ensuring it operates with maximum efficiency and effectiveness (Caltrans 2019a: 56).

3.4.1.1 Quantitative Analysis

This alternative proposes to improve operations of this facility by constructing a new auxiliary lane on SB Rte 133 from the SB I-5 connector to the NB I-405 connector. This proposed auxiliary lane will become the second lane on the NB I-405 connector. This

alternative also proposes to extend the number three lane on SB Rte 133 approximately 300 feet south of San Diego Creek to match the existing roadway pavement. CT-EMFAC 2017 model was used to estimate operational GHG emissions. The EMFAC2017/CCT-EMFAC2017 model has been approved by U.S. EPA and meets the FHWA's transportation planning requirements.

CO_2 emissions were calculated for the Base Year (2018), Opening Year (2024), and Design Year (2044). The results of the modeling were used to calculate the CO_2e emissions listed in Table 3.2. This table shows that the Build Alternative would result in a net decrease in CO_2e emissions in the opening year 2024 and in the design year 2044, compared to the base year 2018. The Build Alternative in both opening and design years would result in lower CO2e emissions in the region when compared to the No Build Alternative, even as VMT increases over time due to anticipated growth (Table 3.2). Improved operations and smoother traffic flow, along with use of cleaner fuels and cleaner vehicle technology in the future, contribute to reducing the GHG emissions in the future years compared to the Existing Year 2018.

Table 3-2 Modeled Annual CO2e Emissions and Vehicle Miles Traveled, by Alternative

Alternative	CO_2e Emissions (metric tons/year)	Annual Vehicle Miles Traveled[a]
Existing/Baseline 2018	2,905	7,647,880
Open to Traffic 2024		
No Build	2,703	8,487,620
Build Alternative 1	2,644	8,487,620
20-Year Horizon/Design-Year 2044		
No Build	2,998	12,179,700
Build Alternative 1	2,891	12,179,700

Source: CT-EMFAC (2017), OCTAM 4.0 (2012 base year network and 2040 MPAH network)
CO_2 = carbon dioxide
CO_2e = carbon dioxide, nitrous oxide, and methane.
[a] Annual vehicle miles traveled (VMT) values derived from Daily VMT values multiplied by 347, per ARB methodology (ARB 2008: I-19).

While CT-EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its GHG emission rates are based on tailpipe emission test data. [1]

[1] This analysis does not currently account for the effects of the US National Highway Traffic Safety Administration and Environmental Protection Agency SAFE (Safer Affordable Fuel-Efficient) Vehicles Rule. Part One revoking California's authority to set its own greenhouse gas emissions standards was published on September 27, 2019 and effective November 26, 2019. The SAFE Vehicles Rule Part 2 would amend existing Corporate Average Fuel Economy (CAFE) and tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. The proposal would retain the model year 2020 standards for both programs through model year 2026. Although ARB has not yet provided adjustment factors for greenhouse gas emissions to be utilized in light of the SAFE Rule, modeling these estimates with EMFAC2017 or CT-EMFAC2017 remains the most precise means of estimating future greenhouse gas emissions.

The CO_2 emissions numbers in Table 3.2 are only useful for a comparison between project alternatives. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions would be, because CO_2 emissions are dependent on other factors that are not part of the model (e.g., the fuel mix [EMFAC model emission rates are only for direct engine-out CO_2 emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives such as ethanol and the source of the fuel components], rate of acceleration, and the aerodynamics and efficiency of the vehicles).

3.4.2 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.

An estimate of the construction emissions was conducted using the Caltrans Construction Emission Tool (CAL-CET2018). The results were used to quantify GHG emissions generated by construction of the Build Alternative and are presented in Table 3.3.

Table 3-3 Construction Greenhouse Gas Emissions for the Build Alternative

Project Phases	CO_2 (tons/phase)	CH_4 (tons/phase)	N_2O (tons/phase)	CO_2e (MT/phase)
Build Alternative				
Grubbing/Land Clearing	14	0	0.001	13
Roadway /Excavation	85	0.003	0.002	78
Structural Excavation	17	0.001	0.000	16
Base/Subbase/Imported Borrow	204	0.007	0.004	188
Structural Concrete	142	0.004	0.004	131
Paving	28	0.001	0.001	26
Drainage/Environment/Landscaping	38	0.001	0.001	35
Traffic Signalization/Signage/Striping/Painting	21	0.001	0.001	19
Other operations	1	0.0	0.00	1
Maximum (pounds per day)	6167	0.21	0.36	6280
Total (MT/construction project)	**550**	**0.018**	**0.0293**	**507**

Source: Calculated by using CAL-CET2018.
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/phase = Metric tons/phase
MT/phase = metric tons per phase
N_2O = nitrous oxide
tons/phase = tons per phase
1 t = 2,000 lbs, 1 MT = 2,204.6 lbs
CO_2e of the CO_2, CH_4 and N_2O was obtained by multiplying them by their respective global warming potential (GWP) of 1, 25 and 298, respectively.

GHG emissions related to the roadway widening would be mainly from CO_2, nitrous oxide (N_2O), and methane (CH_4) (reported together as CO_2e) contained in exhaust from off-road diesel construction equipment/vehicles (e.g., idling and operation of backhoes, cranes, and drilling rigs), from on-road trucks used by vendors (to deliver materials to the site) and on-site workers, and from use of portable equipment (e.g., generators). Construction is expected to start in early 2022 and would continue for 12 to 16 months. Total GHG

emissions from construction would be about 508 MT CO_2e for the construction period for the Build Alternative. The construction emission result calculated by using Cal-CET2018 model is included in Appendix F.

Implementation of the following standardized measures will reduce climate change impacts resulting from construction activities.

PF-AQ-1 The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions.

3.4.3 CEQA Conclusion

While the proposed project would result in GHG emissions during construction, is anticipated that the Build Alternative would show decreases in long-term regional GHG emissions compared to the Existing Condition due to improvements in motor vehicle fuel efficiency and engine technologies. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of construction GHG-reduction measures, the impact would be less than significant.

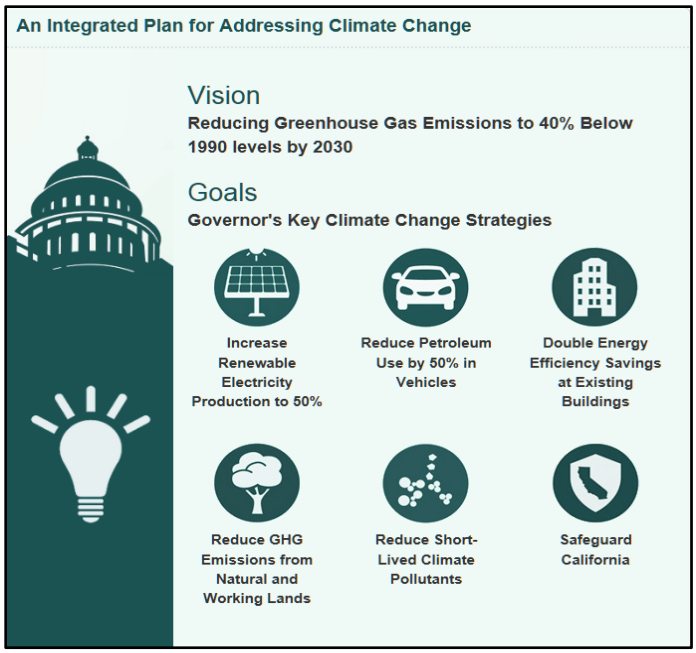
3.5 Greenhouse Gas Reduction Strategies

3.5.1 Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals that involved (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 farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, Safeguarding California.

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). A key state goal for reducing greenhouse gas emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California 2019).

Figure 3-5 California Climate Strategy



In addition, SB 1386 (Wolk, 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

3.5.1.1 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 an 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. In 2016, Caltrans completed the California Transportation Plan 2040, which establishes a new model for developing ground transportation systems, consistent with CO_2 reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit and reduce long-run repair and maintenance costs of roadways and developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

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.

3.5.2 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
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

3.5.3 Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and support other climate adaptation goals (e.g., Safeguarding California).

3.5.4 Caltrans Policy Directives and Other Initiatives

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 Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

3.5.4.1 Project-Level GHG Reduction Strategies

The Build Alternative is designed to improve traffic flow and reduce the congestion. The proposed improvements will improve existing and future regional mobility and traffic flow on the SB Rte 133 and the connectors. Reduction in delays and congestion will help to reduce GHG emissions from idling traffic (Caltrans 2019a).

PF-AQ-1: The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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. Many such required measures help to reduce GHG emissions.

3.6 Adaptation

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation

infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

3.6.1 Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. ch. 56A § 2921 et seq). The Fourth National Climate Assessment, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation 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" (U.S. DOT 2011).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

3.6.2 State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. California's Fourth Climate Change Assessment (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality.2 Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California – An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic

approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

3.6.3 Caltrans Adaptation Efforts

3.6.3.1 Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

3.6.3.2 Project Adaptation Analysis

Sea-Level Rise

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.

Floodplains

Transportation assets in California are affected by precipitation in a variety of ways—from inundation/flooding, to landslides, washouts, or structural damage from heavy rain events. Climate change can cause large fluctuations in precipitation, with dry years becoming dryer and wet years wetter. Study was conducted to determine how a 100-year storm precipitation event may change over time for the purposes of analyzing vulnerabilities of the Caltrans State Highway System. The study forecast a change of less than 5 percent in 100-year

storm precipitation depth in the project area in through 2085 based on the RCP 8.5 emissions scenario (Caltrans 2018).

Wildfire

Dryer atmosphere and wind have caused wildfires in the state. In areas affected by wildfires, falling rocks, mud, and trees damaged by fire can wash down steep banks during periods of high intensity rain. This debris can cause road blocks and require detours. Increasing temperatures, changing precipitation patterns, and resulting changes to land cover, are expected to affect wildfire frequency and intensity. Human infrastructure, including the presence of electrical utility infrastructure, or other sources of fire potential (mechanical, open fire, accidental or intentional) may also influence the occurrence of wildfires. Wildfire is a direct concern for driver safety, system operations, and Caltrans infrastructure, among other issues. In the Orange County, 74.2 miles of State Highway would be exposed to wildfire in the year 2025, 73.7 miles in the year 2055, and 75.2 miles in the year 2085 at the RCP 8.5 emission scenario. However, analysis and mapping in the draft District 12 climate vulnerability assessment shows no exposed roadway or level of concern for wildfire for the project area in the years through 2085 under the RCP 8.5 emission scenario (Caltrans 2018).

3.7 References

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Chapter 4 – Comments and Coordination

The outreach process included proactive and continuous coordination. This process also includes identifying and developing appropriate mitigation measures for the project. Agency consultation for this project has been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings and interagency coordination meetings. This chapter summarizes the results of Caltrans efforts to fully identify, address, and resolve project related issues through early and continuing coordination.

A total of 7 Native American individuals or groups were contacted on June 26, 2017, for cultural resource information regarding this project. Responses were received from the Juaneno Band of Mission Indians – Acjachemen Nation, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, the Gabrielino-Tongva Tribe, and the Gabrielino Tongva Indians of California Tribal Council.

Coordination was conducted with The Native American Heritage Commission on June 16, 2017, and with the Historical Society of Southern California and the Newport Beach Historical Society on June 27, 2017.

The Draft IS will be made available to the public and circulated to regional and local agencies to provide opportunity for their comments. The document will be available at the OC Library Heritage Park Regional Branch at 14361 Yale, Irvine, CA 92604 and at the Caltrans District 12 office.

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Chapter 5 – List of Preparers

This document has been prepared by the California Department of Transportation as the lead agency under CEQA and NEPA. The following individuals were involved in the preparation of this Initial Study:

5.1 Caltrans

Bahar Heydari, Associate Environmental Planner. Bachelor of Science in Geography with Emphasis on Environmental Analysis. California State Polytechnic University Pomona. 12 years of experience. Contribution: Document Preparer

Alben Phung, Environmental Planner. Masters of Urban & Regional Planning, California State Polytechnic University Pomona. 2 years of experience. Contribution: Section 4f De Minimis Analysis and

Bala K Balakrishnaiyer, Transportation Engineer-Civil, Ph.D in Geotechnical Engineering, University of Tokyo, Japan, 18 years of experience in Geotechnical Engineering, Contribution: Geology and Soils Section CEQA checklist and Structure Preliminary Geotechnical Report (4)

Rabindra Bade Environmental Engineer. Ph.D. in Environmental Engineering, Kumoh National Institute of Technology, South Korea. 17 years of experience in research, design, consulting, academics in the field of Environmental Engineering and Civil Engineering. Contribution: Environmental Engineer for the preparation of Air Quality Report, Revised Air Quality Report Climate Change Section.

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Hector Salas, Associate Environmental Planner. B.A. Environmental Analysis and Design, University of California, Irvine. 17 years' experience. Contribution: Preparation and review of water technical study (Water Quality Analysis Report) and water quality section.

Neal Alie Hydrology/Hydraulics Engineer,. Contribution: Preparation of the Preliminary Hydraulic Evaluation

Reza Aurasteh, Senior Environmental Engineer. P.E., Ph.D. Engineering, Utah State University. 28 years' experience. Contribution: Senior review of Air Quality Technical Studies and Noise Technical Studies.

Ricardo Caraig, Transportation Engineer, B.S. in Civil Engineering, California State University, Fullerton. 28 years of experience. Contribution: Preparation of the Noise section and Noise Study Analysis and Noise Abatement Decision Report

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Landon Mares Landscape Associate, B.S. in Landscape Architecture, California Polytechnic University, Pomona. 20 years of experience. Contribution: Preparation of the Aesthetics section and the Scenic Resource Evaluation and Visual Impact Assessment Questionnaire

Chris Flynn, Deputy District Director of Environmental Analysis, M.S. Environmental Science, San Jose State University. 30 years' experience. Contribution: Supervisory review of the environmental document.

Chiou, Wayne, Transportation/Environmental Engineer. P.E. M.S. in Civil and Environmental Engineering, Utah State University, Logan, UT. 28 years of experience in consulting engineering and environmental engineering. Contribution: ISA.CHECKLIST

5.2 Consultants

Sarah Reiboldt PH.D Associate/Senior Paleontologist, LSA Associates, Inc. Contribution: Paleontological Identification Report/Paleontological Evaluation Report (PIR/PER) and Supplemental PIR/PER Memorandum

Kerrie Collison, Senior Cultural Resources Manager. LSA Associates. Contribution: Historic Property Survey Report and Archaeological Survey Report (ASR)

Chapter 6 – Distribution List

The Initial Study and the Notice of Availability was distributed to local, and regional agencies and utility providers affected by the proposed project.

6.1 Federal Agencies

United States Army Corp of Engineers
Los Angeles District
Los Angeles Regulatory Office
915 Wilshire Blvd, Suite 1101
Los Angeles CA, 90017
Attn: Tim Jackson

U.S. Fish and Wildlife Service
6010 Hidden Valley Road, Ste. 101
Carlsbad, CA. 92008
Attn: Sally Brown

6.2 State Agencies

California Department of Fish and Wildlife
3883 Ruffin Road
San Diego, CA. 92123
Attn: Simona Altman

California Regional Water Quality Control Board
3737 Main Street, Ste. 500
Riverside, CA. 92501-3348

CA. Office of Historic Preservation
1725 23rd Street, Ste. 100
Sacramento, CA 95816

6.3 Local/Regional Agencies

City of Irvine
Department of Transportation
1 Civic Center Plaza
P.O. Box 19575
Irvine, CA 92623-9575
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6.4 Libraries

OC Library-Heritage Park Regional Branch
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6.5 Elected Officials

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Appendix A - Section 4(f)

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SECTION 4(f) DE MINIMIS DETERMINATION AND RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(f)

STATE ROUTE 133 Operational Improvement Project - EA 0N890

December 2019

This Section 4(f) analysis includes de minimis determinations for an off-street Class I bikeway/trail in the City of Irvine. Following the de minimis determination, this Section 4(f) analysis also includes information regarding resources evaluated relative to the requirements of Section 4(f), but that do not trigger protection under Section 4(f).

1.0 General Background

The proposed project will receive federal funding; therefore, it is subject to Section 4(f) analysis. The area within 0.5 mile is the maximum disturbance limits (project footprint) for the Build Alternative and was used to define the study area for existing publicly owned recreation and park properties, including local, regional, state and federal properties; existing play and sports fields of public schools with public access, publicly owned wildlife and water fowl refuges and conservation areas, and existing off-street public bicycle, pedestrian, and equestrian trails. The study area was defined to identify an area large enough to assess the potential for the project to result in proximity impacts to properties protected under Section 4(f).

Excluding the off-street Class I bikeway/trail, within the 0.5 mile study area there are a total of 2 trails in the vicinity.

PROJECT DESCRIPTION AND ALTERNATIVES

The California Department of Transportation (Caltrans) District 12 proposes an operational improvement project on State Route 133 (SR-133). On SR-133, the proposed project is between the southbound (SB) SR-133 / SB Interstate 5 (I-5) connector and the SB SR-133 / northbound (NB) Interstate 405 (I-405) connector. The proposed project is located within the City of Irvine; in south Orange County.

The project proposes to construct a new auxiliary lane on Southbound (SB) Rte 133 from Northbound (NB) Interstate 405 (I-405) connector to southbound Interstate 5 (I-5) connector. This auxiliary lane will become the second lane on the NB I-405 connector. This alternative also proposes to extend the number three lane on SB Rte 133 approximately 300 feet south of the San Diego Creek to match the existing roadway pavement

Caltrans is the Lead Agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). An Initial Study with Proposed MND is being prepared pursuant to CEQA and a Categorical Exclusion is being prepared pursuant to the National Environmental Policy Act (NEPA). This project has two alternatives, a Build alternative and a No Build Alternative.

Purpose: The purpose of this project is to enhance traffic operations and flow and shorten queue length of vehicles on SR-133 between SB I-5 and NB I-405 connectors by providing a new auxiliary lane and extend the number 3 lane on SB SR-133.

Need: This segment of SB SR-133 is operating under severe congestion during morning peak hours. The number three lane of SB SR-133 experiences long traffic queues which back up all the way to the SB I-5 connector and the SB SR-133 mainline (north of the SB I-5 connector), and restrict traffic flow

A. Build Alternative:

1. Construct additional asphalt concrete pavement to provide a twelve-foot auxiliary lane from the SB I-5 connector to NB I-405 connector and twelve-foot lane from the gore area to 300 feet south of San Diego Creek.

2. Construct additional asphalt concrete pavement to provide a second twelve-foot lane on the SB SR-133/NB I-405 connector.

3. Realign the Barranca Parkway (Pkwy) loop on-ramp and reconstruct the ramp entrance. Convert High Occupancy Vehicle (HOV) lane to General Purpose (GP) lane, install a connector ramp meter system, reconstruct loop detectors, and modify the Midwest Guardrail system (MGS) along the on-ramp left shoulder if needed.

4. Reconstruct maintenance vehicle pullouts.

5. Construct tie back walls at Barranca Pkwy Overcrossing (OC) and Alton Pkwy OC.

6. Construct approximately 471 feet long retaining wall (retaining wall No.55) from the end of San Diego Creek off-ramp bridge (55-0290F) towards South.

7. Construct approximately 202 feet long retaining wall and (retaining wall No.62) from the beginning of San Diego Creek off-ramp bridge (55-0290F) towards North.

8. Construct approximately 501 feet long retaining wall (retaining wall No. #46) along the off-ramp from SB SR-133 to I-405.

9. Replace approximately 520 ft of the existing Reinforced Concrete Channel (RCC) with a Reinforced Concrete Box (RCB) between Barranca Pkwy and Alton Pkwy.

10. Relocate and modify two existing overhead signs to accommodate pavement widening.

11. Remove and replace light poles along shoulder of SB SR-133 and Barranca Pkwy on-ramp.

12. Install ramp metering system at SB SR-133/NB I-405 connector.

13. Remove and replace signing as needed.

14. Construct approximately 500 feet long of MGS between wall #29 and the tie back wall at Alton Pkwy OC.

15. Remove existing metal beam guard railing and end treatments at the gore area of SB SR-133 and SB SR-133/NB I-405 connector.

16. Construct approximately 1200 square feet of additional bridge pavement, construct bridge rail with 20:1 taper and install REACT 350 to shield the end of bridge railings beyond the gore area of SB 133 and SB 133/NB I-405 connector.

17. Relocate 3 drainage inlets along right shoulder of SB 133 and 2 drainage inlets along right shoulder of SB 133/NB I-405 connector.

18. Refresh all striping and markers.

19. San Diego Creek Left Bridge (55-0290L) will be widened to cover the gore area. Bridge Super-Structure will be constructed to accommodate the new lane configuration.

20. San Diego Creek off-ramp bridge (55-0290F) will be widened by 14.5 feet. New Sub-Structure and Super-Structure will be constructed to accommodate the new lane configuration.

21. Approach and departure slabs, paving notch and joint seals will be added at the left bridge (55-0290L) and the off-ramp bridge (55-0290F).

22. Existing Barriers, Type 25 at the Left Bridge (55-0290L) and the Off-Ramp Bridge (55-0290F) will be replaced with Concrete Barrier Type 836.

23. Rock Slope Protection (RSP) will be replaced 6 feet below the Top of Pile Cap between the Piers/Abutment footings and flush with the footings and adjacent ground. The RSP used should be ½ ton (24 inches in diameter) installed in a pre-excavated 6-foot hole and extend 5 feet from each side of the pier wall and extend 40 feet upstream from the face of the right bridge and 10 feet from the downstream face of the New Widening of the Off-Ramp Bridge (55-0290F).

24. Slurry will be placed underneath the existing piers/abutments pile caps to fill the voids due to erosion prior to the excavation for RSP placement. The approximate area of the existing piers where slurry will be place is 0.15 acres (6540 SQFT).

25. Temporary construction easement (TCEs) are needed for constructing Reinforced Concrete Box (RCB), bridge widening, and rock slope protection.

26. Clearing and grubbing

27. Highway planting

28. Replace damaged landscape irrigation in kind where needed between Irvine Boulevard Over-Crossing to Barranca Parkway on-ramp.

The duration of the project will be approximately 2 years. Bicycle and pedestrian detours will be provided. In addition, the Caltrans Standard Specifications in the Transportation Management Plan (TMP) will require the project to provide information to the public for pedestrian and bicycle detours.

B. No-Build Alternative

The No Build alternative retains the existing roadway condition. This Alternative will not address congestion during morning peak hours within the project limits. This is not the preferred alternative.

2.0 De Minimis Determinations

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 1 recreational facility, San Diego Creek Class I Bikeway/trail owned and operated by the City of Irvine that have been determined to trigger the requirements for protection under Section 4(f).

San Diego Creek Class I Bikeway/Trail

Description of Activities, Features, and Attributes

The San Diego Creek Class I Bikeway/Trail, within the City of Irvine, begins at the intersection of Dana and Antivo, continues northwest to reach the San Diego Creek Channel. The bikeway/trail follows the channel southward to the end of the facility limits passing under SR-73. This bikeway/trail is predominantly asphalt with shoulder striping along most segments. The San Diego Creek Class 1 Bikeway/Trail as described from the City of Irvine Bicycle Transportation Plan (2011):

> *"This Class I bikeway also forms a segment of a regional trail that connects the City of Orange with the Upper Newport Bay, and follows the east side of the San Diego Creek channel as it extends from its intersection with Peters Canyon Wash, near Barranca Parkway, to Newport Beach in the south. Near Barranca Parkway, the San Diego Creek Trail also travels east through central Irvine. The bikeway follows both sides of the channel between Sand Canyon Avenue and SR-133 toll road and terminates before intersecting with the I-405 Freeway in the Irvine Spectrum."*

The San Diego Creek Class I Bikeway/Trail is part of a larger system consisting of on-/off-street bikeway/trails as well as Class II on-street striped bike routes (see Figure 1). The citywide bike system consists of 61.8 miles of off-street bikeway trails and 301 lane miles of

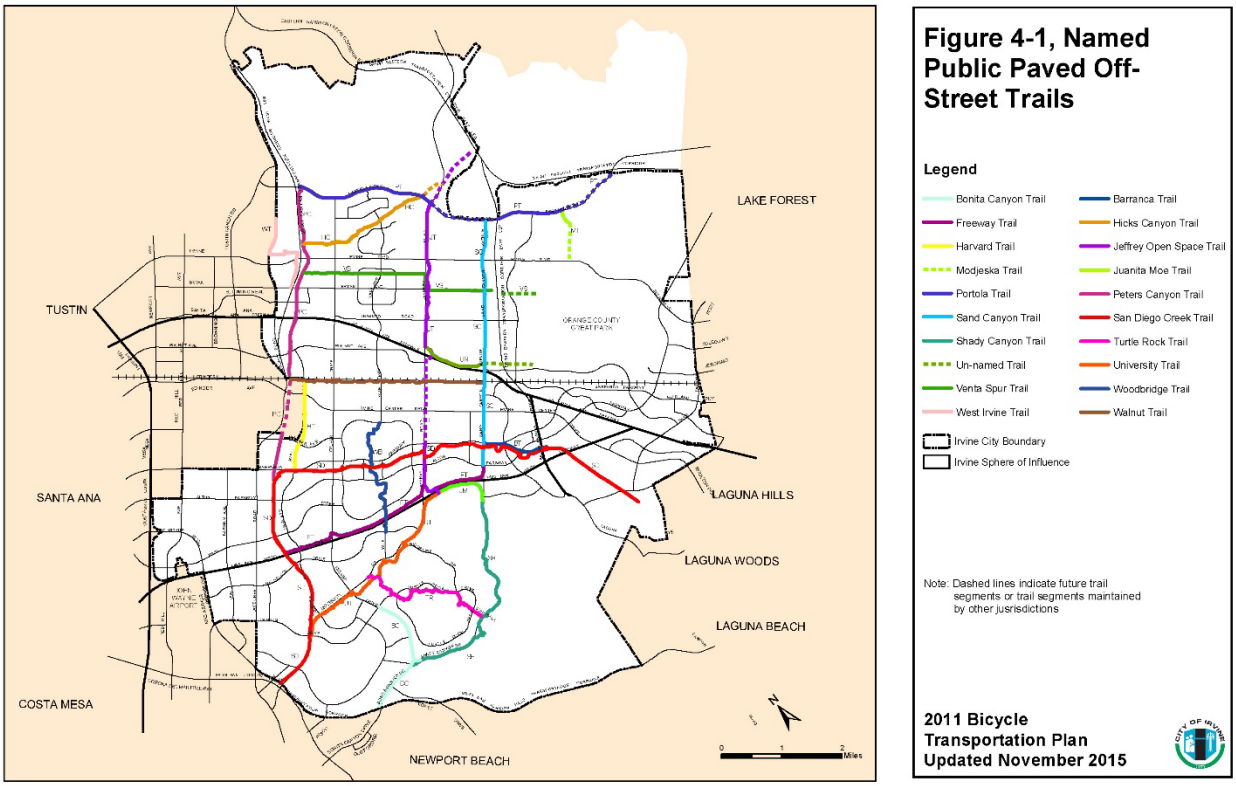
on-street bikeways. From the San Diego Creek Class I Bikeway/Trail, the public can directly connect to the following Public Paved Off-Street Trails (Figure 1) bikeway trails:

- Barranca Trail
- Sand Canyon Trail
- Jeffrey Open Space Trail
- Woodbridge Trail
- Peters Canyon Trail
- Freeway Trail
- University Trail

The San Diego Creek Class I Bikeway/Trail connects residents from the central portion of the City to the western and eastern portions, commercial centers, and local and regional open space and park areas. In addition, the San Diego Creek Class I Bikeway/Trail serves as a regional bikeway connection to Newport Beach (to the south) and to the cities of Tustin and Orange (to the north).

Amenities of the bike facility are limited. Lighting is limited to portions of the facility that are adjacent to city streets. Landscaping is restricted on this facility because it is a County Flood Control facility. Benches and drinking water facilities are found only south of Barranca Street

Figure 1 – Named Public Paved Off-Street Trails. Source: City of Irvine, Bicycle Transportation Plan 2011 (accessed June 12, 2019)]



Proposed "Use"

Because the proposed improvements of the Build Alternative at the SB SR-133 / NB I-405 connector bridge cross over the San Diego Creek Class I Bikeway/Trail facility, the Build Alternative will temporarily impact access to the San Diego Creek Class I Bikeway/Trail at this location. This project requires 32,727 square feet of Temporary Construction Easement (TCE). Construction activities are anticipated to take place in the San Diego Creek bed and channel, and the construction of concrete box channel between Barranca Pkwy and Alton Pkwy. Due to the construction in the manner proposed the project requires temporary construction easements, three (3) assessor's parcels. The Villages of Irvine sign located on Assessor's Parcel Number 585-051-04 will be protected in place. The exact requirements are as noted in the Assessor's Parcel Number table below. Due to these proposed improvements on the SB SR-133/NB I-405 connector, the trail would be temporarily closed at that location for construction activities within the San Diego Creek bed and channel (see Figure 2). It is proposed that no permanent right of way acquisition or easements are required, however Temporary Construction Easements (TCE) will be necessary. Table 1 (below) and Figure 2 shows the right-of-way requirements at this location.

Table 1 – Right-of-Way Requirements

Location	Ownership	Assessor's Parcel Number	TCE	Fee
SB SR-133 / NB I-405 Connector	City of Irvine	466-102-02	21,520 sqft	None
Does not impact the Class I Bikeway	The Irvine Company	585-051-04	2,762 sqft	None
Does not impact the Class I Bikeway	Toyota Motor Sales USA	466-101-13	8,445 sqft	None
		TOTAL	**32,727 sqft**	None

There will be no changes made to the bike facility, but it will be temporarily impacted due to the construction activity.

There are numerous access points to the bikeway/trail, but only the location of construction activity will require temporary closure. The remainder of the bikeway/trail and associated bike facility network system within the City of Irvine will remain open and undisturbed.

Figure 2 – Project easement requirements and San Diego Creek Trail

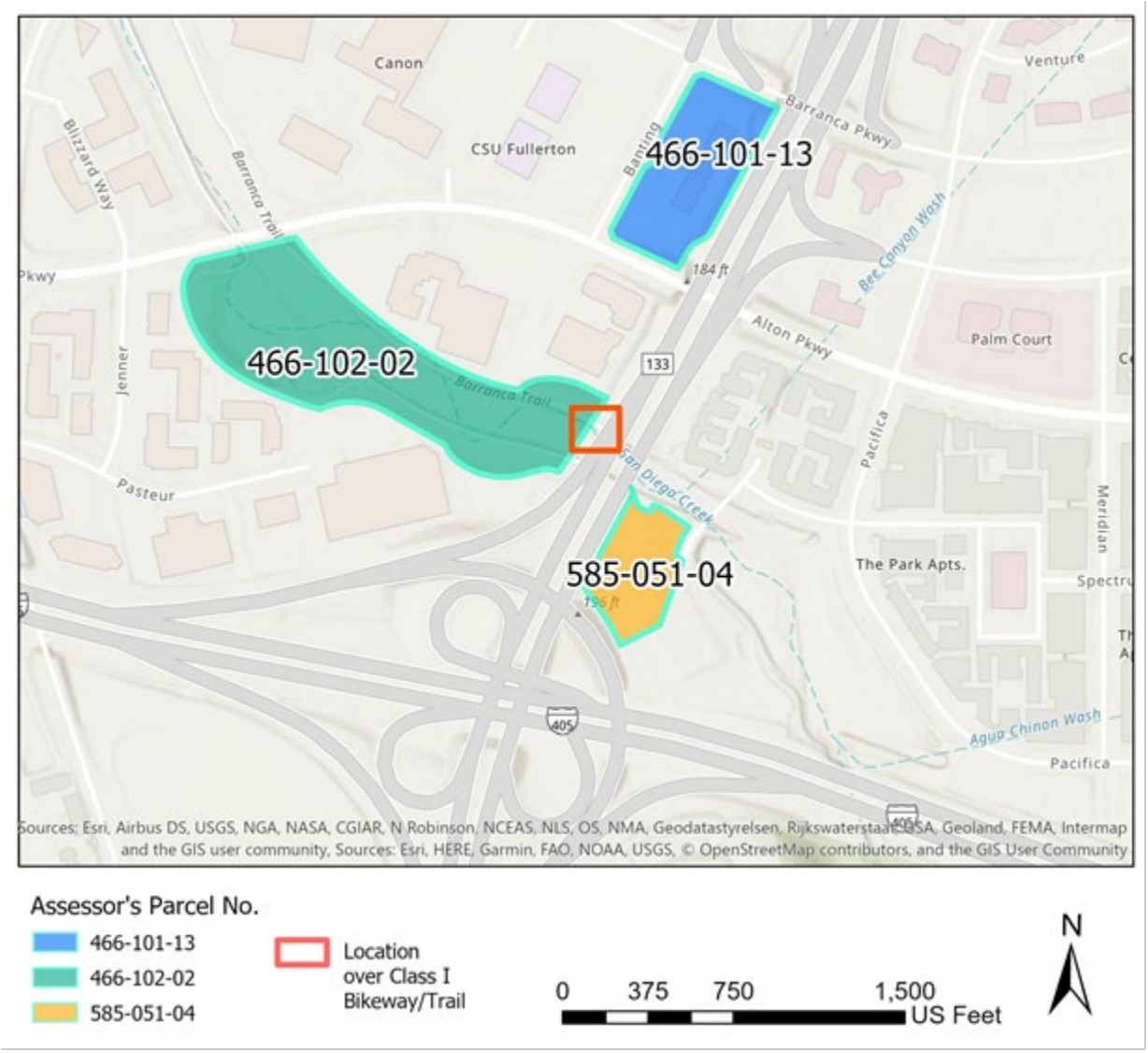


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Table 2 – Section 4(f), San Diego Creek Class I Bikeway/Trail

Property Name	Description	Official Agency with Jurisdiction	Distance from Project Footprint	Type of Use
San Diego Creek Class I Bikeway/Trail	**Location:** City of Irvine **Size:** ~9.5 mile length of paved Class 1 off-street bikeway/trail **Distance from Project Footprint:** within 0.5 mi of the project footprint **Features:** City of Irvine owned bikeway/trail. Connects to the City's bikeway network. Various locations have amenities such as: bicycle racks and stationary storage racks, lockers, drinking water fountains, lighting, landscaping.	City of Irvine	Within the project footprint	*De minimis*

In addition, Figure 3 (below) identifies that there are no other recreational parks within 0.5 mile of the project location.

Figure 3 – Irvine Parks Map

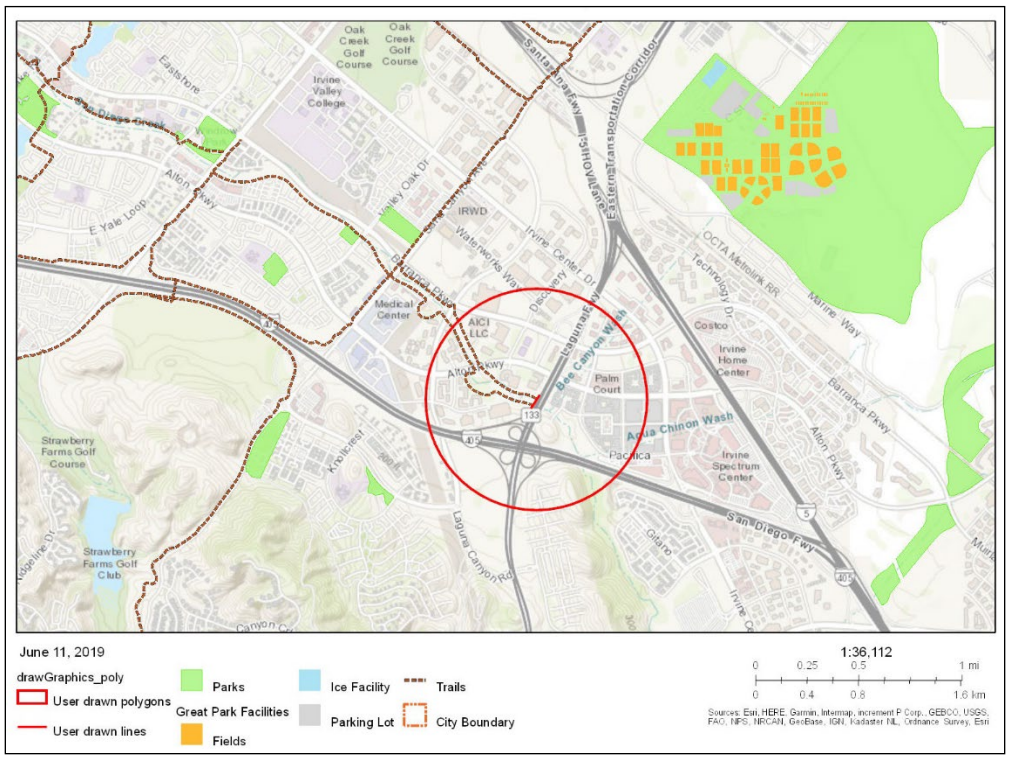

Figure 4 discloses the project's temporary and permanent construction impact. Indicated on Sheet 3 of 5, the bikeway/trail is shown as being temporarily impacted

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.

Figure 4 – Preliminary Project Plan Sheets (Sheet 1 of 5)

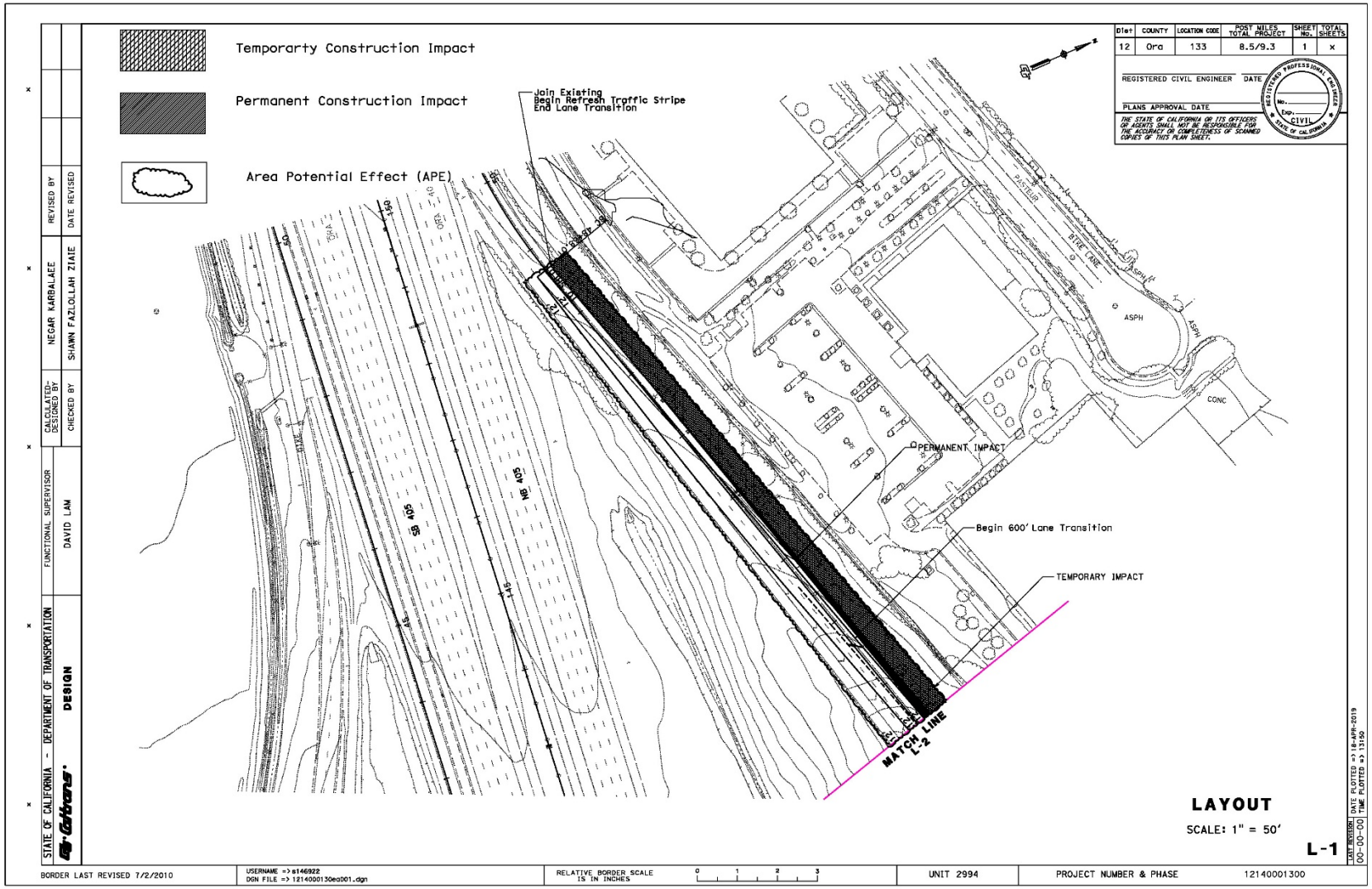

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Figure 4 – Preliminary Project Plan Sheets (Sheet 2 of 5)

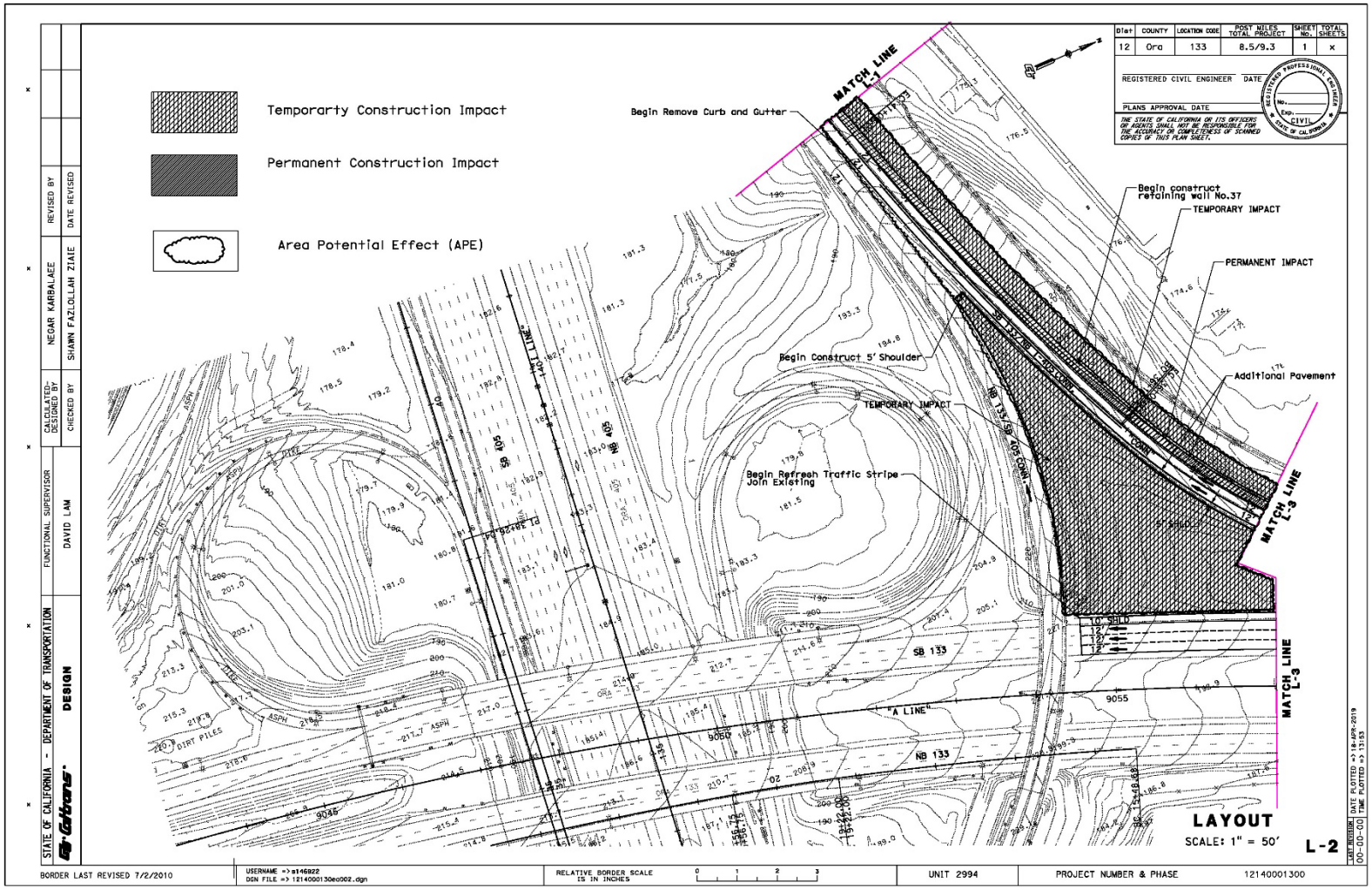

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Figure 4 – Preliminary Project Plan Sheets (Sheet 3 of 5)

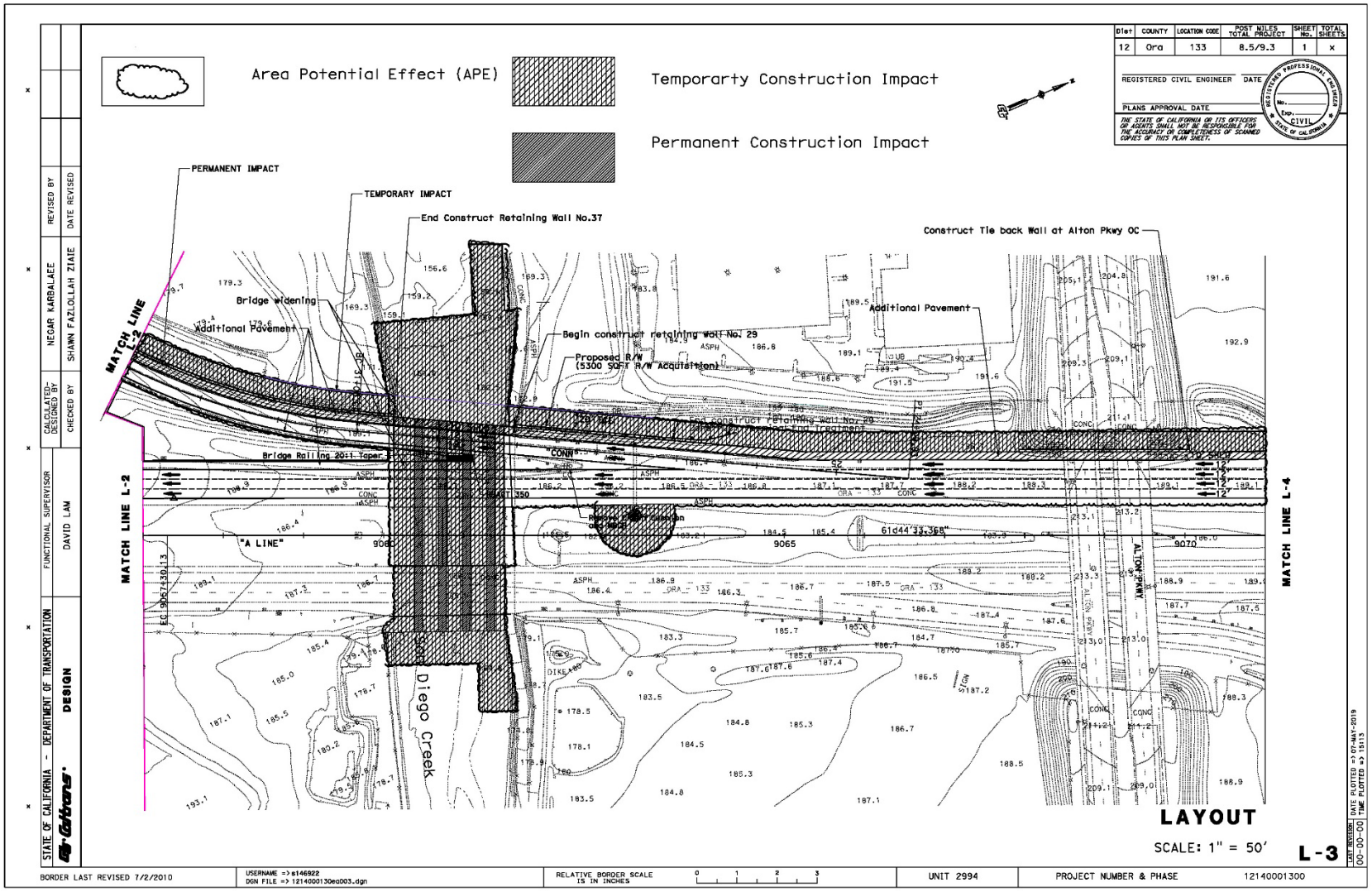

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Figure 4 – Preliminary Project Plan Sheets (Sheet 4 of 5)

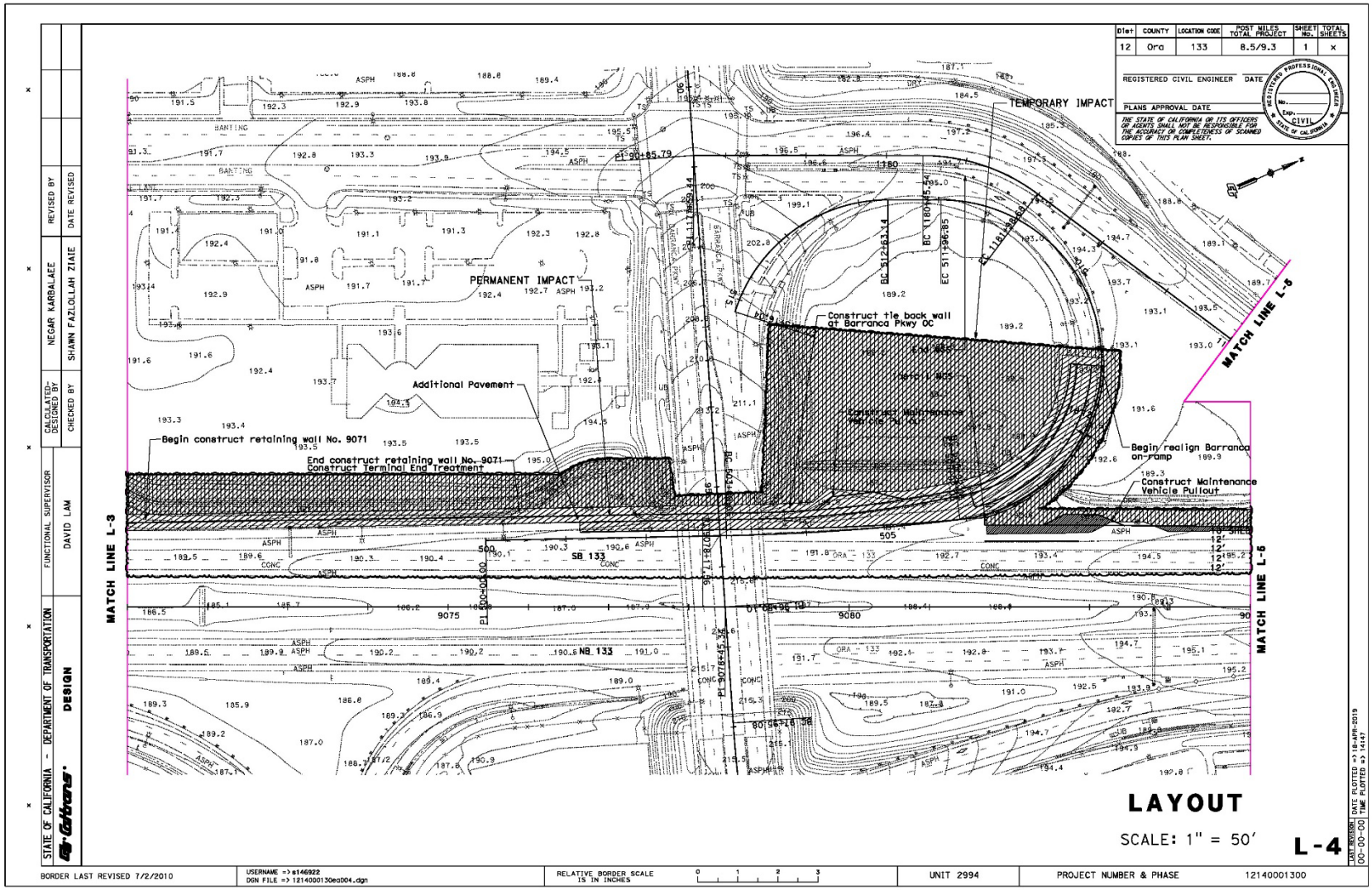

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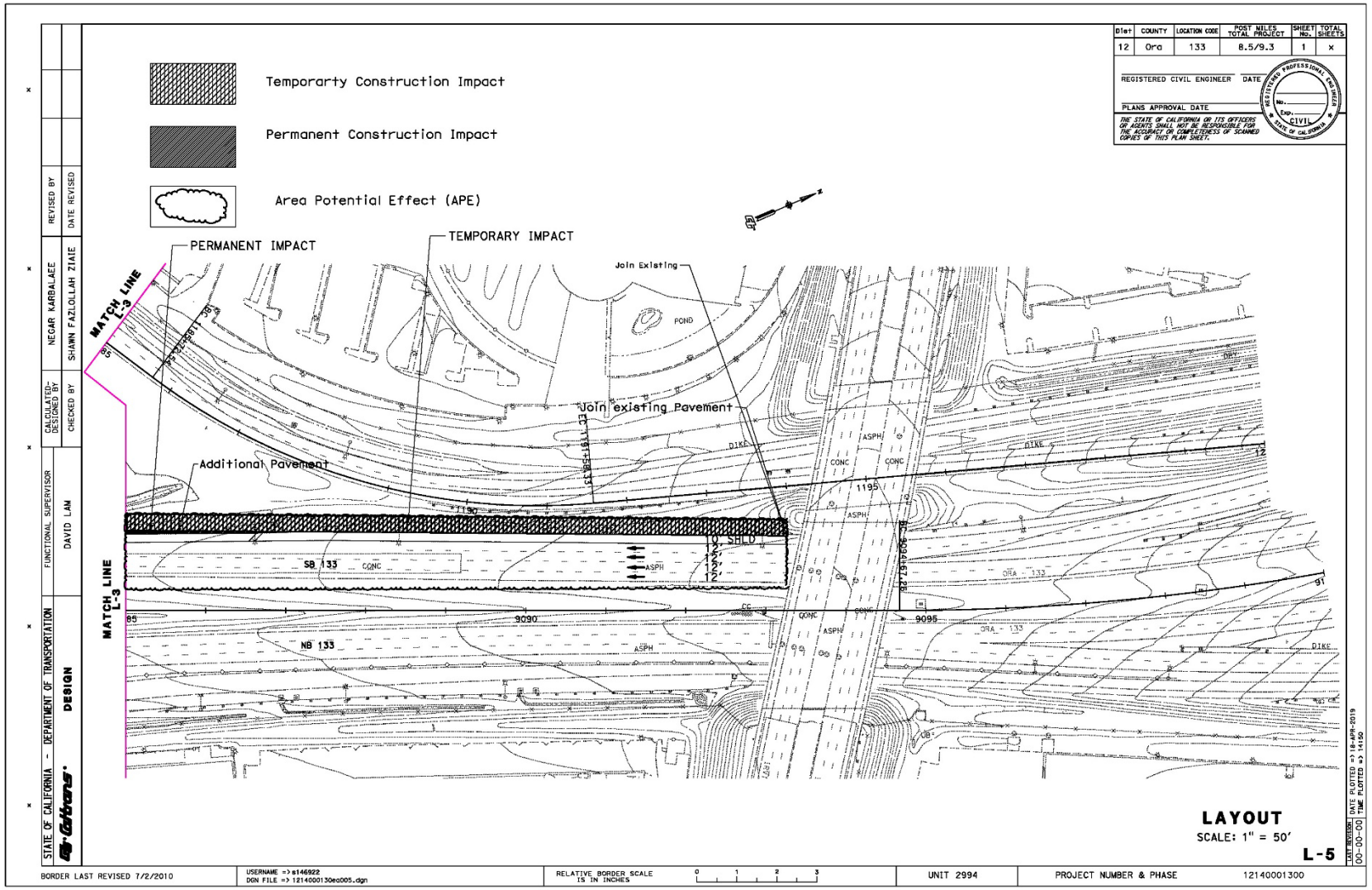
Figure 4 – Preliminary Project Plan Sheets (Sheet 5 of 5)



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There is no exception to the "use" to the San Diego Creek Class I Bikeway/Trail because the project cannot meet all five conditions under Temporary Occupancy in order to constitute an exception to the use. The project may involve temporary interference with the ability of the public to use the bikeway/trail by temporary closure of the bikeway/trail at the project location. Therefore, there is a use for the purposes of section 4f.

Why the Use is De Minimis

De Minimis impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not adversely affect the activities, features and attributes of the Section 4(f) resource. Caltrans must make a finding for each resource and the responsible official with jurisdiction over each resource must agree in writing with that finding.

The temporary use described above will not diminish the function of the San Diego Creek Class I Bikeway/Trail and its associated amenities. There will be no impacts that adversely affect the recreational activities, features and attributes that qualify the property for protection under the requirements of Section 4(f). Access to the bikeway/trail from the project location will temporarily be impacted. The remainder of the bikeway/trail and its connection to the larger network of bikeway/trails will remain open and undisturbed. Shown in Figure 1, the Barranca Trail is directly adjacent to the San Diego Creek Class I Bikeway/ Trail at the proposed project location, providing for an alternate route to connect back to the San Diego Creek Class I Bikeway/Trail outside of the project limits.

The project proposes no permanent use nor permanent land conversion.

As per the project's standard provision, the construction contractor is required to provide detours to the San Diego Class I Bikeway/Trail for the temporarily closed portion due to construction activities. Therefore, the public will still have access to the bikeway/trail by utilizing the provided detours within existing public right of way. There is no designated critical habitat in the project area, and no special status or listed species are expected to occur during project activity. No wetlands or water conveyances will be impacted by the proposed project. The avoidance, minimization and/or mitigation measures that would be implemented during construction will help reduce impacts, if any, to the San Diego Creek Class I Bikeway/Trail.

The temporary impacts to the San Diego Creek Class I Bikeway/Trail would not adversely affect the activities, features, and attributes of the facility. As mentioned, an adjacent trail, Barranca Trail (Class II On-street Bike facility), will be open and available for the public to use that is approximately 0.3 miles north of the San Diego Creek Class I Bikeway/Trail.

Incorporation of the following Avoidance, Minimization and/or Mitigation Measures below will ensure that construction activities will not impact the use of the recreational facilities by the public.

Because of the reasons above, Caltrans has made a ***de minimis determination.***

Avoidance, Minimization, and/or Mitigation Measures/Environmental Commitments Record (ECR): To minimize impacts to the Section 4(f) Use, the following project features and minimization measures are included in the proposed project and in the Environmental Commitments Record:

PF-TRA-1 A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall be provided at all times to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.

PF-BIO-1 To avoid impacts to any nesting birds, ground disturbance that occurs during the nesting bird season (February 1 – September 30) will require nesting bird surveys by a Caltrans Biologist within 72 hours prior to the start of work. The Caltrans Biologist will be contacted at least one week ahead of time to schedule a survey

PF-BIO-2 To avoid the spread of invasive plant species, all vegetation being removed should be disposed of properly. If vegetation is planted on site, the Caltrans Biologist and Landscape Architect will coordinate and approve the proposed vegetation to be planted.

PF-WQ-2 The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002 and any subsequent permits in effect at the time of construction.

PF-N-1 During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by 2018 Caltrans Standard Specification Section 14-8.02,“Noise Control,” which states the following: Control and monitor noise resulting from work activities. Do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m.

PF-REC-1: The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted

Consultation and Coordination with the Official Jurisdiction

Caltrans has initiated consultation with the City of Irvine with regards to the characterization of effects of the project in the context of this Section 4(f) analysis, consistent with 49 USC 303(d)(3)(B). Caltrans sent a Preliminary Section 4(f) Resource Analysis coordination letter to City of Irvine (the official with jurisdiction) on January 22, 2019. This Section 4(f) De Minimis Analysis will be made available along with the Draft Environmental Document for review and commenting from January 7th, 2020 to February 6th, 2020.

After circulation of the Section 4(f), a request will be sent to the City of Irvine for concurrence on this de minimis determination.

3.0: 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.

Table 3 - Summary of Properties Subject to Section 4(f) Consideration (No-Use)

Type of Property	Geographic Location to project	Number of Properties
Public Schools	Within 0.5 mile	0
Public Parks and Recreation Areas	Within 0.5 mile	0
Trails	Within 0.5 mile	2
Wildlife and Waterfowl Refuges	Within 0.5 mile	0
NRHP-eligible historic sites	Within the APE	0
NRHP-eligible archaeological sites	Within the APE	0

Table 4 – Properties Subject to Section 4(f) within 0.5 miles of the Study Area (No-Use)

No.	Property	Address	City	Facilities
1	Barranca Trail	Approximately 90 Pacifica, Irvine, CA 92618	Irvine	Class II On-Street Bikeway Facility
2	Laguna Altura Trail	79 Borghese, Irvine, CA 92618	Irvine	Private community trail (0.5 miles in length) that connects to the San Diego Creek Trail

There would be no use of land from these properties under Section 4(f) (permanent incorporation of land from the property into the transportation facility) and there are no TCEs or other temporary occupancies within the boundaries of all the above-mentioned properties in Table 4 under the Build Alternative. There are no permanent or temporary occupancy of land from these resources under the Build Alternative. Thus, the requirements for protection under Section 4(f) are not triggered for the properties in Table 4.

In terms of proximity or constructive use impacts:

- no staging areas or vehicular access near these resources are proposed,
- no substantial short-term or long-term visual impacts will occur,
- no adverse effects to water quality from construction activities anticipated,
- project constructions activities would not produce substantial operational air quality impacts,
- no long-term substantial noise impacts are anticipated,
- and operation of the Build Alternative would not result in any direct or indirect vegetation impacts.

The properties listed above are Section 4(f) properties, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

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
FAX (916) 653-5776
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 – RTP-FTIP

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2019 FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM
ORANGE COUNTY
GROUP PROJECT LISTING
(in $000's)

#19-02 ORA ORA001105_SHOPP_MP

Grouped Projects for Safety Improvements - SHOPP Mobility Program. Scope: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - Railroad/highway crossing, Safer non-Federal-aid system roads, Shoulder imp, traffic control devices ops assistance.Intersection signalization projects, Pavement marking demo,Lighting
MOBILITY PROJECTS

RTIP #	DESCRIPTION	PHASE	18/19	19/20	20/21	21/22	Total
ORA001105	In Orange County, in Anaheim, at the Commercial Vehicle Enforcement Facility (CVEF), Peralta Weigh Station (Eastbound). Rehab and upgrade CVEF. EA 0N4900	E	$2,015				$2,015
		R	$10				$10
		C	$8,179				$8,179
ORA001105	In roange County, in Santa Ana and Tustin, from Dyer Road on ramp to Edinger Avenue off-ramp. Construct northbound Aux. Lane. EA 0G9500	E		$3,700			$3,700
		R		$27,200			$27,200
		C		$15,900			$15,900
ORA001105	In Orange County, Anaheim, Santa Ana, Fullerton and Buena Park. Install & modify Intelligent Transportation system (ITS) elements. EA 0P42U1 (Combined from 0N9000,0P4100 & 0P4200 to be come 0P42U1)	E		$3,723			$3,723
		R		$9			$9
		C		$25,118			$25,118
ORA001105	In Orange County, on I-5 from PM 33.0/ to 43.2. on SR-57 from PM 10.7/16.6. SR-91 from PM R2.6 to R4.1 and 0.0/7.2. Implemente ICM to reduce congestion by leveraging unused capacity along project corridors.	E		$6,723			$6,723
	EA 0P6700	R		$320			$320
	Update Engineer costs, PS&E request amount greater than Program amount: October 2018 CTC approval	C		$17,323			$17,323
ORA001105	In Orange County, at various routes and locations (Route 5, 405, 605). Construction of inductive system, vehicle detection system and ramp metering systems. EA 0Q6900	E		$2,060			$2,060
		R		$24			$24
		C		$8,330			$8,330
ORA001105	In Orange County, on SR-1 between Crystal Heights Drive and First Street in the cities of Newport Beach, Huntingt5on Beach and Seal Beach. Remove and replace all existing signal lights at 20 intersections along SR-1. EA 0P6800	E		$6,190			$6,190
		R		$1,435			$1,435
		C		$16,462			$16,462
ORA001105	In Irvine, from SB 5/SB 133 connector to SB 133/NB 405 connector. Construct new Aux. lane EA 0N8900	E				$4,727	$4,727
		R				$905	$905
		C				$19,470	$19,470
ORA001105	In Irvine, from Rte. 133 to Sand Canyon Avenue; Also from Sand Canyon Avenue to University Drive/Jefferey Road. Const. SB Aux. lane EA 0H0451	E					
		R					
		C	$8,200				$8,200
ORA001105	In Orange County, on Routes 55, 57, 73, 133 and 405. Replace "METER ON" signal heads with new flashing beacon. EA 0Q5800 (Minor SHOPP project)	E	$915				$915
		R					
		C	$1,250				$1,250
	Total		$20,569	$134,517	$0	$25,102	$180,188

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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
ORA001103	Orange	SCAB		REG0701	SHP03	999					S	EXEMPT - 93.126	0
Description:							PTC	71,342			Agency	CALTRANS	

Grouped Projects for Pavement resurfacing and/or rehabilitation - SHOPP Roadway Preservation Program. Scope: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 categories - Pavement resurfacing and/or rehabilitation, Emergency relief (23 U.S.C. 125), Widening narrow pavements or reconstructing bridges (no additional travel lanes)

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
SHOPP - ADVANCE CONSTRUCTION			71,342	71,342		11,385	59,957					71,342
ORA001103 Total			71,342	71,342		11,385	59,957					71,342

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA001104	Orange	SCAB		REG0701	SHP02	999					S	EXEMPT - 93.126	0
Description:							PTC	1,260			Agency	CALTRANS	

Grouped Projects for Shoulder Improvements - SHOPP Roadside Preservation Program. Scope: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 categories - Fencing, Safety roadside rest areas

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
SHOPP - ADVANCE CONSTRUCTION			1,260	1,260		1,260						1,260
ORA001104 Total			1,260	1,260		1,260						1,260

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA001105	Orange	SCAB		REG0701	SHP01	999					S	EXEMPT - 93.126	0
Description:							PTC	129,561			Agency	CALTRANS	

Grouped Projects for Safety Improvements - SHOPP Mobility Program. Scope: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - Railroad/highway crossing, Safer non -Federal-aid system roads, Shoulder imp, traffic control devices ops assistance.Intersection signalization projects, Pavement marking demo,Lighting

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
SHOPP - ADVANCE CONSTRUCTION			129,561	129,561		10,204	119,357					129,561
ORA001105 Total			129,561	129,561		10,204	119,357					129,561

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	Signage Begin	Signage End	System	Conformity Category	Amendment
ORA001108	Orange	SCAB		REG0701	SHP04	999					S	EXEMPT - 93.126	0
Description:							PTC	27,796			Agency	CALTRANS	

Grouped Projects for Safety Improvements - SHOPP Mandates Program. Scope: Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 and Table 3 categories - Railroad/highway crossing, Safer non-Federal-aid system roads, Shoulder imp, traffic control devices and ops assistance other than signalization projects, Lighting imp

Fund	ENG	R/W	CON	Total	Prior	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	Total
SHOPP - ADVANCE CONSTRUCTION			27,796	27,796		7,165	20,631					27,796
ORA001108 Total			27,796	27,796		7,165	20,631					27,796

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TABLE 1 FTIP Projects - Continued

County	System	FTIP ID	Route #	Description
ORANGE	STATE HIGHWAY	ORA150110	91	SR-91 (SR-57 TO SR-55) - PROJECT PROPOSES TO ADD 1 GP LANE EASTBOUND FROM SR-57 TO SR-55, AND 1 GP LANE WESTBOUND FROM G STREET TO STATE COLLEGE BLVD. ADDITIONAL FEATURES OF THE PROJECT INCLUDE IMPROVEMENTS TO NEARBY LOCAL INTERCHANGES A FREEWAY CONNECTORS. AUXILIARY LANES WILL BE ADDED IN CERTAIN SEGMENTS (PA&ED PHASE).
ORANGE	STATE HIGHWAY	ORA000821	91	SR-91 WB (SR-55 THROUGH TUSTIN INTERCHANGE) EXTEND LANE AND RECONSTRUCT AUX. LANE. PPNO 4587A EA 0C560)
ORANGE	STATE HIGHWAY	ORA020807	91	IN ORANGE COUNTY, AT THE COAL CANYON ROAD INTERCHANGE. THE PROJECT IS TO INSTALL VEGETATION ENHANCEMENTS. EA12-0K330
ORANGE	STATE HIGHWAY	ORA051	241	FOOTHILL TRANSPORTATION CORRIDOR-NORTH (FTC-N - SR 241). 12.7 MI TOLL ROAD BETWEEN OSO PKWY AND ETC, CONSISTENT WITH SC/ 4/05/01. EXISTING 2 M/F IN EA DIR. 2 ADDITIONAL M/F, PLS CLIMBING & AUX LANES BY 2020.
ORANGE	STATE HIGHWAY	ORA052	241	FOOTHILL TRANSPORTATION CORRIDOR-SOUTH (FTC-S - SR 241). 10.3 MI TOLL ROAD BETWEEN SAN DIEGO COUNTY LINE AND OSO PKWY, C WITH SCAG/TCA MOU 4/05/01. 2 M/F EA DIR FROM OSO PKWY TO COW CAMP RD BY 2017. 2 M/F EA DIR FROM COW CAMP RD TO SAN DIEGC 2021. 1 ADDITIONAL M/F EA DIR PLS CLIMBING & AUX LANES BY 2030.
ORANGE	STATE HIGHWAY	ORA111207	241	241/91 EXPRESS LANES (HOT) CONNECTOR: NB SR-241 TO EB SR-91, WB SR-91 TO SB SR-241, PER SCAG/TCA MOU 4/05/01.
ORANGE	STATE HIGHWAY	ORA111207	241	241/91 EXPRESS LANES (HOT) CONNECTOR: NB SR-241 TO EB SR-91, WB SR-91 TO SB SR-241, PER SCAG/TCA MOU 4/05/01. PARENT PROJEC
ORANGE	STATE HIGHWAY	ORA050	241	EASTERN TRANSPORTATION CORRIDOR (ETC- SR 241/261/133) 26.4 MI TOLL ROAD CONNECTS SR 91 TO I-5 VIA SR 261 AND SR 133, CONSISTE TCA MOU 4/05/01. EXISTING 2 M/F EA DIR. 2 ADDITIONAL M/F IN EA DIR, PLUS CLIMBING AND AUX LANES BY 2020.
ORANGE	STATE HIGHWAY	ORA131304	405	I-405(I-5 TO SR-55)-ADD 1 MF LANE EACH DIRECTION FROM I-5 TO SR-55 AND IMPROVE MERGING.(UTILIZE TOLL CREDIT MATCH FOR RSTP) E
ORANGE	STATE HIGHWAY	ORA130064	405	I-405 – ADD ONE SOUTHBOUND AUXILIARY LANE FROM UNIVERSITY DRIVE TO SAND CANYON (SEGMENT 2) AND SAND CANYON AVENUE TC (SEGMENT 1)
ORANGE	STATE HIGHWAY	ORA113030	405	WIDEN RAMP FOR DECELERATION LANE - NB I-405 FROM 1 MILE NORTH OF JEFFERY RD TO CULVER DR. 0.6 MILES SPLIT FROM ORA001105
ORANGE	STATE HIGHWAY	ORA000194	405	HOV CONNECTORS FROM I-405 TO I-605, BETWEEN KATELLA AVE. (I-605 PM R001.104) AND SEAL BEACH BLVD. (I-405 PM 022.643), WITH A LANE IN EACH DIRECTION ON I-405 BETWEEN THE TWO DIRECT CONNECTORS. TOLL CREDITS FOR CMAQ.
ORANGE	STATE HIGHWAY	ORA030605	405	I-405 FROM SR-73 TO I-605. ADD 1 MF LANE IN EACH DIRECTION, AND ADDITIONAL CAPITAL IMPROVEMENTS. COMBINED WITH ORA045, ORA AND ORA120310. PHASE 2 LISTED UNDER ORA030605A
ORANGE	STATE HIGHWAY	ORA030605A	405	I-405 FROM SR-73 TO I-605. CONVERT EXISTING HOV TO HOT. ADD 1 ADDITIONAL HOT LANE EACH DIRECTION AND ADD A HOT DIRECT CONNI (BY 2035). PHASE 1 PROJECT LISTED UNDER ORA030605
ORANGE	STATE HIGHWAY	ORA001108	999	GROUPED PROJECTS FOR SAFETY IMPROVEMENTS - SHOPP MANDATES PROGRAM. SCOPE: PROJECTS ARE CONSISTENT WITH 40 CFR PAR EXEMPT TABLES 2 AND TABLE 3 CATEGORIES - RAILROAD/HIGHWAY CROSSING, SAFER NON-FEDERAL-AID SYSTEM ROADS, SHOULDER IMP, CONTROL DEVICES AND OPS ASSISTANCE OTHER THAN SIGNALIZATION PROJECTS, LIGHTING IMP
ORANGE	STATE HIGHWAY	ORA040607	999	ORANGE COUNTY - COUNTYWIDE ACTIVITIES: PLANNING, PROGRAMMING AND MONITORING (PPM)
ORANGE	STATE HIGHWAY	ORA001104	999	GROUPED PROJECTS FOR SHOULDER IMPROVEMENTS - SHOPP ROADSIDE PRESERVATION PROGRAM. SCOPE: PROJECTS ARE CONSISTEN PART 93.126 EXEMPT TABLES 2 CATEGORIES - FENCING, SAFETY ROADSIDE REST AREAS
ORANGE	STATE HIGHWAY	ORA084402	999	GROUPED PROJECTS FOR PURCHASE OF OFFICE, SHOP, AND OPERATING EQUIPMENT FOR EXISTING FACILITIES. SCOPE - PROJECTS ARE C WITH 40 CFR PART 93.126 EXEMPT TABLES 2 AND TABLE 3 CATEGORIES - PURCHASE OF OFFICE, SHOP, AND OPERATING EQUIPMENT FOR E FACILITIES
ORANGE	STATE HIGHWAY	ORA001103	999	GROUPED PROJECTS FOR PAVEMENT RESURFACING AND/OR REHABILITATION - SHOPP ROADWAY PRESERVATION PROGRAM. SCOPE: PRO CONSISTENT WITH 40 CFR PART 93.126 EXEMPT TABLES 2 CATEGORIES - PAVEMENT RESURFACING AND/OR REHABILITATION, EMERGENCY 125), WIDENING NARROW PAVEMENTS OR RECONSTRUCTING BRIDGES (NO ADDITIONAL TRAVEL LANES)
ORANGE	STATE HIGHWAY	ORA001105	999	GROUPED PROJECTS FOR SAFETY IMPROVEMENTS - SHOPP MOBILITY PROGRAM. SCOPE: PROJECTS ARE CONSISTENT WITH 40 CFR PART TABLES 2 AND TABLE 3 CATEGORIES - RAILROAD/HIGHWAY CROSSING, SAFER NON-FEDERAL-AID SYSTEM ROADS, SHOULDER IMP, TRAFFIC DEVICES OPS ASSISTANCE.INTERSECTION SIGNALIZATION PROJECTS, PAVEMENT MARKING DEMO,LIGHTING
ORANGE	STATE HIGHWAY	ORA001109	999	GROUPED PROJECTS FOR BRIDGE REHABILITATION AND RECONSTRUCTION - SHOPP PROGRAM. SCOPE: PROJECTS ARE CONSISTENT WIT 93.126 EXEMPT TABLES 2 CATEGORIES - WIDENING NARROW PAVEMENTS OR RECONSTRUCTING BRIDGES (NO ADDITIONAL TRAVEL LANES)

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2018 SHOPP Project List
Orange
($1,000)

Dist- Co-Rte Post Mile PPNO EFIS	Location/Description	EA Prog Year	Capital		Support		COS Allocation FY	Milestones	
12-Orange-39 15.2/15.9 3230A 1212000031	In Buena Park, from Auto Center Drive to Craig Avenue. Rehabilitate drainage systems, install new inlets, Reinforced Concrete Pipes (RCP) and replace flood damaged sections of curb and gutters.	0F970 2019-20	R/W: Const:	$414 $2,226	PA&ED: PS&E: R/W Sup: Con Sup:	 $870 $153 $906	 Prior Prior 19-20	PA&ED: R/W Cert: RTL: Begin Con:	6/26/2017 11/1/2019 11/15/2019 7/15/2020
			Subtotal:	$2,640		$1,929			
			Total Project Cost:			**$4,569**			
Carryover			**Program Code** **Performance Measure**	201.151 Drainage System Restoration 24 Culvert(s) (ea)					
12-Orange-133 3.1/R4.3 4792 1216000133	In Orange County, from 0.3 mile south of El Toro Road to 0.2 mile north of Route 73/133 Interchange. Construct detention basin, reconstruct channel, extend reinforced concrete box and regrade to prevent adverse flow.	0Q360 2019-20	R/W: Const:	$1,467 $2,095	PA&ED: PS&E: R/W Sup: Con Sup:	$1,125 $1,712 $766 $1,188	Prior 18-19 18-19 19-20	PA&ED: R/W Cert: RTL: Begin Con:	10/2/2018 4/17/2020 6/15/2020 1/5/2021
			Subtotal:	$3,562		$4,791			
			Total Project Cost:			**$8,353**			
Carryover			**Program Code** **Performance Measure**	201.151 Drainage System Restoration 2 Culvert(s) (ea)					
MOBILITY									
12-Orange-55 R8.0/R9.2 3483 1215000045	In the cities of Santa Ana and Tustin, from Dyer Road onramp to Edinger Avenue offramp. Construct northbound auxiliary lane.	0G950 2019-20	R/W: Const:	$24,500 $13,100	PA&ED: PS&E: R/W Sup: Con Sup:	$200 $3,500 $2,700 $2,800	Prior Prior Prior 19-20	PA&ED: R/W Cert: RTL: Begin Con:	9/11/2017 6/1/2020 6/15/2020 12/23/2020
			Subtotal:	$37,600		$9,200			
			Total Project Cost:			**$46,800**			
Carryover			**Program Code** **Performance Measure**	201.310 Operational Improvements 1153 Daily vehicle hour(s) of delay (DVHD)					
12-Orange-133 8.5/M9.3 4846 1214000130	In Irvine, from southbound 5/SB 133 Connector to southbound 133/NB 405 Connector. Construct a new auxiliary lane to improve traffic flow.	0N890 2021-22	R/W: Const:	$253 $14,926	PA&ED: PS&E: R/W Sup: Con Sup:	$1,503 $3,224 $652 $4,544	18-19 19-20 19-20 21-22	PA&ED: R/W Cert: RTL: Begin Con:	11/1/2019 9/1/2021 10/1/2021 3/1/2022
			Subtotal:	$15,179		$9,923			
			Total Project Cost:			**$25,102**			
New			**Program Code** **Performance Measure**	201.310 Operational Improvements 271 Daily vehicle hour(s) of delay (DVHD)					

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Appendix D - List of Technical Studies

Air Quality Report (November 2019) – Prepared by Caltrans District 12

Revised Air Quality Report (December 2019) – Prepared by Caltrans District 12

Historic Property Survey Report (December 2019) and Archaeological Survey Report (ASR)– Prepared by LSA Associates, Inc.

Preliminary Hydraulic Evaluation (April 2019) – Prepared by Caltrans District 12

Structure Preliminary Geotechnical Report (4 reports in all) (April 2019) – Prepared by Caltrans District 12

Noise Study Report (September 2019) – Prepared by Caltrans District 12

Noise Abatement Decision Report (September 2019) – Prepared by Caltrans District 12

Natural Environment Study Minimal Impacts (NES MI) and Jurisdictional Delineation (JD) (December 2019) – Prepared by Caltrans District 12

Paleontological Identification Report and Paleontological Evaluation Report (September 2019) Prepared by LSA Associates, Inc.

Supplemental Paleontological Identification Report and Paleontological Evaluation Report Memo and Paleontological Identification Report and Paleontological Evaluation Report (December 2019) Prepared by LSA Associates, Inc.

Initial Site Assessment Checklist (May 2016) – Prepared by Caltrans District 12

Visual Impact Assessment Questionnaire (July 2019) – Prepared by Caltrans District 12

Water Quality Technical Memorandum (December 2019) – Prepared by Caltrans District 12

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Appendix E – Avoidance, Minimization, and/or Mitigation Summary

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.

Note: Mitigation measures are used to lessen a significant impact under CEQA

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Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Project Feature	Air Quality	**PF-AQ-1:** The construction contractor must comply with Caltrans Standard Specification in Section 14-9, Air Quality, which 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 ordinances.	Resident Engineer Project Engineer	Design Construction	No
Project Feature	Hazardous Materials	**PF-HAZ-1:** Solid Waste Disposal and Recycling Section 14.10 of CT 2018 SSPs. to reduce GHG emissions and potential climate change impacts	Resident Engineer Contractor	Design Construction	No
Project Feature	Hazardous Materials	**PF-HAZ-2:** Should construction activities result in the disturbance of traffic striping and pavement marking materials, the generated wastes would be disposed of at an appropriate permitted disposal facility as determined by a lead specialist	Resident Engineer Contractor	Design Construction	No
Project Feature	Hazardous Materials	**PF-HAZ-3:** During construction, the construction contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 of the Caltrans' Construction Manual	Resident Engineer Contractor	Design Construction	No
Project Feature	Noise	**PF-N-1:** During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Noise associated with construction is controlled by 2018 Caltrans Standard Specification Section 14-8.02,"Noise Control," which states the following: Control and monitor noise resulting from work activities. Do not exceed 86 dBA Lmax at 50 feet from the job site from 9 p.m. to 6 a.m.	Resident Engineer Project Engineer	Design Construction	No
Project Feature	Recreation	**PF-REC-1**: The property used for temporary construction easement will be restored to a condition at least as good as it was prior to easement being granted	Resident Engineer Project Engineer	Design Construction	No
Project Feature	Water Quality	**PF-WQ-1:** The project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS000003 and any subsequent permits in effect at the time of construction.	Resident Engineer Project Engineer	Construction	No

Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Project Feature	Water Quality	**PF-WQ-2 Caltrans Standard Specification 13-3.01D (2)-Regulatory Requirements:** The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES General Permit No. CAS000002 and any subsequent permits in effect at the time of construction.	Resident Engineer Project Engineer	Design Construction	No
Project Feature	Water Quality	**PF-WQ-3 Caltrans Standard Specification 13-3 Storm Water Pollution Prevention Plan:** The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of Storm water and include BMPs to control the pollutants, such as: sediment control, catch basin inlet protection, construction materials management, and non-storm water BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual 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	Resident Engineer Project Engineer	Design Construction	No
Project Feature	Water Quality	**PF-WQ-4:** Design Pollution Prevention BMPs will be implemented such as preservation of existing vegetation, slow/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protect/velocity dissipation devices.	Project Engineer Resident Engineer	Design Construction	No
Project Feature	Water Quality	**PF-WQ-5:** Caltrans approved treatment BMPs will be implemented consistent with the requirements of NPDES permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-001-DWQ, NPDES No. CA200003 and any subsequent permits in effect at the time of construction.	Project Engineer Resident Engineer	Design Construction	No

Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Project Feature	Water Quality	**PF-WQ-6:** Any discharges of groundwater to surface waters during construction will be subject to the General Waste Discharge Permit for Discharges to Surface Waters of Groundwater Resulting from Groundwater Dewatering Operations and/or Groundwater Cleanup Activities at Sites Within the San Diego Creek/ Newport Bay Watershed Polluted by Petroleum Hydrocarbons, Solvents, Metals, and/ or Salts (Order No. R8-2007-0042, NPDES NO. CAG918002) and any subsequent updates to the permit at the time of construction.	Project Engineer Resident Engineer	Design Construction	No
Project Feature	Biology	**PF-BIO-1:** To avoid impacts to any nesting birds, ground disturbance that occurs during the nesting bird season (February 1 – September 30) will require nesting bird surveys by a Caltrans Biologist within 72 hours prior to the start of work. The Caltrans Biologist will be contacted at least one week ahead of time to schedule a survey	Project Engineer Resident Engineer	Design Construction	No
Project Feature	Biology	**PF-BIO-2:** To avoid the spread of invasive plant species, all vegetation being removed should be disposed of properly. If vegetation is planted on site, the Caltrans Biologist and Landscape Architect will coordinate and approve the proposed vegetation to be planted. During construction, the contractor shall inspect and clean construction equipment at the beginning of each day and prior to transporting equipment into the creek During construction, soil and vegetation disturbance will be minimized to the greater extent feasible. Contractor shall use weed-free straw and fiber rolls to use for erosion control. During construction, the contractor shall ensure that all material stockpiled within the creek sufficiently watered and covered to prevent growth of invasive plants. During construction gravel and rock will be obtained from weed-free sources.	Project Engineer Resident Engineer	Design Construction	No
Avoidance	Biology	**BIO-1:** Prior to any construction, highly visible barriers (ESA fence) will be installed around the project disturbance limits to designate Environmentally Sensitive Areas within San Diego creek. The ESA fence shall be installed under the direction of a qualified Biologist. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas.			
Avoidance	Biology	**BIO-2:** Prior to the beginning of construction adjacent to the ESAs, a qualified biologist will survey areas adjacent to the ESA boundaries to flush any wildlife species present prior to construction and ensure all avoidance measures are properly implemented			

Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Avoidance	Biology	**BIO-3:** A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented to comply with the National Pollutant Discharge Elimination System (NPDES) Statewide Construction General Permit (CGP). The SWPPP will identify and implement temporary Best Management Practices (BMPs) during construction to address the temporary impacts to water quality.	Project Engineer Biologist Resident Engineer	Construction	No
Avoidance	Biology	**BIO-4:** Equipment including but not limited to excavators, motor vehicles and trucks shall not be allowed to operate in the ESAs. No equipment and material storage will be allowed within or adjacent to ESAs. All equipment maintenance, staging dispensing of fuel oil or any other such activities shall occur in developed or designated non-sensitive areas. This area shall be reviewed and approved by the District Biologist. Upon completion of construction, the ESA fence shall be removed.	Project Engineer Biologist Resident Engineer	Construction	No
Avoidance	Biology	**BIO-5:** Appropriate permits from the US Army Corps of Engineers, the California Department of Fish and Wildlife, and the Regional Water Quality Control Board will be obtained prior to construction.	Project Engineer Biologist Resident Engineer	Construction	No
Avoidance	Biology	**BIO-6:** In the event that suitable trees for Cooper's hawk nests are required to be removed during nesting season, a qualified biologist will conduct pre-construction nesting bird surveys. If nesting Cooper's hawk are found, the biologist will create a buffer zone and an ESA fence will be placed around the buffer zone. No construction work shall occur within the buffer zone until the nest is no longer active and all young birds fledged.	Engineer Biologist Resident Engineer	Construction	No
Avoidance	Biology	**BIO-7:** Although suitable roosting habitats are present within the BSA and no evidence of bats was observed this year, it is possible that the hinges within the San Diego Creek bridge or palm trees may be used at other times of the year or during the construction period. Therefore, one year prior to the beginning of construction, a bat assessment survey and day/nighttime emergence surveys will be conducted during maternity season. The survey includes a combination of suitable habitat assessment, exit counting, and acoustic surveys. If maternity roosting bats are found, additional avoidance and minimization measures will be included at the time of the survey.	Engineer Biologist Resident Engineer	Construction	No

Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Avoidance	Biology	**BIO-8:** A bat survey will be conducted two weeks prior to beginning of construction work within San Diego creek bridges. If the bridges are determined to be occupied outside maternity roosting period, bat exclusion devise (one-way doors) will be installed. A qualified bat biologist will monitor the installation and exclusion of bats during construction period. If maternity roost is present, no work under the bridge will occur during maternity season (April-August) and exclusion devise will be installed after September 1 or after all young leave the structure.	Engineer Biologist Resident Engineer	Construction	No
Project Feature	Cultural Resource	**PF-CUL-1: Caltrans Standard Specification Section 14-2.03A: Discovery of Cultural Materials.** If cultural materials are discovered during construction activities, the construction Contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, coordination will be maintained with the California Department of Transportation District 12 Environmental Branch Chief or the District 12 Native American Coordinator to determine an appropriate course of action	Archaeologist Resident Engineer Contractor	Construction	No
Project Feature	Cultural Resource	**PF-CUL-2: Caltrans Standard Specification Section 14-2.03A: Discovery of Human Remains.** If human remains are discovered during construction activities, California State Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected o overlie remains, and the Orange County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), who pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.	Archaeologist Resident Engineer Contractor	Construction	No

Measure	Resource Area	Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Required
Mitigation**	Paleontology	**PAL-1: Caltrans Standard Special Provision Section 14-7.04 Paleontological Mitigation Plan:** A Paleontological Mitigation Plan (PMP) shall be prepared during the Plans, Specifications, and Estimates (PS&E) phase. The PMP shall be developed concurrently with the final design plans and shall follow the Caltrans guidelines in the *SER, Environmental Handbook, Volume 1, Chapter 8 – Paleontology* (Caltrans, 2017), as well as guidelines from the Society of Vertebrate Paleontology (SVP). Following these guidelines, the PMP shall include sections describing project activities, the geologic units within the project area and their paleontological sensitivities, the work plan for mitigating project impacts to paleontological resources, estimates of monitoring schedules and costs, decision thresholds for monitoring levels and fossil collections, a recommended repository for recovered fossils, any necessary permits, and the appropriate documentation at the end of the monitoring program. Once the PMP has been prepared, the paleontological resource protocols and procedures within it shall be incorporated into the project plans, specifications, and estimates.	Project Engineer Archaeologist Resident Engineer Contractor	Design Construction Post-Construction	No
Project Feature	Paleontology	**PF-PAL-1:** 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.	Resident Engineer Archaeologist Contractor	Construction Post-Construction	No
Project Feature	Traffic	**PF-TRA-1:** A Transportation Management Plan (TMP) shall be included in the design plans for implementation by the contractor prior to and during construction of any improvements. The TMP shall consist of prior notices, adequate sign posting, detours, phased construction, and temporary driveways where necessary. The TMP shall specify implementation timing of each plan element (e.g., prior notices, sign posting, detours) as determined appropriate by Caltrans. Adequate local emergency access shall be provided at all times to adjacent uses. Proper detours and warning signs shall be established to ensure public safety. The TMP shall be devised so that construction shall not interfere with any emergency response or evacuation plans. Construction activities shall proceed in a timely manner to reduce impacts.	Traffic Engineer Resident Engineer Project Engineer Contractor	Design Construction	No

Appendix F – Layout Plans

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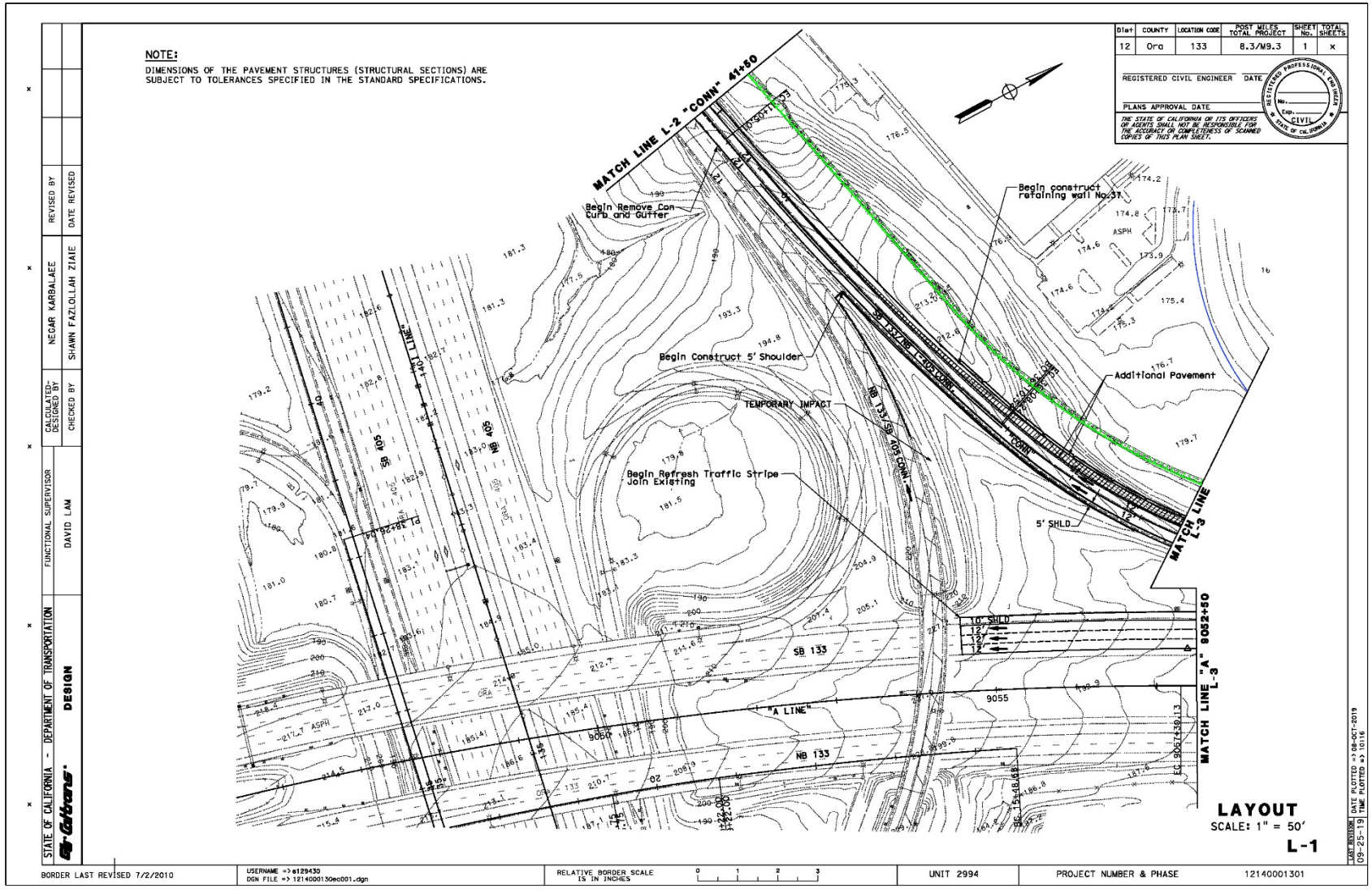
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MATCH LINE L-2 "CONN" 41+50
Begin Remove Con Curb and Gutter
Begin construct retaining wall No.37
Begin Construct 5' Shoulder
TEMPORARY IMPACT
Begin Refresh Traffic Stripe Join Existing
Additional Pavement
5' SHLD
10' SHLD
MATCH LINE L-3
MATCH LINE "A" 9052+50
"A LINE"
SB 133
NB 133
SB 405
NB 405
SB 133/SB 405 CONN
NB 133/NB 405 CONN
ASPH
9055
9060
LAYOUT
SCALE: 1" = 50'
L-1
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR
DAVID LAM
CALCULATED-DESIGNED BY
NEGAR KARBALAEE
CHECKED BY
SHAWN FAZLOLLAH ZIAIE
REVISED BY
DATE REVISED
Dist 12
COUNTY Ora
LOCATION CODE 133
POST MILES TOTAL PROJECT 8.3/M9.3
SHEET No. 1
TOTAL SHEETS x
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PLANS APPROVAL DATE
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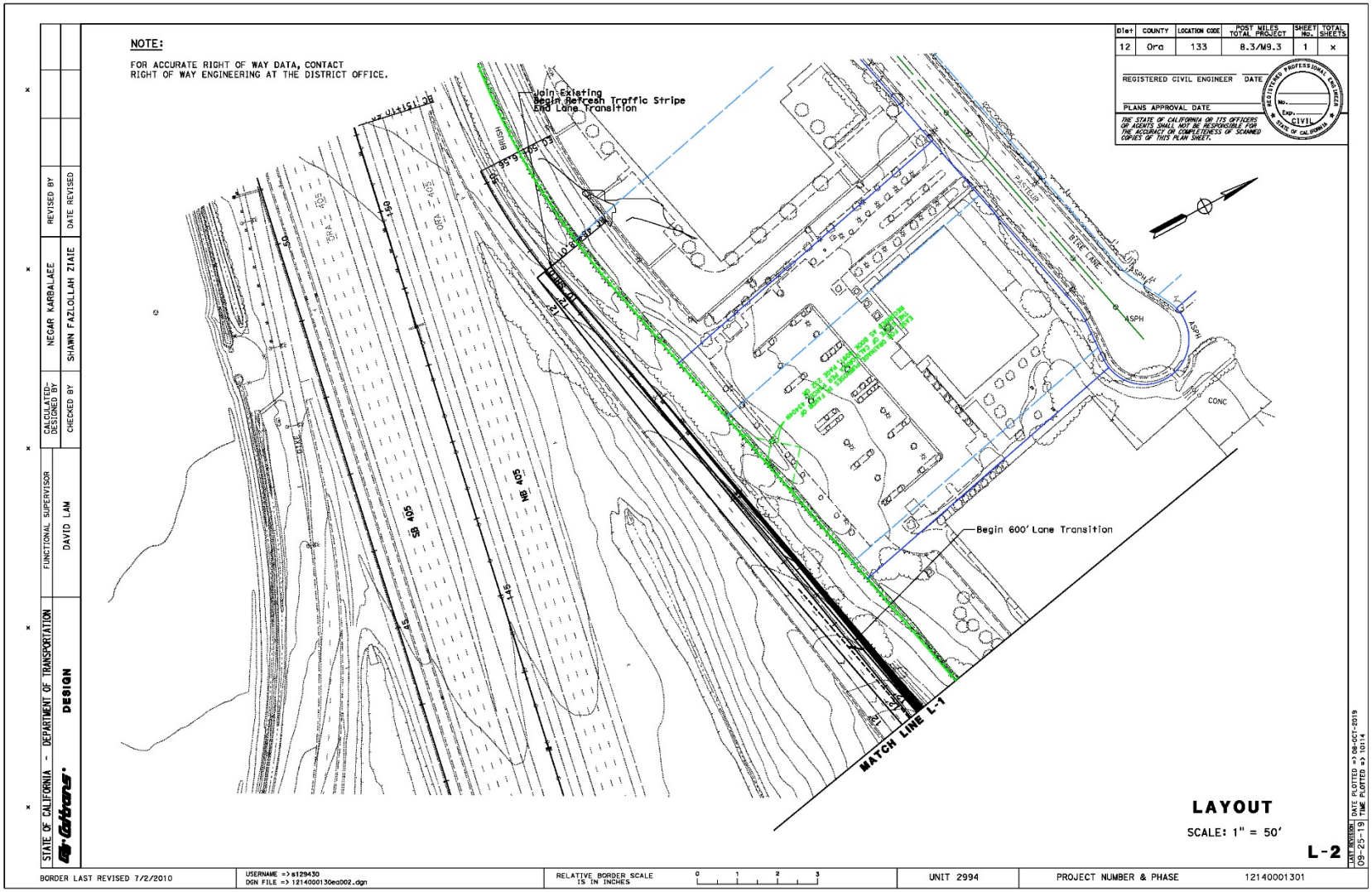
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FOR ACCURATE RIGHT OF WAY DATA, CONTACT
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Begin Refresh Traffic Stripe
End Lane Transition
Begin 600' Lane Transition
MATCH LINE L-1
LAYOUT
SCALE: 1" = 50'
L-2
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR
DAVID LAM
CALCULATED-DESIGNED BY
NEGAR KARBALAEE
CHECKED BY
SHAWN FAZLOLLAH ZIAIE
REVISED BY
DATE REVISED
Dist
COUNTY
LOCATION CODE
POST MILES TOTAL PROJECT
SHEET No.
TOTAL SHEETS
12
Ora
133
8.3/M9.3
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DATE
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CIVIL
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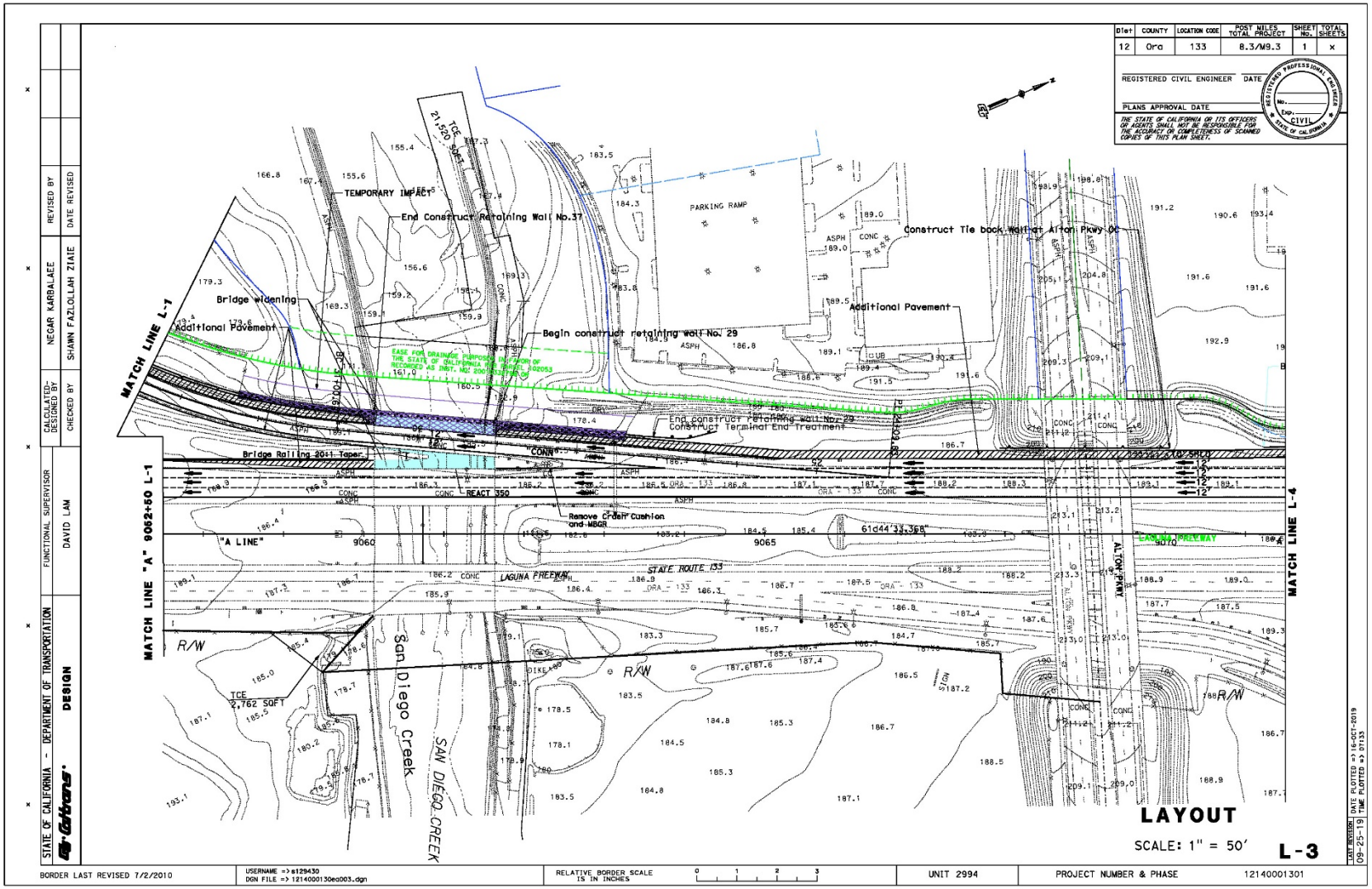
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L-3
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MATCH LINE "A" 9062+60 L-1
MATCH LINE L-4
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Bridge widening
Additional Pavement
Begin construct retaining wall No. 29
Construct Tie back Wall at Alton Pkwy OC
Additional Pavement
End construct Retaining Wall No. 29
Construct Terminal End Treatment
Bridge Railing 20:1 Taper
Remove Crash Cushion and MBGR
"A LINE"
STATE ROUTE 133
LAGUNA FREEWAY
ALTON PKWY
San Diego Creek
SAN DIEGO CREEK
R/W
TCE 2,762 SQFT
TCE 21,520 SQFT
PARKING RAMP
REACT 350
61d44'33.36B"
9060
9065
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR
DAVID LAM
CALCULATED-DESIGNED BY
NEGAR KARBALAEE
CHECKED BY
SHAWN FAZLOLLAH ZIAIE
REVISED BY
DATE REVISED
Dist
COUNTY
LOCATION CODE
POST MILES TOTAL PROJECT
SHEET No.
TOTAL SHEETS
12
Ora
133
8.3/M9.3
1
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DATE
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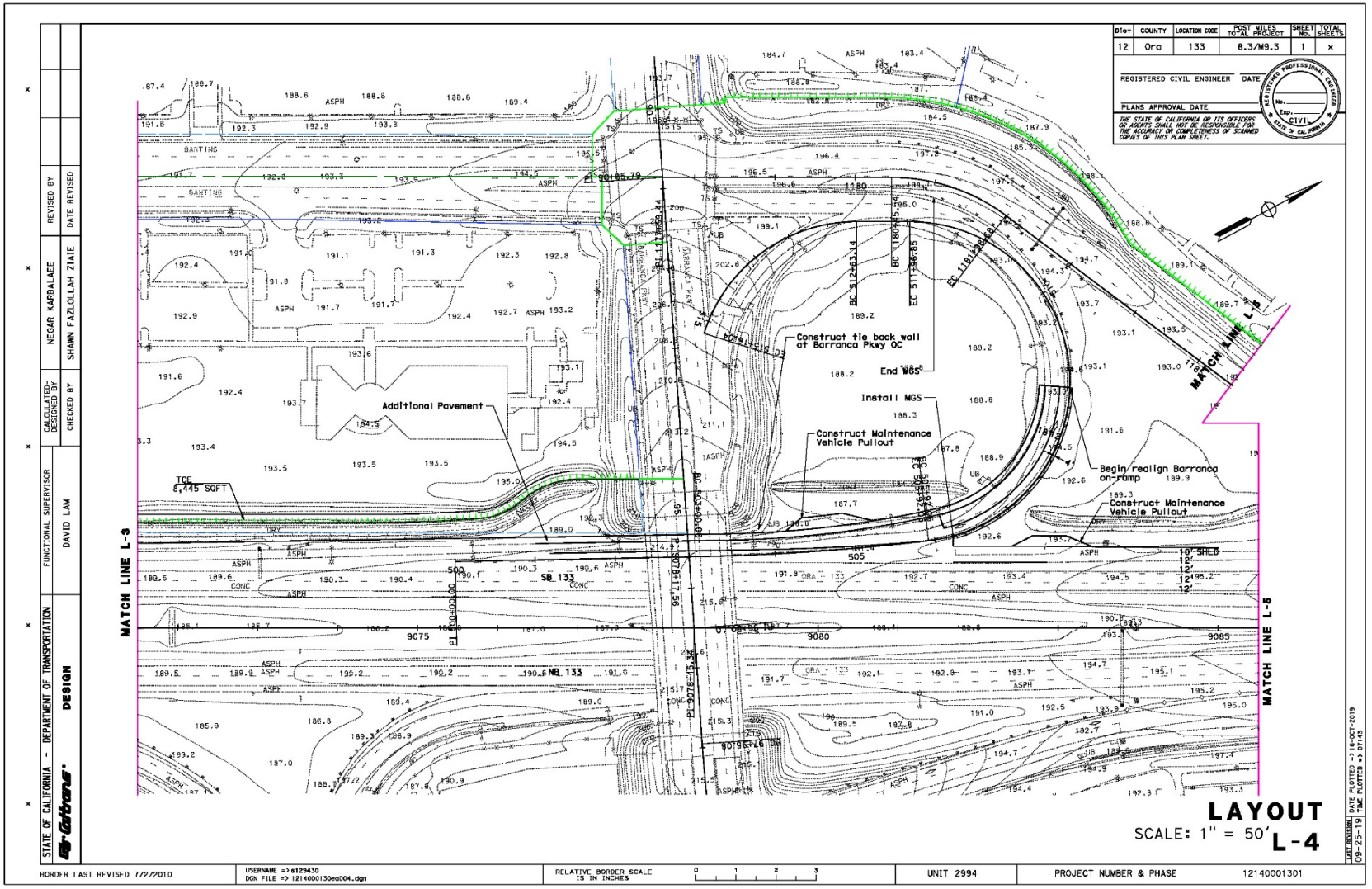
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REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR
DAVID LAM
CALCULATED-DESIGNED BY
CHECKED BY
NEGAR KARBALAEE
SHAWN FAZLOLLAH ZIAIE
REVISED BY
DATE REVISED
MATCH LINE L-3
MATCH LINE L-5
Additional Pavement
TCE 8,445 SQFT
Construct tie back wall at Barranca Pkwy OC
End MGS
Install MGS
Construct Maintenance Vehicle Pullout
Begin realign Barranca on-ramp
Construct Maintenance Vehicle Pullout
10' SHLD
12'
SB 133
NB 133
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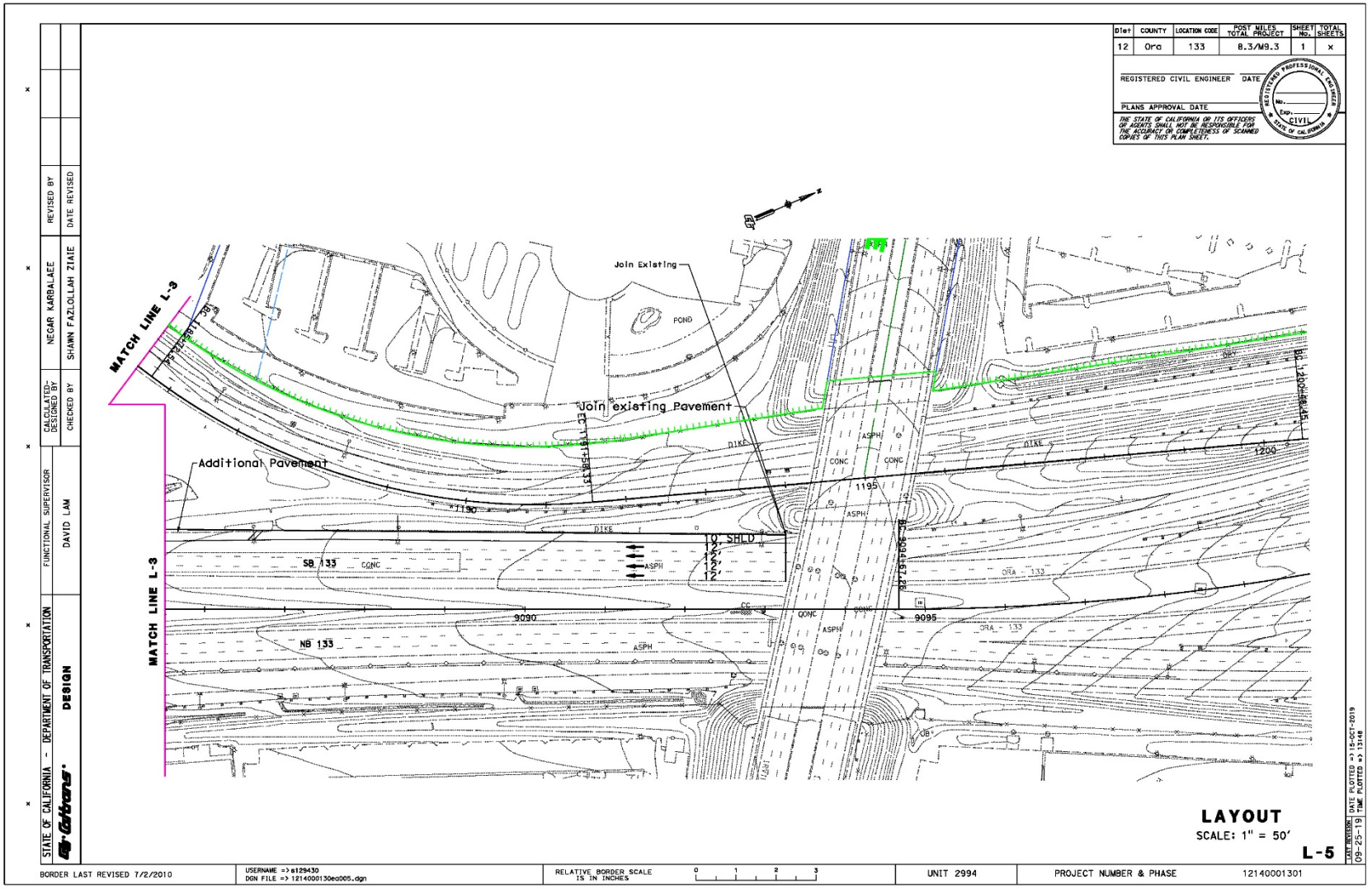
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REGISTERED PROFESSIONAL ENGINEER
No.
Exp.
CIVIL
STATE OF CALIFORNIA
CALCULATED-DESIGNED BY
NEGAR KARBALAEE
CHECKED BY
SHAWN FAZLOLLAH ZIAIE
REVISED BY
DATE REVISED
FUNCTIONAL SUPERVISOR
DAVID LAM
DESIGN
MATCH LINE L-3
MATCH LINE L-3
Join Existing
Join existing Pavement
Additional Pavement
POND
DIKE
CONC
ASPH
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NB 133
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Appendix G – Construction Emissions

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PROJECT: SB Rte 133 Traffic Operation Improvement Project DATE: 10/21/2019

Summary of Project Emissions and Fuel Consumption

	TOG	ROG	CO	NOx	PM10	PM2.5	CO2	CH4	N2O	BC	HFC	Diesel Fuel	Gasoline Fuel
Daily Average (lbs/day; gal fuel/day)	2.15	2.00	9.44	12.99	2.01	1.02	2565	0.08	0.13	0.15	0.07	108	56
Maximum Daily Average (lbs/day; gal fuel/day)	5.14	4.76	31.16	32.95	8.21	2.69	6167	0.21	0.36	0.34	0.22	261	148
Annual Average (tons/year; gal fuel/year)	0.28	0.26	1.23	1.69	0.26	0.13	334	0.01	0.02	0.02	0.01	28083	14625

Summary by Source **Project Total Emissions and Fuel Consumption (tons; gal fuel)**

Source	TOG	ROG	CO	NOx	PM10	PM2.5	CO2	CH4	N2O	BC	HFC	Diesel Fuel	Gasoline Fuel
On-Road	0.02	0.01	0.14	0.44	0.00	0.00	219	0.00	0.026	0.001	0.014	17250	24041
Off-Road	0.44	0.41	1.88	2.34	0.20	0.19	330	0.01	0.003	0.032	-	28913	-
Area-Wide Fugitive Dust	-	-	-	-	0.23	0.02	-	-	-	-	-	-	-
Painting and Asphalt Application	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-
Project Total	**0.46**	**0.43**	**2.02**	**2.78**	**0.43**	**0.22**	**549**	**0.02**	**0.03**	**0.03**	**0.01**	**46163**	**24041**

Summary by Operation **Total Emissions and Fuel Consumption by Operation (tons; gal fuel)**

Project Phases	TOG	ROG	CO	NOx	PM10	PM2.5	CO2	CH4	N2O	BC	HFC	Diesel Fuel	Gasoline Fuel
Land Clearing/Grubbing	0.01	0.01	0.05	0.06	0.06	0.01	14	0.000	0.001	0.001	0.000	1190	664
Roadway Excavation & Removal	0.07	0.06	0.39	0.44	0.09	0.04	85	0.003	0.004	0.007	0.002	7152	3938
Structural Excavation & Removal	0.01	0.01	0.04	0.07	0.06	0.01	17	0.001	0.001	0.001	0.000	1405	1362
Base/Subbase/Imported Borrow	0.17	0.16	1.03	1.09	0.14	0.09	204	0.007	0.009	0.006	0.004	17228	8369
Structure Concrete	0.13	0.13	0.35	0.69	0.04	0.04	142	0.004	0.008	0.011	0.004	11950	5286
Paving	0.02	0.02	0.05	0.15	0.01	0.01	28	0.001	0.002	0.002	0.001	2298	1374
Drainage/Environment/Landscaping	0.03	0.03	0.08	0.21	0.02	0.02	38	0.001	0.002	0.004	0.001	3168	1570
Traffic Signalization/Signage/Striping/Painting	0.01	0.01	0.03	0.07	0.00	0.00	21	0.001	0.002	0.001	0.001	1715	1477
Other Operation	0.00	0.00	0.00	0.00	0.00	0.00	1	0.000	0.000	0.000	0.000	57	0
Total	**0.46**	**0.43**	**2.02**	**2.78**	**0.43**	**0.22**	**548.94**	**0.018**	**0.029**	**0.032**	**0.014**	**46163**	**24041**

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