PUBLIC REVIEW DRAFT

CEQA INITIAL STUDY
PROPOSED MITIGATED NEGATIVE DECLARATION

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

INITIAL STUDY NO. IP 18-080

Prepared for:

County of Orange
OC Public Works, OC Infrastructure Programs | Project Management
601 North Ross Street
Santa Ana, California 92703-4048
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MAY 2021

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
APE	area of potential effects
AQMP	Air Quality Management Plan
ASR	archaeological survey report
BMP	best management practice
BSA	biological study area
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CHRIS	California Historical Resources Information System
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
County	County of Orange
CRHR	California Register of Historic Resources
CWA	Clean Water Act
dBA	A-weighted decibels
ECB	Emergency Communications Bureau
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FHWA	Federal Highway Administration
GHG	greenhouse gas
HCP	Habitat Conservation Plan
HPSR	historical property survey report
IPaC	Information Planning and Conservation System
IRWD	Irvine Ranch Water District
ISA	Initial Site Assessment
L_{eq}	equivalent continuous sound level
LHS	location hydraulic study

Acronym/Abbreviation	Definition
LOS	level of service
MM	Mitigation Measure
MND	mitigated negative declaration
NAAQS	National Ambient Air Quality Standards
NAHC	California Native American Heritage Commission
NCCP	Natural Communities Conservation Plan
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NRHP	National Register of Historic Places
O_3	ozone
OCFA	Orange County Fire Authority
OCPW	OC Public Works
OCSD	Orange County Sanitation District
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM_{10}	particulate matter with a diameter less than or equal to 10 microns
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SO_x	sulfur oxides
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WDR	Waste Discharge Requirement

SECTION 1: INTRODUCTION

This section conforms to and provides the content contained in Appendix G: Environmental Checklist of the California Environmental Quality Act (CEQA) Guidelines.

1.1 Project Title

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

1.2 Lead Agency Name and Address

County of Orange
OC Public Works
OC Infrastructure Programs | Project Management
601 North Ross Street
Santa Ana, California 92703-4048

1.3 Contact Person and Phone Number

Adam Ramos, PE
Civil Engineer
OC Public Works
OC Infrastructure Programs | Project Management
Tel. 714-667-1631
Email: Adam.Ramos@ocpw.oc.gov.com

1.4 Project Location

Ladd Canyon Bridge on Silverado Canyon Road and Ladd Canyon Road (Bridge Number 55C0175) approximately 2.2 miles east of East Santiago Canyon Road over Ladd Creek.

Silverado, Orange County, California.

1.5 Project Sponsor Name and Address

County of Orange
OC Public Works
OC Infrastructure Programs | Project Management
601 North Ross Street
Santa Ana, California 92703-4048

1.6 General Plan Designation

Rural Residential (1A) (County of Orange 2015)

1.7 Zoning

General Agriculture (A1) (County of Orange 2017a)

1.8 Project Description

The proposed Silverado Canyon Road Over Ladd Creek Bridge Replacement Project (project) is located in the unincorporated community of Silverado, Orange County, California. The existing bridge is located at the intersection of Silverado Canyon Road and Ladd Canyon Road, 2.2 miles east of East Santiago Canyon Road. Refer to Figure 1-1, Regional Map, and Figure 1-2, Vicinity Map. The two-lane Silverado Canyon Road Bridge over Ladd Creek (Ladd Canyon Bridge) will continue to provide vehicular access along Silverado Canyon Road during the reconstruction and expansion planned by OC Public Works (OCPW). Refer to Figure 1-3, Project Footprint Map; Figure 1-4, Engineering Plan; and Figure 1-5, Area of Potential Effects.

Refer to Section 2, Project Description, for a comprehensive discussion of the proposed project.

1.9 Environmental Setting

The proposed project site is bounded by the Cleveland National Forest to the east, rural residential to the north, and commercial neighborhood to the south.

1.10 Public Agency Approvals and Recommendations

Table 1 provides a summary of public agency approvals and recommendations that are associated with the project.

Table 1: Public Agency Approvals

Entity	Action
U.S. Fish and Wildlife Service	Section 7 Informal/Formal Consultation
U.S. Army Corps of Engineers	Section 404 Nationwide Permit
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement
California Department of Transportation	Encroachment Permits Traffic Control Plans
California State Office of Historic Preservation	National Historic Preservation Act, Section 106 Consultation
Santa Ana Regional Water Quality Control Board	Section 401 Water Quality Certification National Pollutant Discharge Elimination System Permit
South Coast Air Quality Management District	Permit to Construct
County of Orange Board of Supervisors	Approval of project
Orange County Fire Authority	Construction Fire Prevention Plan
OC Public Works, Infrastructure Project Management	Wildfire Emergency Evacuation Plan
OC Sheriff's Department	Wildfire Emergency Evacuation Plan

1.11 California Native American Tribal Consultation

The California Native American Heritage Commission (NAHC) was contacted to request a review of the Sacred Lands File on April 17, 2017. The NAHC responded on April 18, 2017, and stated that the review did not indicate the presence of Native American cultural resources in the immediate project area. The NAHC also provided a list of 10 Native American groups and individual contacts that may have additional knowledge of cultural resources and tribal cultural resources in the vicinity of the area of potential effects (APE). A copy of the NAHC Sacred Lands File search results letter and the coordination letters mailed to the contacts is provided in Appendix C. The contacts included the following:

- Ms. Patricia Garcia, Tribal Historic Preservation Officer Agua Caliente Band of Cahuilla Indians
- Mr. Jeff Grubbe, Chairperson Agua Caliente Band of Cahuilla Indians

- Ms. Sonia Johnston, Tribal Chairperson Juaneno Band of Mission Indians
- Mr. Matias Belardes, Chairperson Juaneno Band of Mission Indians Acjachemen Nation
- Ms. Joyce Perry, Representing Tribal Chairperson Juaneno Band of Mission Indians Acjachemen Nation
- Ms. Teresa Romero, Chairwoman Juaneno Band of Mission Indians Acjachemen Nation
- Mr. Temet Aguilar, Chairperson Pauma and Yuima Reservation
- Mr. Joseph Ontiveros, Cultural Resource Department Soboba Band of Luiseno Indians
- Ms. Rosemary Morillo, Chairperson Soboba Band of Mission Indians
- Ms. Carrie Garcia, Cultural Resources Manager Soboba Band of Luiseno Indians

Letters were mailed to each of the contacts on May 11, 2017, and follow-up telephone calls were conducted on June 21, 2017, as part of the Assembly Bill 52 notification process. As a result of consultation with these 10 contacts, 1 contact (Ms. Harvey of the Agua Caliente Band of Cahuilla Indians) stated that the proposed project is not located within their tribal territory and deferred to applicable local tribes for comment. The remaining contacts did not respond to either the letter or subsequent follow-up phone calls. On December 11, 2018, the County of Orange (County) resent letters to the following contacts:

- Ms. Patricia Garcia, Tribal Historic Preservation Officer Agua Caliente Band of Cahuilla Indians
- Mr. Jeff Grubbe, Chairperson Agua Caliente Band of Cahuilla Indians
- Ms. Sonia Johnston, Tribal Chairperson Juaneno Band of Mission Indians
- Mr. Matias Belardes, Chairperson Juaneno Band of Mission Indians Acjachemen Nation
- Ms. Joyce Perry, Representing Tribal Chairperson Juaneno Band of Mission Indians Acjachemen Nation
- Ms. Teresa Romero, Chairwoman Juaneno Band of Mission Indians Acjachemen Nation
- Mr. Temet Aguilar, Chairperson Pauma and Yuima Reservation
- Mr. Joseph Ontiveros, Cultural Resource Department Soboba Band of Luiseno Indians
- Mr. Scott Cozart, Soboba Band of Luiseno Indians
- Mr. Anthony Morales, Chief, Gabrieleño Tongva San Gabriel Band of Mission Indians
- Mr. Andrew Salas, Chairman, Gabrieleño Band of Mission Indians – Kizh Nation

The contacts did not respond except for the Gabrieleño Band of Mission Indians – Kizh Nation, who requested further consultation. A consultation conference call occurred on March 27, 2019. A summary of coordination with local Native American tribes is provided in Section 3.18, Tribal Cultural Resources.

1.12 Environmental Factors Potentially Affected

This document incorporates the Environmental Checklist Form from Appendix G of the Orange County Local CEQA Procedures Manual.

Table 2 lists the environmental factors that are evaluated in Section 3 of this document. Environmental factors that are checked contain at least one impact that has been determined to be a potentially significant impact. Environmental factors that are unchecked were determined to result in no impacts, less-than-significant impacts, or less-than-significant impacts with mitigation measures or County Standard Conditions of Approval incorporated into the project.

Section numbers in parentheses following each environmental factor correspond to the environmental impact analysis in Section 3.

Table 2: Environmental Factors Potentially Affected

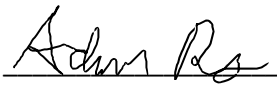
☐	Aesthetics (3.1)	☐	Mineral Resources (3.12)
☐	Agriculture and Forestry Resources (3.2)	☐	Noise (3.13)
☐	Air Quality (3.3)	☐	Population and Housing (3.14)
☐	Biological Resources (3.4)	☐	Public Services (3.15)
☐	Cultural Resources (3.5)	☐	Recreation (3.16)
☐	Energy (3.6)	☐	Transportation (3.17)
☐	Geology and Soils (3.7)	☐	Tribal Cultural Resources (3.18)
☐	Greenhouse Gas Emissions (3.8)	☐	Utilities and Service Systems (3.19)
☐	Hazards and Hazardous Materials (3.9)	☐	Wildfire (3.20)
☐	Hydrology and Water Quality (3.10)	☐	Mandatory Findings (3.21)
☐	Land Use and Planning (3.11)		

1.13 Environmental Determination

Based on the analysis conducted in this Initial Study, the following has been determined (Table 3):

Table 3: Environmental Determination

I find that there is no substantial evidence that the project will 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, revisions to the project or proposals have been made by or agreed to by the project proponent, that will avoid the effects or mitigate the effects to where no significant effects on the environmental will occur. 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.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. The proposed project is a component of the whole action analyzed in the previously adopted/certified CEQA document.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. Minor additions and/or clarifications are needed to make the previous documentation adequate to cover the project which are documented in this addendum to the earlier CEQA document (CEQA §15164).	☐
I find that the proposed project Has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. However, there is important new information and/or substantial changes have occurred requiring the preparation of an additional CEQA document (ND or EIR) pursuant to CEQA Guidelines Sections 15162 through 15163.	☐



Signature

05/13/2021

Date

Adam Ramos, P.E.

Name

1.14 Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5) Earlier analyses may be used where an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
5) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
6) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
7) The explanation of each issue should identify:
    a) the significance criteria or threshold, if any, used to evaluate each question; and
    b) the mitigation measure identified, if any, to reduce a significant or potentially significant impact to a less than significant level.

The following information is provided to supplement the Evaluation of Environmental Impacts discussed above.

1.15 Thresholds of Significance

Thresholds of significance are identifiable quantitative, qualitative or a performance level of a particular environmental effect. Non-compliance with a threshold means the effect will normally be determined to be significant and, conversely, compliance with a threshold means the effect will normally be less than significant (14 CCR 15064.7).

The County relies upon the specific questions relating to environmental impact areas listed in Appendix G of the State CEQA Guidelines to determine a level of significance.

1.16 Environmental Baseline

To adequately determine the significance of a potential environmental impact, the environmental baseline must be established. CEQA Guidelines Section 15125(a) states in pertinent part that the existing environmental setting will normally constitute the baseline physical conditions by which a lead agency will determine if an impact is significant.

Therefore, the environmental baseline for this project constitutes the existing physical conditions as they exist at the time that the environmental process commenced.

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SECTION 2: PROJECT DESCRIPTION

This section describes the purpose and objectives of the proposed project and provides a detailed description of the proposed project's location and various characteristics.

2.1 Purpose and Intent of the Project

The replacement of the existing Ladd Canyon Bridge is needed due to risk of failure. The bridge was built in 1947 and is considered to be structurally deficient according to Federal Highway Administration (FHWA) criteria, with a sufficiency rating of 43.1. The purpose of this project is to replace the existing Ladd Canyon Bridge to improve the safety conditions for vehicular traffic.

2.2 Project Objectives

Objectives for the proposed project are described below:

1. Improve the safety conditions for vehicular traffic on the Ladd Canyon Bridge.
2. Widen the road to increase the safety of pedestrian and bicyclists crossing the bridge.

2.3 Site Characteristics

The proposed project is located in the unincorporated community of Silverado, Orange County, California. The proposed project site is bounded by the Cleveland National Forest to the east, rural residential to the north, and commercial neighborhood to the south. The existing bridge is located at the intersection of Silverado Canyon Road and Ladd Creek Road, 2.2 miles east of East Santiago Canyon Road. Refer to Figure 1-1 and Figure 1-2.

2.4 Project Characteristics

OCPW's planned replacement of the Ladd Canyon Bridge will continue to provide vehicular access along Silverado Canyon Road. Refer to Figure 1-3, Figure 1-4, and Figure 1-5.

The proposed project will involve the construction of a bridge and the removal of the existing bridge. There are two options for providing continued vehicular access during project construction to properties east of the bridge: replace the existing bridge one lane at a time, leaving the other lane open for one-way traffic, or add a temporary bridge adjacent to the existing bridge. The temporary bridge option was eliminated due to impacts on habitat.

The replacement bridge would be wider than the existing bridge to add a shoulder in both directions. This proposed project will not require acquisition of new right-of-way, as the bridge is located within County right-of-way. The project would require a construction easement. The project would require the construction of new spread footings. Excavation for the footings is not anticipated to reach further than 20 feet below ground surface.

A water line exists along the side of the existing bridge; therefore, utility connections and relocations are anticipated as part of the proposed project. Additionally, an electrical line and a fire hydrant would be relocated. The removal of Pacific poison oak (*Toxicodendron diversilobum*) within the project footprint would be required. The removal of small trees and the branches of some trees would be necessary in order to provide equipment access to the project site.

2.5 Construction Activities

Construction of the bridge would take approximately 1 year; total project activities, including temporary utility relocations, would take approximately 1 year and 6 months. Construction staging would occur within the road shoulder or in adjacent disturbed or developed areas along Silverado Canyon Road (see Figure 1-5). No disposal or borrow sites are proposed. Construction access would be from Silverado Canyon Road.

Project activities are anticipated to commence in spring 2021 and would last approximately 1 year and 6 months, ending approximately in fall 2022.[1] Construction phasing is anticipated as follows:

- Utility relocations (March 2021 to June 2021)
- Site preparation (September 2021)
- Grading 1 (September 2021 to December 2021)
- Demolition 1 (December 2021)
- Bridge construction 1 (December 2021 to February 2022)
- Paving 1 (February 2022 to March 2022)
- Grading 2 (April 2022)
- Demolition 2 (May 2022)
- Bridge construction 2 (May 2022 to July 2022)
- Utility relocations (July 2022)
- Paving 2 (July 2022 to August 2022)
- Architectural coating and barrier treatments (August 2022)

Utility relocation, site preparation, grading, demolition, bridge construction, and paving phases would be divided into two phases, because the removal of the existing bridge would need to occur one lane at a time to ensure continued roadway access. The first phase would involve the relocation of utilities to prepare for bridge removal and construction. Site preparation would involve site clearing and rough grading. The construction of the proposed project would require minimal amounts of water for concrete mixing and dust abatement. Soil export would total 486 cubic yards and soil import would total 370 cubic yards.

During demolition, a catching device would be installed underneath the bridge to help remove the debris while dismantling the existing bridge. The catching device method would be determined by the contractor and could include any of the following three scenarios. If there is water in the creek during the demolition of the existing bridge, the water could be diverted using a pipe and work would occur above the pipe. If no water is present, the contractor could add native soil under the bridge to catch the demolition debris. The soil and debris would be removed upon completion of the demolition process. The most likely catching device method would involve placing a plastic blanket in the creek to contain the debris, which would be removed upon completion of the demolition process. If the removal of the existing abutments is required, pneumatic/hydraulic breakers would be employed to aid in the removal process. Removal of the bridge deck and abutments would total to approximately 250 cubic yards of material. Assuming that

[1] It should be noted that timing estimates of the proposed project buildout were based on a preliminary project phasing schedule. Because the California Emissions Estimator Model (CalEEMod) uses real dates (e.g., January 15, 2024) to calculate construction emissions, assumptions were made as to key dates for each phase. Although all dates reflected in this mitigated negative declaration are estimates and actual dates may differ depending on weather and other factors, this analysis represents a conservative assessment of likely air quality impacts.

25% of the bridge material consists of steel[2] and 75% of the bridge material consists of concrete,[3] the total weight of the material would be approximately 804 tons. Therefore, if a haul truck with a capacity of 20 tons is used to remove material, approximately 80 haul truck trips would be required.

During bridge construction, the girders would be erected through the use of a medium-size mobile crane with outriggers and a transport truck. For areas requiring concrete to be cast in place, a concrete truck would be employed.

The paving phase would involve the pavement of asphalt surfaces on the bridge approach. The architectural coating phase would include the application of exterior coatings for traffic striping. A summary of the anticipated construction equipment, quantity of equipment, hours of operation of the equipment, and worker, vendor, and haul trips per phase is included in Table 4.

Table 4: Anticipated Construction Scenario

Construction Phase	Worker Round Trips per Day	Vendor Truck Round Trips per Day	Total Haul Truck Trips[a]	Equipment	Quantity	Hours per Day
Temporary Utility Relocation 1	6	0	2	Utility truck	2	8
Site Preparation	8	2	0	Graders	1	8
				Rubber tired dozers	1	7
				Tractors/loaders/ backhoes	1	8
Grading 1	8	2	0	Graders	1	6
				Rubber tired dozers	1	6
				Tractors/loaders/ backhoes	1	7
Demolition 1	16	2	0	Excavator (pneumatic/ hydraulic breakers)[b]	1	8
				Concrete/industrial saws	1	8
				Rubber tired dozers	1	8
				Tractors/loaders/ backhoes	3	8

[2] The density of steel was assumed to be 503 pounds per cubic feet.

[3] The density of concrete was assumed to be 150 pounds per cubic feet.

Table 4: Anticipated Construction Scenario

Construction Phase	Worker Round Trips per Day	Vendor Truck Round Trips per Day	Total Haul Truck Trips[a]	Equipment	Quantity	Hours per Day
Bridge Construction 1	18	8	0	Crane	1	6
				Cement and mortar mixers	1	8
				Generator sets	1	8
				Tractors/loaders/ backhoes	1	6
				Welders	3	8
Paving 1	14	0	0	Cement and mortar mixers	1	6
				Pavers	1	6
				Paving equipment	1	8
				Rollers	1	7
				Tractors/loaders/ backhoes	1	8
Grading 2	8	2	108	Graders	1	6
				Rubber tired dozers	1	6
				Tractors/loaders/ backhoes	1	7
Demolition 2	16	2	80	Excavator (pneumatic/ hydraulic breakers)[b]	1	8
				Concrete/industrial saws	1	8
				Rubber tired dozers	1	8
				Tractors/loaders/ backhoes	3	8

Table 4: Anticipated Construction Scenario

Construction Phase	Worker Round Trips per Day	Vendor Truck Round Trips per Day	Total Haul Truck Trips[a]	Equipment	Quantity	Hours per Day
Bridge Construction 2	18	8	0	Crane	1	6
				Cement and mortar mixers	1	8
				Generator sets	1	8
				Tractors/loaders/ backhoes	1	6
				Welders	3	8
Utility Relocation 2	6	2	2	Utility Truck	2	8
Paving 2	14	0	0	Cement and mortar mixers	1	6
				Pavers	1	6
				Paving equipment	1	8
				Rollers	1	7
				Tractors/loaders/ backhoes	1	8
Architectural Coating and Barrier Treatments	4	0	0	Air compressors	1	6

Source: See Appendix A.
Note: Water trucks were not modeled as equipment in the construction models; instead, they were modeled as vendor trips in the site preparation, grading, and demolition phases.
[a] Over entire construction phase.
[b] Pneumatic/hydraulic breakers were assumed to be an attachment to an excavator.

2.6 Project Design Features

The proposed project includes certain features that would be implemented during project construction and operation, or both. Because these features are incorporated into the project description and design or are mandatory obligations that are required to be implemented, they result in eliminating or minimizing an impact that may otherwise occur. Each of these features are included in their respective topical sections in Section 3.

Biological Resources

PDF-BIO-1 State and federal law regulates impacts to non-wetland waters of the United States. OC Public Works will be required to obtain a Section 404 Nationwide Permit from the U.S. Army Corps of Engineers, Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Section 1602 Lake and Streambed Alteration Agreement from California Department of Fish and Wildlife prior to construction.

Geology and Soils

PDF-GEO-1 Prior to issuance of grading permits, OC Public Works shall provide a site-specific geotechnical/soils study prepared under the supervision of a licensed geotechnical engineer. The geotechnical/soils study shall include a summary of on-site soil characteristics and engineering recommendations based on the particular soil characteristics. OC Public Works shall review and approve findings of the geotechnical study prior to the start of project construction activities.

2.7 California Environmental Quality Act Compliance

OCPW is the CEQA lead agency responsible for the review and approval of the proposed project. The lead agency has determined that a mitigated negative declaration (MND) is the appropriate environmental document to prepare in compliance with CEQA (California Public Resources Code, Section 21000 et seq.). As stated in CEQA, Section 21064.5, an MND may be prepared for a project subject to CEQA when there is no substantial evidence in light of the whole record before the public agency that the project may have significant effects on the environment.

This MND has been prepared for OCPW and complies with Section 15070(a) of the CEQA Guidelines (14 CCR 15000 et seq.). The purpose of the MND and the Initial Study Checklist (see Section 3 of this MND) is to determine any potentially significant impacts associated with the proposed project and to incorporate mitigation measures into the project design as necessary to reduce or eliminate the significant or potentially significant effects of the project.

2.8 Public Review Process

In accordance with CEQA, a good-faith effort has been made during the preparation of this MND to contact affected agencies, organizations, and persons who may have an interest in this project.

In reviewing the MND, public agencies and the interested public should focus on the sufficiency of the document in identifying and analyzing the project's possible impacts on the environment. A copy of the draft MND and related documents are available for review at OCPW Development Processing Center (see address below) between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday.

County of Orange
OC Public Works
OC Infrastructure Programs | Project Management
601 North Ross Street
Santa Ana, California 92703-4048

The document is also available on the County's website at https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/current-projects/3rd-district.

Comments on the MND may be made in writing before the end of the public review period. Per the County's CEQA Guidelines and Section 15073(a) of the CEQA Guidelines, a 20-day review and comment period from May 17, 2021, to June 7, 2021, has been established. Following the close of the public comment period, the County will consider this MND and comments in determining whether to approve the proposed project.

Written comments on the MND should be received at the following address by 4:30 p.m., June 7, 2021.

County of Orange
OC Public Works
OC Infrastructure Programs | Project Management
601 North Ross Street
Santa Ana, California 92703-4048
Contact: Mr. Adam Ramos, PE, Civil Engineer
Telephone: 714-667-1631
Email: Adam.Ramos@ocpw.oc.gov.com

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SECTION 3: ENVIRONMENTAL EVALUATION

3.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	**Potentially Significant 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 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?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to aesthetics that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

No Impact. The project site is in the unincorporated community of Silverado, Orange County, California. Silverado is primarily a residential use community with concentrated development in the canyon bottoms of the Santa Ana Mountains. The Silverado-Modjeska Specific Plan was created with the purpose of promoting planned development that least disturbs natural contours and vegetation and preserves areas of scenic beauty (County of Orange 1977). The Silverado-Modjeska Specific Plan identifies preservation of trees and streams to be important conservation elements. Additionally, the Cleveland National Forest and surrounding regional parks preserve the character of the existing landscape (County of Orange 1977). The Resources Element of the Orange County General Plan identifies scenic areas and the Transportation Element identifies Landscape Corridors and Viewscape Corridors in the Scenic Highway Plan. The Resources Element does not specifically identify Silverado Canyon as a scenic vista. The nearest Viewscape Corridor to the project site is East Santiago Canyon Road, located approximately 1.7 miles to the west (County of Orange 2005).

Silverado is at the boundary of the Cleveland National Forest; however, it is not located within the National Forest. As such, the scenic vistas surrounding the project site include mountains, creeks, trees, and ridges. Although the proposed bridge is surrounded by scenic vistas, the site itself is within a planned development area identified by the Silverado-Modjeska Specific Plan Land Use Map as neighborhood commercial (County of Orange 1984). This area lies at the bottom of a canyon and would not disturb natural contours or impede on scenic vistas in the background. Additionally, the proposed project involves replacing an existing bridge to improve vehicular and pedestrian safety; therefore, no changes to the scenic vista would occur. Because implementation of the proposed project would not conflict with the Silverado-Modjeska Specific Plan planned development to preserve scenic beauty or the Orange County General Plan, and since the proposed project would continue to operate with its current use, no substantial adverse effects on scenic vistas would occur.

Response to Impact Question b):

No Impact. The proposed project is located immediately east of the intersection of Ladd Canyon Road and Silverado Canyon Road. Neither of these roads are designated State Scenic Highways. Within the County, only a segment of State Route 91 (Riverside Freeway) located from State Route 55 to east of the Anaheim city limits is an officially designated State Scenic Highway (Caltrans 2011). This segment of State Route 91 is located approximately 16 miles north of the project site. Due to the significant distance between the project site and this designated State Scenic Highway, the project would not be located within the viewshed of a State Scenic Highway. Therefore, no impacts associated with State Scenic Highways would occur.

Response to Impact Question c):

Site Character and Quality

Less-than-Significant Impact. The project site's location would be considered a non-urbanized area, as it fails to meet the criteria of an urbanized area per CEQA Statute 21071. Under its existing condition, the project site is comprised of an existing bridge located immediately east of the intersection of Silverado Canyon Road and Ladd Canyon Road (Figure 1-2). The proposed project is bounded by Cleveland National Forest to the east, rural residential uses to the north and east, and neighborhood commercial uses and undeveloped open space further to the south. The project site extends over Ladd Canyon Creek to provide access via Silverado Canyon Road. Topographically, the project vicinity is characterized by moderate hills separated by narrow canyons and localized drainages. The project site comprises multiple vegetation communities as identified in Section 3.4, Biological Resources.

The proposed project would replace the existing bridge with a reconstructed bridge. Although the bridge expansion would change the width of the bridge by approximately 17 feet, the proposed project improvements would not result in a substantial change to the existing visual character of the project site. In addition, the proposed project would not alter land use nor result in the need to acquire additional rights-of-way. In regard to site character and quality, the proposed project would have a less-than-significant impact.

Surrounding Character and Quality

Less-than-Significant Impact. Under existing conditions, the proposed project is bounded by Cleveland National Forest to the east, rural residential uses to the north and east, and neighborhood commercial uses and undeveloped open space further to the south. The natural features surrounding this area include mountains, creeks, trees, and ridges. The hills and ridgelines are visible in the background of the project site and along Silverado Canyon Road, which passes through the project site. The vegetation communities visible in the foreground of the proposed project site include oak woodland and eucalyptus groves, described in more detail in Response to Impact Question b) in Section 3.4. The surrounding built environment is characterized by one- and two-story neighborhood commercial buildings and residential buildings.

The replacement bridge would be expanded to provide safe vehicular and pedestrian access; however, the expansion would not obstruct views of the surrounding natural and/or built features. The proposed project is consistent with the surrounding land uses and existing visual character. Therefore, impacts to surrounding character and quality would be less than significant.

Response to Impact Question d):

No Impact. The proposed project would not introduce new substantial light or glare that would adversely affect day or nighttime views in the area. During construction, the proposed project would comply with the County Noise Ordinance (Division 6, Article 1), which does not allow construction between 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday (County of Orange 2017b). Project construction would be limited to the daytime hours and nighttime lighting would not be required. Therefore, no short-term impacts associated with light and glare would occur.

Additionally, the proposed bridge would not include any light features; therefore, new sources of light would not be introduced during project operation. The proposed bridge would generally be constructed of concrete and would not include reflective materials. There are no existing sources of light or glare on the project site, nor would the proposed project introduce sources of light or glare. Therefore, no long-term impacts associated with light and glare would occur.

3.2 Agriculture and Forestry Resources

Would the project:	Potentially Significant 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 12220 (g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51004)(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 forest land to non-forest use?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to agriculture and forestry resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by OCPW, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Appendix G of the State CEQA Guidelines provides the following guidance for this environmental factor:

> 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 forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Response to Impact Question a):

No Impact. The California Department of Conservation's California Important Farmland Finder identified the project site as Urban and Built Up Land (CDC 2016). The project site is not located on or adjacent to any parcels identified as Prime Farmland, Unique Farmland, or Farmland of State Importance (collectively "Important Farmland"). Due to the lack of Important Farmland in the project site, the project would not convert or otherwise impact any Important Farmland. Therefore, no impacts associated with the conversion of Important Farmland would occur.

Response to Impact Question b):

No Impact. According to the California Department of Conservation's Williamson Act Parcels map for the County, the project site is not located on or adjacent to lands under the Williamson Act contract (CDC 2004). The closest parcels identified under a Williamson Act are approximately 11.6 miles southeast of the project site in the unincorporated area of North Tustin. Due to this large distance between the project site and the nearest Williamson Act parcels, construction of the project would not impact these parcels. The project site is zoned General Agriculture (A1); however, the project would result in neither a significant alteration of current use nor conversion of existing or adjacent agricultural land uses. Therefore, no conflicts with agricultural zoned lands or Williamson Act lands would occur.

Response to Impact Question c):

No Impact. The proposed project involves replacing an existing bridge and does not involve the rezoning of adjacent land uses. The proposed project is located 0.4 miles southeast of the Cleveland National Forest. However, the proposed project is not located in the Cleveland National Forest and would not involve the replacement of forest land with other uses. The project site does not support timberland use. Moreover, the County does not have any forest land or timberland zoning classifications. Therefore, the project as proposed would not conflict with existing zoning for, or cause rezoning of, timberland or timberland zoned Timberland Production. No impacts associated with forest land or timberland zoning would occur.

Response to Impact Question d):

No Impact. As previously addressed, the proposed bridge would replace an existing bridge, and while the proposed bridge would be wider than the existing bridge, it would not significantly alter the existing land use. The proposed project is 0.4 miles southeast of the Cleveland National Forest. However, the Cleveland National Forest is not in the immediate vicinity of the project right-of-way. No loss of forestland or conversion of forestland to non-forest use would occur.

Response to Impact Question e):

No Impact. The project site is not located on or adjacent to any lands identified as Important Farmland. The site is near the Cleveland National Forest, but not in the immediate vicinity. The project would result in neither a significant alteration of current use nor conversion of existing or adjacent Important Farmland and forest land. Therefore, no conversion of Important Farmland or forest land uses would occur.

3.3 Air Quality

Would the project:	Potentially Significant 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?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts to air quality that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by OCPW, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Appendix G of the State CEQA Guidelines provides the following guidance for this environmental factor: "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."

Response to Impact Question a):

Less-than-Significant Impact. The proposed project is located within the South Coast Air Basin (SCAB), which is a 6,745-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. It includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino Counties. The project is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD).

The SCAQMD administers the Air Quality Management Plan (AQMP) for the SCAB, which is a comprehensive document outlining an air pollution control program for attaining all California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most recent adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD governing board on March 3, 2017.

The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA), which have primary responsibility for these sources.

On April 7, 2016, the Southern California Association of Governments Regional Council adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and High Quality of Life (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals (SCAG 2016). The SCAQMD Draft 2016 AQMP applies the updated Southern California Association of Governments growth forecasts assumed in the 2016 RTP/SCS.

The purpose of a consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and, thus, if it would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, of the SCAQMD CEQA Air Quality Handbook (CEQA Handbook). The criteria are as follows (SCAQMD 1993):

- **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The proposed project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

Response to Impact Question b) below evaluates the project's potential impacts to Threshold b) (the project's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation). As discussed in the following text, the project would not result in a significant and unavoidable impact associated with the violation of an air quality standard. Because the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, the project would not conflict with Consistency Criterion No. 1 of the CEQA Handbook (SCAQMD 1993).

Consistency Criterion No. 2

While striving to achieve the NAAQS for ozone (O_3) and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) through a variety of air quality control measures, the AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the CEQA Handbook [SCAQMD 1993]).

If a project proposes development that is greater than that anticipated in the General Plan and Southern California Association of Governments' growth projections, the project might conflict with the AQMP and may contribute to a potentially significant cumulative impact on air quality. The proposed project involves the reconstruction and expansion of an existing bridge. As such, the project would not directly induce population growth through addition of homes or businesses. The current bridge is on an existing road and is surrounded by existing infrastructure. The proposed project does include expansion of Ladd Canyon Bridge but is unlikely to indirectly induce growth in the area. Additionally, the employees hired to construct the new bridge would likely come from the region. Therefore, the project would not induce the extension of roads or other infrastructure. Population growth as a result of the proposed project is considered unlikely. As such, the project would be consistent at a regional level with the underlying growth forecasts in the AQMP.

Therefore, in regard to the proposed project, impacts associated with the AQMP would be less than significant.

Response to Impact Question b):

Less-than-Significant Impact. Project-generated construction and operational emissions would be less than the SCAQMD significance thresholds. A quantitative analysis was conducted to determine whether proposed activities might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or cumulatively contribute to existing nonattainment of ambient air quality standards. Criteria air pollutants include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide, particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), $PM_{2.5}$, and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$.

South Coast Air Basin Attainment Designation

An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards are set by the EPA or CARB, respectively, for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The entire SCAB is designated as a nonattainment area for both federal and state O_3 standards. The EPA has classified the SCAB as an extreme nonattainment area and has mandated that it achieve attainment no later than June 15, 2024. The SCAB is designated as an attainment area for state and federal CO standards. The SCAB is designated as an attainment area under the state and federal standards for NO_2. The entire SCAB is in attainment with both federal and state sulfur dioxide standards. It has been designated as nonattainment for the federal rolling 3-month average lead standard and as attainment for the state lead standard. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal standards. In regard to $PM_{2.5}$, the SCAB is designated as a nonattainment area by CARB and EPA (CARB 2015; EPA 2017).

SCAQMD Thresholds

Construction of the project would result in emissions of criteria air pollutants for which CARB and the EPA have adopted ambient air quality standards (i.e., the NAAQS and CAAQS). Projects that emit these pollutants have the potential to cause or contribute to violations of these standards. The SCAQMD has adopted significance thresholds, which, if exceeded, would indicate the potential to contribute to violations of the NAAQS or the CAAQS. The relevant SCAQMD thresholds are shown in Table 5.

A project would result in a substantial contribution to an existing air quality violation of the federal or state standards for O_3, which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 5. These emission-based thresholds for O_3 precursors are intended to serve as a surrogate for an O_3 significance threshold (i.e., the potential for adverse O_3 impacts to occur) because O_3 itself is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

Table 5: SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
Criteria Pollutants Mass Daily Thresholds		
VOCs	75 lb/day	55 lb/day
NO_x	100 lb/day	55 lb/day
CO	550 lb/day	550 lb/day
SO_x	150 lb/day	150 lb/day
PM_{10}	150 lb/day	150 lb/day
$PM_{2.5}$	55 lb/day	55 lb/day
Pb[a]	3 lb/day	3 lb/day
Toxic Air Contaminants and Odor Thresholds		
Toxic Air Contaminants[b]	Maximum incremental cancer risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic and acute hazard index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: • 0.18 ppm (state) • 0.030 ppm (state) and 0.0534 ppm (federal)	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: • 20 ppm (state) and 35 ppm (federal) • 9.0 ppm (state/federal)	

Table 5: SCAQMD Air Quality Significance Thresholds

Pollutant	Construction	Operation
PM_{10} 24-hour average	10.4 μg/m^3 (construction)[d]	
PM_{10} annual average	2.5 μg/m^3 (operation)	
	1.0 μg/m^3	
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[d]	
	2.5 μg/m^3 (operation)	

Source: SCAQMD 2019.

Notes: VOC = volatile organic compound; lb/day = pounds per day; NOx = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; Pb = lead; NO_2 = nitrogen dioxide; ppm = parts per million; μg/m^3 = micrograms per cubic meter.

GHG thresholds for industrial projects, as added in the March 2019 revision to the SCAQMD Air Quality Significance Thresholds, were not included in Table 5, as they will be addressed in Section 3.8, Greenhouse Gas Emissions.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the proposed project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

[b] Toxic air contaminants include carcinogens and noncarcinogens.

[c] Ambient air quality standards for criteria pollutants based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.

[d] Ambient air quality threshold based on SCAQMD Rule 403.

Construction Emissions

Construction of the project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment, as well as from personal vehicles, vendor trucks, and off-site trucks hauling construction materials. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles. Fugitive dust emissions would primarily result from site preparation and grading activities. Construction emissions can vary substantially from day to day, depending on the level of activity and the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated, with a corresponding uncertainty in precise ambient air quality impacts.

Emissions from the construction phase of the project were estimated using the California Emissions Estimator Model (CalEEMod), Version 2016.3.2. The construction schedule and scenario used for the criteria air pollutant emissions modeling of the project are shown in Section 2.5, Construction Activities. The construction equipment mix and estimated hours of equipment operation per day used for this analysis are shown in Table 4. For this analysis, it was assumed that heavy construction equipment would operate 5 days a week (22 days per month) during project construction. Table 4 also presents the estimated number of worker round trips per day anticipated for each construction sequence. To estimate motor vehicle emissions generated by worker vehicles (i.e., light-duty trucks and automobiles), it was assumed that each worker would generate two one-way trips per day. In addition to construction equipment operation and worker trips, emissions from hauling trucks and vendor trucks were estimated. The number of daily workers, vendors, and haul trips were based on CalEEMod default values and data provided by OCPW. During the site preparation, grading, and demolition phases, vendor trip estimates were modified to reflect two water truck trips per day. Soil export would total 486 cubic yards and soil import would total 370 cubic yards total throughout the grading phase. Removal of the bridge deck and abutments would total approximately 250 cubic yards of material throughout the demolition phase. As

described in Section 2.5, the total weight of the material would be approximately 804 tons of material. Therefore, if a haul truck with a capacity of 20 tons is used to remove material, approximately 40 haul truck round trips would be required.

All trip distances were based on the CalEEMod defaults. Details of the construction emission assumptions and calculations are included in Appendix A. Table 6 shows the estimated maximum unmitigated daily construction emissions associated with the construction of the proposed project.

Table 6: Estimated Daily Maximum Construction Emissions (Pounds per Day Unmitigated)

Year	VOCs	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2021	2.31	22.10	18.46	0.03	3.32	2.05
2022	2.01	19.89	18.24	0.04	2.96	1.68
SCAQMD Pollutant Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Source: See Appendix A for complete results. Although the construction dates do not match those described in Section 2.5, the daily construction activities are not anticipated to change and therefore the daily emissions estimates would not significantly change.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; SCAQMD = South Coast Air Quality Management District.
The PM_{10} and $PM_{2.5}$ estimates reflect control of fugitive dust required by Rule 403 (SCAQMD 2005).

As shown in Table 6, daily construction emissions would not exceed the SCAQMD construction thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Furthermore, construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. In addition, the project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during site preparation and grading activities (SCAQMD 2005). Standard construction practices that would be employed to reduce fugitive dust emissions include watering the active sites approximately three times daily, depending on weather conditions. As such, the proposed project would result in a less-than-significant impact during construction.

Operation Emissions

Once the bridge is constructed, no routine daily operational activities that would generate criteria air pollutants would occur. In the event that maintenance or repair of the bridge would be required, paving and application of architectural coatings of a localized portion of the distribution system may occur, as analyzed in the proposed project's construction emissions assessment (Appendix A). However, maintenance or repair activity would likely result in fewer emissions compared to the analyzed construction scenario. These potential repair activities would be temporary and would not be a source of long-term operational emissions. As the project would not result in a new land use that would involve operational activities, air quality impacts associated with operational air pollutant emissions would be less than significant.

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (Goss and Kroeger 2003).

As previously discussed, the SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction activities of the proposed project would generate VOC and NO_x emissions (precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 6, project-generated emissions would not exceed the SCAQMD emission-based significance thresholds for VOCs, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a project were to occur concurrently with another off-site project. Schedules for potential future projects near the project area are currently unknown; therefore, potential impacts associated with two or more simultaneous projects would be considered speculative.[4] However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all sites in the SCAQMD.

Based on the above considerations, the proposed project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be less than significant during construction and operation.

Response to Impact Question c):

Less-than-Significant Impact. The project would not expose sensitive receptors to substantial pollutant concentrations, as evaluated below.

Sensitive Receptors

Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include sites such as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993).

[4] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145).

Localized Significance Threshold Analysis

The SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts to sensitive receptors in the immediate vicinity of the project site that would result from construction activities. Residences are located adjacent to the project site. These residents would be considered sensitive receptors and would potentially be affected by construction-generated air pollutant emissions.

The project site is located in Source Receptor Area 19 (Saddleback Valley). It was assumed that the sensitive receptors would be located within 50 meters (164 feet) of construction activity. The SCAQMD localized significance threshold look-up tables are available for 1-acre, 2-acre, and 5-acre sites. The project site is less than 1 acre; therefore, the 1-acre scenario was chosen to represent project construction. The SCAQMD localized significance threshold methodology specifies the maximum allowable daily emissions that would satisfy the localized significance criteria. The maximum daily on-site construction emissions are compared to the allowable emission rates for Source Receptor Area 19 in Table 7. Additional details of the localized significance threshold analysis are provided in Appendix A.

Table 7: Localized Significance Threshold Analysis for Construction Emissions

Pollutant	Maximum Construction Emissions	LST Criteria	Exceeds LST?
	Pounds per Day		
NO_2	22	93	No
CO	18	833	No
PM_{10}	3	11	No
$PM_{2.5}$	2	4	No

Source: SCAQMD 2008.
Notes: LST = localized significance threshold; NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.
Construction emissions estimates are rounded to the nearest pound.

As shown, construction activities would not generate substantial emissions of pollutants to sensitive receptors and impacts to sensitive receptors in the vicinity of project construction would be less than significant.

Carbon Monoxide Hotspots

Regional trip generation and an increase in vehicle-miles traveled within the local airshed and the SCAB would occur with or without the project. Locally, traffic would be added to the County roadway system near the proposed project. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. High CO concentrations, associated with roadways or intersections operating at an unacceptable level of service (LOS), are a concern because CO is toxic to humans in high concentrations; however, because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SCAB is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. However, an increase in vehicular trips is not anticipated to increase as a result of the proposed project, because the vehicle capacity of the bridge would not be increased. Therefore, no CO hotspot analysis would be required. Accordingly, impacts relating to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

Health Effects Criteria Air Pollutants

Construction of the proposed project would generate criteria air pollutant emissions; however, the project would not exceed the SCAQMD mass-emission thresholds.

The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 generally result in reduced lung function. Because the proposed project would not involve activities that would result in O_3 precursor emissions (i.e., VOCs or NO_x) that would exceed the SCAQMD thresholds, as shown in Table 6, the proposed project is not anticipated to substantially contribute to regional O_3 concentrations and its associated health impacts during construction.

In addition to O_3, NO_x emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2. Exposure to NO_x (which includes NO_2) can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. As shown in Table 6, proposed project construction would not exceed the SCAQMD NO_x threshold, and existing ambient NO_2 concentrations would be below the NAAQS and CAAQS. Thus, the proposed project is not expected to result in exceedances of the NO_2 standards or contribute to associated health effects.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, thereby reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. CO hotspots were discussed previously as a less-than-significant impact. Thus, the proposed project's CO emissions would not contribute to the health effects associated with this pollutant.

The SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease; nonfatal heart attacks; irregular heartbeat; aggravated asthma; decreased lung function; and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA n.d.). As with O_3 and NO_x, and as shown in Table 6, the proposed project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for this pollutant.

In summary, the proposed project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants, and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts would be less than significant.

Response to Impact Question d):

Less-than-Significant Impact. Construction of the project would result in the emission of diesel equipment, gasoline, and asphalt paving material fumes. Odors from these sources would be localized and generally confined to the project site. Construction of the proposed project would use typical construction techniques in compliance with SCAQMD rules. Odors would be strongest near the source and would quickly dissipate off site. Any odors associated with construction activities would be temporary and would cease upon completion of construction. As such, project construction would not cause an odor nuisance, and odor impacts would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding operations (SCAQMD 1993). The proposed project would not result in the implementation of any such land use. Therefore, project operations would result in a less-than-significant odor impact.

3.4 Biological Resources

Would the project:	Potentially Significant 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?	☐	☒	☐	☐
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?	☐	☒	☐	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐

Introduction

The following analysis is based on a natural environmental study (minimal impacts), which included a biological resource survey and wetland delineation, conducted by Dudek Senior Biologist Tricia Wotipka on September 9, 2014, and May 14, 2015, in the 4.08-acre biological study area (BSA). Ms. Wotipka revisited the BSA on August 14, 2017, to verify the extent of biological resources in the action area and to document any changes. The natural environment study (minimal impacts) included a pre-field review of the latest relevant literature and databases, maps, special-status species occurrence, and critical habitat designation (Appendix B). A search of the California Natural Diversity Database (CDFW 2014) and California Native Plant Society Online Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2014) was conducted to identify sensitive biological flora and fauna potentially present in the U.S. Geological Survey (USGS) El Toro 7.5-minute quadrangle and the eight surrounding 7.5-minute quadrangles. In addition, the U.S. Fish and Wildlife Service (USFWS) Information Planning and Conservation (IPaC) System was reviewed for special-status species occurrence data and critical habitat designation within the project site and adjacent area and a project-specific Trust Resource List was generated (USFWS 2017). The Central-Coastal Subregion Natural Communities Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) (County of Orange 1996) was also reviewed with respect to regional reserve planning and conservation efforts in the area (Appendix B).

All plant species encountered during the survey were identified and recorded directly into a field notebook. Wildlife species detected during the field survey by sight, calls, tracks, scat, and other signs were recorded directly into a field notebook (Appendix B).

A jurisdictional delineation of waters of the United States, including wetlands, was conducted in the BSA in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and the Interim Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region (USACE 2008). The wetland delineation focused on identifying the extent of regulated resources within Ladd Canyon Creek, which was evaluated for evidence of an ordinary high water mark, surface water, and hydrophytic vegetation.

In addition to the natural environmental study (minimal impacts), a biological assessment was prepared in 2017 to specifically analyze impacts to arroyo toad (*Anaxyrus californicus*). The biological assessment survey confirmed that the conditions described in the natural environmental study (minimal impacts)

2014 and 2015 survey did not significantly change. The biological assessment reviewed the proposed project in sufficient detail to determine to what extent the proposed project may affect federally listed threatened, endangered, and proposed species or adversely modify critical habitat for a federally listed species. Twenty six species were determined to be absent from the BSA because the project site is either outside the species' range or suitable habitat was not present within or adjacent to the BSA. Although arroyo toad has a low potential to breed within the project site, arroyo toads have been documented in Silverado Creek, which intersects the project site and immediately abuts two areas within the project site proposed for equipment staging. Therefore, the proposed project has the potential to impact arroyo toad, a federally listed species (Appendix B).

The BSA, originally 4.08 acres in size, and then expanded to 4.18 acres, consists of the extent of the proposed bridge, the three equipment staging areas currently under consideration by OCPW, and the stretch of Silverado Canyon Road connecting the proposed bridge improvements to the three staging areas. The BSA is immediately bounded by rural residential uses to the north, commercial land uses to the east, open undeveloped lands to the south, and scattered rural residential uses to the west. The BSA was later expanded to accommodate a greater project impact area, which was not documented in the natural environmental study (minimal impacts) or the biological assessment. These impacts are reflected within the following analysis.

Response to Impact Question a):

Less than Significant with Mitigation Incorporated.

Plant Species

Within the USGS 7.5-minute El Toro quadrangle and surrounding eight 7.5-minute topographic quadrangles, 52 special-status plant species are reported to occur. Nine of these are federal and/or state listed as endangered or threatened, including the three following species from the USFWS IPaC Trust Resource List (USFWS 2017): thread-leaved brodiaea (*Brodiaea filifolia*), a state-listed endangered and federally listed threatened species; Laguna Beach liveforever (*Dudleya stolonifera*), a federally listed threatened species; and Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia*), a federally listed threatened species. All of the special-status plants identified in the literature review, including the three species from the USFWS IPaC Trust Resource List, were determined to be absent or not expected to occur due to a lack of suitable habitat within the BSA. In addition, there are no reported current occurrences of any special-status plant species within the BSA. Special-status plant species and their habitat requirements, regulatory status, and potential for occurrence within the BSA are detailed within Appendix B.

No special-status plants were documented in the 2014/2015 BSA, and no special-status plants, including those referred to in the USFWS IPaC Trust Resource List (USFWS 2017), are expected to occur. Special-status plants are not expected to have moderate or high potential to occur due to the extent of developed land and disturbed vegetation. In addition, the proposed project activities will occur within the existing roadway and areas previously disturbed. Therefore, impacts to special-status plants are not expected to occur.

Wildlife Species

According to the USFWS IPaC Trust Resource List (USFWS 2017), five federally listed wildlife species are reported to potentially occur within the project area, including the arroyo toad, coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), Riverside fairy shrimp

(*Streptocephalus woottoni*), and steelhead (*Oncorhynchus mykiss*). None of the federally listed species identified in the IPaC Trust Resource List were observed during 2014 and 2015 biological surveys and there are no reported occurrences of these species within the BSA.

The entire BSA, including Silverado Canyon Road, Ladd Canyon Road, and developed/disturbed road shoulders and vehicle pullovers, is located within designated critical habitat for the federally listed endangered arroyo toad (72 FR 72010-72213) (Appendix B). In 2009, the USFWS identified 12 critical habitat units within the Southern Recovery Unit. The BSA is located within Unit 8, which consists of approximately 737 acres of land along the lower Santa Ana River Basin in east-central Orange County. Specifically, the proposed project is located within the portion of Unit 8 along the 7.3-mile stretch of Silverado Creek from the boundary of the Cleveland National Forest east downstream to the confluence with Santiago Creek.

According to the California Natural Diversity Database, 62 special-status wildlife species are reported to occur within the USGS 7.5-minute Black Star Canyon quadrangle and surrounding eight topographic quadrangles (CDFW 2014; USFWS 2012). Although the BSA lies within the El Toro quadrangle, it is immediately south of the boundary between the El Toro and Black Star Canyon quadrangles. The Black Star Canyon quadrangle gives a more representative sample of the inland special-status species with potential to occur within the BSA than the El Toro quadrangle, which would include a larger percentage of coastal species unlikely to be found in the BSA. Of these 62, 20 are federal and/or state listed as endangered or threatened. No special-status wildlife species were identified within the project footprint during the 2014/2015 biological reconnaissance survey (Appendix B).

Only one species, Cooper's hawk (*Accipiter cooperii*), a California Department of Fish and Wildlife (CDFW) Watch List species, has a moderate potential to nest and forage in the BSA based on suitable habitat present. The project involves the removal of small trees and shrubs within the impact footprint and could involve the trimming of vegetation to facilitate the proposed bridge improvements. Breeding birds can be significantly affected by short-term construction-related noise, which can result in the disruption of foraging, nesting, and reproductive activities. Potential impacts from construction-related noise could occur to nesting birds and raptors protected under the Migratory Bird Treaty Act if work is to occur during the breeding season (i.e., February 15 through September 1). With incorporation of **Mitigation Measure (MM) BIO-1**, impacts associated with wildlife nesting sites would be less than significant.

The replacement of the existing bridge and the staging of heavy equipment would cause temporary ground disturbance within the County right-of-way and within designated critical habitat for arroyo toad. Minimal permanent impacts to Ladd Canyon Creek would also occur due to the new bridge footings. The habitat within the areas proposed for equipment staging is highly disturbed with a combination of gravel and compacted earth, which is not typically preferred by arroyo toad as upland foraging habitat. However, the possibility exists that arroyo toad could travel through these areas and could be adversely affected by equipment staging at those areas abutting Silverado Creek. Further, while Ladd Canyon Creek lacks the typical stream and upland habitat characteristics needed to provide breeding and overwintering opportunities, the possibility exists for arroyo toad to migrate up Ladd Canyon Creek from Silverado Creek given past observations of this species within 1 kilometer of the project site in Silverado Creek. Although arroyo toad is not known to occupy the BSA, **MM-BIO-2** and **MM-BIO-3** will be implemented during construction to protect this species given past observations of this species within Silverado Creek and given the critical habitat designation in the BSA in Ladd Canyon Creek.

Upon implementation of **MM-BIO-1** through **MM-BIO-3,** impacts to species identified as candidate, sensitive, or special-status species would be less than significant.

MM-BIO-1 To avoid any direct impacts to raptors and/or any native/migratory birds, removal of habitat that supports active nests in the biological survey area should occur outside of the breeding season for these species (February 15 to September 1), where feasible. If removal of habitat in the proposed area of disturbance must occur during the breeding season, a qualified biologist shall conduct a pre-construction survey to determine the presence or absence of nesting birds in the proposed area of disturbance. The pre-construction survey shall be conducted within 3 calendar days prior to the start of construction activities (including removal of vegetation).

If nesting birds are detected, a letter report or nesting bird protection and management plan shall be prepared in conformance with applicable state and federal law (i.e., appropriate follow-up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) and shall include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or nesting bird protection and management plan shall be submitted to the California Department of Transportation (Caltrans) and the California Department of Fish and Wildlife (CDFW) for review and approval and implemented to the satisfaction of Caltrans and CDFW. The biologist, in concert with OC Public Works and Caltrans, shall verify and approve that all measures identified in the report or nesting bird protection and management plan are in place prior to and/or during construction. If nesting birds are not detected during the pre-construction survey, no further mitigation is required.

MM-BIO-2 Arroyo Toad Conservation Measures:

- A qualified biologist shall conduct an environmental awareness training session for all project personnel prior to construction. At a minimum, the training should include a description of the arroyo toad, the general provisions of the federal Endangered Species Act (ESA), the need to adhere to the provisions of the ESA, the penalties associated with violating the ESA, the general measures that are being implemented avoid and minimize impacts to listed species, and activity boundaries.
- Project-related vehicle travel should be limited to daylight hours, as potential roadway mortality of arroyo toads would be expected to be greatest at night.
- Construction activities within suitable arroyo toad upland habitat shall take place outside the arroyo toad breeding season (defined as February 15–July 31) to the degree feasible.
- Dust control (i.e., water truck spraying) shall be performed in a manner that does not attract toads into the BSA. For example, pools of water shall not be allowed to stand for long periods of time.
- Daily pre-construction sweeps of the construction area shall be conducted.
- To preclude arroyo toads from the proposed impact areas, arroyo toad exclusionary fencing shall be installed around the proposed impact area prior to implementation of activities. The fence shall consist of fabric or plastic at least 2 feet (0.61 meters) high, staked firmly to the ground, with the lower 1 foot of material stretching outward

along the ground and secured with a continuous line of gravel bags or trenched into the soil 6 to 12 inches. Ingress and egress of equipment and personnel should use a single access point to the work site. This access point should be as narrow as possible and would need to be closed off by exclusionary fencing when personnel are not on the project site.

- Prior to impacts, but after exclusionary fencing has been installed, three surveys for arroyo toads should be conducted within the fenced area by a qualified biologist. Surveys shall be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If climatic conditions are not appropriate for arroyo toad movement during the surveys, the biologist may attempt to illicit a response from the arroyo toads during nights (i.e., at least 1 hour after sunset) with temperatures above 50°F, by spraying the project site with water to simulate a rain event. If an arroyo toad is found within the project site during the surveys or the maintenance activities, it is recommended that all work should cease and coordination with the U.S. Fish and Wildlife Service occur.
- A monitoring biologist shall be on site during initial clearing and grubbing activities to ensure compliance with all proposed conservation measures. The monitoring biologist would prepare reports for the project proponent and permitting agency (if required) that document compliance with these measures. The biologist shall perform the following duties:
    a. Submit weekly reports (including photographs of impact areas) to OC Public Works and California Department of Transportation during (a) initial clearing and grubbing activities and (b) installation of exclusionary fencing. The weekly reports should document that authorized impacts were not exceeded and general compliance with all conservation measures.
    b. The biologist shall prepare a final report for the project proponent within 60 days of project completion that includes as-built construction drawings with an overlay of habitat that was impacted, photographs of the project site, and other relevant summary information documenting general compliance with all avoidance measures.
- Excavations shall be properly covered to prevent toads from entering any open pits. At the end of the workday, any open pits or trenches should be covered with plywood or plastic with the edges covered by gravel or sand bags. When removed the following day, care should be taken to look for arroyo toads. If present, then the biologist should be contacted.
- Employees shall strictly limit their activities, vehicles, equipment, and construction materials to predetermined staging areas or existing roads.
- To avoid attracting predators, the project site should be kept as clean of debris as possible. All food-related trash items should be enclosed in sealed containers and regularly removed from the project site.
- Pets are prohibited on the job site.
- Brush and other debris shall be properly managed.
- All equipment maintenance, staging, and dispensing of fuel, oil, or coolant shall occur within a predetermined staging area. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

MM-BIO-3 Compensatory Habitat Mitigation:

- The project has been designed to avoid impacts to native upland vegetation communities of concern within designated critical habitat for arroyo toad. All permanent impacts to mature live oak and eucalyptus trees will be replaced at a ratio of 2:1, primarily due to the extent of existing development and minimal impact to native habitats resulting from the proposed project.
- Mitigation for direct, temporary impacts to 0.037 acres of ephemeral stream channel will include removing trash and non-native plant species from the channel bottom of Ladd Canyon Creek within the biological survey area and restoring temporarily impacted areas in place to pre-construction contours and conditions following construction.
- Habitat restoration and erosion control treatments shall be installed within all temporary disturbance areas along the channel banks and channel bottom of Ladd Canyon Creek. Habitat restoration will feature native species that are typical of the area, and erosion control features will include silt fence and straw fiber rolls, where appropriate. The temporary impact revegetation areas will be monitored and maintained for 25 months to ensure adequate establishment and sustainability of the plantings/seedlings.

Response to Impact Question b):

Less than Significant with Mitigation Incorporated. Vegetation communities were mapped following A Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009). Based on this classification system, six vegetation communities and land covers are identified and mapped in the BSA. Communities that did not conform to A Manual of California Vegetation, 2nd Edition, were mapped according to their dominant species and characteristics. Table 8 describes the vegetation communities and their acreages in the BSA. Each individual vegetation community and land cover is described below.

Table 8: Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Native Upland Vegetation Communities (Alliance)	
California Sagebrush Scrub (Temporary)	0.040
California Sagebrush Scrub (Permanent)	0.000
Subtotal	*0.040*
Xeromorphic Sclerophyll Woodlands	
Coast Live Oak Woodland (Temporary)	0.093
Coast Live Oak Woodland (Permanent)	0.019
Subtotal	*0.112*
Non-Native Vegetation Communities (Semi-Natural Stands)	
Annual Grassland (Temporary)	0.100
Annual Grassland (Permanent)	0.004

Table 8: Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Eucalyptus Groves (Temporary)	0.170
Eucalyptus Groves (Permanent)	0.047
Subtotal	*0.321*
Other Land Cover Types (Not Classified)	
Developed Land (Temporary)	3.473
Developed Land (Permanent)	0.197
Subtotal	*3.670*
Waters of the United States, Including Wetlands	
Ephemeral Stream Channel (Temporary)	0.0296
Ephemeral Stream Channel (Permanent)	0.0075
Subtotal	*0.037*
Total	**4.180**

Source: Appendix B.

Vegetation communities and land covers identified in the BSA include California sagebrush scrub, coast live oak woodland, annual brome grassland, eucalyptus groves, ephemeral stream channel, and developed land (Table 8).

Based on the project design, there will be limited permanent impacts to natural vegetation communities. Replacement of the existing bridge and associated infrastructure would result in direct, permanent impacts to 0.019 acres of coast live oak woodland, 0.004 acres of annual grassland, 0.0075 acres of ephemeral stream, 0.197 acres of developed land, and 0.047 acres of eucalyptus groves.

Direct, temporary impacts resulting from construction of the bridge and use of temporary work staging will occur to 3.473 acres of developed land, 0.040 acres of California sagebrush scrub, 0.170 acres of eucalyptus groves, 0.100 acres of annual brome grassland, 0.0296 acres of ephemeral stream, and 0.093 acres of coast live oak woodland. Implementation of project minimization features will minimize any potential impacts.

Due to the extent of existing development and minimal impact to native habitats resulting from the proposed project, implementation of **MM-BIO-4** and the habitat restoration identified in MM-BIO-5 (refer to c) below) will result in less-than-significant impacts to vegetation communities and land covers.

MM-BIO-4 In the event that there are permanent impacts to mature live oak and eucalyptus trees during construction, the general contractor shall notify OC Public Works. All permanent impacts to mature live oak and eucalyptus trees will be replaced at a ratio of 2:1.

Response to Impact Question c):

Less than Significant with Mitigation Incorporated. The proposed project is centered on Ladd Canyon Creek, a north–south trending, seasonal USGS blue-line stream and tributary to Silverado Creek. Within the context of the BSA, Ladd Canyon Creek occupies 0.037 acres and is best characterized as an unvegetated, ephemeral stream channel (Table 8). Ladd Canyon Creek is considered a jurisdictional non-wetland waterway subject to regulation by the USACE pursuant to Section 404 of the federal Clean Water Act (CWA); the Regional Water Quality Control Board (RWQCB) in accordance with Section 401 of the CWA and the Porter-Cologne Water Quality Control Act; and CDFW pursuant to Section 1600 (et seq.) of the California Fish and Game Code. Although Ladd Canyon Creek is considered a non-wetland, it is a jurisdictional water of the United States, and is analyzed herein.

The proposed project will result in impacts to Ladd Canyon Creek, a jurisdictional non-wetland waterway. Construction access will result in temporary impacts to 0.0296 acres of ephemeral stream channel. **MM-BIO-5** and **PDF-BIO-1** would reduce identified and potential significant impacts associated with jurisdictional waters to less than significant.

MM-BIO-5 Mitigation for direct, temporary impacts to 0.0296 acres of ephemeral stream channel will include restoring temporarily impacted areas in place to pre-construction contours and conditions following construction.

Habitat restoration and erosion control treatments will be installed within temporary disturbance areas. Habitat restoration will feature native species that are typical of the area, and erosion control features will include silt fence and straw fiber rolls, where appropriate. The temporary impact revegetation areas will be monitored and maintained for 25 months to ensure adequate establishment and sustainability of the plantings/seedlings.

Response to Impact Question d):

Less-than-Significant Impact. Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by ensuring continual exchange of genes between populations and by providing access to adjacent habitat and routes for recolonization after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as stepping stones for dispersal.

Ladd Canyon Creek is an ephemeral USGS blue-line stream that conveys flow seasonally from foothills to the north through the BSA and downstream toward the confluence with Silverado Creek off site. Within the context of the BSA, Ladd Canyon Creek is roughly 10 feet wide with a dry, rock-and-cobble-lined bottom with channel banks reinforced with riprap boulders. The stream traverses through lands supporting coast live oak woodland and eucalyptus groves, all of which can facilitate local wildlife movement. Within the BSA, terrestrial wildlife and avifaunal species can travel unrestricted along Ladd Canyon Creek and beneath Silverado Canyon Road via the existing bridge opening. Although the BSA facilitates wildlife movement, the project, as proposed, will not adversely impact wildlife use of Ladd

Canyon Creek because the impacts are largely temporary in nature. Coyotes (*Canis latrans*), raccoons (*Procyon lotor*), birds, ground squirrels, and other wildlife species that may move through the BSA will continue to do so following project implementation. Furthermore, with the exception of birds and reptiles, mammals are more likely to move through the work site at night when construction would not occur. The proposed project would have less-than-significant impacts to habitat connectivity.

Response to Impact Question e):

Less than Significant with Mitigation Incorporated. The proposed project may result in direct impacts to mature coast live oak (*Quercus Agrifolia*) and eucalyptus (*Eucalyptus* sp.) trees. The Silverado-Modjeska Specific Plan includes a tree preservation section. This section requires trees exceeding 5 inches in diameter to be preserved or replaced in conjunction with any grading or construction activity (County of Orange 1977).

The proposed bridge replacement work will result in direct, permanent impacts to 0.019 acres of coast live oak woodland and 0.047 acres of eucalyptus groves. Direct, temporary impacts from construction of the bridge will occur to 0.170 acres of eucalyptus groves and 0.093 acres of coast live oak woodland. All permanent impacts to mature live oak and eucalyptus trees will be replaced at a ratio of 2:1 (**MM-BIO-4**), primarily due to the extent of existing development and minimal impact to native habitats resulting from the proposed project. Therefore, impacts associated with tree preservation policies will be less than significant with mitigation incorporated.

Response to Impact Question f):

Less-than-Significant Impact. The County of Orange Central and Coastal Subregion NCCP/HCP (County of Orange 1996) was reviewed with respect to regional reserve planning and conservation efforts in the area. Plants and wildlife species that are listed on the County NCCP/HCP are referred to as "special-status species."

As addressed in Response to Impact Question a), the entire BSA, including Silverado Canyon Road, Ladd Canyon Road, and developed/disturbed road shoulders and vehicle pullovers, is located within designated critical habitat for the arroyo toad, a NCCP/HCP listed species. The replacement of the existing bridge and the staging of heavy equipment will cause temporary ground disturbance within the County right-of-way and within designated critical habitat for arroyo toad. The habitat within the areas proposed for equipment staging is highly disturbed, with a combination of gravel and compacted earth, which is not typically preferred by arroyo toad as upland foraging habitat. However, the possibility exists that arroyo toad could travel through these areas and could be adversely affected by equipment staging at those areas abutting Silverado Creek. Further, while Ladd Canyon Creek lacks the typical stream and upland habitat characteristics needed to provide breeding and overwintering opportunities, the possibility exists for arroyo toad to migrate up Ladd Canyon Creek from Silverado Creek, given past observations of this species within 1 kilometer of the project site in Silverado Creek. Although the arroyo toad is not known to occupy the BSA, **MM-BIO-2** and **MM-BIO-3** will be implemented during construction to protect this species given past observations of this species within Silverado Creek and given the critical habitat designation in the BSA in Ladd Canyon Creek.

Upon implementation of **MM-BIO-2** and **MM-BIO-3**, impacts associated with a conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan would be less than significant.

3.5 Cultural Resources

Would the project:	Potentially Significant 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 §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?	☐	☐	☒	☐

Introduction

The following analysis is based on a historical property survey report (HPSR), which includes an archaeological survey report (ASR) that was prepared in coordination with the California Department of Transportation (Caltrans) and in compliance with Section 106 of the National Historic Preservation Act. The ASR presents the results of a California Historical Resources Information System (CHRIS) records search, Native American coordination, and an intensive-level cultural resources survey conducted by Dudek in support of the proposed project. The HPSR includes the ASR and the California Historic Bridge Inventory sheet (Appendix C).

Response to Impact Question a):

Less-than-Significant Impact. In accordance with Section 106 Programmatic Agreement Stipulation VII A, the APE for the project was established in consultation with Caltrans and OCPW. The direct APE consists of all ground disturbance for the proposed project, as well as any area to be used for staging and transportation of materials (Figure 1-5). The horizontal extent of the direct APE includes the existing bridge at the intersection of Silverado Canyon Road and Ladd Creek Road, extending 0.4 miles west to the Silverado Community Center at 27641 Silverado Canyon Road. The extent of this planned APE footprint is approximately 7.7 acres. The planned vertical extent of the APE is represented by a maximum excavation depth of 20 feet below the existing ground surface for the installation of the footings (see Figure 3 in Appendix C). Excavation would not be required for the staging areas.

The HPSR includes a records search of the California Historic Bridge Inventory. The original construction date and historical significance status was researched for the existing Ladd Canyon Bridge (Bridge Number 55C0715) within the Local Agency Bridges Structure Maintenance and Investigations Database. Bridge Number 55C0175, constructed in 1947, was determined to be Category 5–Not eligible for Listing in the National Register (see Attachment 3 of Appendix C). Therefore, despite the age of the existing bridge, it is not considered eligible for inclusion in the National Register of Historic Places (NRHP).

A CHRIS records search was conducted at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton, on May 3, 2017. The records search included 45 cultural resource studies within 1 mile of the APE. Of the 45 cultural resource studies, 8 (OR-003273, OR-004177, OR-004178, OR-004314, OR-004315, OR-004316, OR-004317, and OR-004318) are located within the project APE. Five of these studies (OR-003273, OR-004177, OR-004178, OR-004314, and OR-004318) concern a single historical cultural resource relevant to the project APE.

One cultural resource was identified within the project direct APE as a result of the CHRIS records search, the Holtz Ranch Complex (P-30-177443). Additionally, the records search identified 27 previously recorded cultural resources within a 1-mile radius of the project APE. Resources within the 1-mile radius included 17 prehistoric sites, 1 multicomponent site, 4 elements of the historic Silverado Ranger Station district (30-150001), 3 historic archaeological sites, and 2 historic monuments. However, none of the 27 resources are within the APE.

The Holtz Ranch Complex (P-30-177443) was first recorded by Nancy Whitney-Desautels and Robert Beer in 2000. This investigation resulted in the detailed recordation of 17 structures related to the commercial farm, which produced poultry, apiary, and walnuts. After revisiting in 2003, Richard Carrico presented the findings and recommendations resulting from the historical and architectural assessment of the structures identified by Whitney-Desautels and Beer. The evaluation concluded that although the Ranch Complex may be of some local significance, the modification to the structures, the poor condition of the buildings, and the lack of integrity of the complex prevent the ranch from meeting local or state significance criteria. Portions of the Ranch Complex were visited again in 2003 (Whitney-Desaulets, Beer, and Carrico) and in 2012 (Daly and Maxon). All individual structures, along with the Holtz Ranch Complex as a whole, were determined to be not eligible for listing in the NRHP or the California Register of Historic Resources (CRHR).

Because Bridge 55C0175 was determined not eligible for listing in the NRHR and the Holtz Ranch Complex was determined not eligible for listing in the NRHR or CRHR, no impacts to historical resources would result from the proposed project.

Response to Impact Question b):

Less than Significant with Mitigation Incorporated. As part of the HPSR, an ASR was prepared. The ASR presents the results of a CHRIS records search at the SCCIC, located on the campus of California State University, Fullerton, in May 2017 for the proposed project site and surrounding 1-mile radius (Appendix C). The records search included any previously recorded archaeological resources and investigations within the APE and a 1-mile radius around the APE. In addition, office maps and records were consulted, which included the NRHP, California State Historic Property Data Files, California State Historical Landmarks, California Points of Historical Interest, Office of Historic Preservation Archaeological Determinations of Eligibility, Caltrans State and Local Bridge Surveys, and Historical Maps (1901–1967). The results of the records search are presented in Appendix C.

An intensive-level pedestrian survey of the project APE was conducted by Dudek Archaeologist Maximilian van Rensselaer on June 13, 2017. The survey was conducted by walking on either side of Silverado Canyon Road and closely inspecting the area surrounding the existing bridge. No archaeological resources were identified within the project APE during the intensive pedestrian survey. Because the APE is located along an existing paved roadway and within extensively graded and disturbed turnout areas, close attention was paid to any areas of exposed sediment. Ground visibility varied greatly, with approximately 0% along paved Silverado Canyon Road and 100% within the graded turnout areas. Visibility immediately surrounding the existing bridge was approximately 10%. Only modern refuse was observed in the APE.

Although outside of the direct APE, the SCCIC records search results indicate that one prehistoric archaeological site (CA-ORA-1630) has been identified in the vicinity of the APE. This bedrock mortar feature is characteristic of locations of moderate-intensity use or reoccurring occupation rather than ephemeral use or incidental exploitation of local resources. Such sites are more likely to contain subsurface cultural deposits or midden soils that have developed through habitation activities. Ephemeral drainages are in the vicinity of the project, providing both a resource-rich environment for people who lived in the area prehistorically and topographic suitability for the development of subsurface cultural deposits.

Dudek contacted the NAHC on April 17, 2017, to request a search of the Sacred Lands File for traditional cultural resources. The NAHC responded that the review failed to indicate presence of Native American cultural resources in the immediate project area. The NAHC also provided a list of 10 Native American groups and individual contacts that may have knowledge of cultural resources within the vicinity of the APE. Dudek mailed letters to each of these contacts on May 11, 2017, and conducted follow-up telephone calls on June 21, 2017, as part of the Assembly Bill 52 notification process. In response to outreach efforts, one Native American contact stated that the proposed project is not located within their tribal territory and deferred to applicable local tribes for comment. The remaining contacts did not respond to either the letter or subsequent follow-up phone calls.

On December 11, 2018, the County resent letters to the 10 contacts provided by the NAHC, the Gabrieleño Band of Mission Indians – Kizh Nation, and the Gabrieleño Tongva San Gabriel Band of Mission Indians. The contacts did not respond, except for the Gabrieleño Band of Mission Indians – Kizh Nation, who requested further consultation. A consultation teleconference call occurred between the Gabrieleño Band of Mission Indians – Kizh Nation and the County on March 27, 2019. During consultation, the tribe requested that Native American monitoring occur during all ground-disturbing activities, or when the tribal representatives have indicated when the site has a potential to impact tribal cultural resources. The County understands that the project site is located in territory recognized as Gabrieleño Band of Mission Indians – Kizh Nation territory; however, upon review of the available literature and maps, including those provided as part of tribal consultation, there is insufficient evidence of tribal significance. This is because the majority of earth-moving work would occur within the areas occupied by the existing bridge, existing roads, and adjacent areas that have been disturbed through the development of the turnouts. While the records of the exact depth and character of past disturbance are limited due to the age of much of this past construction, it is possible that limited intact native soils are present within the first few feet of the surface. Project excavation will produce a maximum depth, ranging by activity, of 20 feet below the surface at the location of the new bridge footings.

Therefore, if previously unidentified cultural materials are unearthed, **MM-CUL-1** would require a qualified archaeologist to assess the significance of the find. Based on the background research and survey results there is a low potential to encounter buried cultural deposits within the APE. However, **MM-CUL-1** has been updated to require that an archaeologist with tribal cultural monitoring experience should be present during earth moving activities that would occur in previously undisturbed areas. Taking into account what was discussed during the call with the tribal representatives on March 27, 2019, the updated mitigation measure adequately safeguards unknown tribal remains/artifacts that may be present within the project site. As such, with incorporation of **MM-CUL-1**, impacts associated with archaeological resources would be less than significant.

MM-CUL-1 During ground disturbance of previously undisturbed native soil areas, a qualified professional archaeologist with knowledge of Native American resources shall be present to monitor such activities. If archaeological or tribal cultural resources (sites, features, or artifacts) are exposed during project construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending on the significance of the find under the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; California Public Resources Code, Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan and data recovery, may be warranted. This requirement shall be noted on all grading plans, and the construction contractor shall be obligated to comply with the note.

Response to Impact Question c):

Less-than-Significant Impact. There is no evidence of human remains occurring on the project site, and because there is no evidence of historical camps or human settlement on the site, the potential for the inadvertent discovery of human remains on the project site is low. However, the discovery of human remains is always a possibility during ground disturbance. California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner makes a determination of origin and disposition pursuant to California Public Resources Code, Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner shall be notified immediately. If the human remains are determined to be prehistoric, the county coroner shall notify the NAHC, which shall notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Therefore, impacts would be less than significant.

3.6 Energy

Would the project:	Potentially Significant 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?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts to energy resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by OCPW, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less-than-Significant Impact. The short-term construction of the project will require the consumption of energy resources in several forms at the proposed project site and within the project area. An overview of the forms of energy consumption for construction is provided as follows.

Construction Energy Consumption

1. Temporary direct electrical service: energy provided by Southern California Edison
   - Construction site lighting
   - Computer equipment
   - Temporary construction trailer operation
2. Fossil fuels: diesel and gasoline
   - Off-road construction equipment
   - Diesel-fired electric generators
   - Worker vehicles, vendor trucks, and haul trucks

Construction energy consumption is evaluated in detail below.

Construction

Electricity

Southern California Edison would provide temporary electric power for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers. The electricity used for such activities would be temporary and would have a negligible contribution to the project's overall energy consumption.

Natural Gas

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the petroleum subsection. Any minor amounts of natural gas that may be consumed as a result of project construction would have a negligible contribution to the project's overall energy consumption.

Petroleum

Heavy-duty construction equipment associated with demolition and construction activities would rely on diesel fuel, as would haul and vendor trucks involved in delivery of materials to the project site. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered light-duty vehicles.

Heavy-duty construction equipment of various types would be used during each phase of project construction. Appendix A lists the assumed equipment usage for each phase of construction. The project's construction equipment is estimated to operate a total combined 9,325 hours.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Construction is estimated to occur in 2021 and 2022 based on the construction phasing schedule. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). The estimated diesel fuel usage from construction equipment is shown in Table 9.

Table 9: Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/gallon	Gallons
Utility Relocation 1	2	20.47	10.21	2,004.90
Site Preparation	3	3.81	10.21	373.16
Grading 1	3	31.21	10.21	3,056.81
Demolition 1	6	19.34	10.21	1,894.22
Building Construction 1	7	35.36	10.21	3,463.27

Table 9: Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/gallon	Gallons
Paving 1	5	14.82	10.21	1,451.52
Grading 2	3	12.48	10.21	1,222.33
Demolition 2	6	19.34	10.21	1,894.22
Bridge Construction 2	7	26.52	10.21	2,597.45
Utility Relocation 2	2	10.24	10.21	1,002.94
Paving 2	5	14.83	10.21	1,452.50
Architectural Coating	1	1.92	10.21	188.05
			Total	**20,601.37**

Sources: Pieces of equipment and equipment CO_2 (Appendix A); kg CO_2/gallon (The Climate Registry 2018).
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel consumption from worker, vendor, and haul truck trips is estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline and vendor/hauling vehicles are assumed to be diesel. Calculations for total worker, vendor, and haul truck fuel consumption are provided in Tables 10, 11, and 12.

Table 10: Construction Worker Gasoline Demand

Phase	Trips	Vehicle MT CO_2	kg CO_2/ gallon	Gallons
Utility Relocation 1	6.00	1.4751	8.78	168.01
Site Preparation	8.00	0.2459	8.78	28.01
Grading 1	8.00	2.4585	8.78	280.01
Demolition 1	16.00	1.4751	8.78	168.01
Building Construction 1	18.00	4.4253	8.78	504.02
Paving 1	14.00	2.1065	8.78	239.92
Grading 2	8.00	0.9469	8.78	107.85
Demolition 2	16.00	1.4204	8.78	161.78
Bridge Construction 2	18.00	3.1959	8.78	364.00
Utility Relocation 2	6.00	0.7102	8.78	80.89
Paving 2	14.00	2.0714	8.78	235.92

Table 10: Construction Worker Gasoline Demand

Phase	Trips	Vehicle MT CO_2	kg CO_2/ gallon	Gallons
Architectural Coating	4.00	0.3551	8.78	40.44
			Total	**2,378.85**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/gallon (The Climate Registry 2018).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Table 11: Construction Vendor Diesel Demand

Phase	Trips	Vehicle MT CO_2	kg CO_2/gallon	Gallons
Utility Relocation 1	0.00	0.000	10.21	0.00
Site Preparation	2.00	0.1351	10.21	13.23
Grading 1	2.00	1.3507	10.21	132.29
Demolition 1	2.00	0.4052	10.21	39.69
Building Construction 1	8.00	4.3224	10.21	423.35
Paving 1	0.00	0.000	10.21	0.00
Grading 2	2.00	0.5350	10.21	52.40
Demolition 2	2.00	0.4012	10.21	39.29
Bridge Construction 2	8.00	3.2097	10.21	314.37
Utility Relocation 2	2.00	0.5350	10.21	52.40
Paving 2	0.00	0.000	10.21	0.00
Architectural Coating	0.00	0.000	10.21	0.00
			Total	**1,067.02**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/gallon (The Climate Registry 2018).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

Table 12: Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle MT CO_2	kg CO_2/gallon	Gallons
Utility Relocation 1	2.00	0.0762	10.21	7.46
Site Preparation	0.00	0	10.21	0.00
Grading 1	0.00	0	10.21	0.00

Table 12: Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle MT CO_2	kg CO_2/gallon	Gallons
Demolition 1	0.00	0	10.21	0.00
Building Construction 1	0.00	0	10.21	0.00
Paving 1	0.00	0	10.21	0.00
Grading 2	108.00	4.0580	10.21	397.45
Demolition 2	80.00	3.0059	10.21	294.41
Bridge Construction 2	0.00	0	10.21	0.00
Utility Relocation 2	2.00	0.0752	10.21	7.37
Paving 2	0.00	0	10.21	0.00
Architectural Coating	0.00	0	10.21	0.00
			Total	**706.69**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/gallon (The Climate Registry 2018).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

In summary, construction of the project, which would last approximately 1 year and 6 months, is anticipated to consume 2,379 gallons of gasoline and 22,375 gallons of diesel. By comparison, California's consumption of petroleum is approximately 78 million gallons per day, which would equate to approximately 31 billion gallons of petroleum consumed in California over the course of the project construction period (EIA 2020). Therefore, the project would result in a minimal increase in petroleum fuel consumption, and impacts associated during construction would be less than significant. No mitigation is required.

Operation

Once the bridge is constructed, no routine daily operational activities that would consume energy would occur. In the event that maintenance or repair of the bridge would be required, paving and application of architectural coatings of a localized portion of the distribution system may occur, as analyzed in the proposed project's construction energy assessment above. However, maintenance or repair activity would likely result in less energy consumption compared to the analyzed construction scenario. These potential repair activities would be temporary and would not be a source of long-term operational energy consumption. As the project would not result in a new land use that would involve operational activities, energy consumption impacts would be less than significant.

Response to Impact Question b):

Less-than-Significant Impact. The proposed project would not result in operational energy consumption; therefore, the proposed project would not conflict with existing energy standards and regulations. Impacts associated with the proposed project would be less than significant.

3.7 Geology and Soils

Would the project:	Potentially Significant 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 onsite or offsite 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 direct or indirect risks to life or property?	☐	☐	☒	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system 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?	☐	☒	☐	☐

Introduction

This section evaluates potential impacts to geology and soils that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a-i):

Less-than-Significant Impact. The potential for fault ruptures are identified on the Alquist-Priolo Fault Zoning Map. The Alquist-Priolo Earthquake Fault Zoning Act, revised in the Division of Mines and Geology Special Publication 42, was passed with the intent of addressing hazards of surface fault rupture. The law resulted in established regulatory zones around active faults and regulation by local agencies of development projects within those zones (CDC 1999).

The proposed project is not located within an earthquake fault zone, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (CDC 2001) and on the California Earthquake Hazards Zone Application (CDC 2018). The project is located in the Lake Forest Quadrangle, which is not defined as an earthquake fault zone. The nearest fault zone is located within the Corona South Quadrangle northwest of the project site. The project site is not within a fault zone, and therefore impacts associated with fault rupture would be less than significant.

Response to Impact Question a-ii):

Less-than-Significant Impact. Most faults traversing the Southern California area have the potential of producing strong seismic ground shaking. Quadrangles surrounding the Corona South Quadrangle are the northern end of the Elsinore Fault zone, an active fault zone of the San Andreas Fault system (CDC 2003). The existing Ladd Canyon Bridge was built in 1947 and is considered to be structurally deficient according to FHWA criteria, with a sufficiency rating of 43.1. Because the proposed project would involve the replacement of the existing structurally deficient bridge, this would improve the safety conditions for vehicular and pedestrian traffic. The proposed project would be subject to the Bridge Design

Specifications established by Caltrans and would be designed in accordance with all applicable design provisions that dictate specifications to ensure structural integrity during a seismic event. Compliance with the Caltrans Bridge Design Specifications would minimize the risk of loss, injury, or death resulting from ground shaking on structures to the maximum possible extent. With the replaced bridge, impacts are less than significant.

Response to Impact Question a-iii):

Less-than-Significant Impact. The Seismic Hazards Mapping Act of 1990 was developed to reduce threat to health and safety by identifying and mitigating seismic hazards. In accordance with the act, the Division of Mines and Geology Special Publication 117 (CDC 2008) has guidelines for evaluating and mitigating seismic hazards, including liquefaction zones. Local permitting authorities must regulate development projects within seismic hazard zones and implement appropriate mitigation measures into development plans (CDC 2008).

The Silverado-Modjeska Specific Plan Safety Element includes guidelines to reduce geologic hazards through geologic investigations, engineering practices, and effective enforcement of grading ordinances. For areas identified as having potential hazard, the contractor should design mitigation measures to the satisfaction of the County (County of Orange 1977).

The project is located within a liquefaction zone as delineated on the most recent Seismic Hazards Zone Map from 2003 and on the California Earthquake Hazards Zone Application (CDC 2018). According to the 7.5-minute Lake Forest Quadrangle Seismic Hazards Zone Map, the liquefaction zones are located in the bottoms of major drains and stream canyons (CDC 2001). The liquefaction zone runs along Silverado Canyon Road and through the project site. However, the proposed project would be required to comply with local, state, and federal regulations intended to minimize the impacts of liquefaction to the extent feasible. Specifically, the proposed project would be subject to the Caltrans Bridge Design Specifications and would be designed in accordance with all applicable design provisions, which dictate specifications to ensure structural integrity during soil liquefaction. Further analysis is required to determine the nature of soils on site and the potential for liquefaction to occur (**PDF-GEO-1**). The geotechnical/soils study would make design recommendations based on liquefaction potential. Therefore, impacts would be less than significant.

Response to Impact Question a-iv):

Less-than-Significant Impact. According to the County General Plan Safety Element, landslides in the County may be divided into three categories: surficial failures, rotational slides, and planar sides. The major contributing factor to these types of slides is the process of grading. Landslides often occur during or after earthquakes. Areas most susceptible to earthquake-induced landslides are steep slopes, poorly cemented or highly fractured rocks, loose weak soils, or existing landslide deposits. Due to the active faults and weak soils occurring in the County, OCPW is responsible for reviewing grading plans and geological reports and implementing corrective measures to mitigate adverse geological hazards (OCPW 2012). In addition, the Orange County Grading and Excavation Code regulates grading on public and private property in unincorporated areas of the County, and establishes requirements for issuance of grading permits.

The Seismic Hazards Map and the California Earthquake Hazards Zone Application did not identify the project site as an earthquake-induced landslide zone. The nearest landslide-zone is in the foothill region northeast and south of the project. Nonetheless, the project will comply with the standards set forth in the Grading and Excavation Code and the Division of Mines and Geology Special Publication 117. Additionally, the existing Ladd

Canyon Bridge was built in 1947 and is considered to be structurally deficient according to FHWA criteria, with a sufficiency rating of 43.1. Because the proposed project would involve the replacement of the existing structurally deficient bridge, this would improve the safety conditions for vehicular and pedestrian traffic. Therefore, impacts associated with landslides are less than significant.

Response to Impact Question b):

Short-Term Construction Impacts

Less-than-Significant Impact. The proposed project would involve construction activities that would disturb surface soils and temporarily leave exposed soil on the ground's surface. Common causes of soil erosion from construction sites include stormwater, wind, and soil being tracked off site by vehicles. However, project construction activities must comply with all applicable federal, state, and local regulations for erosion control.

As discussed in the Water Quality Assessment Report prepared for this project by EW Consulting Inc. (Appendix E), the removal of the existing bridge, columns, and piles has the potential to cause debris to drop into the creek. To mitigate any potential impacts due to demolition, the proposed project includes a catching device that will capture construction debris and divert water if necessary. During the installation of spread footings and columns and the cutting of the existing abutments, the bottom of the creek would be disturbed and lead to soil displacement and increased turbidity. Exposed or stockpiled soils as a result of clearing of vegetation, excavation, and grading can become susceptible to peak stormwater runoff flows. Compaction of soils could result in additional stormwater runoff.

The proposed project would be required to comply with standard regulations, including SCAQMD Rules 402 and 403, which would reduce construction erosion impacts. Rule 403 requires that fugitive dust be controlled with best available control measures so that it does not remain visible in the atmosphere beyond the property line of the emissions source (SCAQMD 2005). Rule 402 requires that dust suppression techniques be implemented to prevent dust and soil erosion from creating a nuisance off site (SCAQMD 1976).

The project involves construction of a precast concrete bridge and the removal of the existing bridge. Construction activities such as excavation could result in erosion. However, the project would also comply with County erosion control measures. The County of Orange Grading and Excavation Code requires temporary erosion control devices be designed to minimize erosion from stormwater and non-stormwater runoff during construction. Grading Permits are issued by the Building Official authorizing grading activity as specified in the approved plans (OCPW 2015). The implementation of the Grading Code, including implementation of erosion control devices, would reduce both stormwater runoff and soil erosion impacts to less than significant.

In addition to construction means and methods for demolition, the County's Construction Runoff Guidance Manual, dated December 2012, has specific best management practices (BMPs) that must be implemented during the construction of the proposed project to minimize pollutants of concern. For the proposed project, both the Guidance Manual and BMP Handbook shall be utilized in developing the project's standard urban stormwater mitigation plan and construction activities such that water quality impacts are minimized.

Therefore, short-term impacts associated with soil erosion and topsoil loss would be less than significant.

Long-Term Operational Impacts

Less-than-Significant Impact. The County defines erosion as the process by which rock and soil are removed from the Earth's surface by natural processes and then transported to other locations (OCPW 2015).

The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. According to the location hydraulic study prepared for the project (Appendix F), the widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. The increase in flow velocity would increase the potential for erosion and scour in the vicinity of the bridge. However, the bridge footings would be located at a depth where erosion and scour would be avoided.

Additionally, because the project proposes temporary impacts to Ladd Canyon Creek, OCPW will be required to obtain a Section 404 Nationwide Permit from USACE, a Section 401 Water Quality Certification from RWQCB, and a Section 1602 Lake and Streambed Alteration Agreement from CDFW prior to construction.

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

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

The proposed project would be subject to requirements associated with erosion and water quality established as part of the Section 401 and 404 permit process. Therefore, impacts would be less than significant.

Response to Impact Question c):

Less-than-Significant Impact. As previously addressed in Response to Impact Question a), the project site is located within a liquefaction zone. However, the project involves replacement and expansion of an existing bridge that is necessary due to risk of failure. The bridge replacement would comply with necessary building standards such that the project would not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. Further analysis is required to determine the nature of soils on site and the potential for lateral spreading, subsidence, liquefaction, and soil collapse to occur (**PDF-GEO-1**). The geotechnical/soils study would make design recommendations based on potential for these soil conditions to occur. Therefore, impacts would be less than significant.

Response to Impact Question d):

Less-than-Significant Impact. The Uniform Building Code (1994) defines expansive soil as typically clay-rich soils that arise as result of an increase in water content in the upper few meters from the ground

surface. Much of the County is covered by clay-rich or expansive soil that expands and contracts with moisture, causing building foundations to lift and crack (OCPW 2012).

Soils in the general project area are classified as Hydrologic Soil Group D according to the Orange County Hydrology Manual (County of Orange 1986). These are generally clay soils with a low infiltration rate and high runoff potential. In both Silverado Canyon and Ladd Canyon, the soils consist of unconsolidated alluvium, generally stratified and varying widely in texture. Runoff is generally rapid and the erosion hazard is high.

As such, the proposed project would be designed and constructed in accordance with the Bridge Design Specifications established by Caltrans and would be designed in accordance with all applicable design provisions, which dictate specifications to ensure structural integrity. Therefore, impacts would be less than significant.

Response to Impact Question e):

No Impact. The proposed project involves reconstruction and expansion of an existing bridge. No portion of the project would result in the implementation of a septic tank. Therefore, impacts regarding the ability of soils to support septic tanks would not occur as a result of the proposed project.

Response to Impact Question f):

Less than Significant with Mitigation Incorporated. According to the County General Plan Resources Element, significant paleontological sites in the County are based on known outcrops or sites and the underlying geological information. Sub-surface paleontological sites are abundant in south County, along the coast and creek areas (OCPW 2012). The General Plan identifies the area surrounding the project site as the Northern Santa Ana Mountains Paleontology General Area of Sensitivity (OCPW 2012). For paleontology, registered sites often are simply small outcroppings visible on the surface or sites encountered during grazing.

The project site is within a developed portion of Silverado designated as neighborhood commercial use. However, it is possible that intact fossil deposits are present at subsurface levels and could be uncovered during ground-disturbing activities. As such, **MM-GEO-1** is required, which would ensure that if paleontological resources (sites, features, or fossils) are exposed during construction activities, all construction work occurring within the vicinity of the find would stop until a qualified paleontologist can evaluate the significance of the find and determine whether or not additional study is warranted. Therefore, compliance with **MM-GEO-1** would reduce impacts to paleontological resources to less than significant.

MM-GEO-1 In the event that paleontological resources (fossil remains) are exposed during construction activities for the proposed project, all construction work occurring within 50 feet of the find shall immediately stop until a Qualified Paleontologist, as defined by the Society of Vertebrate Paleontology's 2010 guidelines, can assess the nature and importance of the find. Depending on the significance of the find, the Qualified Paleontologist may record the find and allow work to continue or recommend salvage and recovery of the resource. All recommendations will be made in accordance with the Society of Vertebrate Paleontology's 2010 guidelines and shall be subject to review and approval by the County of Orange. Work in the area of the find may only resume upon approval of a Qualified Paleontologist.

3.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant 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 effect on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts to GHG emissions that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by OCPW, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less-than-Significant Impact. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emissions impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the California Natural Resource Agency, which noted in its public notice for the proposed CEQA amendments that the evidence indicates that, in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009a). Similarly, the Final Statement of Reasons for Regulatory Action for amendments to the CEQA Guidelines confirms that an environmental impact report or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009b).

Neither California, SCAQMD, nor the County has adopted thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research issued a technical advisory titled CEQA and Climate Change: Addressing Climate Change through CEQA Review, which states, "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008, p. 4). Furthermore, the advisory document indicates, "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2008, p. 6).

Although the proposed project would result in emissions of GHGs during construction, there are currently no established thresholds for assessing whether the GHG emissions of a project in the SCAB would be a cumulatively considerable contribution to global climate change. However, all reasonable efforts would be made to minimize the project's contribution to global climate change. Estimated project-generated GHG emissions and their impact on global climate are addressed below.

Construction Greenhouse Gas Emissions

Construction of the proposed project would result in GHG emissions primarily associated with use of off-road construction equipment and vehicles and on-road construction and worker vehicles. CalEEMod was used to calculate the annual GHG emissions, expressed in units of CO_2 equivalent, based on the construction scenario described in Appendix A.

Table 13 presents construction emissions for 2021 and 2022, which were modeled using the same assumptions as in Section 3.3, Air Quality.

Table 13: Estimated Annual Construction Greenhouse Gas Emissions

	MT CO_2	MT CH_4	MT N_2O	MT CO_2e
2021	133.23	0.03	0.00	134.03
2022	114.67	0.03	0.00	115.31
Total	**247.90**	**0.06**	**0.00**	**289.34**

Source: Appendix A.
Note: MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrogen dioxide; CO_2e = carbon dioxide equivalent. Although the construction dates in Appendix A do not match those described in Section 2.5, the daily construction activities are not anticipated to change and therefore the daily emissions estimates would not significantly change.

As shown in Table 13, the estimated total GHG emissions during construction would be 289 metric tons of carbon dioxide equivalent in 2021 and 2022. Additional details regarding these calculations are in Appendix A. Construction-related GHG emissions would occur over 1 year and 6 months and would not represent a long-term source of GHG emissions. As the project would not cause a cumulatively considerable contribution, it would result in a less-than-significant cumulative impact in terms of climate change.

Operational Greenhouse Gas Emissions

As discussed in Section 3.3, the proposed project would not involve long-term operational activities because the bridge is only being replaced and its vehicular capacity would not change. During the long-term operational activities, potential future maintenance or repair of the bridge may be necessary but would be short-term and temporary, and would not result in a substantial source of operational GHG emissions. Accordingly, the proposed project would not generate operational GHG emissions that would have a significant impact on the environment, and this cumulative impact would be less than significant.

Response to Impact Question b):

Less-than-Significant Impact. The Climate Change Scoping Plan, approved by CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The County and SCAQMD have not adopted any GHG reduction measures that would apply to the GHG emissions associated with the proposed project. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to implementation of this project, and no conflict would occur. Therefore, this cumulative impact would be less than significant.

3.9 Hazards and Hazardous Materials

Would the project:	Potentially Significant 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?	☐	☐	☒	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

Introduction

The following analysis is based on a Phase I Initial Site Assessment (ISA), prepared by Nicole Peacock, PE, PG, in August 2014 (Appendix D).

Response to Impact Question a):

Short-Term Construction Impacts

Less than Significant with Mitigation Incorporated. During project construction, potentially hazardous materials are likely to be handled on the project site. Improper handling and/or use of these materials during construction would represent a potential threat to the public and the environment. All contractors are required to comply with applicable laws and regulations regarding hazardous materials and hazardous waste management and disposal. Examples of hazardous materials management include preventing the disposal or release of hazardous materials onto the ground or into groundwater or surface water during construction and ensuring the proper use and disposal of these materials would not pose a significant risk to the public and the environment.

A Phase I ISA (Appendix D) was conducted at the project site. The investigation assessed the potential for the presence of recognized environmental conditions, including hazardous materials, which could potentially affect the public or the environment. The assessment identified the following recognized potential hazards and environmental conditions that could potentially impact the project site:

- Aerially deposited lead in the shallow soil in the unpaved shoulder of the roadway southwest and northeast of the bridge
- Lead- and asbestos-containing materials in the bridge construction material
- Yellow traffic striping likely containing hazardous levels of lead
- Wood posts supporting the current bridge are likely treated wood and require proper storage and disposal
- Relocation of utility connections

Historical maps identified that the bridge was developed in 1947. Because of the age of the existing bridge, there is a possibility for hazardous materials such as lead and asbestos.

Due to the history of the roadway, there is a potential for the accumulation of aerially deposited lead associated with vehicle tailpipe emissions prior to the time lead was phased out of fuel vehicles. The

project could create a significant hazard through the release of lead from shallow soil during construction. To evaluate the potential presence of lead in the soil, an aerially deposited lead study shall be conducted prior to soil disturbance (**MM-HAZ-1**). Additionally, there is a potential for lead- and asbestos-containing materials to be present in the bridge construction materials. To minimize risk to construction workers, an asbestos and lead survey shall be conducted prior to demolition (**MM-HAZ-2**).

Yellow traffic striping was observed within the subject property. Based on December 12, 2012, Caltrans Guidance for SSP 15-2.02C(2), yellow traffic striping used prior to 1997 likely contains hazardous levels of lead and requires proper management during removal and disposal. In order to reduce any impacts from potentially hazardous materials, the yellow traffic striping shall be sampled for lead (**MM-HAZ-2**). In the event lead is discovered, the yellow traffic striping would need to be properly managed to be removed (**MM-HAZ-3**).

During the site reconnaissance, it was found that wood posts support the metal beam guardrails on the existing bridge. The wood posts should be assumed to be treated wood. As a result, the project should comply with the Department of Toxic Substances Control's Alternative Management Standards for Treated Wood Waste R-2005-04 regulations, which address the proper storage and disposal of treated wood waste (Caltrans 2007). The requirements for these regulations include keeping records of treated wood waste, preventing the release of hazardous constituents into the environment, disposing of treated wood properly, and training employees handling treated wood waste (Caltrans 2007). Compliance with **MM-HAZ-3** would ensure proper management of the wood posts.

The Phase I ISA revealed that several recognized environmental concerns exist on the project site that could impact future construction activities. To minimize risk to construction workers who handle construction material of the existing bridge, **MM-HAZ-1**, **MM-HAZ-2**, and **MM-HAZ-3** would be required. With implementation of **MM-HAZ-1**, **MM-HAZ-2**, and **MM-HAZ-3,** impacts would be less than significant.

MM-HAZ-1 Prior to any soil disturbance activity, an aerially deposited lead survey shall be conducted to the satisfaction of OC Public Works to adequately identify the soils containing aerially deposited lead in the areas of planned soil disturbance. The survey shall evaluate the potential presence of elevated lead concentrations in the shallow soil in the unpaved shoulder of the roadways southwest and northeast of the Ladd Canyon Bridge. For all aerially deposited lead–contaminated soil handling and management activities, OC Public Works and its contractors shall comply with all applicable federal, state, and local regulations.

MM-HAZ-2 Prior to demolition or renovation of the existing bridge, a lead and asbestos survey shall be conducted to the satisfaction of OC Public Works by a California Occupational Safety and Health Administration–certified asbestos consultant and/or certified site surveillance technician and a California Department of Public Health–certified lead inspector/risk assessor or sampling technician. The survey shall include sampling to investigate the potential presence of lead and asbestos. Demolition or renovation plans and contract specifications shall incorporate any abatement procedures for the removal of material containing asbestos or lead. All abatement work shall be done in accordance with federal, state, and local regulations. Results of the reporting document shall be provided to the Orange County Fire Authority and OC Public Works.

MM-HAZ-3 Prior to the construction activities, a hazardous waste management plan shall be prepared to the satisfaction of OC Public Works to identify potentially hazardous waste identified on site, including wood posts supporting the guard rails on the existing Ladd Canyon Bridge and yellow traffic striping, if proposed for removal. The wood posts and traffic striping should be assumed to contain hazardous levels of contaminants unless otherwise determined through testing. The hazardous waste management plan shall include a list of known areas with hazardous waste and hazardous materials of concern. The plan shall specifically address storage, transportation, and disposal for each item on the hazardous materials/waste list. The plan shall identify procedures for emergency, notification and reporting, and worker safety. OC Public Works is responsible for ensuring the contractor adheres to these specifications throughout the construction phases.

Long-Term Operation Impacts

Less-than-Significant Impact. Minor operations, maintenance activities, and minor roadway improvements such as repaving and restriping may be required during the life of proposed bridge reconstruction. These activities could result in the routine transport, use, or disposal of hazardous materials. However, these activities would occur under the guidance of experienced professionals, who, in compliance with federal, state, and local regulations, would properly handle and dispose of hazardous materials. Therefore, long-term impacts associated with the use, transport, and disposal of hazardous materials would be less than significant.

Response to Impact Question b):

Short-Term Construction Impacts

Less than Significant with Mitigation Incorporated. As discussed in Response to Impact Question a), a Phase I ISA (Appendix D) was performed to assess the project site for the potential presence of hazardous materials. The evaluation was conducted to identify the presence or absence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release of hazardous materials into the environment. Based on the results, the potential for accumulation of lead in shallow soils, the presence of lead and asbestos in construction material of the existing bridge, the presence of hazardous levels of lead in the yellow traffic striping within the project site, and the potential for treated wood waste were identified as potential hazards.

The Phase I ISA revealed that several recognized environmental concerns exist on the project site that could impact future construction activities. To minimize risk to construction workers who handle construction material of the existing bridge, **MM-HAZ-1**, **MM-HAZ-2**, and **MM-HAZ-3** would be required. With implementation of the mitigation measures, short-term impacts with the release of hazardous materials would be less than significant.

Long-Term Operational Impacts

Less-than-Significant Impact. Minor operations, maintenance activities, and minor roadway improvements such as repaving and restriping may be required during the life of proposed bridge. These activities could result in the release of hazardous materials. However, these activities would occur under the guidance of experienced professionals, who, in compliance with federal, state, and local regulations, would properly handle and dispose of hazardous materials. Therefore, long-term impacts involving the release of hazardous materials into the environment would be less than significant.

Response to Impact Question c):

No Impact. The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school. There are no schools located within the vicinity of the project site. The nearest school is the Silverado's Children Center (7525 East Santiago Canyon Road), a preschool, located approximately 1.5 miles west of the project. As such, the project will have no impacts in regard to hazards within the vicinity of a school.

Response to Impact Question d):

No Impact. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the state, local agencies, and developers to comply with CEQA requirements in providing information about the locations of hazardous materials release sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency to develop at least annually an updated Cortese List. The Department of Toxic Substances Control is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information for the Cortese List.

As part of the Phase I ISA (Appendix D), a search of select federal and state regulatory agency databases was conducted, including a review of the Cortese List. The project site was not identified on the Cortese List or any other list of hazardous materials sites that was reviewed during this regulatory agency database records search. Therefore, no impacts associated with inclusion on the Cortese List would occur. Refer to the discussion under Response to Impact Question a) for an analysis of handling hazardous materials during the construction phase.

Response to Impact Question e):

No Impact. The closest public airport to the project site is Corona Municipal Airport located in Riverside County approximately 10.5 miles north of the project site. Corona Municipal Airport is a non-commercial, general aviation airport. The project site is located outside any land use planning areas around Corona Municipal Airport (Riverside County Airport Land Use Commission 2004). Within the County, John Wayne Airport is the closest airport, approximately 14 miles southwest of the project site. John Wayne Airport is a commercial service airport. It provides commercial passenger and air-cargo service and is the main general aviation services in the County. According to the Airport Planning Areas Map in the Airport Environs Land Use Plan for John Wayne Airport (ALUC 2005), the project site is located outside any land use planning areas around the airport. Therefore, no impacts associated with public airport hazards or excessive noise would occur.

Response to Impact Question f):

Less-than-Significant Impact. The project site is an existing bridge at Ladd Canyon Road and Silverado Canyon Road. Silverado Canyon Road runs west–east, starting at the intersection with East Santiago Canyon Road. Silverado Canyon Road connects rural residential and commercial land uses to more urbanized parts of the County. Due to the local and regional connectivity of this road, the project will only close one lane at a time during construction. The planned reconstruction of the bridge will continue to provide vehicular access in the case of an emergency. The project would not adversely affect operations on the local and regional circulation system, and as such, would not impact the use of these facilities as emergency response routes. Therefore, impacts associated with an emergency response plan or emergency evacuation plan would be less than significant.

Response to Impact Question g):

Less than Significant with Mitigation Incorporated. The project site is located on a road that connects neighborhood-commercial land use areas. According to the California Department of Forestry and Fire Protection's Fire and Resource Assessment Program, the proposed project site is located in a Very High Fire Hazard Severity Zone (CAL FIRE 2011). The General Plan Safety Element identified the following specific fire safety goal and policies to reduce exposure of people or structures to a significant loss, injury, or death involving wildfires, including where wildlands are adjacent to urbanized areas (County of Orange 2005).

- **Goal 1**: Provide a safe living environment, ensuring adequate fire protection facilities and resources to prevent and minimize loss of life and property fire.
  - **Policy 2**: To establish improved development standards for location of new construction, structural design, emergency vehicular access, and detection hardware.
  - **Policy 6**: To provide technical and policy information regarding structural and wildland fire hazards to developers, interested parties and the general public through all available media.

It is the responsibility of the Orange County Fire Authority (OCFA) to ensure compliance with codes and recommended BMPs. Additionally, the construction of fuel modification zones (fuel breaks) would be required to alleviate fire dangers near the interface of urban development and wildlands (OCPW 2012).

The proposed project involves the replacement of the existing Ladd Canyon Bridge with the construction of a precast concrete bridge. Use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. Hot work, including welding, soldering, cutting, and brazing, could occur during construction, which would present the most fire risk. In addition, incidental sparks from the use of construction equipment or from the refueling of equipment could occur. Also, should a wildland fire occur in the vicinity of the project site the evacuation across the bridge due to a single travel lane could be affected during the construction phase. **MM-HAZ-4** through **MM-HAZ 12** would require that construction crews be trained in fire protection procedures and be prepared to extinguish small fires if necessary during construction activities. With the implementation of **MM-HAZ-4** through **MM-HAZ 12**, less-than-significant impacts would occur.

MM-HAZ-4 Due to the risk of fire, the construction crew shall be accompanied by a water truck or a fire extinguisher, depending on the construction phase, in case of incidental sparks caused by construction. The construction crew shall provide fire safety measures during construction activities in compliance with Chapter 33 of the California Fire Code. Gasoline-powered or diesel-powered machinery used during maintenance shall be equipped with standard exhaust controls and muffling devices that will also act as spark arrestors. Fire containment and extinguishing equipment shall be located on site and shall be accessible during maintenance activities. The maintenance crew shall be trained in the use of the fire suppression equipment and shall not be permitted to idle vehicles on the job site when not in use. Where hot work is necessary, it shall be performed in compliance with the California Fire Code Chapter 35, Welding and Other Hot Work, and the National Fire Protection Association 51-B, Fire Prevention During Welding, Cutting and Other Hot Work.

MM-HAZ-5 The contractor shall prepare a Construction Fire Prevention Plan approved by the Interim Deputy Director of OC Development Services/Planning or designee and the Deputy Director and Division Manager of OC Infrastructure Project Management Division or designee. The Construction Fire Prevention Plan shall implement fire safety measures during construction activities in compliance with applicable subsections of Chapter 33 of the 2019 California Fire Code, the National Fire Protection Association Standard 51B, and the Section 4442 of the California Public Resources Code. The Construction Fire Prevention Plan shall also include details for coordinating with the Orange County Fire Authority and Orange County Sheriff's Department through their Incident Command System should a wildfire evacuation be necessary, which includes the following:

- At 20 days prior to the initiation of construction activities, the Construction Fire Prevention Plan shall be reviewed and approved by the local Orange County Fire Authority division chief, the local Orange County Sheriff's department lieutenant, and the Orange County Public Works, Infrastructure – Project Management deputy director.
- The Construction Fire Prevention Plan shall include a detailed schedule of work activities, including start and end dates for work phases, calendar workday hours, temporary signal/flagman hours of operation, and after work hours emergency access solutions.
- The Construction Fire Prevention Plan shall include specific emergency operational procedures for the following conditions:
  - Flood emergencies
  - Wildland fires
  - Structure fires
  - Emergency medical services emergencies
  - Red flag days
  - Loss of power

MM-HAZ-6 If any agreed upon emergency operational procedures will be impacted due to an unforeseen situation (weather, construction delays, etc.) during construction of the project, the local Orange County Fire Authority division chief, the local Orange County Sheriff's department lieutenant, and the Orange County Public Works, Infrastructure – Project Management deputy director shall be notified immediately.

MM-HAZ-7 The contractor shall provide weekly construction updates, starting at the pre-construction meeting until completion of the project, to the local Orange County Fire Authority division chief, the local Orange County Sheriff's department lieutenant, and the Orange County Public Works, Infrastructure – Project Management deputy director.

MM-HAZ-8 The contractor shall test the relocated fire hydrant prior to the initiation of construction activities.

MM-HAZ-9 Hot work shall cease during Red Flag Warning periods declared by the National Weather Service.

MM-HAZ-10 In the event of a fire on the project site, all construction activities will immediately stop and the construction crew would immediately use the on-site fire extinguishers and the water truck to extinguish the fire and dial 911.

MM-HAZ-11 Two weeks prior to initiation of construction activities, the contractor shall post on the community bulletin board adjacent to the Silverado Canyon Market located at 28192 Silverado Canyon Road, post at the Silverado Community Center located at 27641 Silverado Canyon Road, and utilize the U.S. Postal Service's Every Door Direct Mail service to send each P.P. Box in Silverado Canyon the following:

- Information on Orange County Fire Authority's Ready!, Set!, Go! safety program
- An emergency evacuation route map

The contractor shall provide a community alert campaign with weekly updates to keep residents notified of construction status and emergency operational procedures.

MM-HAZ-12 Contractor shall comply with the fire protection provisions contained in California Department of Transportation Standard Specifications No. 7-1.02(m).

3.10 Hydrology and Water Quality

Would the project:	Potentially Significant 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 that 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 surface, 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?	☐	☒	☐	☐
iv) Impede or redirect flood flows?	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Introduction

The following analysis is based on a water quality assessment report that was prepared in coordination with Caltrans. The water quality assessment report provides an analysis of water quality impacts associated with the proposed project. The water quality assessment report provides the context for the appropriate management of construction activities such that there is no resulting degradation of Ladd Creek's water quality (Appendix E).

Additionally, a location hydraulic study (LHS) was prepared in coordination with Caltrans and in compliance with Executive Order 11988, Floodplain Management, issued on May 24, 1977. Executive Order 11988 describes requirements for evaluation of proposed projects that may encroach upon floodplains. Executive Order 11988 directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A. In order to comply with 23 Code of Federal Regulations 650 Subpart A and determine if an encroachment itself is "minimal" or "significant," the following was analyzed in the LHS:

- The practicability of alternatives to any longitudinal encroachments
- Risks of the action (to life and property)
- Impacts on natural and beneficial floodplain values
- Support of incompatible floodplain development (inconsistencies with existing watershed and floodplain management programs)
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain
- Values impacted by the project

When state highway system transportation improvements encroach on a base floodplain, Caltrans is responsible for the preparation of an LHS. The LHS provides an assessment of the risk associated with the proposed project (Appendix F).

Response to Impact Question a):

Less-than-Significant Impact. The proposed project has the potential to result in short-term construction impacts (e.g., soil erosion sedimentation, sedimentation, and discharge of non-stormwater) into Silverado Creek Watershed from the removal of the existing bridge and debris piles, the installation of spread footings in the flood plain, and exposed or stockpiled soils from vegetation removal and grading activities. Pollutants of concern during construction include concrete, asphalt, slurry, steel, trash, debris, oil, grease,

and bacteria. The removal of the existing bridge and piles has the potential to cause debris to drop into the creek. To mitigate any potential impacts due to demolition, the proposed project includes a catching device that will capture construction debris and divert water if necessary.

During the installation of spread footings and the cutting of the existing abutments, the bottom of the creek would be disturbed and lead to soil displacement and increased turbidity. Exposed or stockpiled soils as a result of clearing of vegetation, excavation, and grading can become susceptible to peak stormwater runoff flows. Compaction of soils could result in additional stormwater runoff.

In addition to construction means and methods for demolition, the County's Construction Runoff Guidance Manual, dated December 2012, has specific BMPs that must be implemented during the construction of the proposed project to minimize pollutants of concern. This guidance manual references the California Stormwater Quality Association's BMP Handbook that lists, defines, and provides examples of the six major categories of BMPs, which include erosion control, sediment control, wind erosion control, waste management and materials pollution control, tracking control, and non-stormwater management. For the proposed project, both the Guidance Manual and BMP Handbook shall be utilized in developing the project's standard urban stormwater mitigation plan and construction activities such that water quality impacts are minimized. Upon implementation of BMPs, water quality impacts associated with project construction would be less than significant.

Operation of the proposed project would not vary significantly from the existing condition. Pollutants of concern with operation and occasional maintenance of the bridge would be sediments, trash, debris, oil, grease, heavy metals, and bacteria from pavement runoff. However, the proposed project anticipates the same pollutants of concern that currently exist during operation. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. While there would be a slight increase in overall flow velocity, the wider bridge footprint would offset the potential for erosion and scour in the vicinity of the bridge. The bridge footings would be located at a depth where erosion and scour would be avoided. Therefore, water quality impacts associated with project operation would be less than significant.

Response to Impact Question b):

Less-than-Significant Impact. Implementation of the proposed project would not interfere with groundwater recharge in the groundwater basin and would not affect the local groundwater table. The proposed project would involve the replacement of a bridge. These improvements would result in a minor increase in impervious area; however, this would not be significant enough to interfere with groundwater recharge.

Potable water in the project area is supplied by Irvine Ranch Water District (IRWD). IRWD obtains water from a variety of sources, including groundwater from local groundwater wells in the Orange County Groundwater Basin and the Irvine and Lake Forest Sub-Basins and imported water from the Metropolitan Water District, purchased through the Municipal Water District of Orange County (IRWD 2016). The construction of the proposed project would require minimal amounts of water for concrete mixing and dust abatement. Operation of the proposed project would not require the use of potable water with the exception of occasional maintenance. The amount of water required would not be significant enough to substantially decrease groundwater supplies or impede sustainable groundwater management of the basin. Therefore, impacts would be less than significant.

Response to Impact Question c-i):

Less than Significant with Mitigation Incorporated. The proposed project would result in a slight increase in impervious area associated with the addition of transitions to and from the proposed replacement bridge. This minor increase in impervious area would result in a slight increase in stormwater runoff.

Additionally, as discussed in the LHS (Appendix F), the proposed project would result in a change in the abutment footprint within Ladd Canyon Creek. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. The increase in flow velocity would increases the potential for erosion and scour in the vicinity of the bridge (see Table 3-2 in Appendix F). The increase in potential erosion or stream scour requires mitigation to protect the proposed bridge and abutments from scour-related damage. Scour mitigation measures will require armoring of the creek invert and the installation of grade control measures. Armoring of the creek invert in the vicinity of the bridge with rock riprap is consistent with the existing creek invert. Upon implementation of **MM-HYD-1**, the proposed project would have a less-than-significant impact on the alteration of the existing drainage pattern and associated erosion or siltation.

MM-HYD-1 The County of Orange would armor the creek invert with rock riprap and install grade control measures during construction to reduce scouring.

Response to Impact Question c-ii):

Less-than-Significant Impact. As discussed in Response to Impact Question c-i), the proposed project would result in a slight increase in impervious area, which would result in a slight increase in stormwater runoff. Additionally, the proposed project would result in a change in the abutment footprint within Ladd Canyon Creek. The proposed project will have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. However, according to the LHS, the increase in flow velocity would be minor, would not result in a risk to the natural and beneficial floodplain values, and would not impact residences, buildings, crops, or traffic. Therefore, the proposed project would have a less-than-significant impact on the alteration of the existing drainage pattern and associated surface runoff.

Response to Impact Question c-iii):

Less than Significant with Mitigation Incorporated. As discussed in Response to Impact Question a) in Section 3.9, minor operations, maintenance activities, and minor roadway improvements such as repaving and restriping may be required during the life of proposed bridge. These activities could result in the release of hazardous materials. However, these activities would occur under the guidance of experienced professionals, who, in compliance with federal, state, and local regulations, would properly handle and dispose of hazardous materials.

As discussed in Response to Impact Question c-i), the proposed project would result in a slight increase in impervious area (approximately a tenth of an acre) associated with the addition of transitions to and from the proposed replacement bridge, as well as the addition of shoulders on both sides of the bridge. This minor increase in impervious area would result in a slight increase in stormwater runoff.

The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in a minor increase in flow velocity through the bridge. However, according to the LHS, the increase in flow velocity would be minor, would not result in a risk to the natural and beneficial floodplain values, and would not impact residences, buildings, crops, or traffic. Therefore, the proposed project would have a less-than-significant impact on the alteration of the existing drainage pattern and associated surface runoff.

The slight increase in flow velocity would increase the potential for erosion and scour in the vicinity of the bridge. The increase in potential erosion or stream scour requires mitigation to protect the proposed bridge and abutments from scour-related damage. Scour mitigation measures will require armoring of the creek invert and or installation of grade control measures. Armoring of the creek invert in the vicinity of the bridge with rock riprap is consistent with the existing creek invert. Upon implementation of **MM-HYD-1**, the proposed project would have a less-than-significant impact on the contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Response to Impact Question c-iv):

Less than Significant with Mitigation Incorporated. As discussed in Response to Impact Question c-i), the proposed project would result in a slight increase in impervious area associated with the addition of transitions to and from the proposed replacement bridge, as well as the addition of shoulders on both sides of the bridge. This minor increase in impervious area would result in a slight increase in stormwater runoff.

According to the Federal Emergency Management Agency Flood Insurance Rate Map (Map Number 06059C0307J), the construction footprint is located within the base floodplain (100-year) elevation of a watercourse (FEMA 2009). However, the proposed project would involve the replacement of an existing bridge, which would allow access through the floodplain. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. The slight increase in flow velocity would increase the potential for erosion and scour in the vicinity of the bridge. The increase in potential erosion or stream scour requires mitigation to protect the proposed bridge and abutments from scour-related damage. Upon implementation of **MM-HYD-1**, the proposed project would not impede or redirect flood flows through the alteration of existing drainage patterns or addition of impervious surfaces and impacts would be less than significant.

Response to Impact Question d):

Less-than-Significant Impact. Hydrologic and topographic conditions of the project site and surrounding area do not lend themselves to a seiche or tsunami. As discussed in Response to Impact Question c-iv), the construction footprint is located within the base floodplain (100-year) elevation of a watercourse (FEMA 2009). However, the proposed project would replace an existing bridge, which would allow access through the floodplain. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. As such, the project would not be at risk for inundation due to flood hazards. Therefore, implementation of the proposed project would not risk release of pollutants due to project inundation and impacts would be less than significant.

Response to Impact Question e):

Less- than-Significant Impact. As discussed in Response to Impact Question a), for the proposed project, both the Guidance Manual and BMP Handbook shall be utilized in developing the project's standard urban stormwater mitigation plan and construction activities such that water quality impacts are minimized. Upon implementation of BMPs, water quality impacts associated with project construction would be less than significant. Furthermore, operation of the proposed project would not vary significantly from the existing condition. Pollutants of concern with operation and occasional maintenance of the bridge would be sediments, trash, debris, oil, grease, heavy metals, and bacteria from pavement runoff. However, the proposed project anticipates the same pollutants of concern that currently exist during operation, and operational water quality impacts would be less than significant.

As discussed in Response to Impact Question b), implementation of the proposed project would not interfere with groundwater recharge in the groundwater basin and would not affect the local groundwater table. The proposed project site would involve the replacement of a bridge. Thus, there would be no loss of land available for groundwater recharge as the project would not significantly decrease pervious surfaces. The construction of the proposed project would require minimal amounts of water for concrete mixing and dust abatement. Operation of the proposed project would not require the use of potable water, with the exception of occasional maintenance. As such, implementation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts would be less than significant.

3.11 Land Use and Planning

Would the project:	Potentially Significant 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 the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Introduction

This section evaluates potential impacts to land use and planning that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

No Impact. The physical division of an established community typically refers to the construction of a linear feature (such as a major highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community or between a community and outlying area. Under the existing conditions, the project site is used to connect rural residential and commercial uses. To provide continued access during project construction, only one lane will be closed at a time. The proposed project would require an expansion from the existing bridge width to add a shoulder in both directions. The proposed project would improve vehicular access through the area. Therefore, no impact associated with physical division of an established community is likely to occur.

Response to Impact Question b):

Less-than-Significant Impact. The project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. According to the Silverado-Modjeska Specific Plan Land Use Map, the project site does not have a specific designation and is labeled as Silverado Canyon Road (County of Orange 1984). East of the project is designated neighborhood commercial. The proposed project involves reconstruction of an existing bridge, which provides access from rural residential to neighborhood commercial over Ladd Creek along Silverado Canyon Road. As such, the bridge supports the neighborhood commercial use east of Ladd Creek. The proposed project does not involve change in land use designation nor require an amendment to the Silverado-Modjeska Specific Plan. In addition, the Specific Plan identifies rural road character as roads that shall not allow curbs, gutters, sidewalks, and streetlights unless necessary for safety purposes (County of Orange 1977). The proposed project would not include these features. The proposed project would not cause a significant environmental impact due to conflicts with applicable land use plans, policies, and regulations and impacts would be less than significant.

3.12 Mineral Resources

Would the project:	Potentially Significant 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?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to mineral resources that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

No Impact. According to the County General Plan, the California Department of Conservation, Division of Mines and Geology, identified significant sand and gravel resources within the County region (County of Orange 2005). These resource areas are mapped within the County's General Plan Resources Element and located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, and Arroyo Trabuco. These mineral resource areas are not commitments for extraction and require mineral extraction proposals to be approved under CEQA.

Figure VI-3, Mineral Resources Map, of the General Plan has not identified mineral resource areas around the project site. The nearest mineral resource area is in Trabuco Canyon several miles west of the project site (County of Orange 2012). Therefore, the proposed project would not result in the loss of known mineral resources.

Response to Impact Question b):

No Impact. As previously discussed, no regional significant aggregate resources are located within the vicinity of the project site. No mineral extraction activities occur on or adjacent to the project site, and no known mineral resources are present on site. Therefore, no impacts associated with the loss of availability of a locally important mineral resource recovery site would occur.

3.13 Noise

Would the project result in:	Potentially Significant 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 in the vicinity of 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?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to noise that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by OCPW, and information sources identified in this section.

Regulatory Setting

State Standards

Pursuant to the Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Caltrans 2011), construction noise is regulated by Caltrans Standard Specifications Section 14-8, Sound Control Requirements, which states that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications. Section 14-8.02, Noise

Control, of Caltrans Standard Specifications provides information that can be considered in determining whether construction would result in adverse noise impacts. The specification states the following:

- Do not exceed 86 A-weighted decibels (dBA) at 50 feet from the job site activities from 9:00 p.m. to 6:00 a.m.
- Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

If adverse construction noise impacts are anticipated, project plans and specifications must identify abatement measures that would minimize or eliminate adverse construction noise impacts on the community. When construction noise abatement is identified, Caltrans will consider the benefits achieved and the overall adverse social, economic, and environmental effects and costs of the construction noise abatement measures.

Local Standards

County of Orange General Plan Noise Element

The County's General Plan Noise Element contains noise guidelines for the purposes of determining land use/noise compatibility (County of Orange 2005). The maximum noise exposure depends on the land use category. As detailed in the Noise Element's Major Noise Policy 6 (Noise Sensitive Land Uses), all new residential units are required "to have an interior noise level in living areas that is not greater than 45 decibels CNEL [Community Noise Equivalent Level] with it being understood that standard construction practices reduce the noise level by 12 decibels CNEL with the windows open and 20 decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County" (Policy 6.3 in County of Orange 2005). In addition, Policy 6.5 states, "All outdoor living areas associated with new residential uses shall be attenuated to less than 65 decibels CNEL" (County of Orange 2005).

County of Orange Noise Ordinance

The County has adopted a quantitative noise ordinance (Division 6, Noise Control) to control excessive noise generated in the County (County of Orange 1975). The noise ordinance limits are in terms of a 1-hour average sound level. The allowable noise limits depend upon the land use zone, time of day, and duration of the noise. Residential land uses within the County are designated as Zone 1, for which the exterior noise standard is 55 dBA from 7:00 a.m. to 10:00 p.m. and 50 dBA from 10:00 p.m. to 7:00 a.m. It is declared (Section 4-6-5):

> unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:
>
> - The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
> - The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

- The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
- The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or (5) The noise standard plus twenty (20) dB(A) for any period of time.

Note that these noise standards are applicable to non-transportation noise sources (i.e., on-site or adjacent stationary noise sources).

The County exempts noise associated with construction activities from the standards detailed above, provided that these activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

Response to Impact Question a):

Less than Significant with Mitigation Incorporated. Construction noise and vibration levels are temporary phenomena, which can vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor.

The proposed project would involve the construction[5] of a precast concrete bridge and the removal of the existing bridge. To provide continued access during project construction, only one lane would be closed at a time. The proposed project would require an expansion of the existing bridge width to add a shoulder in both directions. This proposed project will not require acquisition of new rights-of-way, as the bridge is located within the County right-of-way. The project would require a construction easement. The project would require the construction of new spread footings. Excavation for the footings is not anticipated to reach further than 20 feet below ground surface.

Construction of the proposed project is anticipated to commence in the beginning of 2021 and would last approximately 1 year and 6 months, ending in the summer of 2022. The utility relocation, grading, demolition, bridge construction, and paving phases would each be divided into 2 phases, because the removal of the existing bridge would need to occur one lane at a time to ensure continued roadway access.

The FHWA Roadway Construction Noise Model (FHWA 2008) was used to estimate construction noise levels at the nearest occupied noise-sensitive land use. The modeled types and quantities of construction equipment to be utilized were estimated based upon model defaults provide in CalEEMod, Version 2016.3.1 (used for criteria air pollutant and GHG emissions estimates) and information provided by OCPW. No pile driving would take place as part of construction of the proposed project.

The Roadway Construction Noise Model input/output files and summary table are summarized in Table 14. As shown in Table 14, construction-related noise levels at the nearest existing residence approximately 250 feet away are predicted to range from approximately 57 dBA equivalent continuous sound level (L_{eq}) during the utility relocation phases to 75 dBA L_{eq} during demolition activities. At the next nearest residences, construction noise would range from approximately 53 to 71 dBA L_{eq}. At the Silverado Community Center, noise levels from typical staging area activities are estimated to range from approximately 57 to 67 dBA L_{eq}.

[5] The construction information in the noise section is summarized from Section 2, Project Description. Please see Section 2 for more detailed descriptions of construction activities.

Table 14: Summary of Results – Estimated Construction Noise

Construction Phase	Construction Noise at Representative Receiver Distances - L_{eq} (dBA)			
	Receiver 1 – Single-family residential at 28151 Silverado Canyon Road 250 Feet (approx.) (Exceptions noted below)	Receiver 2 – Single-family residential at 28151 HIDEA Way 400 Feet (approx.) (Exceptions noted below)	Receiver 3 – Southeast corner of Silverado Community Center at 27641 Silverado Canyon Road 120 Feet from staging area (approx.)	Receiver 4 – Northwest corner of Silverado Community Center at 27641 Silverado Canyon Road 400 Feet (approx.)
Utility Relocation 1	57	53	—	—
Site Preparation	71	67	—	—
Grading 1[a]	73	67	—	—
Demolition 1	75	71	—	—
Bridge Construction 1	70	66	—	—
Paving 1	69	65	—	—
Grading 2[a]	73	67	—	—
Demolition 2	75	71	—	—
Bridge Construction 2	70	66	—	—
Utility Relocation 2	57	53	—	—
Paving 2	69	65	—	—
Architectural Coating	60	56	—	—
Staging Activities[b]	—	—	67	57

Source: Roadway Construction Noise Model, Appendix G.
Notes: L_{eq} = equivalent continuous sound level; dBA = A-weighted decibels.
A dash represents that the data for the specified locations are not provided because the sound levels would be less than another location provided for the same activity.
[a] Grading activities would take place within approximately 200 feet of Receiver 1 and within approximately 370 feet of Receiver 2.
[b] Staging activities, which includes use of a flatbed truck, were modeled at Staging Area 1.

Construction activities would take place exclusively between the hours of 7:00 a.m. and 8:00 p.m. on weekdays including Saturday, and would not take place on Sundays or on federal holidays. Additionally, construction activities would be conducted in accordance with Caltrans Standard Specifications Section 14-8, Sound Control Requirements, which states that noise levels generated during construction shall comply with applicable local, state, and federal regulations, and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications. Section 14-8.02, Noise Control, of Caltrans standard specifications provides information that can be considered in determining whether

construction would result in adverse noise impacts. Further, the implementation of **MM-NOI-1** would minimize construction noise to the degree practicable.

Operation of the proposed project would not result in the addition of through-lanes or in the creation of additional vehicle trips or traffic capacity. As a result, no increase in vehicle traffic noise would result. Also, the proposed project would not include mechanical equipment or other devices that could create noise. Thus, there would be no permanent increase in ambient noise levels in the project vicinity above levels existing without the proposed project. Therefore, with proposed mitigation for construction noise, the project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of applicable standards. Impacts would be less than significant with mitigation incorporated.

MM NOI-1 Construction Noise

- All equipment shall have sound-control devices that are no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.
- As directed by the California Department of Transportation (Caltrans), the contractor shall implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.
- Caltrans shall require the construction contractor to notify residences within 500 feet of the construction areas of the construction schedule in writing prior to construction. The construction contractor will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents.

Response to Impact Question b):

Less-than-Significant Impact. Demolition and construction activities that might expose persons to excessive ground-borne vibration or ground-borne noise have the potential to cause a significant impact. Caltrans has collected ground-borne vibration information related to construction/heavy equipment activities. Information from Caltrans indicates that transient vibrations (such as from demolition activity) with a peak particle velocity of approximately 0.035 inches per second may be characterized as barely perceptible, and vibration levels of 0.24 inches per second may be characterized as distinctly perceptible (Caltrans 2013). The heavier pieces of construction equipment, such as large bulldozers or hoe rams, would have peak particle velocities of up to approximately 0.089 inches per second at a distance of 25 feet, and a clam shovel drop would have peak particle velocities of up to approximately 0.202 inches per second at a distance of 25 feet (DOT 2006).

Ground-borne vibration is typically attenuated over relatively short distances. At the nearest existing residential use distance to the nearest construction area (approximately 250 feet) and with the anticipated construction equipment, the peak particle velocity would be approximately 0.003 inches per second. This vibration level would be well below the threshold of barely perceptible of 0.035 inches per second vibration and the threshold for distinctly perceptible of 0.24 inches per second (DOT 2006).

The major concern with construction (or demolition) vibration is related to building damage. Demolition vibration as a result of the proposed project would not result in structural building damage, which typically occurs at vibration levels of 0.5 inches per second or greater for buildings of reinforced-concrete, steel, or timber construction. Therefore, impacts related to ground-borne vibration would be less than significant.

Response to Impact Question c):

No Impact. The proposed project site is not located within an airport planning area (ALUC 2008). John Wayne Airport is the nearest airport within County limits, located approximately 13 miles southwest of the proposed project site. The proposed project site is also not within the vicinity of a private airstrip or private use airport (Airnav.com 2017). Therefore, no impacts would occur.

3.14 Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to population and housing that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less-than-Significant Impact. The proposed project involves the reconstruction and expansion of an existing bridge. As such, the project would not directly induce population growth through addition of homes or businesses. The current bridge is on an existing road and is surrounded by existing infrastructure. The proposed project does include expansion of Ladd Canyon Bridge, but is unlikely to indirectly induce growth in the area. Additionally, employees hired to construct the new bridge would likely come from the region. Therefore, the project would not induce the extension of roads or other infrastructure. Substantial population growth as a result of the proposed project is considered unlikely, and impacts would be less than significant.

Response to Impact Question b):

No Impact. The project site does not currently include residential uses or otherwise support a residential population. The proposed project would reconstruct and expand an existing bridge. No displacement of people on the project site or surrounding area would occur. Therefore, no project impacts associated with displacement of people or housing would occur.

3.15 Public Services

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to public services that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a-i):

Less-than-Significant Impact. OCFA provides fire protection and emergency response services near and around the project site. There are 77 total stations providing services to cities and unincorporated areas within the County (OCFA 2017). OCFA is responsible for fire calls, emergency medical services, and fire prevention through education and outreach programs. The nearest OCFA Fire Station to the project site is Station No. 15 (27172 Silverado Canyon Road), approximately 1.1 miles to the west. The second nearest fire station is OCFA Station No. 14 (29402 Silverado Canyon Road), which is roughly 1.4 miles east of the project site.

The proposed project would not generate population growth such that additional fire protection would be needed. In addition, the project site is located in a developed portion of the unincorporated community of Silverado and is already served primarily by OCFA Station No. 15. Based on the proximity of the project site to the existing OCFA facilities, and the existing development near the project site, it is anticipated the project could be served by OCFA without adversely affecting personnel-to-resident ratios, response times, or other performance objectives. In addition, **MM-HAZ-4** through **MM-HAZ-12** would be implemented as part of the project, which require the preparation of a Construction Fire Prevention Plan that addresses the potential for construction activities to initiate a fire on the project site and the potential use of the bridge for evacuation due to a wildfire in the vicinity of the project site that would require coordination by the Orange County Sheriff's Department and Orange County Fire Authority. Therefore, impacts associated with the fire protection services would be less than significant.

Response to Impact Question a-ii):

No Impact. Many cities in the County have their own police department; however, some cities and unincorporated areas choose to contract with the Orange County Sheriff's Department. The Orange County Sheriff's Department provides prompt law enforcement services to people in the County and is responsible for protecting life and property and apprehending criminal offenders.

The North Operations Orange County Sheriff's Department is based in Santa Ana (1045 Fuller Street) and is responsible for patrol services in the north Orange County unincorporated areas and contract police services for the Cities of Yorba Linda, Stanton, and Villa Park. The Emergency Communications Bureau (ECB), composed of dispatch and control, is also part of North Operations. The ECB is a 24/7 operation base at the Loma Ridge Emergency Operations Center (24644 East Santiago Canyon Road) located in the City of Silverado, 14 miles from the Santa Ana headquarters and 8 miles west of the project site. The ECB dispatch receives 9-1-1 calls from cities and unincorporated contract areas and dispatches all calls for service. The ECB control is the central point contact for all law, fire, public works, and lifeguard agencies (Orange County Sheriff's Department 2017).

The proposed project involves reconstruction and expansion of an existing bridge. As such, the proposed project would not result in additional housing or expanded infrastructure that would support additional population growth. Therefore, the services Orange County Sheriff's Department provides could adequately serve the project without necessitating an increase in capacity to fulfill its responsibilities. Therefore, there would be no impacts associated with police protection.

Response to Impact Question a-iii):

No Impact. The Orange Unified School District provides primary and secondary education in the City of Orange and the unincorporated area southeast of the city. The project site is located within the enrollment boundaries of Chapman Hills Elementary School (170 North Handy Creek Road), Santiago Middle School (515 North Rancho Santiago), and El Modena High School (3920 Spring Street). For the 2016–2017 school year, these schools had enrollment of 505, 1,020, and 2,092 students, respectively (DOE 2017).

The proposed project would not result in growth in the City of Orange population nor would it include new residential uses, which could impact schools in the surrounding area. Implementation of the proposed project would result in the reconstruction and expansion of an existing bridge, and as such would not generate population growth as described in Response to Impact Question a) in Section 3.14, Population and Housing. The Orange Unified School District would not experience increased enrollment as a result of the proposed project; therefore, there would be no impacts to schools.

Response to Impact Question a-iv):

No Impact. The project is located in the unincorporated community of Silverado, Orange County, California. Silverado is bounded by the Cleveland National Forest to the east and the Limestone Canyon Regional Park to the west. The project site is surrounded by rural residential and commercial uses that likely utilize these park and wilderness areas for recreation. The proposed project would not introduce residents nor commercial tenants that would increase use of the surrounding recreational areas. Therefore, no impacts to public recreational facilities would occur.

Response to Impact Question a-v):

No Impact. Other public facilities surrounding the project site include the Silverado Community Center and Public Library. The project would not generate new permanent residents in the surrounding area who would utilize these public facilities. Implementation of the proposed project would result in the reconstruction and expansion of an existing bridge, and as such would not increase demand in capacity of the existing library or other public facilities. Therefore, no impacts associated with public facilities would occur.

3.16 Recreation

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to recreation that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

No Impact. As addressed in Response to Impact Question a) in Section 3.14, the project is located in the unincorporated community of Silverado, Orange County, California. Silverado is bounded by the Cleveland National Forest to the east and the Limestone Canyon Regional Park to the west. The project site is surrounded by rural residential and commercial uses that likely utilize these park and wilderness areas for recreation. The proposed project would not introduce residents or commercial tenants that would increase use of the surrounding recreational areas. Nor would the project induce substantial population growth indirectly through the expansion of infrastructure. Therefore, no impacts to public recreational facilities would occur.

Response to Impact Question b):

No Impact. The project would involve reconstruction and expansion of the existing Ladd Canyon Bridge. The proposed project would not include construction of recreational facilities that could have an adverse physical effect on the environment. Nor would the project induce substantial population growth indirectly through the expansion of infrastructure. Therefore, no impacts associated with the construction or expansion of recreational facilities would occur.

3.17 Transportation

Would the project:	Potentially Significant 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)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Introduction

This section evaluates potential impacts to transportation that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less-than-Significant Impact. The proposed project involves reconstruction and expansion of the existing Ladd Creek Bridge. The bridge is located at the intersection of Silverado Canyon Road and Ladd Canyon Road, approximately 2 miles east of East Santiago Canyon Road. Silverado Canyon Road runs west–east, starting at the intersection with East Santiago Canyon Road. Ladd Canyon road runs north-northeast, starting at the Silverado Canyon Road intersection. The project property line includes approximately 0.5 miles of roadway.

The project site is located within rural residential and commercial land use areas in the unincorporated community of Silverado. No traffic impact analysis report was done for this project because the proposed project is not anticipated to increase traffic on Silverado Canyon Road, Ladd Canyon Road, or nearby roadways. Although the proposed project includes the expansion of the existing bridge width, this expansion is intended to create space for pedestrian walkways. The expansion is not intended to create additional capacity for vehicles. The following analysis uses information from the County General Plan and the Silverado-Modjeska Specific Plan Circulation sections.

The County Plan Growth Management Element uses LOS criteria for signalized intersections. The County considers intersections operating at worse than LOS D to be deficient intersections. However, the County requires a different evaluation of East Santiago Canyon Road, which joins Silverado Canyon Road approximately 2 miles from the project site. For East Santiago Canyon Road, the traffic LOS policy is implemented by evaluating peak hour volumes in relation to the physical capacity of the roadway, using the volume-to-capacity methodology. A lane volume of 1,360 vehicles per hour, which is 0.80 times the maximum directional lane capacity of 1,700 vehicles per hour, represents LOS C. However, the proposed project would not substantially impact the volume of vehicles on the roadway because implementation of the project would not result in increased capacity. The project would not induce the extension of roads or other infrastructures that might result in an increase in capacity. Implementation of the proposed project would not adversely impact the LOS onto East Santiago Canyon Road; therefore, the proposed project does not conflict with County standards for effective circulation system performance.

According to the County General Plan Circulation Plan Map, Silverado Canyon Road is not identified as an arterial highway and is located in unincorporated areas of the County (OCPW 2012). The existing Ladd Creek Bridge is located within the County right-of-way designation on the Circulation Plan Map. This right-of-way designation indicates that changes can be made to meet potential changes in land use needs (OCPW 2012). As such, the proposed reconstruction would meet the needs of improving the existing structurally deficient bridge and would not result in a change of land use for the project site or area surrounding the project site. To provide continued access during project construction, only one lane will be closed at a time.

In accordance with the local Silverado-Modjeska Specific Plan Circulation Element, the project would follow criteria to meet the appropriate rural street standards (County of Orange 1977). Additionally, the proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or decrease the performance or safety of these facilities. The proposed project would require an expansion of the existing bridge width to add a shoulder in both directions, improving pedestrian access along the length of the Ladd Canyon Bridge and providing safe crossings for bicycles on the bridge. The proposed project would not include any adjacent or off-site improvements that might extend into transit, bicycle, or pedestrian facilities or impede the construction of such facilities in the future. Therefore, the proposed project would be consistent with existing local and County plans, ordinances, and policies regarding circulation, including transit, roadway, bicycle, and pedestrian facilities. In addition, the County's Guidelines for Evaluating VMT Under CEQA identifies transportation projects that involve rehabilitation and maintenance would not require an induced travel analysis. Conflicts with any applicable program, plan, ordinance or policy addressing the circulation system would be less than significant.

Response to Impact Question b):

Less-than-Significant Impact. Section 15064.3(b) of the CEQA Guidelines states that projects considered transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less-than-significant transportation impact. The Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA states, "Transit and active transportation projects generally reduce VMT and therefore are presumed to cause a less-than-significant impact on transportation" (OPR 2018, p. 23). Transportation projects include rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts) and would not add additional motor vehicle capacity. This is also consistent with the County of Orange Guidelines for Evaluating Vehicle Miles Traveled Under CEQA adopted by the Board of Supervisors on November 17, 2020. Therefore, implementation of the proposed project would not conflict or be inconsistent with the provisions of CEQA Guidelines Section 15064.3. Impacts would be less than significant and would not require mitigation.

Response to Impact Question c):

No Impact. The proposed project includes the construction of a precast concrete bridge and the removal of the existing bridge. The proposed project seeks to reduce hazards due to safety features of the existing bridge. The bridge was built in 1947 and is considered to be structurally deficient according to FHWA criteria. Implementation of the proposed project would improve safety conditions for vehicular traffic. In addition, the proposed project would require an expansion to the existing bridge width to add a shoulder in both directions. Therefore, the project would improve safety conditions and would not result in increased hazards due to a geometric design feature or incompatible uses, and no impacts would occur.

Response to Impact Question d):

No Impact. The project site would be accessible from the west end at the intersection of Silverado Canyon Road and Ladd Canyon Road and from the east end on Silverado Canyon Road. To provide continued access during project construction, only one lane will be closed at a time. As a result of the proposed project, continued access on Silverado Canyon Road would occur during construction and once the project is operational. Therefore, the project would not result in inadequate emergency access to Silverado Canyon Road over Ladd Creek, and no impacts would occur.

3.18 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:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a-i) 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)?	☐	☐	☒	☐
a-ii) 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.	☐	☒	☐	☐

Introduction

The following analysis is based on an HPSR and an ASR that were prepared in coordination with Caltrans and in compliance with Section 106 of the National Historic Preservation Act. The ASR presents the results of a CHRIS records search, Native American coordination, and an intensive-level cultural resources survey conducted by Dudek in support of the proposed project. The HPSR includes the ASR and the California Historic Bridge Inventory sheet (Appendix C).

Response to Impact Question a-i):

Less-than-Significant Impact. As discussed in Section 3.5, Cultural Resources, two properties were identified within the APE as a result of the HPSR: the existing Ladd Canyon Bridge (Bridge Number 55C0175) and the Holt Ranch Complex (P-30-177443).

The original construction date and historical significance status were researched for the existing Ladd Canyon Bridge (Bridge Number 55C0715) within the Local Agency Bridges Structure Maintenance and Investigations Database. Bridge Number 55C0175, constructed in 1947, was determined to be Category 5 – Not Eligible for Listing in the National Register.

The SCCIC indicated that 27 cultural resources have been identified and 45 cultural studies have been previously conducted within 1 mile of the APE. One cultural resource was identified within the project's direct APE, the Holtz Ranch Complex (P-30-177443). The Holtz Ranch Complex was previously evaluated and determined not eligible for listing in the NRHP or CRHP. A more recent update of the site also concluded that it is not eligible for NRHP or CRHR.

Therefore, no impacts associated with historical resources listed or eligible for listing in the CRHR or in a local register of historical resources would occur.

Response to Impact Question a-ii):

Less than Significant with Mitigation Incorporated. The California NAHC was contacted to request a review of the Sacred Lands File on April 17, 2017. The NAHC responded on April 17, 2017, and stated that the review failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC also provided a list of 10 Native American groups and individual contacts that may have additional knowledge of cultural resources in the vicinity of the APE. Letters were mailed to each of the contacts on May 11, 2017, and follow-up telephone calls were conducted on June 21, 2017. A complete summary of coordination with local Native American groups is provided in Appendix C, along with a copy of the NAHC Sacred Lands File search results letter and the coordination letters mailed to the contacts.

As a result of consultation with these 10 contacts, 1 contact (Ms. Harvey of the Agua Caliente Band of Cahuilla Indians) stated that the proposed project is not located within their tribal territory and deferred to applicable local tribes for comment. The remaining contacts did not respond to either the letter or subsequent follow-up phone calls.

On December 11, 2018, the County resent letters to the 10 contacts provided by the NAHC and the Gabrieleño Band of Mission Indians – Kizh Nation and the Gabrieleño Tongva San Gabriel Band of Mission Indians. The contacts did not respond, except for the Gabrieleño Band of Mission Indians – Kizh Nation, who requested further consultation. A consultation teleconference call occurred between the Gabrieleño Band of Mission Indians – Kizh Nation and the County on March 27, 2019. During consultation, the tribe requested that Native American monitoring occur during all ground-disturbing activities, or when the tribal representatives have indicated that the site has a potential to impact tribal cultural resources.

The County understands that the project site is located in territory recognized as Gabrieleño Band of Mission Indians – Kizh Nation territory; however, upon review of the available literature and maps, including those provided as part of tribal consultation, there is insufficient evidence of tribal significance. This is because the majority of earth-moving work would occur within the areas occupied by the existing bridge, existing roads, and adjacent areas that have been disturbed through the development of the turnouts. While the records of the exact depth and character of past disturbance are limited due to the age of much of this past construction, it is possible that limited intact native soils are present within the first few feet of the surface. Project excavation will produce a maximum depth, ranging by activity, of 20 feet below the surface at the location of the new bridge footings.

Therefore, if previously unidentified cultural materials are unearthed, **MM-CUL-1** would require a qualified archaeologist to assess the significance of the find. Based on the background research and survey results, there is a low potential to encounter buried cultural deposits within the APE. However, **MM-CUL-1** has been updated to require that an archaeologist with tribal cultural monitoring experience shall be present during earth moving activities that would occur in previously undisturbed areas. Taking into account what was discussed during the call with the tribal representatives on March 27, 2019, the updated mitigation measure adequately safeguards unknown tribal remains/artifacts that may be present within the project site and considered a cultural resource. In addition to **MM-CUL-1**, **MM-TCR-1** and **MM-TCR-2** are provided to address unanticipated tribal cultural resources. As such, with incorporation of **MM-CUL-1**, **MM-TCR-1**, and **MM-TCR-2**, impacts associated with tribal cultural resources would be less than significant.

MM-TCR-1 If unanticipated archaeological resources or deposits are discovered during earth-moving activities, OC Public Works (OCPW) will implement the following measures. All work will halt within a 50-foot radius of the discovery. OCPW will have a qualified professional archaeologist assess the significance of the find. If the resources are Native American in origin, the County of Orange shall coordinate with the Tribe regarding evaluation, treatment, curation, and preservation of these resources. The archaeologist will have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OCPW. Work will not continue within the no-work radius until the archaeologist conducts sufficient research and evidence and data collection to establish that the resource is either (1) not cultural in origin or (2) not potentially eligible for listing on the California Register of Historic Resources. If a potentially eligible resource is encountered, then the archaeologist and OCPW, as lead agency, in consultation with the Tribe, will arrange for either (1) avoidance of the resource, if possible, or (2) test excavations to evaluate eligibility, and if eligible, an attempt to resolve adverse effects to determine appropriate mitigation. The assessment of eligibility will be formally documented in writing as verification that the provisions in the California Environmental Quality Act for managing unanticipated discoveries and California Public Resources Code, Section 5024, have been met.

MM-TCR-2 Should evidence of human remains be discovered during project construction, the Orange County Coroner (OCC) shall be immediately notified of the discovery. Evidence of human remains requires mandatory compliance with the provisions of California Health and Safety Code Section 7050.5, which restricts further disturbance in the vicinity of the discovery, defined herein as a 50-foot radius, until the OCC has made a determination within 2 business days of the origin and disposition pursuant to California Public Resources Code, Section 5097.98. If the remains are determined to be Native American, the OCC shall notify the Native American Heritage Commission (NAHC) within 24 hours that remains have been discovered. The NAHC shall determine the identity of the most likely descendant. The most likely descendant shall complete the inspection of the remains within 48 hours of notification by the NAHC.

3.19 Utilities and Service Systems

Would the project:	Potentially Significant 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) 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) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☒	☐	☐

Introduction

This section evaluates potential impacts to utilities and service systems that could result from project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Water Facilities

Less-than-Significant Impact. The project site is within the region of the former Santiago County Water District service area. Santiago County Water District served geographically remote development in northeast Orange County, including the community of Silverado. In 2006, Santiago County Water District consolidated with the IRWD. IRWD is a multiservice agency that provides potable and non-potable water supply and wastewater collection, treatment, and disposal services to a population of approximately 330,000 (IRWD 2017). The sources of water supplies include groundwater, imported water from the State Water Project and Colorado River Project, recycled water, and water banking in Kern County. Most of the water comes from groundwater and imported water, approximately 48% and 27% respectively.

The proposed project would not induce population growth such that there would be an adverse impact to IRWD's ability to provide water without construction or expansion of water facilities. The proposed project involves removal of the existing bridge over Ladd Creek and replacement with a new precast concrete bridge. A water line exists along the side of the existing bridge; therefore, the proposed project could necessitate permanent relocation of utility connections. However, if required, relocation of utility connections would be minimal and would not cause significant environmental effects. Additionally, the project would not generate water use that exceeds current water supply requiring new or expanded facilities. Therefore, impacts to water facilities and supplies would be less than significant.

Wastewater Treatment Facilities

Less-than-Significant Impact. The Orange County Sanitation District (OCSD) is responsible for collecting, treating, and disposing of wastewater generated in the project area. OCSD has two operating facilities that treat wastewater from residential, commercial, and residential uses. The OCSD supplies more than 130 million gallons a day of treated water, which comes from the two wastewater treatment facilities. For the 2015–2016 fiscal year, average wastewater flows at Reclamation Plant No. 1 were 117 million gallons per day, while flows at Reclamation Plant No. 2 were 67 million gallons per day, totaling 184 million gallons per day (OCSD 2017). The project does not include generation of wastewater such that wastewater treatment facilities would need to be constructed or expanded. A water line exists along the side of the existing bridge; therefore, the proposed project could necessitate permanent relocation of utility connections. However, implementation of the proposed project would not generate new sources of wastewater. Therefore, impacts would be less than significant.

Stormwater Drainage Facilities

Less-than-Significant Impact. The project involves construction of a precast concrete bridge and the removal of the existing bridge. The proposed project would not significantly increase the amount of impervious surfaces from the existing condition, such that construction or expansion of a stormwater drainage facility would be required. Therefore, impacts involving the construction or expansion of a storm drain facility would be less than significant.

Electric Power, Natural Gas, and Telecommunications Facilities

Less-than-Significant Impact. The proposed project involves removal of the existing bridge over Ladd Creek and replacement with a new precast concrete bridge. Currently, there are existing electric power lines that run along Silverado Canyon road. However, the project would not result in the removal of these power lines.

Response to Impact Question b):

Less-than-Significant Impact. The proposed project would not induce population growth such that there would be an adverse impact to IRWD'S water supply. The proposed project involves removal of the existing bridge over Ladd Creek and replacement with a new precast concrete bridge. The project would not generate water use that exceeds current water supplies or result in the IRWD's inability to serve reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts associated with water supplies would be less than significant.

Response to Impact Question c):

No Impact. As addressed in Response to Impact Question a), the OCSD is responsible for collecting, treating, and disposing of wastewater generated in the project area. OCSD has two operating facilities that treat wastewater from residential, commercial, and residential uses. Both of these wastewater treatment plants are required to comply with the treatment requirements specified in the National Pollutant Discharge Elimination System permits issued by RWQCB. The proposed project would not have an adverse impact on RWQCB wastewater treatment requirements. Implementation of the proposed project involves the reconstruction and expansion of an existing bridge. As such, the project would not generate wastewater that would exceed OCSD's ability to meet RWQCB's requirements. Therefore, the project would have no impact regarding exceeding the wastewater treatment provider's ability to serve the project.

Response to Impact Question d):

Less than Significant with Mitigation Incorporated. The Orange County Solid Waste Management System comprises three landfills: Olinda Alpha Landfill, Frank R. Bowerman Landfill, and Prima Deshecha Landfill. Olinda Alpha Landfill has a permitted maximum daily throughput of 8,000 tons, the Frank R. Bowerman Landfill has a permitted maximum daily throughput of 11,500 tons, and the Prima Deshecha Landfill has a permitted maximum daily throughput of 4,000 tons (CalRecycle 2017a, 2017b, 2017c).

The existing Ladd Canyon Bridge would be demolished as part of the bridge replacement. The demolished bridge would contribute a portion of solid waste to one of the County landfills. County of Orange Waste & Recycling will require the completion and submittal of a construction and demolition waste reduction and recycling application to the County for approval, which is therefore included as **MM-UTL-1**. The construction and demolition waste reduction and recycling application will identify and estimate the materials to be recycled during construction and demolition activities and will name the County-approved facility used to recycle the waste. A construction and demolition waste reduction and recycling application that demonstrates that the project recycled a minimum of 75% of its construction and demolition waste will then be approved by the County Waste & Recycling prior to operation of the proposed Ladd Canyon Bridge (County of Orange 2017c). Given these considerations, and with recycling required by the County implemented during all construction phases of the project with the incorporation of **MM-UTL-1**, the project would not impair the attainment of solid waste reduction goals and potential impacts associated with solid waste capacity would be considered less than significant with mitigation incorporated.

MM-UTL-1 Prior to operation of the proposed Ladd Canyon Bridge, OC Public Works (OCPW) shall complete a construction and demolition waste reduction and recycling application and submit the application to County of Orange (County) Waste & Recycling for approval. The construction and demolition waste reduction and recycling application will identify and estimate the materials to be recycled during construction and demolition activities and will name the County-approved facility used to recycle the waste. Compliance with the plan will be a requirement in all construction contracts. The County-approved application will be attached to all construction plans and distributed to all construction contractors. Once construction is complete, OCPW will be responsible for preparing a tonnage report that demonstrates that the project recycled a minimum of 75% of its construction and demolition waste. The tonnage report must be submitted to and approved by County Waste & Recycling prior to operation of the proposed Ladd Canyon Bridge.

Response to Impact Question e):

Less than Significant with Mitigation Incorporated. All collection, transportation, and disposal of solid waste generated by the proposed project would comply with all applicable federal, state, and local statutes and regulations. In particular, Assembly Bill 341 requires that at least 75% of solid waste generated by a jurisdiction be diverted from landfill disposal through source reduction, recycling, or composting by 2020. As previously addressed, the project would be required to submit to County of Orange Waste & Recycling a construction and demolition waste reduction and recycling application. Compliance with **MM-UTL-1** would ensure that the project meets all applicable federal, state, and local statutes and regulations related to solid waste. Therefore, impacts to solid waste management and reduction statutes and regulations would be less than significant with mitigation incorporated.

3.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant 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 post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Introduction

This section evaluates potential wildfire impacts that could result from project construction and implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less than Significant with Mitigation Incorporated. As discussed in Response to Impact Question f) in Section 3.9, Hazards and Hazardous Materials, the project site is an existing bridge at Ladd Canyon Road and Silverado Canyon Road. Silverado Canyon Road runs west–east starting at the intersection with East Santiago Canyon Road. Silverado Canyon Road connects rural residential and commercial land uses to more urbanized parts of the County. Due to the local and regional connectivity of this road, the project will only close one lane at a time during construction. The planned reconstruction of the bridge will continue to provide vehicular access in the case of an emergency. The project would not adversely affect operations on the local and regional circulation system, and as such, would not impact the use of these

facilities as emergency response routes. However, should a wildland fire occur in the vicinity of the project site, the efficient and orderly evacuation across the bridge could be affected during the construction phase due to the bridge being restricted to a single travel lane**.** Therefore, with the implementation of **MM-HAZ-4** through **MM-HAZ-12,** impacts associated with an emergency response plan or emergency evacuation plan would be less than significant with mitigation incorporated.

Response to Impact Question b):

Less than Significant with Mitigation Incorporated. The proposed project involves removal of the existing bridge over Ladd Creek and replacement with a new precast concrete bridge. Implementation of the proposed project would not result in employees or residents at the project site. However, as discussed in Response to Impact Question g) in Section 3.9, the project site is located in a Very High Fire Hazard Severity Zone (CAL FIRE 2011). Use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. Hot work, including welding, soldering, cutting, and brazing, could occur during construction, which would present the most fire risk. In addition, incidental sparks from the use of construction equipment or from the refueling of equipment could occur. As such, **MM-HAZ-4** through **MM-HAZ-12** would require that construction crews be trained in fire protection procedures and be prepared to extinguish small fires, if necessary, during construction activities. With the implementation of **MM-HAZ-4** through **MM-HAZ-12**, the proposed project would not exacerbate wildfire risks due to slope, prevailing winds, and other factors and thereby expose project occupants, including construction crews, to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant with mitigation incorporated.

Response to Impact Question c):

Less than Significant with Mitigation Incorporated. As discussed in Response to Impact Question g) in Section 3.9, it is the responsibility of OCFA to ensure compliance with codes and recommended BMPs. The project does not propose or require permanent new roads, fuel breaks, emergency water sources, power lines, or other utilities. During the construction phase, the existing fire hydrant and power lines near the bridge will require temporary relocation. A temporary staging area near the bridge will be used for equipment storage and vehicle parking. The construction phase has the potential to exacerbate fire risk. With the implementation of **MM-HAZ-4** through **MM-HAZ-12**, temporary impacts to the environment would be less than significant.

Response to Impact Question d):

Less-than-Significant Impact. The proposed project involves removal of the existing bridge over Ladd Creek and replacement with a new precast concrete bridge. Implementation of the proposed project would not result in employees or residents at the project site. As discussed in Response to Impact Question c-i) in Section 3.10, Hydrology and Water Quality, the proposed project would result in a change in the abutment footprint within the Ladd Canyon Creek. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. However, according to the LHS, the increase in flow velocity would be minor and would not impact residences, buildings, crops, or traffic. Therefore, implementation of the proposed project would not expose people or structures to significant risks, including downslope or downstream post-fire slope instability or drainage changes. Impacts would be less than significant.

3.21 Mandatory Findings of Significance

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Does the project have the potential to substantially 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?	☐	☒	☐	☐

Introduction

This section evaluates the mandatory findings of significance associated with project implementation. Analysis in this section is based on the existing environmental setting conditions, information provided by the County, and information sources identified in this section. Responses to the impact questions listed above are provided below.

Response to Impact Question a):

Less than Significant with Mitigation Incorporated. As discussed in Section 3.4, with the incorporation of mitigation, the proposed project would not result in impacts to biological resources. Therefore, the project would not substantially 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, 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.

Response to Impact Question b):

***Less than Significant with Mitigation Incorporated*.** The analysis below discusses the project's potential to make a cumulatively considerable contribution to an environmental impact, by resource. Where it has been determined based on the analysis in this MND that no impact would occur or a less-than-significant impact would occur in relation to specific resources (i.e., aesthetics, agriculture and forestry resources, air quality, energy, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, and transportation), the project would inherently not result in a cumulatively considerable impact relative to those resources and no further discussion is provided below. Table 15 includes the list of cumulative projects in the area.

Table 15: Cumulative Projects

No.	Cumulative Project	Location	Description
1.	Modjeska Canyon Road/Santiago Creek (55C0172) Bridge Replacement	Modjeska Canyon Road	Replacement of existing bridge
2.	Silverado Canyon Creek Bridges (55C0174)	Silverado Canyon Road	Replacement of existing bridge
3.	Silverado Canyon Creek Bridges (55C0177)	Silverado Canyon Road	Replacement of existing bridge

Biological Resources

Candidate, Sensitive, or Special Status Species

Only one species, Cooper's hawk, a CDFW Watch List species, has a moderate potential to nest and forage in the BSA based on suitable habitat present. The project involves the removal of small trees and shrubs within the impact footprint and could involve the trimming of vegetation to facilitate the proposed bridge improvements. Potential impacts from construction-related noise could occur to nesting birds and raptors protected under the Migratory Bird Treaty Act if work is to occur during the breeding season (i.e., February 15 through September 1). With incorporation of **MM-BIO-1**, impacts associated with wildlife nesting sites would be less than significant.

The replacement of the existing bridge and the staging of heavy equipment will cause temporary ground disturbance within the County right-of-way and within designated critical habitat for arroyo toad. Although the arroyo toad is not known to occupy the BSA, **MM-BIO-2** and **MM-BIO-3** will be implemented during construction to protect this species, given past observations of this species within Silverado Creek and given the critical habitat designation in the BSA in Ladd Canyon Creek.

Upon implementation of **MM-BIO-1** through **MM-BIO-3,** impacts to species identified as a candidate, sensitive, or special-status species would be less than significant. By ensuring that the project results in a less-than-significant impact to candidate, sensitive, or special-status species through implementation of **MM-BIO-1** through **MM-BIO-3**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts to candidate, sensitive, or special status species are identified.

Riparian Habitat or Other Sensitive Natural Community

Vegetation communities and land cover identified in the BSA include California sagebrush scrub, coast live oak woodland, annual brome grassland, eucalyptus groves, and developed land (Table 8). Based on the project design, there will be limited permanent impacts to natural vegetation communities. Replacement of the existing bridge and associated infrastructure would result in direct, permanent impacts to 0.019 acres of coast live oak woodland, 0.197 acres of developed land, 0.004 acres of annual brome grasslands, and 0.047 acres of eucalyptus groves. Direct, temporary impacts resulting from construction of the bridge and use of temporary work staging will occur to 3.473 acres of developed land, 0.170 acres of eucalyptus groves, 0.100 acres of annual brome grassland, 0.040 California sagebrush scrub, and 0.092 acres of coast live oak woodland. Implementation of project minimization features will minimize any potential impacts.

Due to the extent of existing development and minimal impact to native habitats resulting from the proposed project, implementation of **MM-BIO-4** will result in less-than-significant impacts to vegetation communities and land covers. By ensuring that the project results in a less-than-significant impact to native habitats through implementation of **MM-BIO-4**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts to native habitats are identified.

Federally Protected Wetlands

Ladd Canyon Creek is considered a jurisdictional non-wetland waterway subject to regulation by USACE pursuant to Section 404 of the federal CWA, RWQCB in accordance with Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and CDFW pursuant to Section 1600 (et seq.) of the California Fish and Game Code. The proposed project will result in impacts to Ladd Canyon Creek, a jurisdictional non-wetland waterway. Construction access will result in temporary impacts to 0.0371 acres of ephemeral stream channel. The widened bridge abutments and footings will result in a minor impact to jurisdictional waters. **MM-BIO-5** and **PDF-BIO-1** would reduce identified and potential significant impacts associated with jurisdictional waters to less than significant. By ensuring that the project results in a less-than-significant impact to federal protected wetlands through implementation of **MM-BIO-5** and **PDF-BIO-1**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts to federal protected wetlands are identified.

Local Policies or Ordinances Protecting Biological Resources

The proposed project may result in direct impacts to mature live oak and eucalyptus trees. The Silverado-Modjeska Specific Plan identifies a tree preservation section. This section requires trees exceeding 5 inches in diameter to be preserved or replaced in conjunction with any grading or construction activity (County of Orange 1977). The proposed bridge replacement work will result in direct, permanent impacts to 0.019 acres of coast live oak woodland and 0.047 acres of eucalyptus groves. Direct, temporary impacts from construction of the bridge will occur to 0.170 acres of eucalyptus groves and 0.09 acres of coast live oak woodland. It is not anticipated that any mature live oak will need to be removed as a result of the project. However, all permanent impacts to mature live oak and eucalyptus trees will be replaced at a ratio of 2:1 (**MM-BIO-4**), primarily due to the extent of existing development and minimal impact to native habitats resulting from the proposed project.

Therefore, impacts associated with tree preservation policies will be less than significant with mitigation incorporated. By ensuring that the project results in a less-than-significant impact to mature live oak and eucalyptus trees through implementation of **MM-BIO-4**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts to mature live oak and eucalyptus trees are identified.

Habitat Conservation Plan and Natural Community Conservation Plan

The entire BSA, including Silverado Canyon Road, Ladd Canyon Road, and developed/disturbed road shoulders and vehicle pullovers, is located within designated critical habitat for the arroyo toad, an NCCP/HCP listed species. The replacement of the existing bridge and the staging of heavy equipment will cause temporary ground disturbance within the County right-of-way and within designated critical habitat for arroyo toad. Although the arroyo toad is not known to occupy the BSA, **MM-BIO-2** and **MM-BIO-3** will be implemented during construction to protect this species given past observations of this species within Silverado Creek and given the critical habitat designation in the BSA in Ladd Canyon Creek.

Upon implementation of **MM-BIO-2** and **MM-BIO-3,** impacts associated with a conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan would be less than significant. By ensuring that the project results in a less-than-significant impact to NCCP/HCP listed species through implementation of **MM-BIO-2** and **MM-BIO-3**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts to NCCP/HCP listed species are identified.

Cultural Resources and Tribal Cultural Resources

The majority of earth-moving work would occur within the areas occupied by the existing bridge, existing roads, and adjacent areas that have been disturbed through the development of the turnouts. While the records of the exact depth and character of past disturbance are limited due to the age of much of this past construction, it is possible that limited intact native soils are present within the first few feet of the surface. Project excavation will produce a maximum depth ranging by activity of 20 feet below the surface at the location of the new bridge footings. If previously unidentified cultural materials are unearthed, **MM-CUL-1** would require a qualified archaeologist assess the significance of the find. In addition, **MM-CUL-1** has been updated to require that an archaeologist with tribal cultural monitoring experience should be present during earth moving activities that

would occur in previously undisturbed areas. Based on the background research and survey results, there is a low potential to encounter buried cultural deposits within the APE. As such, with incorporation of **MM-CUL-1**, impacts associated with archaeological and tribal cultural resources would be less than significant.

Because there is a low potential to encounter cultural deposits and mitigation is proposed to minimize impacts, the proposed project would not combine with other projects described in Table 15 to result in a cumulatively considerable impact.

Geology and Soils

The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. According to the LHS prepared for the project (Appendix F), the widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. The increase in flow would increase the potential for erosion and scour in the vicinity of the bridge. The increase in potential erosion or stream scour requires mitigation to protect the proposed bridge and abutments from scour-related damage. Scour mitigation measures will require armoring of the creek invert and or installation of grade control measures. Armoring of the creek invert in the vicinity of the bridge with rock riprap is consistent with the existing creek invert. **MM-HYD-1** is proposed to minimize impacts associated with erosion or stream scour.

Additionally, because the project proposes direct permanent and temporary impacts to Ladd Canyon Creek, OCPW will be required to obtain a Section 404 Nationwide Permit from USACE, Section 401 Water Quality Certification from RWQCB, and a Section 1602 Lake and Streambed Alteration Agreement from CDFW prior to construction.

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

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

The proposed project would be subject to requirements associated with erosion and water quality established as part of the Section 401 and 404 permit process. Therefore, impacts would be less than significant with the incorporation of the **MM-HYD-1**.

According to the County General Plan Resources Element, significant paleontological sites in the County are based on known outcrops or sites and the underlying geological information. Sub-surface paleontological sites are abundant in south County, along the coast and creek areas (OCPW 2012). The General Plan identifies the area surrounding the project site as the Northern Santa Ana Mountains Paleontology General Area of Sensitivity (OCPW 2012). For paleontology, registered sites often are simply small outcroppings visible on the surface or sites encountered during grazing.

It is possible that intact fossil deposits are present at subsurface levels and could be uncovered during ground-disturbing activities. As such, **MM-GEO-1** is required, which would ensure that if paleontological resources (sites, features, or fossils) are exposed during construction activities, all construction work occurring within the vicinity of the find would stop until a qualified paleontologist can evaluate the significance of the find and determine whether or not additional study is warranted. Therefore, compliance with **MM-GEO-1** would reduce impacts to paleontological resources to less than significant.

Because there is a low potential to encounter paleontological resources and mitigation is proposed to minimize impacts, the proposed project would not combine with other projects described in Table 15 to result in a cumulatively considerable impact to paleontological resources. Additionally, the project would not combine with projects listed in Table 15 to result in any other geology and soils–related cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts associated with erosion are identified.

Hazards

Cumulative impacts related to hazards and hazardous materials could result from projects that combine to increase exposure to hazards and hazardous materials. The proposed project would have less-than-significant impacts related to hazardous materials with mitigation measures incorporated (**MM-HAZ-1** through **MM-HAZ-3**). The proposed project would comply with all federal, state, and local regulations pertaining to the use, transport, and release of hazardous materials. The potential release of hazardous materials during demolition and ground-disturbing activities would be reduced in compliance with the mitigation measures outlined in Section 3.9. Although cumulative projects have the potential to result in potentially significant impacts to hazards and hazardous materials, these projects would also be subject to federal, state, and local regulations that would reduce potential impacts to less than significant, including the application of mitigation measures, as necessary. Therefore, the proposed project, combined with the cumulative projects provided in Table 15, would not result in a cumulatively considerable impact related to hazardous materials.

Hydrology and Water Quality

The proposed project would result in a slight increase in impervious area associated with the addition of transitions to and from the proposed replacement bridge, as well as the addition of shoulders on both sides of the bridge. This minor increase in impervious area would result in a slight increase in stormwater runoff.

Additionally, as discussed in the LHS (Appendix F), the proposed project would result in a change in the abutment footprint within the Ladd Canyon Creek. The proposed project would have a localized impact on the flow characteristics in Ladd Canyon Creek extending from the upstream face of the bridge to 200 feet upstream of the bridge in a 100-year storm event. The widening of the bridge abutments would result in an increase in flow conveyance area, which would relieve the flow restriction caused by the existing bridge and result in an increase in flow velocity through the bridge. The increase in flow velocity would increase the potential for erosion and scour in the vicinity of the bridge. The increase in potential erosion or stream scour requires mitigation to protect the proposed bridge and abutments from scour-related damage. Scour mitigation measures will require armoring of the creek invert and or installation of grade control measures. Armoring of the creek invert in the vicinity of the bridge with rock riprap is consistent with the existing creek invert. Upon implementation of **MM-HYD-1**, the proposed project would have a less-than-significant impact on the alteration of the existing drainage pattern and associated erosion or siltation.

By ensuring that the project results in a less-than-significant impact associated with erosion through implementation of **MM-HYD-1**, the project would not combine with other projects to result in a cumulatively considerable impact. In addition, the cumulative projects listed in Table 15 would also be required to implement mitigation measures if potential impacts associated with erosion are identified.

Noise

Noise associated with construction would primarily affect the residential land uses adjacent to the bridge and the community center located adjacent to the construction staging areas. Construction schedules and activities for these cumulative projects are currently unknown; therefore, potential construction noise impacts associated with simultaneous projects are speculative. However, although multiple construction activities may occur simultaneously at the project site and at the aforementioned cumulative project sites, given the distance between the cumulative project sites and the affected residences, as well as the noise attenuation created by intervening structures and other variables such as atmospheric absorption, the additional contribution to the ambient noise level would not be significant. Therefore, the proposed project's impacts related to noise would not be cumulatively considerable.

Utilities and Service Systems

Construction and demolition associated with the bridge replacement would generate various types of waste. No long-term operational generation of solid waste would be associated with the proposed project. The demolished bridge would contribute a portion of solid waste to one of the County landfills. County of Orange Waste & Recycling will require the completion and submittal of a construction and demolition waste reduction and recycling application to the County for approval, which is therefore included as **MM-UTL-1**. The construction and demolition waste reduction and recycling application will identify and estimate the materials to be recycled during construction and demolition activities and will name the County-approved facility used to recycle the waste. A construction and demolition waste reduction and recycling application that demonstrates that the project recycled a minimum of 75% of its construction and demolition waste will then be approved by County Waste & Recycling prior to operation of the proposed Ladd Canyon Bridge (County of Orange 2017c). Cumulative projects described in Table 15 would be subject to the same requirements as the project. Additionally, because the cumulative projects would be of a similar nature as the project, and would not generate solid waste as part of the operation of the proposed replacement bridges, impacts are not considered cumulatively considerable.

Wildfire

The proposed project is located in a Very High Fire Hazard Severity Zone (CAL FIRE 2011). Use of construction equipment around flammable vegetation presents an increased fire risk that could result in the need for fire suppression services. Hot work, including welding, soldering, cutting, and brazing, could occur during construction, which would present the most fire risk. In addition, incidental sparks from the use of construction equipment or from the refueling of equipment could occur. Also, should a wildland fire occur in the vicinity of the project site, the efficient and orderly evacuation across the bridge could be affected during the construction phase. **MM-HAZ-4** through **MM-HAZ-12** would require that construction crews be trained in fire protection procedures and be prepared to extinguish small fires if necessary during construction activities. With the implementation of **MM-HAZ-4** through **MM-HAZ-12**, less-than-significant impacts would occur with regard to wildfire hazards. It is the responsibility of OCFA to ensure compliance with codes and recommended BMPs in accordance with OCFA. Cumulative projects in Table 15 would also be required to comply with codes and recommendations of OCFA, similar to the proposed project. Further, upon completion of construction

activities, the project site would be similar to existing conditions (a bridge) and would not result in any long-term wildfire hazards. Cumulative projects described in Table 15 are bridge replacement projects as well and would not result in long-term wildfire hazards upon the completion of construction activities. Therefore, impacts would not be cumulatively considerable.

Response to Impact Question c):

Less than Significant with Mitigation Incorporated. As evaluated throughout this document, with the incorporation of mitigation, environmental impacts associated with proposed project would be reduced to less-than-significant levels. Thus, the project would not directly or indirectly cause substantial adverse effects on human beings.

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SECTION 4: REFERENCES AND PREPARERS

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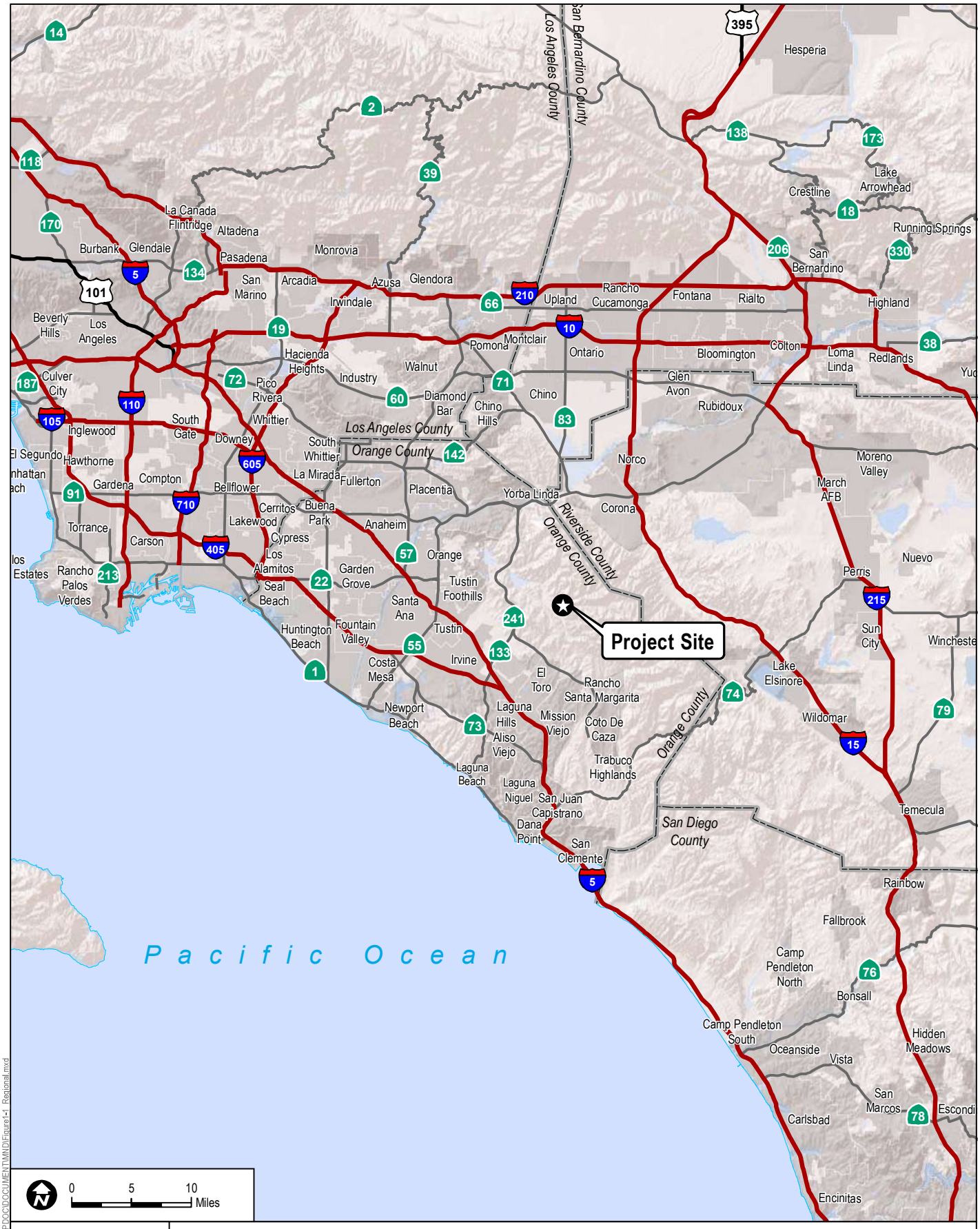

SOURCE: ESRI Streetmap

FIGURE 1-1

Regional Map

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

Path: Z:\Projects\825401\MAPDOC\DOCUMENTMND\Figure1-1 Regional.mxd

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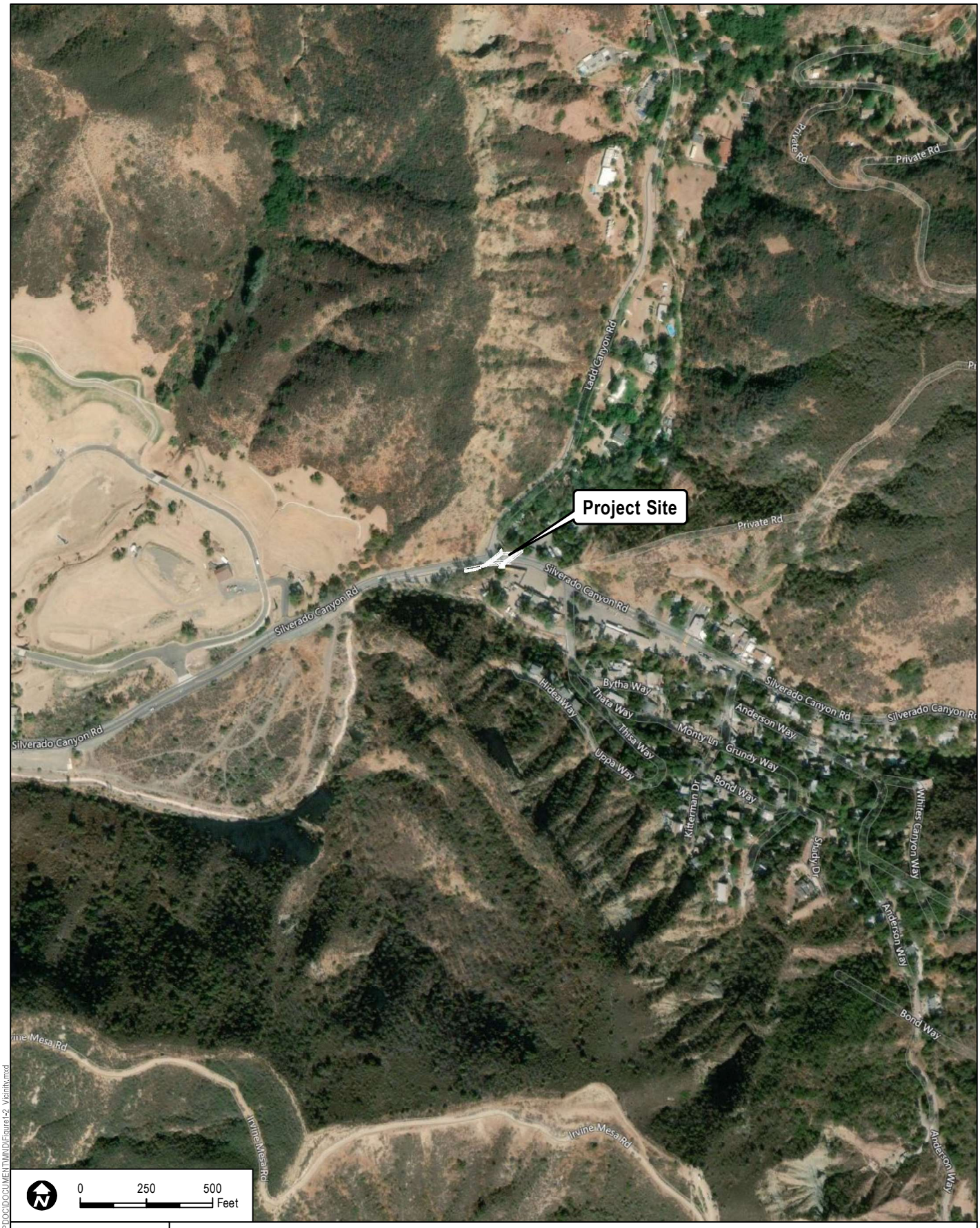

SOURCE: Bing Maps 2020

FIGURE 1-2

Vicinity Map

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

Path: Z:\Projects\825401\MAPDOC\DOCUMENTMND\Figure1-2_Vicinity.mxd

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SOURCE: OCPW 2020

FIGURE 1-3

Project Footprint Map

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

Z:\Projects\825401\MAP\DOC\DOCUMENT\Fig3_Project_Footprint.mxd

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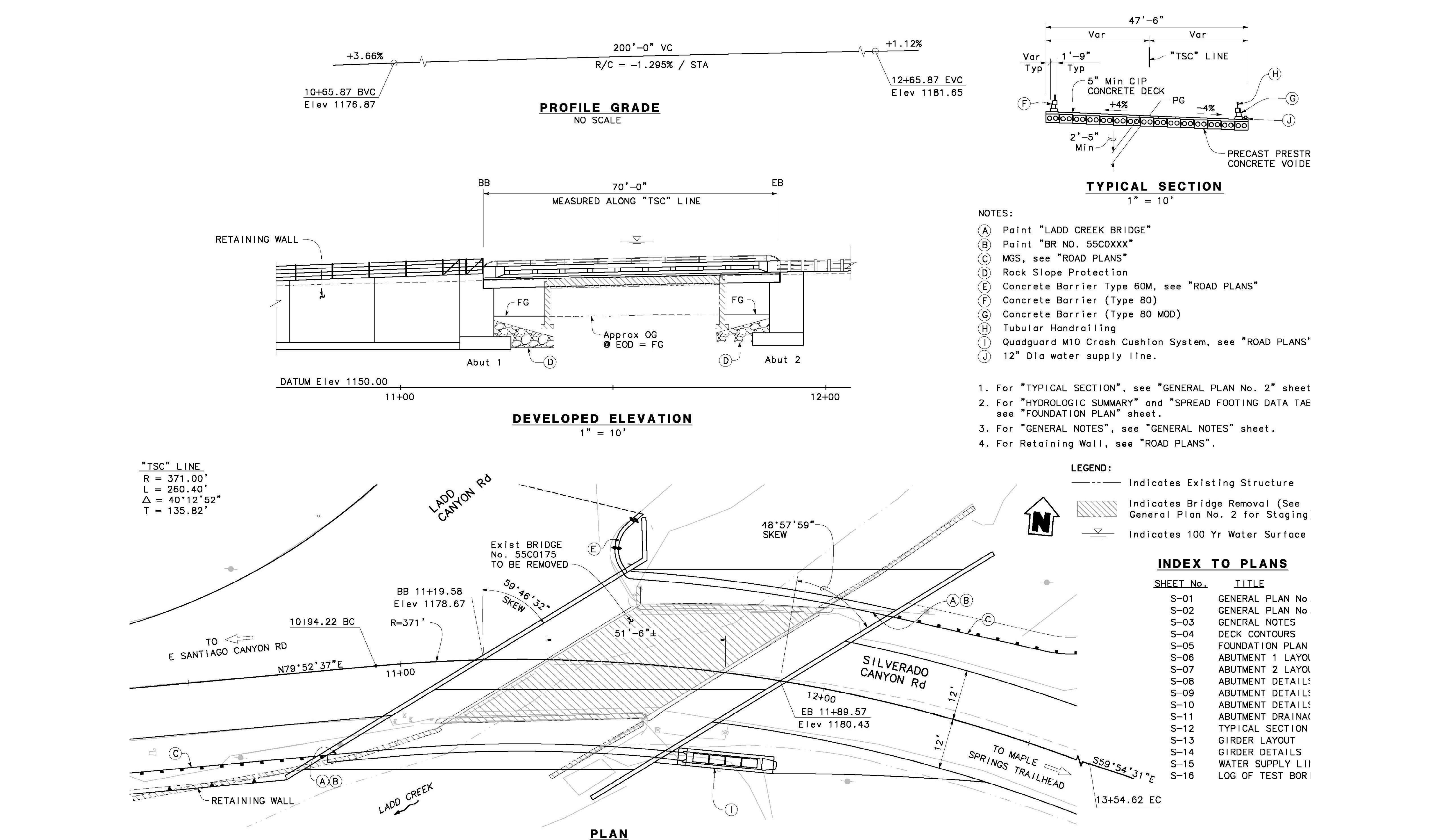
+3.66%
200'-0" VC
R/C = -1.295% / STA
+1.12%
10+65.87 BVC
Elev 1176.87
12+65.87 EVC
Elev 1181.65
PROFILE GRADE
NO SCALE
47'-6"
Var
Var
Var Typ
1'-9" Typ
"TSC" LINE
5" Min CIP CONCRETE DECK
PG
+4%
-4%
2'-5" Min
PRECAST PRESTR CONCRETE VOIDE
TYPICAL SECTION
1" = 10'
BB
70'-0"
MEASURED ALONG "TSC" LINE
EB
RETAINING WALL
FG
FG
Approx OG @ EOD = FG
Abut 1
Abut 2
DATUM Elev 1150.00
11+00
12+00
DEVELOPED ELEVATION
1" = 10'
NOTES:
(A) Paint "LADD CREEK BRIDGE"
(B) Paint "BR NO. 55C0XXX"
(C) MGS, see "ROAD PLANS"
(D) Rock Slope Protection
(E) Concrete Barrier Type 60M, see "ROAD PLANS"
(F) Concrete Barrier (Type 80)
(G) Concrete Barrier (Type 80 MOD)
(H) Tubular Handrailing
(I) Quadguard M10 Crash Cushion System, see "ROAD PLANS"
(J) 12" Dia water supply line.
1. For "TYPICAL SECTION", see "GENERAL PLAN No. 2" sheet
2. For "HYDROLOGIC SUMMARY" and "SPREAD FOOTING DATA TAE see "FOUNDATION PLAN" sheet.
3. For "GENERAL NOTES", see "GENERAL NOTES" sheet.
4. For Retaining Wall, see "ROAD PLANS".
LEGEND:
Indicates Existing Structure
Indicates Bridge Removal (See General Plan No. 2 for Staging
Indicates 100 Yr Water Surface
INDEX TO PLANS
SHEET No. TITLE
S-01 GENERAL PLAN No.
S-02 GENERAL PLAN No.
S-03 GENERAL NOTES
S-04 DECK CONTOURS
S-05 FOUNDATION PLAN
S-06 ABUTMENT 1 LAYOU
S-07 ABUTMENT 2 LAYOU
S-08 ABUTMENT DETAILS
S-09 ABUTMENT DETAILS
S-10 ABUTMENT DETAILS
S-11 ABUTMENT DRAINAC
S-12 TYPICAL SECTION
S-13 GIRDER LAYOUT
S-14 GIRDER DETAILS
S-15 WATER SUPPLY LI
S-16 LOG OF TEST BORI
"TSC" LINE
R = 371.00'
L = 260.40'
Δ = 40°12'52"
T = 135.82'
LADD CANYON Rd
Exist BRIDGE No. 55C0175 TO BE REMOVED
48°57'59" SKEW
59°46'32" SKEW
BB 11+19.58
Elev 1178.67
10+94.22 BC
R=371'
51'-6"±
TO E SANTIAGO CANYON RD
N79°52'37"E
11+00
SILVERADO CANYON Rd
12'
12'
12+00
EB 11+89.57
Elev 1180.43
TO MAPLE SPRINGS TRAILHEAD
S59°54'31"E
13+54.62 EC
RETAINING WALL
LADD CREEK
PLAN

SOURCE: OCPW 2021

FIGURE 1-4

Engineering Plan

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

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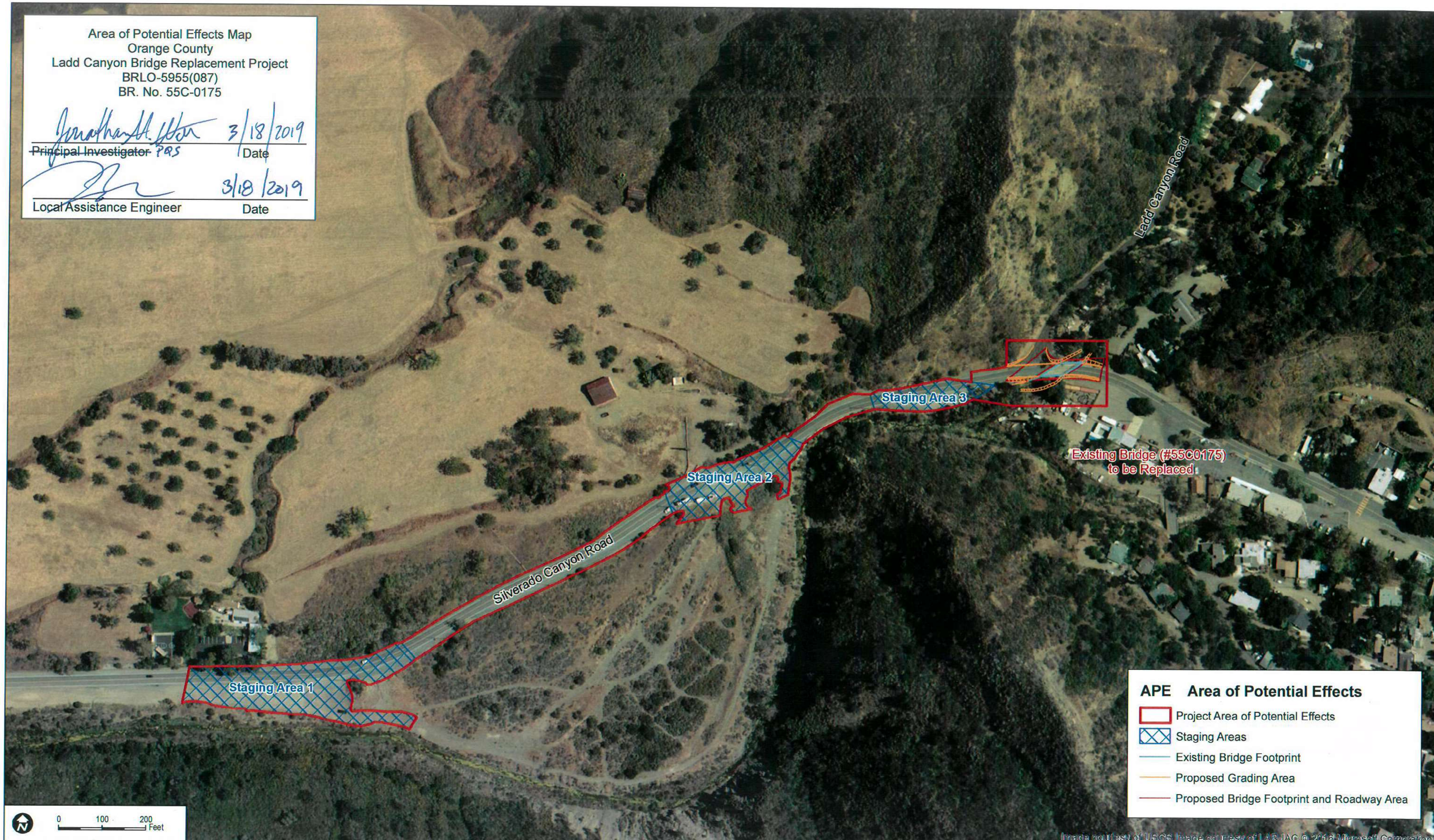
Area of Potential Effects Map
Orange County
Ladd Canyon Bridge Replacement Project
BRLO-5955(087)
BR. No. 55C-0175
3/18/2019
Principal Investigator PQS
Date
3/18/2019
Local Assistance Engineer
Date
Ladd Canyon Road
Staging Area 3
Existing Bridge (#55C0175) to be Replaced
Staging Area 2
Silverado Canyon Road
Staging Area 1
APE Area of Potential Effects
Project Area of Potential Effects
Staging Areas
Existing Bridge Footprint
Proposed Grading Area
Proposed Bridge Footprint and Roadway Area
0 100 200 Feet
Image courtesy of USGS Image courtesy of LAR-IAC © 2016 Microsoft Corporation

OC Public Works

8254

FIGURE 1-5

Area of Potential Effects

Silverado Canyon Road Over Ladd Creek Bridge Replacement Project

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